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**THE**

**AMERICAN**

**MEDICAL AND PHILOSOPHICAL**

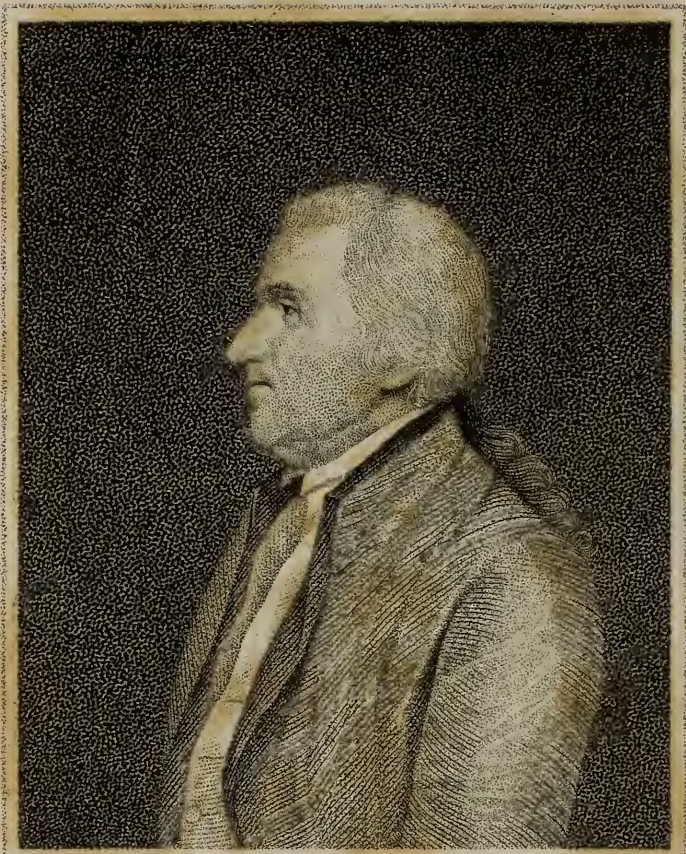
**REGISTER.**

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*Sharpless del.*

*Levy sc.*

D<sup>r</sup>. JOHN BARD.

*For Mr Isaac Briggs  
with sentiments of  
respect from  
D Hosack*

THE

AMERICAN

*June 24. 1817*

MEDICAL AND PHILOSOPHICAL

REGISTER;

OR,

ANNALS

OF

MEDICINE, NATURAL HISTORY, AGRICULTURE,  
AND THE ARTS.

CONDUCTED BY

DAVID HOSACK, M. D. F. L. S.

Professor of the Theory and Practice of Physic and Clinical Medicine in the University  
of the State of New-York, &c.

AND

JOHN W. FRANCIS, M. D.

Professor of the Materia Medica in the University of the State of  
New-York, &c.

SECOND EDITION.

VOLUME I.

NEW-YORK:

PUBLISHED FOR THE PROPRIETORS,  
BY C. S. VAN WINKLE.

.....  
1814.

James M. 1871  
The undersigned  
with the view  
of the  
of the



## ADVERTISEMENT.

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THE AMERICAN MEDICAL AND PHILOSOPHICAL REGISTER has hitherto appeared as an anonymous publication. A new edition of the earlier part of the work having been called for, the Editors have embraced this opportunity of assuming the responsibility of the undertaking, and of appearing before the public in their proper persons. They have adopted this measure, because they consider that a periodical journal, of the nature of the Register, derives its principal importance and value from the authenticity of its materials; and they thus manifest, that they are not unwilling to pledge themselves for the verity of the facts which, in their editorial capacity, they have recorded.

*New-York, July, 1814.*



TO THE HONOURABLE

**DE WITT CLINTON, ESQ.**

*Member of the Senate of the State, and Mayor of  
the City, of New-York, &c. &c.*

SIR,

The Editors of this Work, in dedicating to you the present Volume, are not influenced by considerations of a political nature—in that respect, they have no hesitation to avow their allegiance to other principles than those which you profess—but they offer it as a tribute due to the talents and liberality which you have manifested in promoting the interests of science, the liberal patronage you have always given to the useful arts, as well as your active zeal in the cause of humanity. Your exertions in advocating the rights of the orphan—in providing means of instruction for the children of the poor—in obtaining the release of the distressed debtor—in procuring permanent provision for one of our most important charities, the New-York Hospital—all merit our acknowledgments; and when the political dissensions which now distract our country may be calmed, will be remembered with gratitude by your fellow citizens in general.

**THE EDITORS.**





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Second Edition.

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**PROSPECTUS**

OF THE

AMERICAN

**MEDICAL AND PHILOSOPHICAL**

**REGISTER :**

OR,

ANNALS OF MEDICINE, NATURAL HISTORY, AGRICULTURE,  
AND THE ARTS.

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THE *Editors* of the *Register*, now announced, are fully sensible of the benefits which have resulted to this community from the various periodical publications which have already appeared in different parts of the United States. The respective journals of New-York, Philadelphia and Boston, have eminently contributed to the diffusion of medical science ; and the several works of a similar kind, recently established in other cities of the Union, promise to be no less productive of lasting advantage to our country.

But while they thus candidly acknowledge the claim which those several journals have to the re-

gard of the public, they indulge the belief that this addition to their number will not be without its usefulness. Though much has been done to promote the interests of science and the arts, on this side of the Atlantic, much yet remains to be done.

Under these impressions they propose to unite with their brother editors in their laudable attempts to extend the boundaries of useful knowledge. Lest, however, it should be concluded, that the editors of the *Register* intend, in every instance, to espouse the tenets propagated by any particular work, they are bold to pronounce, that upon some occasions they will be compelled to express sentiments totally different from those of many of their medical brethren of this country; and they have no hesitation further to declare, that upon the subject of the *pestilential* or *yellow fever*, which has lately made so great devastation in different parts of the United States, it will be one of the principal objects of their labours to combat the theories and opinions which many of those works have disseminated, to the discredit of our country, and perhaps to the loss of many valuable lives. To establish the line of distinction between those diseases which are of a foreign source, and such as are engendered at home, is an undertaking which must receive the countenance of every person actuated by love of coun-



try or humanity, and one in which the editors will embark with all the spirit of generous enterprise.

But though an examination into the character of our *fevers* will be an object of primary importance, it will not exclusively occupy our pages. The United States, from their vast extent of territory, and the variety of their productions, will always furnish abundant subjects for philosophical investigation ; while the numerous diseases of this continent open an extensive field of inquiry to the medical observer. Agriculture and the Arts will also find a place in this work. In a word, to advance the cause of Science in our country, the *Register* was projected.

The work will be divided into three parts :

1st. *Original Communications* ; embracing the various subjects of Medicine, Chemistry, Agriculture, Natural History, Botany, and the Useful Arts: Medical Topography, Antiquities of the American Continent, Articles of American Biography, &c.

2d. *Review of new Publications* in the several departments of medical science : Transactions of our learned societies, &c.

3d. *Philosophical and Literary Intelligence* ; under which head will be included, as far as practicable, whatever is interesting to the Physician, Naturalist, Agriculturalist, and Philosopher. Accounts of Literary and Humane Associations ; Proceedings of learned Societies ; Reports of Public Hospitals ; Notices of new Publications, &c. and by means of an extensive correspondence, the editors trust they will be able to present the earliest intelligence of the discoveries in science abroad.

*New-York, June 1, 1810.*



#### CONDITIONS OF PUBLICATION.

The work will appear regularly every *three months*. It will be printed on a good paper, with a new and beautiful type ; occasionally enriched with engravings.

Each number will contain about 100 pages octavo, forming an annual volume of 400 pages. The price to subscribers will be two dollars per annum.

The first number was published on the first day of July, 1810, by EZRA SARGEANT, corner of Wall-street and Broadway, New-York; by whom subscriptions are received.

Communications are respectfully solicited, addressed to the "Editors of the American Medical and Philosophical Register," and transmitted to the Publisher, New-York.

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THE  
A M E R I C A N  
MEDICAL AND PHILOSOPHICAL  
REGISTER.

JULY, 1810.

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ORIGINAL COMMUNICATIONS.

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I.

REMARKS *upon the incorrect manner in which* IRON RODS  
*are sometimes set up for defending houses from* LIGHT-  
NING. *Communicated to the Editors, by* HUGH WIL-  
LIAMSON, M. D. L. L. D. &c. &c.

As sundry buildings have lately been injured by lightning, though they were provided with conductors or iron rods, it has been questioned by some of our fellow-citizens whether such rods can be deemed a sure defence against the violent explosions of the electric fluid.

A house on this island, about seven miles from the City-Hall, was struck with lightning, and considerably injured, although it was armed with an iron rod.

Trinity Church in this city is armed with a large iron rod, but the lightning, some years ago, forsook the rod,

four or five feet above the ground, and shattered the top of a wooden fence that inclosed the church yard.

A house in Savannah, the property of Mr. B. Maurice, was struck with lightning, and some furniture in the parlour considerably injured, although that house was provided with a rod. Two or three other instances have occurred to the southward, not unlike the cases mentioned, of houses being affected by lightning that were provided with rods. It is not worth while to detail the particulars, for in each case the lightning rod was unjustly blamed. The injury arose from the inattention or mistake of those who erected the rods, or who should have kept them in order.

By showing the error in two or three cases, the reader will be enabled to account for every accident of the kind.

It is known that iron is an excellent conductor of the electric fluid. Water is also a very good conductor. There are other bodies through which it will pass, but with considerable difficulty, as dry clay, dry wood, and stone. But it will not, by any means, pass through glass, bees wax, &c. Hence it follows, that an iron rod will conduct a flash of lightning from a cloud to the moist earth, along a wall of wood, brick or stone, without affecting the wall. But if the lower extremity of the rod terminate in dry sand, the electric fluid will only be partially conducted by the rod. And if the lower extremity of the rod should chance to terminate upon a large cake of wax or plate of glass, the whole flash of lightning would forsake the rod and enter the house, through which it could pass, though with difficulty, shattering the wood, &c.

The electric fluid, in passing from a cloud to the ground, always avails itself of the best conductors. Iron is one of the best ; but if that conductor be imperfect in any part, the fluid will divide and pass to the ground by other conductors, or by means of other bodies. In each of the three cases mentioned, it has been admitted that there was an iron rod, of sufficient magnitude, and the rod extended to the ground, but notwithstanding that circumstance, part of the lightning forsook the rod and did some damage. We account for those accidents, by putting the reader in mind, that though water be an excellent conductor of the electric fluid, dry clay, stones, or sand, are bad conductors. Hence it follows, that the ground adjoining any house will receive the lightning, or conduct it from the iron rod, with more or less facility, according as it is more or less saturated with water. In other words, it is the moisture in the earth, and not the earth itself, that gives an easy and free passage to the electric fluid. Keeping this fact in view, let us try to account for the circumstance of some buildings being injured by lightning although they were armed with an iron rod.

The house referred to, near this city, is a frame building two stories high. It is built upon a large rock of granite. The rock is covered, near the house, with light soil five or six inches deep. There had been no rain for two or three weeks before the rain in question, and the soil that covered the rock was nearly dry. The electrical rod terminated on the rock at the bottom of the chimney. A flash of lightning struck the rod, a few seconds before it began to rain. In that case, the soil upon the rock was not sufficiently moist to convey the lightning freely from

the rod ; and the rock refused to convey it. The consequence was, that though the rod conveyed a considerable part of the electric fluid to the surface of the rock, a considerable part of the fluid forsook the rod before it reached the ground, in quest of other means of conveyance. Part of it left the rod, opposite the eaves of the house, and ripped off the cornice on both sides. A greater part of it left the rod about four feet above the ground. It passed through the chimney, a stone wall, breaking out part of the cement : it then descended to the kitchen cellar, breaking off the plaster from the inside of the wall, and shattered part of the kitchen floor. The remainder of the lightning continued to pass by the rod until it entered the ground. It then passed along the surface of the rock, in two or three directions, ripping the sod from the rock. Its course could be traced 30 or 40 feet ; for it made ridges, such as are usually made by moles. The ridge, as I suspect, was caused by the sudden expansion of the air which was heated by the motion of the electric fluid.

From this detail it is clear, that if there had been a previous wet season, or if that thunder shower had come on a few minutes before the rod was struck by the lightning ; or if the rod had been lead along the surface of the rock to its edge, and there sunk into the moist earth ; in either case the house would have escaped injury. But as the first and second cases were contingent, the third should have been attended to.

Trinity church, in this city, is guarded by a proper iron rod ; but the rod enters the ground, which is chiefly composed of coarse sand, by the side of a dry wall.



Hence it followed, that near the beginning of a storm, the ground not being saturated with moisture, part of a flash of lightning forsook the rod, and shattered part of the adjoining fence, being solicited by the iron spikes that were on the top of the fence. As the attraction of those spikes must have been inconsiderable, for they did not communicate with the earth, except by dry wood, it is clear that the lightning would not have forsaken the rod, if it had terminated in moist clay.

The house of Mr. Maurice, in Savannah, like most other houses in that city, is built upon a body of silicious earth, or white sand, which becomes dry in a few hours after a fall of rain. The iron rod, that was attached to his house, was inserted, as usual, a few inches into the sand. During a thunder gust, the sand being dry, the lightning forsook the rod, and injured part of the furniture in the parlour. If the rod had been made to penetrate six or eight feet into the earth, as it should do in all such dry sandy ground, the furniture would have been perfectly safe.

A gentleman some years ago, in a warm climate, complained to me that he had been considerably affected, in his parlour, by a flash of lightning, though his house was armed with an iron rod. Wishing if possible to discover the cause, I examined the rod, and observed that the cattle had been licking away the earth at the end of the house, so that the rod did not touch the ground by six inches. Such are the cases in which people complain that lightning rods do not discharge their duty.

It is conceived that the above observations may claim some attention in this city, because many houses, on this island, are built upon a rocky foundation, or upon coarse sand that retains little moisture. In all such cases, particular care should be taken to have the rod inserted so deep into the earth, that it may terminate with certainty in moist ground.

HUGH WILLIAMSON.

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## II.

OBSERVATIONS on the SPOTTED FEVER, as it appeared in ORANGE COUNTY, State of New-York, in 1808 and 1809. Communicated in a Letter from Doctor DAVID R. ARNELL, of Goshen, to Dr. DAVID HOSACK, Professor of Botany and Materia Medica, in Columbia College, New-York.

DEAR SIR,

In compliance with your request, I now give you a history of the fever which prevailed in the town of Minisink some time since, and which proved so mortal among those it attacked. In doing this, I shall take up the queries of your letter in the order which you have given them.

1st. What were the symptoms of the disease in its differerent stages ?

The patients affected were first taken with a cold chill or slight shivering, and almost at the same instant complained of pain in the limbs, back, and particularly in the

abdominal region ; head-ache, vertigo and coryza. This state lasted from ten to twenty minutes, when it was succeeded by a slight sensation of warmth on the surface of the body, sickness of stomach, vomiting, delirium, great anxiety and restlessness ; tossing in the bed, involuntary motions of the head, which appeared frequently to be drawn to one side ; mouth and tongue moist and clammy ; pulse a little sunk, sharp and quick. Blood drawn in this stage of the disease showed no buffy coat nor any other morbid appearance : the matter vomited was saffron-coloured bile in large quantities, but without any diseased appearance. This state continued from twelve to fifteen hours, when petechiæ, about the size of split peas, but of irregular shape, appeared all over the surface of the body ; they looked like what are usually termed blood blisters, only they were not raised from a level with the surface, but were of a dark, livid colour. Anxiety and restlessness increased ; the colour of the skin was not changed, except where those spots appeared ; the countenance for the most part sunk, and the eyes drawn up in the head ; these symptoms continued to increase until a general comatose state was brought on, when death closed the scene.

2d. The general duration of the disease ; when the patient recovers, and when it proves fatal ?

	<i>Years.</i>		<i>Hours.</i>
A child of Phineas Terry,	Æt. 6,	taken May 13th, 1808,	died in 28
Jesse M'Whorter,	22,	Nov. 27th,	24
Miss Quick,	17,	29th,	24
Howel Roberts,	10,	Dec. 12th,	15
John Steward	16,	May 19th, 1809,	48
Jeremiah Overton,	26,	25th,	72
Mrs. Eldred,	24,	June 12th, convalesc. in	24

3d. The persons it attacked, if natives or foreigners? If in habits of temperance, or irregular in their manner of living?

The persons it attacked were all natives of this country, and regular in their habits and manner of living.

4th. The state of the country in which it occurred, the time, the season, if dry or moist, the temperature, &c.?

The town of Minisinck is bounded on the east by the great drowned lands, and the Wallkill, which circumstance renders the inhabitants liable to intermittent, remittent, and bilious fevers in the fall of the year; but at the time these cases appeared it was remarkably healthy; it being too early in the spring for inflammatory, and too late in the fall for bilious diseases. The spring was moist, and the autumn dry: temperature various.

5. The mode of treatment. Did they bear the lancet well? What were the effects of *emetics*? Did they throw up much bile? What was the effect of mercury? Did you employ the bark, and what were its general effects?

In some cases blood was taken in the early stage of the disease, but it did not produce that desired good effect which was expected from it: the blood drawn appeared like that of a person in full health, no unusual buffy coat, neither was the crassamentum broken down or destroyed. A cathartic of jalap and calomel was next administered; after the operation of which, I endeavoured to procure a sweat: this was attempted by warm herb teas, with spirits, and the common antimonial mixture; but the time was so short, there was but little oppor-

tunity of doing any thing. Emetics were not tried. Much bile was thrown up during the short course of the disease. Mercury was used in the case of Mrs. Eldred with happy effect ; but I believe it was not used to the same extent in any other case. Immediately after she was taken, she was bled by Dr. Nathaniel Elmer, her attending physician, who administered a dose of jalap and calomel : I saw her about three hours after she was taken, and advised the use of calomel very freely, which was persisted in, together with wine, for twelve hours. When the petechial spots made their appearance, which were of a bright red colour, the uneasy symptoms began to abate, and in about twenty-four hours she was entirely free from complaint, but remarkably low and exhausted. She was supported by wine and other stimulants, and had a speedy recovery.

6th. What proportion of those attacked died ? }

By reverting to the second query answered, you will find that six out of seven died.

7th. Did the disease commence with a chill, or shaking ? Were they better or worse on alternate days ? Were there regular remissions and manifest exacerbations ?

The disease uniformly commenced with a chill, and latterly so as to induce violent shaking. There were no remissions or exacerbations.

8th. When it proved fatal, at what period did it take place ? Was the skin yellow ?

It generally proved fatal in about twenty-four hours, and the skin after death, for some distance around the spots, became dark coloured and livid, though on the other parts of the body it was not changed.

9th. Did patients manifest the same thirst and dryness of tongue as in other fevers?

The tongue and mouth were generally moist and clammy; the patients were so uniformly delirious a few hours after the attack, that we could learn nothing from them but by observation; but they did not appear to drink much when it was offered to them.

10th. Was the stomach affected in the last stages of the disease? Was the usual termination, when fatal, a *black vomit* resembling coffee grounds, or blood, or mere dirty water?

Although the stomach appeared to be affected through the first stages of the disease, yet it did not increase in the last. Most generally a stupid comatose state appeared a few hours before death; the vomiting ceased, the extremities became cold, and the patient sunk away under a load of disease. In no stage did the matter which they vomited appear like *coffee grounds*, or *blood*, or *mere dirty water*.

### III.

OBSERVATIONS *on the* FEVERS *of* NORTH-CAROLINA.  
*By* Doctor JAMES NORCOM. *Communicated to* Doctor  
D. HOSACK.

#### LEETTER I.

Philadelphia, March 30th, 1810.

DEAR SIR,

Not having received your's of the 23d instant, until the day before yesterday, I had it not in my power to reply sooner. But I hasten now, as far as time and recollection will serve, to answer *some* of the more important queries which you have proposed to my consideration. To answer *all* of them correctly or satisfactorily would require more experience, and a greater talent for observation, than I can boast. However, all that I can distinctly remember relative to the object of which you are in pursuit, I will cheerfully communicate ; and, as I presume any opinion or speculation of mine will be as useless as it might be visionary or erroneous, shall confine myself to the relation of such facts and circumstances as have fallen under my own immediate observation.

Edenton, the place of my residence, and the principal scene of my practice for ten years past, is a little seaport town in North-Carolina, is situated on the north side of Albemarle Sound, in one of the eastern districts of the state. It is nearly surrounded by a country which is for the most part low and swampy, and in which there is occasionally to be found a great deal of stagnant water,

rendered offensive by dead vegetable matters that decay and putrefy in them during the heat of summer. Our summers, as regards their temperature, are extremely irregular: sometimes being pleasant throughout, and sometimes marked with intemperate heats and sultry weather. The hot weather generally sets in about the last of May, and ends, sooner or later, in the month of September; though we often have some days in April and October that are exceedingly warm. The mercury, in our hottest months, commonly fluctuates between eighty and ninety degrees of Fahrenheit's thermometer in the shade, if observed at three o'clock in the afternoon. For a few days together it sometimes rises to ninety-two, three, four, five, and now and then as high as ninety-six or seven. Sometimes, on the other hand, for a day or two it will fall to seventy-two, to sixty-eight, six, four two, and once in a while below sixty. The greatest degree of heat experienced in this part of the state, takes place generally in June about the solstice; but that which is by far the most disagreeable and oppressive, which is most uniform, and continues longest, occurs in August and the first weeks in September. The same variety is observable in our seasons with respect to rain. Sometimes we have the fervours of summer tempered with regular and refreshing showers; sometimes they are characterized by a succession of gusts or tornadoes, with thunder and lightning, and cataracts of rain; and at other times we have frequent copious distillations every day for weeks together, deluging the country, sweeping away bridges, and drowning our crops in every direction. Then again we have summers extremely dry; insomuch that even the meadows and marshes lose their humidity, vegetation of every kind declines, and the earth presents



a surface as parched and dreary as the plains of Hindostan. There is no particular time when rain falls, or is to be with certainty expected. Sometimes it descends in the greatest quantity in June and July. Sometimes in August and September; but it has always appeared to me that August, taking it altogether, and one year with another, is the driest and warmest of the summer months. In our driest and wettest seasons we are most exempt from bilious fevers of every description, and summers uniformly wet, or uniformly dry, have invariably been remarked in every respect to be the most healthy.

The annual remitting fever of Edenton, and the country in its vicinity, usually begins with the month of August; and I have remarked that the most malignant cases always occur in this month, or during the hot weather of September. As the autumn advances, and the heat decreases, fevers of every grade seem disposed to assume more and more the character of intermittents, which generally conclude the sickness of the season. The remitting fever with us, as far as I have been able to ascertain, is most fatal in seasons *tending* to dryness, and accompanied with unusual heat. In its character and symptoms it is as various as the circumstances of climate and season under which it exists. Sometimes persons are seized violently without any previous indisposition, with a chill, or mixed sensations of heat and chilness, that last for an hour or two, and are succeeded by a severe fever, with pains in the head and back, a full, hard, quick, and bounding pulse, great thirst, a hot and dry skin, hurried respiration, with redness or a muddy suffusion of the eyes, and a disposition to delirium. The stomach, in this form of the fever, does not seem to be affected with much

sickness or nausea ; yet vomiting is a frequent occurrence, and it is with difficulty that a patient can retain the least particle of food whatever. A sense of heat or burning is generally complained of, which is very distressing, and occasions every thing to be thrown up that is swallowed if it contain stimulus, or be in any way substantial. The exacerbations of the fever are oftentimes quotidian, returning generally in the afternoon, and the intervals short, with an imperfect remission, without sweating, or any considerable abatement of pain. The most successful mode of treating this inflammatory or malignant remitting fever, is by bleeding, purging, emetics, diaphoretics, and diluents, adapted, in quantity and continuance, to the circumstances of the case. The bark is a medicine which here does little or no service : on the contrary, I have known it do much harm, by increasing the troublesome affection of the stomach, which never fails to aggravate the most lenient form of the disease. In this fever we are in the habit of giving bark to remove debility and exhaustion, which are its consequences, but seldom with a view of stopping or curing the disease. Mercury is a remedy to which we are obliged occasionally to resort in the cure : I have never done good with it myself, except in the decline of the fever, after plentiful evacuations.

Another form of remitting fever, which is the true *bilious* remittent of our climate, comes on with a distinct chilly fit, of greater or less duration, and is succeeded by the ordinary symptoms of fever, with a frequent, full, and soft pulse, such as may almost always be felt in the paroxysm of an intermittent. It is not accompanied with much acute pain, but great aching and restlessness, nausea

or vomiting, with ejections of bile, or matter exhibiting a bilious appearance. The type of this fever is generally that of a double tertian, having an exacerbation one day in the afternoon, the next, in the evening. Its remissions are more distinct than those of the inflammatory remittent: it seldom requires bleeding; and after the exhibition of proper intestinal evacuants, invariably yields to the bark. It is rarely fatal, and when it is, seldom terminates in less than from ten to sixteen or seventeen days. Towards its close it sometimes puts on the garb of typhus, and does not end in death, or a recovery, in less than from twenty to thirty days. The fever last described is that which we usually meet with, which affects the greatest number of persons at a time, and is the least mortal of any of our continued fevers. Neither the inflammatory nor the bilious remittent, is very fatal; the former, however, is much the more so, in the proportion I should suppose of at least three to one. It either ends fatally in from four to eight or nine days, or favourably somewhere between the eighth and thirteenth, but is not unfrequently protracted to a later period: the fatal issue generally occurs early in the disease.

The tongue in the bilious remittent is commonly furred and yellow; the skin likewise exhibits a yellow hue, which increases as the fever progresses: whereas in the inflammatory remittent, the tongue exhibits the common febrile fur in most cases without yellowness, and the skin is hardly ever discoloured until about the close of the complaint. In two or three instances I have known the surface of the body to turn yellow soon after death, from the inflammatory remittent, when not the smallest discolouration had been observed before. The vomiting in

one of these fevers, or forms of fever, (which you please,) is different from that which attends the other: In the first it occurs with little nausea, or sickness; is seldom attended with bilious discharges; affords scarce any relief, and is always increased by bark and stimulants. In the last it is preceded by great nausea, attended with large discharges of bile, gives the patient relief, and is very often to be removed altogether with bark, aromatics, and cordial drinks. Hemorrhages very rarely occur in either of these fevers; at least, they have seldom occurred in my practice. In a case or two I have seen blood effused from the gums, though, in which form of the disease, I do not now recollect. In a few days I hope I shall have leisure to furnish replies to your other questions, which I will certainly do very soon. In the mean time, with the best wishes,

I am, your's, &c.

JA. NORCOM.

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## LETTER II.

Philadelphia, April 8, 1810.

DEAR SIR,

Most of the questions you proposed to me in your letter of the 23d ult. I endeavoured to answer in my first reply. Some of them, however, have been neglected; but shall be referred to, if not fully answered, in the additional remarks I have now to offer.

Respecting the utility or the efficacy of emetics, in our remitting fevers, I presume a few words will suffice, af-

ter what has been said already. In the inflammatory remittent, attended with burning heat and oppressive anxiety about the precordia, neither spontaneous nor artificial vomiting appears to do good : the first does not often occur, and when it does, affords no relief ; the last is seldom practised, and when it is, bile is not commonly discharged, or the patient materially relieved by the operation. On the contrary, emetics, in many cases in which I have prescribed them, or known them exhibited, have increased the affection of the stomach, and exasperated the symptoms of the disease to such a degree, as to induce a determination in my mind never to give them again in this particular form of it. In the bilious remittent, vomiting is a remedy of the utmost importance, and, if had recourse to in the beginning of the disease, never fails to do great service. Here, likewise, spontaneous vomitings, *though they sometimes go to excess and do mischief*, are generally serviceable. The two grades, forms, or species of fever which I have described, are rarely found to prevail extensively at the same time or season of the year.

During the prevalence of the bilious remittent, we now and then meet with cases marked with the symptoms, and requiring the treatment of the inflammatory remittent ; and *they occur with us at least*, principally among strangers, more especially the natives of the northern and eastern states. But the position will hardly bear to be reversed ; for I have generally observed, that during the prevalence of an inflammatory remittent, though we sometimes see cases that are considerably bilious, symptoms of inflammatory diseases almost invariably attend, and call for the use of antiphlogistic remedies. From the bilious remittent of Carolina, no age, sex, constitution, nor condition is exempt. To the inflammatory remittent, the

young, the robust, the plethoric, and *strangers* are peculiarly subject ; and these last are oftenest the victims of the disease. Both these forms of fever are most severe and fatal, as I think I remarked before, about the latter end of summer or the beginning of autumn ; that is, in proportion to the number of persons affected : yet from the much wider prevalence of their milder grades in the variable weather of autumn, the absolute number of deaths will, upon the whole, sometimes be the greatest in this latter season ; and hence it is, that, strictly speaking, when we have the most sickness, we have comparatively the least mortality !

I am not quite certain that I have ever seen *the* black vomit in any of our endemic fevers ; but *a* vomiting of black matter of various descriptions is no unfrequent occurrence. In 1799, when we had a true yellow fever in Edenton, I saw the genuine black vomit in several cases ; but I do not believe I have ever seen *exactly* the same thing since : though I confess I have seen perhaps half a dozen cases in which my suspicions have been strongly excited. Hemorrhages from the nose and gums are occasionally met with in protracted cases ending fatally ; and I remember one case of a malignant nature, in which a bleeding from the mouth took place, that ended in death in three or four days. Glandular swellings, so far as my observation has extended, have not been among the characteristics of any of our fevers. In most of the fatal cases of inflammatory remitting fever which have fallen under my notice, the heat of the skin has continued intense until a short time before dissolution, and the patient has expired in a paroxysm or exacerbation of fever. The bilious remittent, when about

to prove mortal in a majority of instances, puts on the garb of typhus, and terminates with the symptoms common in the last stage of that disease.

I have thus, sir, given you an account of two forms of fever, as they appear in the tract of country to which my practice has been confined; and all the continued remitting, or what are usually denominated bilious fevers, incident to our climate, *seem to me* to be only modifications, or variations of these two original and distinct diseases. Neither the inflammatory nor the bilious remittent always attack and progress precisely as in the history I have sketched. They both vary in their modes of attack, in duration, in violence, in the remissions and exacerbations that attend them, and in many of their less essential symptoms. Nevertheless, I feel persuaded that, from the description I have given, the peculiar and distinguishing character of each will be sufficiently manifest.

Very respectfully,

JA. NORCOM.

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#### IV.

CONJECTURES, *respecting the NATIVE CLIMATE of PESTILENCE; in a letter to the editors of the Medical and Philosophical Register. By an OBSERVER.\**

THE frequent recurrence of a pestilential fever, in New-York and Philadelphia, since the year 1793, has

\* Communications from the learned and ingenious writer of this paper will always be acceptable, and are solicited by the *editors*.

become the subject of painful apprehension to many of our fellow-citizens. They deem it probable that the golden age of our seaport towns is past, and that we have entered upon the age of clay. The ills of life, that cannot be avoided, are confessedly very numerous ; and there is not any reason why we should create imaginary evils. I do not call an apprehension of the yellow fever an imaginary evil ; nor should we neglect all prudent and practicable means, by which the frequent recurrence of that disease may be prevented : but I deem it improper that we should afflict ourselves by supposing that our lots are cast in the very *latitude of pestilence*, and that our climate is now beginning to shew that one of the greatest scourges of humanity is *its natural production*.

It is alleged, as I presume, that we live in the latitude of pestilence, because the plague, which, like the yellow fever, is a pestilential disease, has long infested the western parts of Asia, from the thirtieth to the forty-second degree of north latitude. That conclusion, as I think, is not fairly drawn from the premises.

There are some diseases, as we know, that chiefly prevail in cold climates ; and there are other diseases that are the natural productions of a warm climate. Diseases of this kind are produced by a long continuance of heat, or of moisture and heat, whereby the quality of animal and vegetable productions, suspended in the atmosphere, are essentially changed, so that they become hostile to the human constitution, and produce the most fatal complaints. The yellow fever and the plague are generally thought to be diseases of this class. There are some remarkable circumstances in which those diseases resemble one another.



They are both very fatal.

They both depend upon a certain degree of heat. The plague seldom spreads when the degree of heat is below sixty or above eighty degrees, in Farenheit's thermometer. The yellow fever seems to require a long continuance of heat at eighty degrees for its origin. It may be communicated at a lower degree, but it is effectually destroyed by frost.

Both of these diseases require, beside the degree of heat mentioned, a certain diseased constitution of the atmosphere towards their propagation. Neither of them is contagious in a pure atmosphere.

It does not follow from either of those circumstances, that any part of the globe, above the tropics, should be deemed the latitude of pestilence. The contrary, as I think, is clear ; for no disease that is constantly destroyed by cold can be indigenous in a climate were such a degree of cold prevails every year. From this it must follow, that though the yellow fever may exist at all times within the tropics, it must be counted an exotic plant in the state of New-York.

Perhaps I shall be told that the plague, though it cannot endure a high degree of heat, such a degree as prevails every year in Egypt, yet it is the natural production of that country. I am aware that any objection to this opinion may be deemed paradoxical ; yet I question whether a particular zone or broad belt of this globe, extending from the 29th to the 43d degree of latitude, can, with propriety, be called the latitude of pestilence. There was

a time when Egypt, that most unfortunate of kingdoms, was more populous than it is at present, and contained larger cities than Cairo; but it was not in that age the seat of pestilence. We should infer, from the rapid increase of the Israelites in that country, that the climate was very healthy. But the testimony of Herodotus is clear and pointed on this subject. He says, that “after the Africans, there is no people in health and constitution to be compared with the Egyptians. To this advantage, the climate, which here is subject to no variation, may effectually contribute.” While the Egyptians were governed by their native princes, and while they continued to be industrious, Egypt was a healthy country. But after those people had been reduced to a foreign yoke, the spirit of enterprise forsook the land; their canals were neglected, the waters stagnated on the surface, and pestilential diseases were promoted. We have no correct information when it was that the disease, emphatically called the plague, first appeared in the world. It seems to have originated long before the small pox, but the native place of neither can be traced. The Carthaginians were afflicted by the plague at least two thousand three hundred years ago. Thucydides speaks of a plague that wasted Athens, about 2280 years ago. Procopius speaks of a plague that appeared about the 540th year of the Christian era, which threatened the very existence of the human race. It did not come, as he says, upon one part of the world alone, nor in one season of the year. It afflicted the whole world, and all conditions of men, sparing none. Some took it in summer, and some in winter. It spared neither island, caye, nor mountain.

In the year 1346, a plague began in the northern parts of China, thence spreading through Asia, it crossed into Europe by the way of Constantinople; thence it traversed Greece, Italy, Germany, France, and England. In the year 1771, the plague raged in Moscow, in the 55th degree of latitude. England is not considered to be in the latitude of pestilence, but the plague has often visited that island, since the English have been concerned in the Levant trade. Marseilles, in the 43d degree of latitude, has been visited by the plague, ten or fifteen times, since the inhabitants of that city began to trade on the coast of Asia Minor; but we cannot, with any degree of propriety, allege that Marseilles, more than other parts of France, is the native place of pestilence.

It was observed above, that the plague and yellow fever resemble one another in the circumstance of being infectious, whence it would follow, that both diseases may be imported. I am aware that it was long disputed, both in England and France, whether the plague itself be infectious. Although the plague, when it has appeared in Europe, always began in a trading city, that lately had some intercourse with a town or city in which the plague then prevailed, yet it has been obstinately contended, in every case, by some of the faculty, that the disease was not imported.

The plague appeared in Moscow when the Russians were at war with the Turks, and goods were imported that had been taken by plunder, from infected cities; but there were men who questioned whether the disease had been imported. When the plague breaks out in Cairo, Aleppo, or any city near the coast of Asia Minor,

the European merchants residing there, immediately shut themselves up in their houses, during the continuance of the disease. It is admitted that none of those who are shut up and do not touch any infected person, ever take the plague, though they converse every day, looking out of their windows, with hundreds who have the plague. They who touch infected persons, seldom fail to take the disease. These circumstances notwithstanding, there are men who zealously contend that the plague is not contagious. Gentlemen who allege that the plague is not contagious, and that it cannot be imported, support their opinions by observing, that the plague often breaks out in healthy cities, that have been carefully guarded, and where there cannot be any reason to suspect importation. This argument supposes that laws, in every case, are well executed ; that officers always do their duty, and that there are no smugglers. But it has been fully established, that smugglers have carried infected and prohibited goods into healthy towns ; that a fatal plague has soon after commenced, and that some of those very smugglers have taken the disease, and at the hour of death have confessed their crimes.

Whoever takes the trouble to read the history of the plague, in the several trading cities in which it has appeared ; and observes the evasions that have been practised, and the perjuries that have been committed by masters of vessels, to conceal the cases of men who had died of the plague on board of their ships, lest they should be compelled to perform quarantine, will not be surprised that the origin of the plague, in many instances, should be unknown. The man who wilfully kills another is hanged as he should be ; but the man who fraudulently in-

troduces a disease by which hundreds are destroyed, escapes the gibbet. Such is the unequal operation of laws.

I might have mentioned another circumstance in which there is some resemblance between the plague and yellow fever. They are both diseases about which medical men are apt to be mistaken, when they first appear. In the year 1720, when the plague appeared at Marseilles, it was a considerable time before some of the faculty would admit that the prevailing disease, however fatal, should be called the plague. It might be called a common epidemic, or any other fever except the plague. A ship had lately arrived from the Levant, on board of which two Turkish traders had died of the plague, as also five or six of the sailors, and the surgeon. Perhaps it was apprehended that the doctrine of importation might be established, by admitting that the prevailing disease was the plague. True it is, that the ship performed quarantine, but it is not true that all the passengers performed quarantine, nor is it true that the passengers brought no bundles and packages on shore. Nor is it true that the plague appeared in any other part of the city, before it appeared in the very street where those parcels were opened. The name of the disease was not fully established before forty thousand of the inhabitants had perished; the number that was destroyed by that visitation. In the year 1743, a ship arrived at Messina, from a port in which the plague prevailed. The captain and one of his people had died by the plague on the passage. The ship was destroyed, and the remainder of the crew performed quarantine. We are not informed whether any goods were secretly saved from the ship, before she was burnt; but a mortal disease very soon appeared in Messina.

A single physician had the hardihood to declare that it was the plague, but thirty-three physicians formally declared that it was a common epidemic distemper. The magistrates and the populace, for this reason, neglected all precautions. The death of forty-three thousand of the inhabitants was the unhappy consequence. We have seen a late instance in a neighbouring town, if we might compare small things with great, in which the medical tribe would not agree that the disease which then destroyed the inhabitants might be called the yellow fever.

The chief reason, as above stated, for supposing that the yellow fever is like to become an epidemic complaint, is, that we live in the latitude of pestilence, or the latitude of the plague. I have given some reasons for supposing that Cairo itself, in Egypt, is not situated in a region that is by nature subjected to the plague, nor is any other city between Cairo and Constantinople. It is believed that the plague is cherished at present in these cities by the obstinacy of the disciples of Mahomet, hence the character of that country. But if it should be admitted that the whole coast of the Mediterranean, from the Nile to the Hellespont, was by some constitution or law of nature subject to the plague, it would not follow that cities, on the sea-coast, in the United States, within the same degrees of latitude, are subject to the same or any similar disease. I cannot think of any two tracts of country on the face of the earth, between the same parallels of latitude, in which the situation of the inhabitants is more unlike one to the other, than the situation of the inhabitants of the two countries named.

People on the coast of Asia Minor have a continent to the eastward, that in many places, at no great distance, is a sandy desert that produces a fatal sirocco. It is a continent from which the summer winds are more oppressive than a dead calm. Our continent lies to the westward, from which, in the midst of summer, we have refreshing breezes. They have a sea to the westward, we have an ocean in the opposite direction. The inhabitants of China, from Nankin to the head of the Yellow Sea, and the people who live on the eastern coast of Japan, are situated nearly in the same manner that we are, with respect to land and water; but if they are frequently visited by the plague or yellow fever, that circumstance has escaped general notice. For these and other reasons of the same kind, I am induced to hope that the citizens of the United States, who live near the latitude of Constantinople, if their intercourse with hot climates be duly guarded, have little reason to apprehend the frequent returns of a pestilential fever.

The reader will be pleased to observe, that when I say the yellow fever is not to be considered as an indigenious complaint in this city, I speak only of the conclusion that should be drawn from a comparison of latitudes and situations. I say nothing about the matter of fact. I leave it to the medical gentlemen to determine whether the yellow fever be a native of this soil, and a disease that is not infectious; or whether it may not, like the plague, be an infectious disease, and one that may be imported. When I consider the *singular* manner in which those gentlemen reason, I presume it will be long before the question is determined. I deem the reasoning of those gentlemen, or some of them, to be of a *singular* quality, because the

conclusion does not follow the premises in the common logical form, but is drawn in direct contradiction to the premises. This may appear strange at first sight, but the reader shall have the sample of an argument in the common form, and one in the modern medical form : e. g.

The plague is a contagious disease. It has been and may be imported ; therefore quarantines should be established, though at a considerable expense, to prevent the importation of that terrible disease. This is the old form of reasoning ; and people in France and England reasoning in this manner, and acting accordingly, have long been exempted from the visitations of that disease. Here follows a specimen of the modern form of reasoning : viz. The yellow fever is a native disease. It is not contagious ; it is not, and cannot be imported ; therefore a host of officers should be kept up, at a great expense, to prevent it from being imported. In other words, to prevent the thing from being done which cannot be done. Would any man seriously advise that we should build a large fort and support a garrison at Albany, to prevent that city from being battered by ships of the line, when he knew that no such ship could come within fifty miles of the place ? If such a man expected the command, his advice would be the more easily accounted for. But if he should get the command of such a garrison, he would hardly lose much of his sleep by watching.

Besides the circumstance mentioned, of medical men drawing their conclusions somewhat different from the common form, we have another reason for presuming that the question of the yellow fever being importable or not



importable, may be the subject of long debate. Gentlemen who say that the disease is not contagious, and cannot be imported, allege that it is generated among us like common bilious fevers, and from a similar source. Hence it follows, that if the fever breaks out, as it constantly does, in the neighbourhood of a ship that is just arrived from an infected port, or in the place where that ship is landing her cargo, or in the place where some of her passengers are lodged, we are not to infer that the disease has been imported in that ship, for it is not importable. We have only to search for some puddle or heap of manure that lies in sight of the ship, which is to be taken for the legitimate cause of the disease. Now, since there can be no difficulty in finding such objects or causes in every port, it will readily be perceived that the dispute may be perpetual.

AN OBSERVER.

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V.

*CASE of ENTERITIS, accompanied with a PRETER-NATURAL FORMATION of the Ileum. Communicated to the Editors of the American Medical and Philosophical Register, by JOHN W. FRANCIS, of New-York.*

THE writer of the following paper was an eye-witness to most of the facts which he relates. They are taken from memoranda made at the request of his preceptor, Dr. David Hosack, in whose practice the case occurred. Should the editors of the Register consider it deserving a place in their journal, they are at liberty to insert it.

On the morning of December the 22d, 1809, Dr. Hosack was requested to visit a Captain D——, aged about thirty-five; of a slender habit of body; who was represented to be in an alarming condition. At the first view of the patient, it was perceived that he was afflicted with all the symptoms characteristic of enteritis, accompanied with those of ileus; viz. an acute and constant pain in the whole abdominal region, particularly about the umbilicus: the abdomen greatly distended, hard, and extremely sensible to the slightest touch, or whenever he attempted to move: vomiting of stercoraceous matter, and constipated state of the bowels: pulse small, tense, and frequent; respiration hurried and anxious; countenance livid; heat of the body increased somewhat beyond its natural temperature; and excessive thirst. These symptoms were attended with a great prostration of strength, and an extreme degree of restlessness.

Upon inquiring into the history of his complaint, it appeared that he had been first attacked while at the theatre, on Wednesday evening, the 20th. On the morning of the day following he was visited by an eminent physician, who directed an antispasmodic mixture, the symptoms of his disease being, at that time, but slight. Deriving no relief from the medicine prescribed, Dr. Hosack was called upon on Friday morning, the 22d, between the hours of eight and nine, when he found him labouring under all the symptoms above described.

From the best information that could be obtained, it was rendered highly probable, that the exciting cause of his complaint was *cold*. He had repeatedly been subjected to attacks of this kind, though less violent than the

present, for several years past; at which times he was relieved by the ordinary method of treatment.

Immediate recourse was now had to the lancet, and he lost blood to the amount of eighteen ounces. A cathartic, composed of the pulv. jalap. and sub-muriate of quicksilver, each ten grains, was directed to be given, which was rejected in about an hour after he had taken it; and a similar one repeated with the same result. Blisters were applied near the umbilicus; fomentations of vinegar and water over the whole abdomen; and enemata of the oleum ricini and tinct. assafœtid. were administered. These were partly discharged by vomiting; which afforded abundant proof, that an inverted action of the whole intestinal canal had already taken place. In the afternoon, the several applications to his surface were repeated; and during the remainder of the day he took, in divided doses, no less than two scruples of the sub-muriate of quicksilver, combined with opium and camphor; which, however, were rejected by vomiting shortly after they were taken. The enemata, rendered more active, were again given, but with no advantage. At this time Dr. Miller visited the patient, in conjunction with Dr. Post and Dr. Hosack. They united in recommending a continuance of the same mode of treatment that had been pursued. In this condition he passed the night; the constipation of the bowels obstinately resisting every means used to obtain an evacuation.

On the morning of the 23d, the sub-muriate of quicksilver, combined with opium, was again directed, in doses of fifteen grains every two hours. The warm bath was

at the same time employed. It produced a temporary mitigation of his symptoms ; but left him still more enfeebled. His fate, which for some time had been probable, now became almost certain. The vomiting, which, within the first thirty hours from the commencement of his disease, had become stercoraceous, and which had continued, with but little intermission, to the present time, was now renewed. Attempts were made to allay it by the free use of the tincture of opium, and other remedies usually indicated under similar circumstances. The effect was an aggravation of all the symptoms. At 10 o'clock, P. M. his dissolution was momentarily expected, his pulse scarcely perceptible, and his extremities cold.

He expired on Sunday morning, the 24th, at 6 o'clock, the vomiting having been incessant until about twenty minutes before his death.

#### MORBID APPEARANCES ON DISSECTION.

At 2 o'clock in the afternoon, the body was examined in the presence of the attending physicians, and several other professional characters. The abdomen was tense and greatly distended : upon making a longitudinal incision into it, a considerable quantity of serous fluid issued out. Having completed the division, the intestines were found in a highly inflamed state, and of a dark red colour : the peritoneum lining the abdomen was also much inflamed, and covered with coagulable lymph. A remarkable deviation from the ordinary structure of the parts was now discovered to exist : a portion of intestine, attaching itself to the umbilicus, formed a union between it and a part of the intestinal canal. Upon further exa-

mination, this appendix was observed to be a *diverticulum* from the ileum. At the place of its union with the ileum it was enlarged and inflamed, in common with the upper portion of the small intestines; the remaining part was of a natural colour, and so intimately connected by its blind extremity at the umbilicus, as to leave little doubt of its being an original mal-formation. The ileum, above this appendix, was very much inflated, extremely vascular, and in size, equal to the transverse colon; while the lower portion was greatly contracted, and twisted round the diverticulum; and in this manner had been the means at least of aggravating, if not of inducing the inflammation and its consequences in this particular part of the intestinal canal. This portion of the ileum was of a dark, livid appearance, and had lost its natural tenacity. The great intestines were found completely emptied of their contents, and preter-naturally contracted in their diameters throughout their course.

The omentum, transverse colon, and stomach, were, at first, altogether concealed by the distended state of the small intestines; and found in close contact with the diaphragm. The omentum was irregularly drawn together. No unnatural appearance of the transverse colon was remarked. The stomach lay in a circumscribed situation, was not more than two inches in width, and contracted in the same proportion throughout its whole extent. It was entirely empty; upon a minute inspection, no discolouration or affection of its coats was seen.

From the annexed draught, by the ingenious Mr. Inderwick, a student of medicine of this city, the peculiar structure of the parts affected will be more accurately understood.

- A. The manner in which the diverticulum was connected to the umbilicus.
- B. The diverticulum.
- C. The manner of its union with the ileum.
- D. The upper portion of the ileum, enlarged and extremely vascular.
- E. The lower portion, contracted and in a state of approaching sphacelus.

JOHN W. FRANCIS.

*New-York, June 4th, 1810.*

## VI.

*Analysis of BALLSTON WATER. Communicated in a Letter to Dr. DAVID HOSACK, from ROBERT L. LIVINGSTON, Esquire, during his late residence in France.*

Tours, September 10, 1807.

DEAR SIR,

HAVING received some benefit from the mineral waters of Ballston, of late years frequented by invalids from every part of the continent, I determined to have them analysed, and accordingly had two dozen bottles hermetically sealed, which arrived here in a perfect state of preservation. Presuming that a knowledge of the component parts of those waters may be of public benefit, I have the honour to transmit herewith the analysis of them, by one of the most celebrated chemists; and to request that you will have the goodness to make it public.



*Inderwicks del.*

*A Anderson Sc.*





On my arrival at Paris, I drank two bottles of the water, and found no difference in the taste or effect, than that experienced last year at Ballston, from which I conclude that the component parts suffer little or no alteration from transportation.

Having this moment heard of a safe opportunity to New-York, I have only time to assure you of my esteem and respect.

Your most obedient servant,

ROBERT L. LIVINGSTON.

*“L'Analyse de l'eau que M. L. m'a donné à analyser, contenant par bouteille de 25 onces.*

SAVOIR

1. Acide carbonique (air fixe) . . . . 3 fois son volume.
2. Muriate de soude (sel marin) . . . . 31 grains.
3. Carbonate de chaux sursaturé . . . . 22 grains.
4. Muriate de magnésie (sel marin à base de magnésie) . . . . . 12 1-2 grains.
5. Muriate de chaux (sel marin à base de chaux) 5 grains.
6. Carbonate de fer . . . . . 4 grains.

“Aucune eau minerale de notre continent n'est aussi riche en substances salines de ce genre ; celle de Vichy, qui a une grande réputation, ne contient par bouteille qu'un dixième de grains de carbonate de fer tandis que celle dont nous donnons l'analyse en contient 4 grains. C'est au fer que ces espèces d'eaux acidulées doivent leur qualités toniques et désobstruantes.

“A la dose de deux bouteilles l'eau d'Amerique doit être un léger purgatif qui convient dans tous les cas, ou il est nécessaire d'évacuer la bile, et donner du ton au

systeme vasculaire ; cette eau véritablement précieuse, pour une infinité des maladies, semble avoir été formées par la nature, dans les meilleures proportions, pour guerir les pâles couleurs, et les suppressions. On ne doute point que cette eau ne devienne un objet important de commerce.”

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## VII.

OBSERVATIONS *on the use of the* BALLSTON MINERAL WATERS, *in various diseases; addressed to Mr. JOHN COOK, of Albany, by* DAVID HOSACK, M. D. *Professor of Botany and Materia Medica, in Columbia College.*

New-York, June 20th, 1810.

SIR,

To notice all the diseases in which the Ballston waters may be exhibited with advantage, and those in which they do harm, together with the circumstances which should be attended to during the use of them, would far exceed the limits of such a communication as you expect from me, in compliance with your request. Nor do I possess those details which are necessary in taking a full view of the subject ; they can only be attained by a long residence at the springs, and a watchful attention to the operation of the waters in the various diseases in which they are prescribed. These particulars will probably be communicated to the public by Doctor Powel, a physician of learning and talents, who has resided several years at Ballston ; and who is possessed of much valuable information on this subject. I shall, therefore, confine myself to a few remarks which are more immediately suggested by the preceding analysis.

The Ballston waters have been long known to yield a great quantity of *fixed air*, and to hold in solution a large portion of *iron*. By the analysis referred to, it appears that they yield a much larger proportion of fixed air, and that they contain a greater quantity of iron, than any other mineral water that has hitherto been discovered, not excepting that of Vichy, one of the strongest chalybeate waters in Europe. But it appears that they also contain another substance, viz. the *muriate of lime*, which, with the other ingredients with which it is associated, promises to be of great and extensive utility.

We are accordingly from this analysis induced to ascribe more virtues to the Ballston waters than physicians have generally believed them to possess. Although much is due to exercise, change of air, and an agreeable occupation of the mind, which the amusements of watering places usually afford, I have no doubt, from the sensible effects produced upon the system by the waters themselves, that they also are productive of great good in a variety of diseases, some of which I shall now briefly enumerate.

1. From the effects of the Ballston waters, as a strong *chalybeate*, they may be employed with advantage in most diseases of debility, whether directly or indirectly such. But in those complaints which are attended with an increased excitement of the whole system, or with local inflammation, they are manifestly prejudicial. These principles are deducible from the qualities of the waters alone; but they are also confirmed by the experience and observation of physicians who have attended to their operation.

Accordingly, in *intermittent fever*, *dropsy*, *dyspepsia*; in *hypocondriasis* and *hysteria*, connected with or proceeding from debility of the digestive organs; in *paralysis*, *chronic rheumatism*, *gout* in its chronic state, *chlorosis*, *fluor albus*; in *suppression of the menses* when arising from weakness, in *worms*, and in other diseases of debility, whether of the intestinal canal, or of the whole system, the Ballston waters have been long and justly celebrated. On the other hand, in a plethoric state of the system, as in *pregnancy*, in *consumption of the lungs*, *inflammation of the liver*, *acute rheumatism*, *dysentery*, and other diseases of an *inflammatory* nature, in which they are often times resorted to, they invariably do injury. We may, perhaps, except from this remark, a *species of consumption* which arises in females about the time of puberty, in which, from want of energy in the system, menstruation does not take place at the period in which it usually appears; dyspepsia ensues, followed with general irritation of the nervous system, pain in the breast, cough, sometimes hæmorrhage from the lungs, and ultimately terminating in confirmed consumption. These consequences have frequently been prevented by a course of iron, and vegetable tonics, aided by generous diet, and exercise, especially riding on horseback. Under similar circumstances, I have no doubt that the Ballston waters may be serviceable in this species of phthisis in its incipient state; but they should never be employed in diseases of this nature, without the advice of a physician.

2. From the *saline impregnation* of these waters, and their operation upon the urinary organs, as well as by perspiration, they are indicated in diseases of the *kidneys* and *bladder*, in *gout*, *chronic rheumatism*, and *eruptions* upon

the skin, all which diseases are most frequently produced by, or connected with a morbid condition of the fluids, and an impaired state of the secretions.\* In these complaints I have repeatedly prescribed these waters with the best effects.

But according to the foregoing analysis, they contain an ingredient of great value, besides those already enumerated ; I mean the *muriate of lime*. It appears upon the authority of Dr. Beddoes,† Dr. R. Pearson,‡ Dr. Wood,§ and Dr. Schraud of Vienna,¶ that this substance has lately been discovered to be a remedy for *scrophula*, which hitherto has been the opprobrium of our profession. It is true, cases have been recorded by Russell and others, of the cure of this disorder by the use of sea water. But as it has been ascertained by chemists,\*\* that the muriate of lime enters into the composition of sea water, it is very possible that much of the efficacy of the latter in that disease, may be derived from the muriate of lime, which it has been found to contain. But as scrophula is usually attended with a general debility of the system, as well as a morbid condition of the fluids, the Ballston waters will propably be found peculiarly serviceable, inasmuch as they possess the means of invigorating the system, at the same time that they contain the antidote to the peculiar virus of that disease.

\* See Wilson on Dyspepsia, Gravel, &c. See also Treatise on Gravel and Gout.

† Treatise on the Consumption, Digitalis, and Scrophula.

‡ London Medical Review, vol. 3.

§ Edinburgh Medical Journal, vol. 1.

¶ Treatise de Febribus.

\*\* See Lavoisier, Jacquin, Thompson, and Murray.

But to obtain the benefits of the Ballston waters in any of the diseases which have been noticed, it is necessary that in the use of them, as it regards the time of taking them, the quantity taken, the stage of the disease, and other circumstances which must govern their exhibition, the directions of the physician are indispensably necessary. As well might the patient make use of any other article of the materia medica without medical advice, as drink these waters in the manner in which they are usually taken. It is but a short time since, a very valuable life was destroyed by the imprudent use of them, during a state of pregnancy. A few days ago I was consulted by two gentlemen who had left the springs much worse than they had gone to them. The one laboured under dyspepsia, attended with habitual costiveness : neglecting to relieve his bowels, he commenced the use of the waters ; the consequences were, an aggravation of his disease, followed with fever, acute pain in the head, and other symptoms of general excitement. The other person referred to, had come from Virginia, on account of an obstinate chronic diarrhœa, attended with great debility, and general emaciation. Without advice, he immediately began to drink the waters to the quantity of several quarts daily. The consequences may readily be imagined ; an increase of his disease, and a degree of debility from which he with difficulty recovered.

If, sir, these remarks should contain any thing deserving attention, they are at your disposal. At the same time permit me to refer you, for further information on this subject, to the *Medical Repository*, the *Medical and*

Philosophical Journal, and to the Dissertation lately published by Dr. Valentine Seaman.

I am, sir, your humble servant,

DAVID HOSACK.

Mr. JOHN COOK.

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## VIII.

A CASE of CATALEPSY. *Communicated to Dr. DAVID HOSACK, by Doctor JOHN STEARNS, of Waterford, State of New-York.*

THE occurrence of catalepsy is so unfrequent, that some writers of celebrity have even denied its existence. A detail of the symptoms and treatment of the following case, may therefore shed some light on this branch of medical science. The subject is a boy of eleven years of age, whose constitutional health, strength, and activity, have sustained no injury from the repeated paroxysms of this complaint. He has ever enjoyed all the qualities common to boys of that age.

In the winter of the year 1804, he was first observed by his preceptor to pause in reading his lesson; this was then ascribed to a voluntary dumbness; and it was not till the recurrence of several paroxysms, that it was suspected to be the effect of disease. A few days after its first appearance in the school, it was discovered in the family by his mother, when one of his brothers, a school fellow, remarked that "Philo is dumb again." This induced her to inquire into the particulars, of which she soon afterwards gave me full information. As she expected

no relief from medical aid, I made no prescription, but occasionally called to learn the progress of the complaint. In the paroxysm I could observe no unusual variation in his countenance, except an involuntary unmeaning stare, and a trifling dilatation of the pupil. His muscles were not generally in a state of rigid contraction, but relaxed and susceptible of motion, although they did not possess the power to move. He remained perfectly motionless, and during the continuance of the fit, retained the posture he had assumed at its accession. To this observation there is one remarkable exception. If he was walking when attacked, he never stopped, but continued to pursue the same direct course until the fit ceased, unless prevented by some intervening obstruction. The voluntary muscles, in this instance, were in full exercise, while the power of volition was entirely suspended. The time passed in the paroxysm was to him totally annihilated; he connected the last idea he had before the accession of the fit with the first one that occurred after its cessation, and resumed the subject he was pursuing, as if nothing had intervened. If he was reading, or relating a story, or pursuing any amusement or employment of any kind, he was sensible of no interruption.

The paroxysms occurred irregularly ten times in twenty-four hours, and never exceeded three minutes in duration. His pulse has ever been natural, and no morbid action has disturbed any of the functions of his system.

After the disease had continued in this manner four years, I prescribed the nitrate of silver, on the presumption that it was nearly allied to epilepsy, and required a similar treatment. This remedy was faithfully adminis-



tered three months without producing any alleviation of the complaint. I then substituted the acetite of lead, the use of which was continued six weeks before any sensible effects were produced. After this period he was never known to have any more of the fits. They did not gradually disappear, but suddenly ceased.

A few days after the final cessation of the complaint, he was affected with violent pains in his knees, and in the muscles of his thighs; they were suddenly transferred from these parts to his abdomen, where they were so violent as to require some medical aid, before he could obtain relief. Since that time, he has remained in perfect health, and entirely free from his original complaint.

*Waterford, June 12th, 1810.*

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## IX,

A REVIEW of the DOCTRINE OF DISEASES, taught at present by BENJAMIN RUSH, M. D. Professor of the Institutes and Practice of Medicine, &c. in the University of Pennsylvania.\*

IN looking over the doctrine of diseases, taught at present by Dr. Rush, of Philadelphia, we find it differs in

\* The author of this Review of the Doctrine of Professor Rush, is an eminent physician of a neighbouring city, whom the editors are happy to include in the number of their correspondents. From the high standing of Dr. Rush, the extensive circulation of his writings, and the consequent influence his opinions must have upon

several particulars from that of the late Dr. John Brown, of Edinburgh, though he is evidently indebted for a considerable portion of the materials of which it is composed, to the writings of that eccentric teacher.

Dr. Brown divided all diseases into two classes, one of which he called "Sthenic" and the other "Asthenic." Under the first of these he arranged all the diseases which exhibit symptoms of stronger excitement and power than appear in a state of health. Under the second class he placed all those, in which the excitement or power of the organs of sense and motion was lower or weaker than in a state of health. The diseases belonging to each of these classes he presumed to be derived from diametrically opposite causes, and consequently to require an opposite set of remedies. Dr. Rush, on the contrary, confines the whole catalogue of diseases which "flesh is heir to" to *one single class*, and calls the whole assemblage "A UNIT." Every form or variety of disease, he contends, is the same in kind, only differing in degree, and that every form or variety consists of ir-

the medical profession in the United States, it becomes a question of great moment, how far they are founded upon a rigid induction of facts, without which, theories in medicine are at least useless, if not pernicious in their consequences. So fascinating, too, are the language and manner in which Dr. Rush delivers his opinions, whether from the professor's chair, or in the pages of his writings, that his doctrines find a ready reception with the unwary mind of youth. On this account, the theories which he advances cannot be examined with too much freedom. Such also, we believe, to be the Doctor's love of truth, that he himself must be pleased with a candid investigation of the doctrines which he has for many years so strenuously taught. Sensible of the importance of this inquiry, we have given a place in this work, to the review which follows. ED.

regular action, and that "this irregular action in its turn is the proximate cause of every form or modification of disease. He further adds, that all the varieties of disease are owing to the difference in the state of predisposition, and in the difference in the force of the exciting or acting causes.—Hence, if it be asked what disease is gout, and what is its proximate cause, the answer is, gout is an arthritic state of fever, and its proximate cause is "irregular action." The same answer serves for apoplexy, cholera, diarrhœa, colic, fever, asthma, pleurisy, scurvy, jaundice, dropsy, epilepsy, and mania. They are all irregular action, differing only in degree, and consequently, a unit.

Rejecting that part of the Brunonian doctrine, which teaches, that debility carried to a certain degree is disease, whether occasioned by the abstraction of natural and customary stimuli, or by their excessive action, exhausting or expending excitability, which in the former case Brown called direct debility, and in the latter indirect debility, and which he supposed required the application of stimuli of very different powers to restore the deficient excitement to a healthy grade, Dr. Rush has adopted the opinion delivered by the Analytical Reviewers in their fourth volume, and considers debility whether induced by the abstraction of stimuli, or by the excess of their action, to be only the predisposing cause of disease. In both cases he pronounces the debility, which gives the predisposition to disease, to be occasioned either by causes which abstract the stimuli necessary to support the healthy action of the several functions of the body, (and the debility from these causes he calls the debility of abstraction,) or by such preter-natural or unusual sti-

muli, as after first elevating the excitement of the system above its healthy grade, and thereby wasting part of its strength, afterwards reduces it down to that state of debility, which he calls the debility of action. And he pronounces the debility to be the same, whether brought on by the former or the latter causes; for the effect is an increase and accumulation of excitability, or an increased disposition to motion in both cases, and disease or irregular action the necessary consequence of the action of stimuli, upon the excitability thus generated and accumulated.

With these alterations and additions to the Brunonian system, Dr. Rush proceeds to deliver a summary of the doctrine which he teaches at present, of which the following is an abstract: viz.

As in health, there exists a constant and just proportion between the degrees of excitement and excitability and the force of stimuli, so in a predisposition to disease, (which consists in debility and undue proportion of excitability, or preter-natural disposition to motion) the ratio between the force of stimuli, excitement, and excitability is destroyed, in consequence of which, the stimuli act with a force which produces "irregular action." And when the excitability is comparatively more abundant in the blood-vessels than in the other portions of the system, which, from their being distributed in numerous and minute branches to every part of the surface of the body, both internal and external, is frequently the case, morbid, or irregular and convulsive motion is produced in them by the stimulating action of the circulating blood; for the equilibrium of the system being destroyed by the

sudden abstraction of excitement, in consequence of the suspension of the natural and customary stimuli, the blood becomes unequally distributed, and by acting with an increase of quantity and force in parts not accustomed to either, becomes an irritant to the muscular fibres of the blood-vessels, and thus an exciting cause of fever. When the excitability is redundant, and the natural or customary stimuli continue to act, the disease exhibits symptoms which indicate too much strength or activity, but more predominant in that portion of the system in which it has become comparatively more abundant than in the other portions of the same: and when it is deficient, the symptoms indicate too little strength and activity in the system, and particularly in that portion of it in which the excitability is comparatively more defective than in the other portions; and when either the quantity of the excitability, or the force of the stimuli are in an undue proportion to each other, different degrees of excitement or power of action is the consequence.

Dr. Rush maintains, that all the remote or predisposing causes of disease are debilitating, and that all the occasional or exciting causes are stimulating.

Among the remote or predisposing causes, he enumerates, with the generality of systematic writers, cold, immoderate evacuations, the depressing passions of fear, grief, &c. all of which induce debility or a diminution of healthful power, by the abstraction of customary and salutary stimuli, in consequence of which the excitability accumulates and becomes redundant.

Among the stimulants which, when applied to the

body debilitated by the remote causes, produce disease, he includes sensible heat, marsh and human miasmata, contagions, and poisons of all kinds, intemperance in eating and drinking, sudden emotions of the mind, bruises and burns, all of which, he says, act by their stimulating power only in the production of disease; and though he admits that fever is frequently the consequence of the debilitating effects of the remote causes, without the application of any apparent stimulus, he says the circulating blood is sufficient in such a state of excitability to stimulate the arteries, and produce irregular action.

If marsh miasmata produce fever, by a direct stimulating action upon the muscular fibres of the arteries, (the existence of which is rendered questionable by the experiments of the celebrated Haller, and by those of Kirkland, as he assures us in his *Medical Surgery*,) as maintained by Dr. Rush, in opposition to the best and most approved writers on pathology; and if they act like the stimulus of heat, and other direct stimuli, not only in increasing power and motion, but in modifying the forms of disease, according as they meet with a greater or less portion of excitability which this doctrine teaches, why do they not sometimes produce measles, scarlatina, small-pox, gout, and hydrophobia, as well as a fever of type?

If marsh miasmata acted, as direct stimuli are known from experience to act, an increase of power, or at least of action, would be evident in some part of the system, the instant they came in contact with it; but this is not the case, for persons who are exposed or subjected to the immediate contact or action of marsh miasmata, in situations and under circumstances most favourable for them

to produce their effects, perceive no sensible effect after such exposure for some days. A period always intervenes different on different occasions, but always of a sufficient length after having been subjected to their influence before any effect is perceived or felt by the person who has been thus exposed. To prove to the satisfaction of every one qualified to discern the relation between cause and effect, that they do not act upon the arteries by a directly stimulating power in the production of fever, and even after disorder does begin to occur, after they have been received into the system, the symptoms by no means at first indicate the action of stimuli, upon the fibres of the arteries, for they are always defective in power and activity for some time after the paroxysm commences, though they afterwards recover greater apparent power and activity, as well as action, in the course of the paroxysm. If miasmata acted by a directly stimulating power, an increase of power and activity would appear immediately, and all the functions of the body would show signs of vigour, as they do upon receiving wine or other active stimuli into the stomach; or if they acted with the force and celerity of the electric fluid, a prostration of strength and suspension of sensibility would be the immediate consequence. There ought to be an immediate or gradual augmentation of healthy excitement or irregular action the instant they entered the system.

If the theory of disease taught by this venerable and ingenious physician were true, the cure of every form or variety of disease would require the employment of stimulating remedies, only varied in degree of force or power, and proportioned to the quantity of excitability or disposition to motion in the several portions of the system;

because, in every form of disease, depending on debility, connected with too much excitability, they would expend the surplus of excitability, and in those whose symptoms indicate too low excitement, or defect of power, they would increase the excitement. But if every form or variety of disease depends upon different degrees of excitement, as taught by Brown, and on different degrees of irregular action, as taught by Dr. Rush, and the different degrees of force in the irregular action, depend upon a greater or less disproportion between the quantity of the existing excitability and the force of the stimuli applied, or in action, and if the excitability becomes more abundant in proportion to abstraction of natural and customary stimuli, either Dr. Rush's theories or practice must be wrong; for blood-letting and other debilitating remedies which he prescribes for reducing too strong action of the blood-vessels, would, if his theory were true, add to the cause on which the irregular action or convulsion of the arteries depends, by abstracting stimuli, and thereby permitting the excitability to accumulate; and instead of curing, would only change the disease from too strong, to too weak action.

When the doctrine of morbid matter was in fashion, and it was taught that the proximate cause of fever was a fermentation or ebullition of the blood, to concoct and ripen the morbid matter, and fit it for expulsion, by some of the emunctories or secretory vessels, Baglivi charged the teachers of that doctrine with inconsistency and want of judgment, for advising blood-letting to reduce the heat of the body, the supposed consequence of that fermentation or ebullition of the blood; because if the doctrine was true, the heat and ebullition might be



more speedily and certainly reduced by the application of cold, and drinking cold water, than by drawing off part of the blood, so long as the cause of its heat remained in operation. To illustrate the inconsistency and inefficacy of such practice, he asks the advocates of that doctrine, whether, if they wanted to diminish the heat of water boiling in a pot, they would expect to succeed by unlading part of it, or by adding cold water to it till they could remove or extinguish the fuel by which its heat was supported.

A similar question might be proposed to those who expect to cure fever by abstracting the exciting cause, (the stimulus,) so long as the proximate and predisposing causes not only remain, but are augmented by such treatment.

But the creed that excitability accumulates in direct proportion to the degree of debility, induced by the abstraction of customary stimuli, whether natural or artificial, is not only hypothetical, but is contradicted by facts that are familiar to every practical physician. In the last stage of typhus fever, for instance, and in numerous cases from its very commencement, recent examples of which have occurred in different parts of the eastern states, when debility is very great, as well as in the asthma and colic, instead of a proportionable increase of excitability, the deficiency of excitability is so great as to require the most powerful and penetrating stimuli to arrest the ebbing tide of life ; whereas, in all cases of fever accompanied with, or depending on, local and acute inflammation, the mildest stimuli increase the action of the system, and raise the excitement. But if the powers of

life become impaired or diminished in consequence of fasting, the abstraction of animal heat from exposure to the cold, or in consequence of immoderate evacuations, or from fear, grief, &c. can it be said, with any degree of probability, that the vital principle, or the excitability has gone on to accumulate in the system under such circumstances, and that, because it has not been expended by the action of stimuli, it must be redundant?—We might with equal reason expect the production of an effect without a cause. It would be the height of credulity to expect that the vital principle or excitability, the generation of which requires the function of health, should be generated and accumulated in greater abundance by a process of disease. The probability is much greater, that the torpor and debility which precede disease, would in a great measure prevent any additional generation and accumulation of excitability.

If there is but one disease, as Dr. Rush teaches, because every form or variety of disease is accompanied with irregular action, we might say, by the same logic, that there is but one medicine, or that medicine is “a unit,” because every form or variety of medicine, acts upon the excitability or living principle; and that there is but one animal, because every animal is a living creature, or at least an automaton or self-moving machine, though the figure, character, habits, and actions of some kinds are entirely different from those of every other kind; some being fixed like weeds, to perish where they grow, some to grovel in the dust, while others spread their light wings, and mount into the “viewless air;” while others, a watery race, “cleave ocean’s briny waves.”

A doctrine which has nothing but conjecture for its support, instead of being a suitable guide to the medical student, must necessarily perplex and mislead him ; for it would be impossible in the generality of cases, to discover the relative proportion between the excitability in the system, and the force of the stimuli necessary to be applied in order to give out the healthy excitement, or to accommodate the exciting powers to the state of excitability ; for who will presume to say, that he has the sagacity to discern the relative proportion between the exciting powers, and the quantity or state of the excitability present in the different varieties of fever, or the relative proportions between the excitement or the power of action which obtains in phlegmon and erysipelas, tetanus and phrensy, gout and palsy, pleurisy and dropsy, apoplexy and asphyxia, rheumatism and scurvy, dysentery and diarrhœa, enteritis and colic, or even to distinguish the two last mentioned diseases from each other, or the asthma from the croup in all cases, by merely adverting to the state or quantity of the excitability existing in the system, or by comparing the strength or weakness of irregular action in the different portions of the system with the standard of health ?

In some cases of peripneumony the disease cannot be distinguished from asthma, by the state of the pulse and respiration, though they depend upon proximate causes that are essentially different ; other marks of distinction must therefore be inquired for, that the one may not be confounded with, or mistaken for, the other ; but these marks of distinction are not to be discovered by measuring or weighing the excitability or the degree of excitement, by an imaginary scale or rule of conjecture, and

it is of primary consequence to know the circumstance which occasions the one to differ in its nature from the other, as the remedies beneficial in asthma, would probably be fatal in peripneumony.

An attempt, therefore, to banish nosology (derived from repeated and accurate investigations of the nature and causes of diseases) from medical studies, and to substitute in its place, vague and uncertain rules, is certainly a very extraordinary proceeding in a physician and teacher of Doctor Rush's distinguished abilities and acquirements. For though nosology will not teach us how to cure diseases, it will assist us very much in acquiring the knowledge that will. It is the province of nosology to collect and arrange all diseases of the same nature, that depend upon the same proximate cause, and which experience teaches require similar remedies, under the same class, order, genus, and species, and to mark the characters or signs by which the diseases of different classes are distinguished from those of every other. By the rules of nosology, the student very soon learns to distinguish diseases of a different nature, and which consequently require different kinds of remedies, from each other; whereas, if he adopts the rules of the Brunonian system, as modified and explained by Dr. Rush, he will, till he has by long practice and attentive observation acquired a portion of the doctor's sagacity, find himself perpetually at a loss in accommodating his practice to those rules; for no man, except by chance, can direct his remedies with unerring aim, who takes uncertain rules for his guide.

*(To be concluded in our next.)*

## AMERICAN BIOGRAPHY.

*MEMOIR OF THE LATE DOCTOR JOHN BARD.*

With an Engraving, from an Original Painting.

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We have great pleasure in presenting that class of our readers, whose declining years have lessened the number of their enjoyments, with an appropriate gratification ; the portrait of a fellow-citizen, whom many of the m will recollect with unfeigned affection, and all who knew him with that respect and esteem which useful talents, exercised with urbanity, benevolence, and integrity, will always command.

If the life of Dr. John Bard furnishes few anecdotes that amuse or surprise, it affords at least one useful lesson ; that persevering industry and inflexible integrity, will surmount great obstacles, and conduct a man to honourable distinction and envied eminence, from under the pressure of great and early discouragements. His father, who was a refugee from the tyranny of Lewis the 14th, at first to London, was sent thence by an uncle to this country, on a mercantile speculation but ill suited to his genius, and consequently unsuccessful. He therefore abandoned merchandize, and retired to Burlington, in New-Jersey, where having been appointed a judge of the supreme court, and one of the governor's council, he died at an early age, leaving his widow, with a very moderate income, to support and educate a young family of seven children, to which she devoted herself with so much

good sense and pious zeal, that she lived to see them all respectably established.

JOHN, her third son, was sent to Philadelphia, and introduced, for it could only be called an introduction, to the rudiments of a polite and classical education, under the best masters then to be procured. In one circumstance he was fortunate; his Latin teacher was a Scotch gentleman, by the name of Annan, who, at the same time that his contracted circumstances compelled him to teach a grammar school for his support, by his learning and politeness commanded the respect, and enjoyed the society of the governor and principal gentlemen of that city. But Doctor Bard possessed the advantages of this situation only for a very few years, and at the age of fourteen or fifteen was, according to the custom of that day, bound apprentice to Mr. Kearsly, an English surgeon, of good talents, but of so unhappy a temper, that his presence banished cheerfulness from his family. He treated his pupils with great rigour, and subjected them to the most menial employments; to which, Doctor Bard has been often heard to say, he would never have submitted, but from the apprehension of giving pain to his excellent mother, and the encouragement he received from the kindness of her particular friend, Mrs. Kearsly, of whom he always spoke in terms of the warmest gratitude, affection and respect. Under such circumstances, he persevered to the end of seven tedious years, stealing his hours of study from sleep, after the family had retired to rest, and before they arose from their beds.

Before he was released from this thralldom, he became acquainted with Doctor Franklin, of kindred mind, and

no unequal fortune ; whose friendship and cheerfulness brightened his leisure hours, whose example roused, and whose indefatigable industry stimulated his exertions and perseverance.

This early intimacy was ripened by a similarity of disposition into a lasting friendship, which ended only with their lives, and which Dr. Franklin reminded him in a letter, not long before his death, “ had never been obscured by the slightest shade.”

He at first settled in his profession in Philadelphia, and as soon as he thought himself justified by his prospect in business, married a niece of Mrs. Kearsly, like himself the descendant of a refugee, and almost equally destitute of the gifts of fortune. But after practising in that city about five or six years, he was induced, by the death of Doctor Dubois and Doctor Dupie, who died in New-York of the yellow fever about the year 1742 or 3, to remove to that city ; where, by the urbanity of his manners, his professional talents, and the charms of his conversation, which was enlivened by a constant flow of cheerfulness, enriched by sound sense, and adorned by a very considerable fund of anecdote, he so effectually recommended himself to the notice and friendship of the most respectable families, that he was almost immediately introduced into a valuable scene of business, and very soon arrived at the first rank in his profession. Nor did he lose their friendship or yield his professional eminence through a long life of more than fourscore years.

From the confined circumstances of his education, Doctor Bard was neither classically nor professionally a learn-

ed man ; but he possessed a lively fancy, a sound judgment, and a correct taste. He read with great delight the best authors, particularly the poets of his own language ; and whatever he read and admired, he made so completely his own, that he could recal it almost at pleasure to his memory, and would frequently surprise and delight his friends by long and appropriate quotations from authors he had not seen for very many years. In his profession he read all the best authors of his day ; but his studies were rather select than general. Sydenham and Huxham were his favourites. He formed himself upon their plan, and was so familiar with their histories of diseases, and their rules of practice, that he applied them with great ease and readiness, and acquired from them a correct and happy talent in discriminating diseases, and such sound principles of practice, as rendered his own eminently successful.

About the year 1759, the city of New-York was alarmed by the arrival of a ship from Amsterdam, freighted for the transportation of Palatines, among whom a malignant fever had broken out during the passage, and destroyed a great number. On this occasion, Doctor Bard was employed by the corporation to take proper measures to prevent the disease from spreading. The sick were quartered at a distance from the city ; but notwithstanding every attention, many of the passengers perished ; and although the disease was confined within the limits of the hospital, it now communicated to every nurse and assistant, Doctor Bard only escaping. He immediately drew up a memorial, in which he represented the expediency of providing a pest-house, against similar occasions, which was immediately effected by the purchase of



*Bedlow's Island* and the buildings upon it; the care of which, with the appointment of health officer, was given to him. He was likewise appointed surgeon and agent for the sick and wounded seamen of the British navy at New-York; and retained both these stations until, on retiring into the country, he resigned them.

At the bed side Doctor Bard was distinguished by an affectionate attention to the situation and feelings of his patients; a careful examination and correct discrimination of their diseases; and a diligent application of appropriate remedies; so that even when unsuccessful, he never had occasion to reproach himself with neglect, and seldom failed to obtain the gratitude and esteem of their friends.

In his intercourse with his fellow practitioners, he was to all candid and sincere; but between him and his particular friends, among whom he numbered Doctor Peter Middleton and Doctor John Jones, both men of distinguished reputation, there prevailed an unbounded liberality and confidence, which, whenever it exists between men of eminence in the profession of medicine, must redound greatly to the safety and happiness of their patients.

Convinced from his early youth of the great truths of natural and revealed religion, Doctor Bard never spoke on these subjects but with the utmost reverence. He would frequently take occasion from the wonders of creation and the beauties of nature, of which he was an enthusiastic admirer, to expatiate on the infinite wisdom and goodness of the Deity; and on these occasions the feelings of his heart would glow in his language and

glisten in his eye ; seldom failing to warm his hearers into a kindred enthusiasm. At his own peculiar lot, which was very far from what the world calls prosperous, he was never heard to murmur or despond ; but resigning himself cheerfully to the dispensations of Providence, and pouring forth praises and gratitude for the blessings he enjoyed, he rose from every disappointment with renovated hope and more vigorous exertion.

Captivated by the pleasures and employments of a country life, Doctor Bard, in the year 1773, retired to an estate he possessed in Dutchess county. But the events of the American revolution having greatly injured his fortune, he again returned to New-York, at the peace of 1783, and was received with great satisfaction by most of his old friends who had remained in town, or who returned with him ; and although now far advanced in life, a good constitution and an active mind enabled him to discharge the duties of his profession with ease to himself, and much to the satisfaction of his patients.

On the establishment of the Medical Society of New-York, in the year 1788, he was unanimously chosen their president ; and in the year 1795, gave an eminent instance of his discernment and knowledge of diseases, by pointing out, in an address to that body, the existence of the yellow fever which then appeared in that city, and which he had not seen for forty years. On this occasion he met with much opposition and some obloquy : but he persisted in his remonstrances to his brethren and advice to his fellow-citizens ; until conviction, too fatally earned, silenced the most obstinate of his opponents. He likewise pointed out the sudorific plan of treating that fatal

disease, which, on good grounds, is believed to have been more successful than any other that has been pursued.

The charms of his conversation were protracted to the latest period of his life ; his vivacity and cheerfulness even then enlivened all companies into which he entered; and rendered his society peculiarly agreeable to young persons of both sexes, who never left him but with expressions of admiration and esteem. When surrounded by his friends, he literally forgot all care, and would frequently beguile the time until young and old wondered how the hours had passed.

Thus he lived, admired, respected, and beloved. About a twelve month before his death, he again retired into the country from the fatigues of business. In his eighty-fourth year, after a few days of illness, the first attack of which deprived him of his recollection, and saved him from the only circumstance he dreaded in death, the pain of parting from his friends, he closed his long, useful, and honourable career.

The only writings of a professional nature, which Dr. Bard has left, besides a case of extra-uterine fœtus, published in the *London Medical Observations and Inquiries*,\* are several papers on the nature and character of the yellow fever, and the evidences of its importation into this country. These we shall have occasion hereafter to notice.

\* See vol. 2.

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## R E V I E W.

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ART. I. *A Letter to JOHN HAYGARTH, M. D. F. R. S. London and Edinburgh, &c. from COLIN CHISHOLM, M. D. F. R. S. &c. author of an Essay on the Pestilential Fever; exhibiting further evidence of the infectious nature of this fatal Distemper in Grenada, during 1793, 4, 5, and 6; and in the United States of America from 1793 to 1805: in order to correct the pernicious doctrine promulgated by Dr. Edward Miller, and other American physicians, relative to this destructive Pestilence.* 8vo. pp. 272. London, 1809.

THE name of Chisholm has been long known to the medical world, and must be familiar to all who have felt an interest in the discussion of that momentous question, the contagious or non-contagious nature of the yellow or pestilential fever. His celebrated "Essay" on this subject, which first appeared in 1795, and which was enlarged and re-published in 1801, has obtained for its author the reputation of superior genius, and great professional acquirements. Nor is his fame confined to his native country, but widely extended through this western hemisphere.

The object of Dr. Chisholm in that work, was to prove that the malignant fever, which, in his opinion, appeared first in Grenada in 1793, and afterwards spread devasta-

tion through many of the West-India islands, and some of the most flourishing commercial cities of the United States, was a disease essentially different from the bilious remitting, or, as it has improperly been termed, yellow fever of the West-Indies. That it was a disease highly contagious, generated from peculiar circumstances and causes, on board of a vessel called the Hankey, on the coast of Africa, and from thence carried to Grenada, where its baneful influence was soon felt, and always traced with certainty to its true source, the infected vessel.

The account given by Dr. Chisholm, which militated so strongly against the opinion of those who deny the contagious nature of the fever above alluded to, was soon warmly attacked by N. Webster, Esq. and the late Dr. E. H. Smith, of New-York. The latter gentleman, in an elaborate essay, published in the Medical Repository, (Vol. 1, No. 4.) attempted to show, that the whole of Dr. Chisholm's statement was partial and incorrect. In doing this, he treated the character of Dr. Chisholm with unwarrantable severity.

Among the writers who have strenuously denied the contagious nature of the malignant fever to which we allude, is Dr. Miller, resident physician of the port of New-York. In a letter addressed to governor Lewis on the subject, in 1806, he says, that he is "compelled to conclude that our malignant disease is the effect of a noxious exhalation, floating in the atmosphere; that it is *absolutely and universally non-contagious*," and which "must entirely destroy the belief of its introduction from abroad."

These publications, and others of a similar tendency, have called Dr. Chisholm into the field of replication and argument, and this work is the result of his matured experience and reflections on a subject, which, though viewed by different parties in different lights, is by all allowed to be in no small degree interesting and momentous.

We enter into an examination of the present volume, with the greater pleasure, as it appears to have been wholly overlooked by the adherents to the doctrine of the domestic origin of the yellow fever; and though our quotations will be copious, we have no doubt they will be read as an able defence against the many virulent aspersions with which the character of Dr. Chisholm has been assailed.

Dr. Chisholm asserts, in contradiction to some insinuations that found their way in the *Medical Repository*, that he has not relinquished the doctrines and opinions which he upheld in the essay which has been mentioned above. And he says, "when I impugn the doctrine of locality of cause, I am conscious I have some right to do so; several years residence in or near Philadelphia and New-York, having presented me with adequate opportunities of knowing the local circumstances of these cities as they relate to the production of disease." p. 7 and 8.

With respect to the origin of the disease which prevailed on board of the *Hankey*, and which he believes was brought in this vessel to Grenada, he thus expresses himself:

“ A fever proceeding originally perhaps from the inclemency of the season, and the circumstances of the situation of the adventurers, had become, by confinement, filth, consequent impurity of air, and depression of spirits, a true jail fever, or a fever of infection, heightened to an almost pestilential violence. Infection proceeding from a source such as this, and retained and concentrated by the pertinacious preservation of the bedding and clothes of the dead, might certainly have been sufficient to produce the most dreadful effects.” p. 13.

This, with respect to contagious or infectious fevers, appears to be the medical faith not only of Dr. Chisholm, but of many of the most experienced physicians of Europe and America, and according to these gentlemen, “ the importation of infection gave origin, and the emanation of contagion gave wide diffusion to the malignant pestilential fever.” p. 19.

The doctor then proceeds :

“ If I have repeatedly seen, or known from undoubted authority, that healthy persons, visiting a certain ship, soon after became affected with a certain train of morbid symptoms, which in a few days or hours, deprived them of life, I have every reason to be satisfied that these persons received their illness and death, from some deleterious principle peculiar to the ship they visited. If, again, I have repeatedly seen or known from undoubted authority, other healthy persons approaching to within a certain distance from those diseased persons, or coming in contact with them, have soon after become affected by the same train of morbid symptoms, I am fully justified in being assured that a deleterious principle of the same nature has been received from the bodies of the last, into those of the first, producing the same effect. If, again, a ship or other vessel, on board of which any of these persons are, or have been in a diseased state, or whose clothes have been preserved on board, imbued with the effluvia proceeding from their bodies in a diseased state, proceeds to another country, and if the healthy of that country, on visiting, or having communication with this ship, become affected with the same

train of symptoms I have observed to take place in the first instance, and if from them, other healthy persons are similarly affected, I am fully supported when I express my firm conviction, that this second disaster has been produced by the introduction of the deleterious principle proceeding from the first vessel or ship. Further, if nothing locally or previously existing in the first or second country, was ever seen or known by myself, or seen or known by others of undoubted authority, to have produced such a train of morbid symptoms as was observed to arise from the operation of the principle imported into either country, in the manner stated, I possess the strongest proof that nothing local and previously existing in these countries could have been the cause of this train of morbid symptoms." p. 19, 20, 21.

The author next proceeds to show that there is undoubted authority for this opinion and belief in the writings of other respectable and experienced physicians.

He then appropriates several of the succeeding sections of the work to the demonstration of the following propositions.

Proposition 1st. "That his opinions concerning the malignant pestilential fever, as it appeared at Grenada, and the other West-India Islands, in 1793, 4, 5, and 6, are not singular." In proof of this he quotes the authority of Dr. John Stuart, Dr. John Gordon, of St. Croix, physician general of the Danish West-Indies, Dr. Dancer, of Jamaica, Mr. Brown, Dr. M'Gregor, Mr. Bruce, surgeon to 88th Regiment, Dr. Blane, Dr. Fellowes, of Gibraltar, Major Wright, and Dr. Robertson. His conclusion of this section is,

"That the importation of infection, and the subsequent diffusion of the malignant pestilential fever, by contagion, are almost universally admitted by resident physicians in the West-India Islands, and by a



great many of the more enlightened and liberal of the north American states." From p. 23 to 47.

Proposition 2d. "That this fever and the yellow remittent are not precisely the same disease."

In proof of this position, among other authorities, we find the following cited; Dr. Charlton, President of the Medical Society of New-York, who asserts that he practised physic in that city since the year 1762, and that he never saw a case of yellow fever in the course of his practice, before the year 1793, and that he always considered it as a disease of foreign origin, and not indigenous. Dr. Bard, also, who began to practise medicine in New-York, in 1766, speaks of hospital and jail fevers during the revolutionary war, in New-York, but asserts, that he never saw a case of the yellow fever till 1795, which he describes as precisely similar, says Dr. Chisholm, to the pestilential malignant fever of Grenada; he believes it to be a stranger and not a native of this country, (U. S.) and from the best information he could obtain, in every instance of accession imported from abroad. Dr. Ledyard\* was ultimately of the same opinion, as we are informed on the authority of Dr. Hosack; Dr. Munson is also cited by our author, as having satisfactorily proved the origin of imported infection at New-Haven: the publications of the College of Physicians of Philadelphia on this interesting subject are next mentioned with respect, and many authorities adduced from them in favour of the doctrine of infection and contagion in malignant fevers, and the essential difference that subsists between the bilious remittent, or endemic of

\* Late Health Officer of the Port of New-York.

the United States, and the malignant yellow or pestilential fever, for which we must refer our readers to the publication itself.

His 3d proposition or section, seems to be entirely devoted to prove the truth of the statement made in his preceding work, which has been referred to by us, that is, that the disease of Grenada, originated from the pestilential state of the ship Hankey, then lately arrived from the coast of Africa.

Our limits will not permit us to follow our author through the whole of these proofs, which seem more and more to strengthen and confirm him in his first opinions, and that the disease generated on board the above vessel, was of the most contagious and fatal nature ; for he states, that out of seventy-five colonists, thirty-five died from the 1st of August to the 23d November, and many after a few hours illness.

His 4th proposition is to show, “ that, in his letter published in a mutilated form, in the Medical Repository of New-York, and quoted by Dr. Miller, he has not relinquished the doctrine and opinions he upheld in his essay.” We shall not attempt to follow our author through the whole of this section, but must regret that this interesting question of the origin of the malignant fever, has in its investigation given rise to so much of acrimony and personal sarcasm. “ Reason,” as has been well observed by a worthy philosopher and politician now no more, “ is a cool thing—heat it, and you destroy it.”

Our author observes,

“That the learned, the ingenious, and truly benevolent physicians who have reported on the habitations of the labouring poor of Chester, Manchester, Liverpool, Newcastle-upon-Tyne, and lately of Dublin, furnish the most ample illustrations of this most important fact in medical physics, that the vapour or exhalation arising from animal matter accumulated in a putrid state, and rendered stationary by the neglect of ventilation, is universally the cause of the fever of infection, the typhus, which annually diminishes the population of these cities. Their ingenious and humane exertions have most clearly manifested the remedy. Remove the accumulated putrefaction, produce perfect ventilation, decompose the matter of infection, or purify the pestiferous fomites contained in the houses or chambers of the sick, and you give health and comfort to those who have been bereft of both. The same causes probably give origin to the plague; and in the case before us, the produce of such a state of circumstances is marked with a peculiar character, by the climate in which it takes place. In cold and temperate climates we see a *simple* fever of infection, or typhus, is the consequence; within the tropics, there is superadded to the most malignant virus of typhus infection, many of the distinguishing features of the most violent yellow remittent fever, thus forming a monstrous *compound*, which hitherto has not found a place in any nosological arrangement.” p. 133, 4, 5.

He closes this part of the subject with a remarkable instance of the fatal contagion acting on some individuals on the coast of Demarara and the adjacent country; and then attempts, after Dr. M'Gregor, to point out the affinity, in many striking particulars, between the true plague and yellow, or malignant pestilential fever, examining afterwards the points in which a manifest distinction has been observed.

We are next presented with an “examination of Dr. Miller's report,” which has been mentioned in the course of this review. And we here find that our author differs from this gentleman in his opinions with respect to the fatal disease under consideration *toto cælo*.

In answer to Dr. Miller's argument founded on the extinction of the disease by cold, which is considered by many as an insuperable objection to the doctrine of its propagation by contagion, he observes, that "had the disease been typhus, this might be an objection; but as it is admitted that 'yellow fever' is the produce of infection, in combination with a high temperature of atmosphere. If it is, and of this there can be no reasonable doubt," says he, "cold weather must have extinguished it." p. 177.

Dr. Chisholm, in contradiction to the assertion of Dr. Miller, next quotes several well attested instances from the most respectable authorities, of this malignant disease being communicated by contagion in the country, and concludes,

"That infection combined with, and peculiarly modified by a high temperature of atmosphere, constitutes its cause and its *specific character*; that assimilation of the human constitution to the tropical climate, diminishes its violence, but does not change its course, its duration, or its symptoms; that the unassimilated suffer infinitely more, and in it the course and duration of the fever are thereby cut short, in most instances, as is not unfrequently observed in the eruptive fever, excited by the specific contagion of small pox." He thinks, 'that there can be no line of distinction established between this and other contagious diseases in respect of the co-operation of predisposition of the body exposed to their contagion.' p. 182, 3.

"Who does not know," says he, "that the degree of intensity of the action of variolous contagion on the human body, depends on the temperament and other predisposing qualities of the body? Who is ignorant that the same syphilitic poison which violently affects one, will exert no power over another? Can it be denied that the plague will leave some exempt, but destroy others exposed to its contagion? Innumerable have the instances been of the same persons resisting

the contagion of 'yellow fever' at one time, but fatally yielding to it at another. What can this variety be attributed to, but the predisposition being more or less adapted to the peculiar nature of the assailing contagion?" p. 183, 4.

Dr. Chisholm believes that,

"When the contagion of a pestilential disease has been once imported, its recurrence at subsequent periods may not require fresh importation. The seminum of the disease may be preserved in clothes, &c. and when the temperature of the atmosphere, habits of the inhabitants exposed to it, and other predisposing circumstances concur, then the evolution and action of its virus may with certainty take place, and become as fatal as after the original importation. Is it not then more probable," he asks, "that this happened in the United States, than that their seaports should be, maugre the utmost exertions of the executive of their government, sinks of pestilence, from causes existing in, and inseparably attached to their soil?" p. 192, 3.

Speaking of obviating the causes of this fatal disease, Dr. Chisholm says,

"I am confident the purposes of prevention might be more completely fulfilled by paying that attention to low houses of dissipation and lodging, the resorts of indigence, misery, and vice at all times; and during pestilential seasons the secure asylum of infection which, with fruitless assiduity, is now lavished on the slips, sewers, docks, and made ground." p. 196.

The doctor thus concludes.

"From the minute consideration of this most important subject, and the enlarged view of all its circumstances, there arises, if not a certainty, at least the strongest probability, that the original appearance of the malignant pestilential or 'yellow' fever proceeded from imported infection; that the subsequent diffusion arose from contagion; and that its frequent recurrence at distinct periods, may

be accounted for in a manner perfectly satisfying to the reasonable enquirer, either by the importation of fresh infection in some instances, or in others by the evolution of the basis of that which had already devastated the cities and towns of the North American States, but whose operation had been suspended by restraining, not extinguishing causes. If this is the result of our enquiry, it follows, that whilst rational quarantine laws are fully and rigidly acted on to prevent the admission of fresh infection; to obviate that already existing, the establishment of institutions for the reception of patients under fever, which may be considered as at all suspicious, should be resorted to, and enforced with all the energy and wisdom of the government, and all the prudence, the humanity, and stimulus of personal safety, of the more opulent inhabitants of the United States. The encouragement held out by the salutary consequences of such institutions in other countries, should not be neglected, should not be contemned, nor give place to notions of security truly ideal, and which have so often been subverted by fatal experience. Let the wise measures of prevention be adopted which have been so successfully pursued in most of the cities and large towns of Great Britain and Ireland, particularly Chester, Liverpool, Manchester and Dublin, and then indeed contagion may be rendered "a bug-bear;" then indeed, "we shall lessen apprehension and distress; we shall disarm the evil of half its power, and restore the ties of kindred and of "nature." When it is further considered that houses of recovery, as they have been called, have been established with a success more than commensurate with the most sanguine hopes of the projectors in the cities and towns of this country (Great Britain) most renowned for commerce and manufactures, a still more cogent incentive will be held out to the legislators and the principal inhabitants of the cities and towns of the United States. Feelings of general philanthropy, as well as of particular respect for, and the disinterested hope of promoting the welfare of these states, so cruelly suffering under the ill-judged promulgation, and, I fear, adoption of a most pernicious theory, excite in me the wish that they may cordially relinquish all the animosity and spirit of party, and unite in the accomplishment of this great, this beneficent object, which I feel a reasonable confidence, will be productive of a permanent freedom from this most dreadful of evils." p. 213, 14, 15, 16.

We are next presented, in the appendix, with a very important letter\* on this most interesting subject, from the respectable and experienced Dr. John Gordon, of St. Croix, Physician-General to the Danish West-Indies, to Dr. Haygarth. Our notice of it must be necessarily much shorter than its intrinsic merit demands, as we have already extended this review much beyond the limits we originally intended, or than perhaps the patience of our readers may readily excuse. We must therefore refer those who are curious on the subject, or who prefer the result of the long and extensive experience of an enlightened physician, to the theories and speculations of even ingenious men, to the letter itself, which we venture to predict will amply repay in instruction the time bestowed in its perusal.

He traces the first introduction of the pestilential fever into St. Croix, in September, 1793, to communication of the crew of a government vessel which arrived there with sailors from on board vessels at St. Thomas, which had arrived there from Grenada, where the fever then raged. From this vessel it was communicated to the European and American vessels in the harbour, the crews of which were previously healthy, and to the soldiers in the garrison, and continued raging until the middle of November.

He says it again appeared at various times in the hot months of 1796, 97, 98, and 99; and was principally introduced by American vessels, and those from St. Thomas, but more frequently by the former. "We were on our guard against it," continues Dr. Gordon, "and whenever the fever appeared, we traced it to its source, turned

\* Dated Bath, 8th March, 1805.

the vessel that brought it out of the harbour, cut of all communication of the infected with others, and if they had been brought on shore, or the disease any where appeared, took every precaution to prevent the spreading of its malignant influence. Hence, though frequently imported, it was never general in the years above mentioned." p. 222.

"In the year 1800," continues Dr. Gordon, "a pestilential fever of exactly the same nature, but rather with increased malignity, again appeared, and was communicated very generally to all who were susceptible of its contagion, and came within the reach of its influence." p. 233.

"The source of the infection was at first difficult to be discovered, but I was fortunate enough," says the doctor, "to trace it; two men were sent in exchange from St. Thomas to our garrison. They were recruits, had gone through the fever in the hospital of St. Thomas, and came directly to us from thence in a convalescent state with the clothes on them which they had worn during the time of their sickness, for no hospital dress was allowed.

"These men were so weak on landing, that they were immediately sent to the hospital without my knowledge," says Dr. Gordon, "and from them certainly originated the pestilential fever. The proofs upon which this conclusion rests are; that it first appeared among the sick in the hospital, who were not in any dangerous state on their arrival, but were all convalescent from the remittent fever and other diseases. Besides, at that period, there was a great mortality in the garrison of St. Thomas, whilst in our's not a man had died for six months." "This could be accounted for in no other manner but from the operation of contagion; for the state of the atmosphere was then, and had been for some time, very favourable to the general health of the island." p. 226.

"Owing to the want of a quarantine establishment, a second contagion was introduced in October, 1800, a few months after we had, by proper means, eradicated the malignant one above mentioned." p. 228.



This was introduced, as it appears from Dr. Gordon's statement, by a vessel from St. Domingo. A few days after her arrival the doctor was called on board and found one or two Americans dangerously ill of the yellow fever, and who died. The pestilential fever soon appeared in the harbour, which, says he, "I have every reason to believe was imported by the above vessel."

Notwithstanding the representations and exertions of Dr. Gordon, on the necessity of rigid quarantines, it was not until the year 1802, that quarantine establishments were made at St. Thomas and Frederickstadt.

"General Waltenstorf, the commander in chief," says the Doctor, "upon being applied to by me for that purpose, answered with a liberality that does him credit, and would equally do so to all those who are biassed by an opinion so fatal to mankind, 'that though he was not convinced that the disease dreaded was infectious, but was inclined to opposite sentiments, yet, as he was liable to errors, he would take the safest side, and strictly follow the directions given by the quarantine commission in Copenhagen, and enforce the measures they recommended.' This he accordingly did, and I had the satisfaction afterwards to learn, that this distinguished officer, by the accounts he received from different places in the West-Indies and America, was convinced of the existence of the disease, as well as of its fatal effects." p. 231.

The disease was again introduced in one of the warm months of the year 1802, notwithstanding strict precautions, by a deception on the part of a master of a vessel. It shortly after appeared in the garrison in the harbour and raged at St. Thomas: "This," says he, "gave us another fatal warning to be on our guard against false entries and reports." p. 233.

“It is not meant as a national reflection to remark,” says Dr. Gordon, “that the Americans gave us most reason to be circumspect, as it would apply to the people of every nation under similar circumstances.” p. 233.

“Their trade,” continues he, “is not confined to one or two islands, as that of the Europeans generally is. They touch often at almost every island in seeking for a market, though they may not enter into any port, yet they have communication with the inhabitants for the purpose of getting information, purchasing necessaries, or disposing of their little adventures. Nothing is more easy to conceive, than that the sailors might receive the infection without being aware of it; and it has certainly to my knowledge happened so.

“They have come from America perfectly healthy, touched at an infected island, there received it, and brought it down to St. Croix, without knowing their danger. Some men there are who concern themselves very little what effects their conduct may have on their fellow-citizens, provided they can escape detection, and accomplish their views of gain and interest. And such are mostly to be found among those who carry on a forced or illicit trade. With regard to such people it particularly behoves the police of every country to be on its guard against the importation of infection.” p. 234, 5.

The destruction of human life in the West-Indies by pestilential fever, of latter years must have been great indeed, for it is stated by Dr. Gordon, upon the first authorities, that “the French, in sixteen months, out of twenty-eight thousand men had lost two thirds of the number, and of the remainder not six thousand were capable of bearing arms.”

“To troops accustomed to the hardships of war, as they were,” says our author, “and to warm climates, no other cause could have occasioned so great and sudden a loss, but a malignant pestilence, and its existence among them I believe is not denied. Add to what is above related, the depopulation of flourishing cities in North

America, of Cadiz, Malaga, and Gibraltar, and they will contribute to form an accumulation of evidence superior to any argument. Its irresistible force must establish the fact, that the pestilential fever which has destroyed so many thousands in the western world, and now, [1805] threatens Europe with devastation, is of a highly contagious nature. The British government, though late, seemed now fully convinced of it, and proper precautions are now established by authority.

“If the measures adopted,” continues the Doctor, “are proportioned to the exigency of the occasion, and the observance of them properly enforced, I have no doubt but that Great Britain will be protected, or very partially affected, by this destructive scourge, and even the colonies liberated from its power.

“But to accomplish this purpose all nations must combine. The Americans, the Danes, and the Spaniards have shown laudable examples, and if the others concerned follow them with vigour, there will be every reason to hope that this pestilence will be exterminated.” p. 246, 7.

Dr. Gordon gives the result of his observations and experience in the following words, being the substance of a communication to the quarantine commission of Copenhagen. It was his opinion,

“That the pestilential fever did not arise from putridity of any animal or vegetable substance, nor from uncleanness and filth, heat, humidity, marsh miasmata, or any quality of the atmosphere; but was human contagion most probably first generated by disease in human bodies, propagated and continued by effluvia, from them, or substances that had come within the reach of their influence. That cotton, coffee, or any substance in any state whatever, that had not been impregnated by the above effluvia, could neither generate nor propagate the infection. That the usages of quarantine establishments against the plague, and those at Philadelphia against the above fever, with respect to the cargoes of vessels, appeared to me unnecessarily burthensome, tedious, and expensive.

“ That precautions against their importation ought to be carefully taken, and the means of stopping their progress, when imported, strictly enforced. But that these should be confined to the sick themselves, their apartments, clothes, bedding, or whatever had been in the same room with them, or approached their bodies.

“ That in an infected ship, apartment, or hospital, the proper means (which are well known to physicians) should be practised, and every place and substance purified by washing, ventilation, &c.

“ That coffee, new goods in bales, barrels or boxes, or any merchandise whatever, that had not long been exposed to the effluvia of diseased persons, by serving them as beds to lie upon, or confined with them in a close apartment, could never communicate infection, and might be easily purified by simple ventilation.

“ But that clothes, rags, bedding of all kinds, should be purified by being well soaked in water, and afterwards aired; or if suspected to be strongly impregnated with the miasma, to be immediately destroyed.

“ I complained,” continues Dr. Gordon, “ at the obstacles that those concerned in trade threw in my way when executing my duty, particularly of the perverseness and forwardness of the pilots, who thought themselves, perhaps, interested in thwarting my measures. But if regulations be established for preventing the importation of so destructive a pestilence, the observance of them in every point should be enforced by severe penalties, for indulgence and relaxation must make them useless. At the same time I was convinced from experience that every necessary measure might be taken with very little impediment to trade.” p. 248, 249, 250.

The doctor next gives some very interesting facts to prove that putrefaction and filth did not give rise to the pestilence, for which we must refer to the work itself, as they would occupy too much space in this review.

“Twelve years ago,” says Dr. Gordon, “I warned the government in St. Croix, by memorial, and my fellow citizens by advertisements in the news-papers, of the contagious nature of the pestilence that threatened them. Much travelling since in America and the West-Indies, conversation with medical and other scientific men, and a continual addition of facts, have confirmed me in the opinion beyond the reach of doubt.” p. 254.

In the appendix No. 2, we also find an extract of a letter from Dr. Haygarth to the College of Physicians at Philadelphia, dated 16th October, 1806.

The chief object of this letter appears to be, to inform the college that Dr. Fellowes, physician to the forces at Gibraltar, after much patient and judicious investigation, has discovered, beyond all doubt, the manner in which the pestilential fever was brought into that garrison.

It appears from Dr. Fellowes' account, that

“One Sancho had been an inmate of a family at Cadiz, when they were ill of this pestilence; that he left Cadiz on the 25th of August, 1804, and was attacked with this distemper in Gibraltar, whither he had returned on the 27th. Sancho kept a retail grocery shop. Near it was a canteen, or liquor shop, whither the fever soon spread. From these two houses, with which numerous visitors had undoubtedly hourly intercourse, who had not the least suspicion that they contained any infectious patients, many families in the near neighbourhood speedily received this mortal distemper. In consequence of the fatal error and positive assurances, that this pestilential fever was not infectious, it rapidly spread, attacked about twelve thousand, and became mortal to between five and six thousand patients.”

“Dr. Fellowes,” says Dr. Haygarth, “visited Cadiz, where he received a full confirmation of the above account of Sancho. He went to Malaga, and discovered in what manner the pestilential fever had been imported into that city. In this journey he obtained au-

thentic information from the chief magistrates and physicians, that the ravages of this pestilence were not confined to places connected with tides, as is said to be the case in America; but that it was fatal to hundreds, in several inland towns in Spain." "Dr. Fellowes," continues the doctor, "will, I hope, soon publish his very valuable observations on this subject, which undoubtedly will be of inestimable importance to America." p. 259.

A letter from Dr. Robertson to Dr. Chisholm, next follows, which confirms the statement of Dr. Fellowes. Dr. Robertson visited Gibraltar after the ravages of the disease had ceased, and made many inquiries on the subject. He agrees with Dr. Fellowes, with regard to the manner of its introduction, and its highly contagious nature, and likewise mentions that those families who secluded themselves at an early period from all communication with those attacked with the disease, experienced a happy exemption from this fever.

The appendix No. 3, contains a letter from Dr. John Stewart, a gentleman of eminent professional abilities. We shall insert it entire, as Dr. Stewart's opinions are the result of actual observation, and sufficiently prove, that the city of New-York, in regard to cleanliness, is not inferior to any of those which have been exempted from the ravages of the yellow fever.

"Bath, March 2, 1808.

"MY DEAR SIR,

"I have been favoured with your letter of the 29th ult. In answer I have to observe, that during the short time I was at New-York, I had but little opportunity of making particular inquiry concerning the object referred to. I can, however, assure you, that I found New-York, as I did all the towns I passed through, from Portland, in the District of Maine, to Fredericksburgh, in Virginia, extremely

clean; and if a comparison was made between them and the seaport towns in other parts of the world I have visited, certain I am, it would appear decidedly to their advantage.

“ I was at New-York in November, 1805. The weather was then cold, and the epidemic, which had prevailed to a great degree in the months of September and October, was then rapidly on the decline. On that occasion, I must say, I could not discover in the streets, docks, or slips, any collection of filth, or impure source, from whence it might be supposed exhalations could be produced that would give rise to the prevalence of epidemic fever.

I remain, &c.

JOHN STEWART.

Dr. CHISHOLM, Clifton.

We have thus attempted to give in our review, an abstract of the more important facts and observations in the work of Dr. Chisholm; from which it will appear that the doctrine of the contagious or infectious nature of the malignant pestilential, or as it has been commonly termed, yellow fever, and the possibility of its importation from one country to another, is not confined to a few of the physicians of the United States, but that it is received and supported by many of the most learned and experienced medical characters both of the West-Indies and of Europe.

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ART. II. *An Inaugural Dissertation on the Disease termed Petechial or Spotted Fever. Submitted to the examining Committee of the Medical Society of Connecticut, for the County of Hartford. By NATHAN STRONG, jun. 8vo. pp. 52. Hartford. Gleason. 1810.*

THE disease which is the subject of this dissertation has lately prevailed with great mortality in several dis-

tricts of our eastern states. It has also made its appearance in some of the towns in the states of New-York, New-Jersey, and Pennsylvania. We have accordingly taken measures to obtain a correct knowledge of its peculiar character, the causes which induce it, and the mode of treatment found most successful. But as far as we have been able to procure information on these several subjects, we find such a diversity of opinion exists, even among those of our medical brethren who have been most conversant with the disease, that we do not conceive ourselves prepared to express an opinion upon either of those controverted points. We therefore, on the present occasion, take up the dissertation of Dr. Strong, with the sole view of making more public the facts which it professes to detail; especially, as the author appears to have had many opportunities of observing the disease on which he writes.

From this dissertation we learn, that the *Spotted Fever*, first made its appearance in the town of Medfield, (state of Massachusetts,) in the month of March, 1806; that in the month of March, 1807, it appeared in the city of Hartford, and shortly after in the town of Windsor. From that time to the present it has been met with at different times and in various places in the counties of Hartford and Litchfield: cases have occurred in almost every month of the year; but it has generally been most prevalent in the last winter and spring months. It does not appear that any circumstances relative to variation of season or local situations, can be adduced as having any influence either on the origin or progress of this fever, the inhabitants of vallies and of high hills being equally subject to its attacks. The minor symptoms of



the disease, and the mode of its accession, are stated to be various, but its great and leading features are supposed to be always the same. The author remarks, "Wherever it appears, in whatever manner it makes its approach, that *debility*, which is more to be dreaded than a strong man armed, is its most striking characteristic."

The effects which this disease produces are distinguished, first, as they relate to the vital; secondly, to the animal, and, thirdly, to the natural functions.

Under the first head (*viz.* vital functions) are included the sanguiferous system, the organs of respiration, the brain, and nerves. With regard to the circulation, the author observes, that the pulses were commonly frequent, always feeble, often irregular, and sometimes interrupted. A hard, tense pulse was rarely, if ever, felt. Epistaxis was sometimes an attendant on this disease, but menorrhagia more frequently occurred. Blind hæmorrhagies, or those where the blood flowing from the vessels of the skin is detained beneath the cuticle, forming petechial spots, were more common; this was so frequently observable during the first season in which the disease prevailed, that from that circumstance it took its name of *petechial* or *spotted fever*. These spots varied in colour from a common to a very dark purple, and the darker the shade the more fatal the prognosis. The function of respiration was variously affected; in some cases it differed but little from a state of health; in others, it was extremely difficult and stertorous. The voice was low and assumed a tone of peculiar melancholy.

A diminution of heat, is considered among the most striking symptoms of this disease. The hands, the feet, the limbs generally, and not unfrequently the whole surface of the body, were often observed to be below the natural temperature, and in some severe cases, the most powerful applications, whether external or internal, were insufficient to excite the natural warmth.

An affection of the brain was indicated, first by delirium. This was one of the first symptoms of the disease, though in different persons, it assumed different forms. Some were instantaneously seized with furious and violent distraction, accompanied with agonizing pain in the head, shooting through the temples, and their minds were strongly impressed with the idea that extreme violence was applied to their heads. In general, however, the delirium was of a milder form, and frequently assumed that of hysteria.

2dly. Coma was another symptom which strongly indicated an affection of the brain. This occurred in almost all of the extreme cases ; many became comatose in the first stages of the disease, and some within the first hour. This was not always a fatal symptom, for many were raised, by a free use of stimuli, from the most profound lethargy. When this could not be effected, an apoplectic stertor supervened, which frequently continued for some hours, and the approach of death was announced, by the breathing becoming easier and shorter, until it entirely ceased. When coma did not occur, syncope became frequent.

The nerves were likewise seriously affected ; this was particularly denoted by insensibility. A singular numb-

ness was frequently the first symptom, and in almost every case it occurred, during the progress of the disease. Some times it was confined to one, sometimes it extended to several limbs ; it very frequently affected the face, and often pervaded the whole surface of the body ; in some cases it even proceeded to a complete paralysis of the limb.

As to pains in this disease, they at different times attacked the head, the neck, the shoulders, the back, the breast, the stomach, the loins, and every limb of the body : the bowels were more exempt from pain than any other part. These pains were often of the dull heavy kind, but generally sharp and shooting, flying from one part to another.

Under the head of animal functions, as affected by this fever, the author comprises the senses and voluntary motions. He remarks that the prostration of strength, and the debility of the muscles of voluntary motion, are truly astonishing. These symptoms were generally exhibited in every stage of the disease, though in some cases the first attack was attended with a morbid increase of strength ; this, however, was of short duration, and debility soon ensued.

The organs of sense, were frequently affected. While speaking of the sense of feeling, (the author observes) it may not be improper to notice generally the affections of the skin. This was not only preter-naturally cool, but dry, and its continuance in this last state after the use of diaphoretics was considered an unfavourable symptom. Besides petechiæ, as already noticed, efflorescences similar

to erysipelas were sometimes seen; carbuncles were common in the convalescent state.

The eyes in some varied little from the natural appearance. A redness of the tunica albuginea indicated much danger. No instance of a yellow eye is recollected. The sight was often much impaired, frequently destroyed in the first attack, though in some cases this loss of sight was but of short continuance. Generally speaking, there was no morbid affection of the hearing; but the taste was frequently much impaired, so that in a number of cases clear brandy was as insipid as water.

It is not recollected that there was any derangement of the olfactory nerves.

Under the head of natural functions are included, digestion, secretion, and excretion, as well as the various affections of the alimentary canal.

The appearance of the tongue was various; in some cases upon the first attack it differed little from a healthy state. In some it assumed a whitish appearance, but was free from that raised secretion which is common in the early stage of inflammatory diseases. In the course of the fever it often became corrugated or shrivelled up, exhibiting a very formidable appearance. In some cases the tongue, upon the first approach of disease, was of a pallid hue; this was a fatal symptom, and generally, if not always, indicated a speedy death. This organ was frequently in a very torpid state, so that it was with difficulty it could be got out or returned into the mouth.

Ulcerations in the fauces or throat sometimes accompanied the first symptoms of the disease; these cases were generally fatal.

The fauces were often covered with apthæ, which frequently extended through the whole alimentary canal.

In violent attacks, swallowing was often very difficult; in a number of cases a complete paralysis of the organs of deglutition had taken place in two or three hours from the commencement of the disease. Deglutition was sometimes impeded, by spasmodic affections, which in one instance appeared similar to those of hydrophobia.

The stomach was always very seriously affected. Nausea and vomiting were frequently among the first symptoms, and often continued till death closed the scene. Notwithstanding this constant nausea and puking, the contents of the stomach were found to be in a natural healthy state. This is conceived to be a very important fact, as it evinces that the affection of the stomach, is principally, if not wholly of the nervous kind. A severe pain in the stomach was sometimes complained of, but the symptom which was the most distressing and most dreaded by the patient was an indescribable sensation about the upper orifice of this organ; they called it "a deadly feeling," "a death-like coldness or faintness," such as they never experienced or had any idea of before. The duration of this sensation, and the frequency with which it returned, were various. Some had a degree of it constantly; generally, however, it returned in paroxysms a number of times in the course of the day. Flatulence of the sto-

mach was sometimes a troublesome complaint. Thirst was rarely complained of, and when it did occur, nothing seemed to allay it so effectually as wine, or some modification of ardent spirit.

The appetite is impaired, but no sooner is the violence of the disease abated, than it generally returns, and the stomach craves, receives, and digests animal food, with great freedom, and without any ill effect.

The glandular and lymphatic systems suffered no great derangement. In many cases a torpid state of the neck of the bladder rendered the voiding of urine difficult; and it was sometimes necessary to have recourse to the catheter, though in most cases half a gill of brandy injected into the rectum, would remove the difficulty, and produce the desired discharge.

This disease generally arrives at its height in a short time, and if the patient survives three or four days, life, with proper attention, may generally be saved. We consider it unnecessary to follow the author through his detail of diagnosis and prognosis, as we trust that after the account which has been given of the symptoms of the disease, those must be sufficiently evident to every medical reader.

With regard to the mode of treatment, he observes, that the great indication is to support the powers of life. This he considers as most effectually answered by a nutritious diet, and the proper use of tonic, stimulant, and cordial medicines.

Evacuations of every kind, in every stage of the disease, should be employed with the greatest caution.

The kinds of stimuli to be used are divided into external and internal. Among the first are recommended, heat applied by means of hot bricks or stones, blocks of wood boiled, or bladders of hot water, hot flannels, dry or wrung out of hot water; sinapisms to the feet and limbs, blisters to the limbs, stomach, or head.

As internal stimuli are advised, hot soup well seasoned, hot teas made from pennyroyal or other aromatic herbs, with or without the addition of spirit; essence of peppermint, bottled cider, wine whey, clear wine, milk punch, brandy, geneva and old spirit, as the patient likes best, or which sets best on the stomach. In addition to the above are also mentioned, distilled cordials, Peruvian bark, opium, sub-muriate of quicksilver in small doses, camphor, ether, musk, and arsenite of potash. The author emphatically observes, "the body must be got warm, the skin moist, and the energy of the pulse restored, or *the life of the patient is gone.*" He remarks, that in some cases where obstinate vomiting supervenes, clear brandy will stay on the stomach, when every thing else is rejected. When the patient becomes convalescent, he advises to diminish the quantity of diffusible, and to increase that of the more permanent stimuli; viz. to give less wine, brandy, &c. and more soup.

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ART. III. *American Ornithology; or, the Natural History of the Birds of the United States: illustrated with Plates engraved and coloured from original drawings taken from Nature.* By ALEXANDER WILSON. Philadelphia. Bradford and Inskeep. Imperial 4to. Vol. I. pp. 164. 1808. Vol. II. pp. 167. 1810.

THE ingenious writer informs us that he was “biassed, almost from his infancy, by a fondness for birds, and little less than an enthusiast in his researches after them.” The volumes now before us convince us of the justness of this description; for no person but an ardent admirer and an accurate observer of this interesting department of nature, could have given such faithful accounts of the characters, habits, and manners, and at the same time such striking likenesses of the subjects on which he treats.

In the arrangement of birds into classes, orders, genera, species, and varieties, Mr. Wilson has followed the system of Dr. Latham, as published in his *Index Ornithologicus and General Synopsis of Birds*. Of all the writers on natural history, Buffon is the most popular and eloquent; the author has, with great propriety, imitated that celebrated writer’s history of birds: but his imitations are the imitations of a man of an original mind, who thinks and acts independently.

This branch of the natural history of the United States has been but little cultivated in this country. Jefferson, Belknap, Bartram, Williams, and Barton, have, indeed,



written on the subject, but they have not pretended to more than general outlines, and their works, imperfect and deficient as they are, greatly exceed in point of fidelity and correctness those of foreigners, who have undertaken to illustrate this subject. This desideratum we have every reason to believe will be amply supplied by Mr. Wilson.

The habits and manners of animals is the most interesting part of the study of natural history. In their approaches to reason and in their exhibitions of system, design, and order, we take peculiar delight. In this important respect we confidently pronounce the author to be the most able writer on ornithology that has ever appeared. An acute and discriminating notice of the haunts of birds, their modes of constructing their nests, manner of flight, seasons of migration, favourite food, period of incubation, conduct to each other and to their young, songs, &c. forms the most important and attractive part of the work. It is well known that the birds, particularly of the United States, have different names, not only in different states, but frequently in different parts of the same state, and that great confusion has consequently resulted in the study of ornithology. This difficulty is overcome, not only by the admirable draughts of Mr. Wilson, but by his furnishing us with the local and provincial as well as with the scientific and popular appellations.

As a specimen of the style of the author, we present the following extract, taken from his admirable description of the mocking bird: (*Turdus Polyglottus.*)

“ The plumage of the Mocking-Bird, though none of the homeliest, has nothing gaudy or brilliant in it; and, had he nothing else to recommend him, would scarcely entitle him to notice, but his figure is well-proportioned, and even handsome. The ease, elegance, and rapidity of his movements, the animation of his eye, and the intelligence he displays in listening and laying up lessons from almost every species of the feathered creation within his hearing, are really surprising, and mark the peculiarity of his genius. To these qualities we may add that of a voice full, strong, and musical, and capable of almost every modulation, from the clear mellow tones of the Wood Thrush, to the savage scream of the Bald Eagle. In measure and accents he faithfully follows his originals. In force and sweetness of expression, he greatly improves upon them. In his native groves, mounted on the top of a tall bush or half-grown tree, in the dawn of dewy morning, while the woods are already vocal with a multitude of warblers, his admirable song rises pre-eminent over every competitor. The ear can listen to *his* music alone, to which that of all the others seems a mere accompaniment. Neither is his strain altogether imitative. His own native notes, which are easily distinguished by such as are well acquainted with those of our various song-birds, are bold and full, and varied seemingly beyond all limits. They consist of short expressions of two, or at the most five or six syllables, generally interspersed with imitations, and all of them uttered with great emphasis and rapidity; and continued, with undiminished ardour, for half an hour, or an hour, at a time. His expanded wings and tail, glistening with white, and the buoyant gaiety of his action, arresting the eye, as his song most irresistibly does the ear. He sweeps round with enthusiastic ecstasy—he mounts and descends as his song swells or dies away: and as my friend Mr. Bartram has beautifully expressed it, ‘ He bounds aloft with the celerity of an arrow, as if to recover or recal his very soul, expired in the last elevated strain.’\* While thus exerting himself, a by-stander destitute of sight, would suppose that the whole feathered tribes had assembled together, on a trial of skill, each trying to produce his utmost effect; so perfect are his imitations, he many times deceives the sportsman, and sends him in search of birds that perhaps are not within miles of him; but whose notes he exactly imitates: even birds themselves

\* *Travels, page 32. Introd.*

are frequently imposed on by this admirable mimic, and are decoyed by the fancied calls of their mates ; or dive with precipitation into the depth of thickets, at the scream of what they suppose to be the Sparrow Hawk.

“ The Mocking Bird loses little of the power and energy of his song by confinement. In his domesticated state, when he commences his career of song, it is impossible to stand by uninterested. He whistles for the dog ; Cæsar starts up, wags his tail, and runs to meet his master. He squeaks out like a hurt chicken, and the hen hurries about with hanging wings and bristled feathers, clucking to protect its injured brood. The barking of the dog, the mewling of the cat, the creaking of a passing wheel-barrow follow, with great truth and rapidity. He repeats the tune taught him by his master, though of considerable length, fully and faithfully. He run sover the quiverings of the Canary, and the clear whistlings of the Virginia Nightingale, or Red-Bird, with such superior execution and effect, that the mortified songsters feel their own inferiority, and become altogether silent ; while he seems to triumph in their defeat, by redoubling his exertions.

“ This excessive fondness of variety, however, in the opinion of some, injures his song. His elevated imitations of the Brown Thrush are frequently interrupted by the crowing of cocks ; and the warblings of the Blue-Bird, which he exquisitely manages, are mingled with the screaming of Swallows or the cackling of hens ; amidst the simple melody of the Robin, we are suddenly surprised by the shrill reiterations of the Whipperwill ; while the notes of the Killdeer, Blue Jay, Martin, Baltimore, and twenty others, succeed, with such imposing reality, that we look round for the originals, and discover, with astonishment, that the sole performer in this singular *concert* is the admirable bird now before us. During this exhibition of his powers, he spreads his wings, expands his tail, and throws himself around the cage in all the ecstasy of enthusiasm, seeming not only to sing, but to dance, keeping time to the measure of his own music. Both in his native and domesticated state, during the solemn stillness of night, as soon as the moon rises in silent majesty, he begins his delightful solo ; and serenades us the live-long night with a full display of his vocal powers, making the whole neighbourhood ring with his inimitable melody.” Vol. II. p. 17, 18, 19.

It would be doing injustice to the artisans engaged in this work, were we to pass over, without notice, the masterly manner in which the mechanical part of these volumes is executed. The text is presented in all the luxury of modern typography; the engravings are exquisitely fine, and coloured with the most scrupulous regard to the originals, and the whole offered at a moderate price; so much so, as certainly to exclude all thoughts of pecuniary remuneration on the part of the author.

We close with reluctance our remarks on this truly valuable and splendid publication; confidently believing "that the able and enlightened friends of that country, whose natural history he is thus endeavouring to illustrate, will not leave him unsupported." In other respects he will reap a rich harvest of reward.

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## DOMESTIC INTELLIGENCE.

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*Report on the Yellow Fever which prevailed at Brooklyn, in the summer of 1809. By DR. GILLESPIE.*

To JACOB MORTON, Esq. Secretary of the Board of Health, of New-York.

SIR,

I received your letter of the 30th December last, in which you request me to forward you such information as I had obtained respecting the late yellow fever at Brooklyn. With this request I now comply to the best of my ability, considering the difficulties I experienced, and the reluctance I have met with in many persons to communicate the knowledge of facts which they possess.

The first case of yellow fever which occurred in Brooklyn last season, was that of Nathaniel Muller, respecting whom, from the time of his arriving in the town till his death, I give all the information I was able to obtain; namely, the testimony of two persons residing in the same house with him, which is contained in the following certificate:

I hereby certify, that I have lived as a boarder with Mrs. Smith, upwards of two years, and that on the morning of Friday, the 30th of June last, Nathaniel Muller was brought from the ship Concordia, by Capt. Coffin, the master of that vessel, to the boarding house of Mrs. Smith, he (Muller) being at the time very ill of a violent fever, of which he died between two and three o'clock of the next day, and was buried two hours afterwards, only one person attending the cart.

His fever appeared of a most violent kind, and I remonstrated with Mrs. Smith, for receiving in her house a person in his bad condition, and further, that Mr. Wilson (another lodger) and myself were very much afraid of the nature of Muller's disease, and refused after having seen him once for a short time, to go again into his apartment, as we were urged by Mrs. Smith, who said she believed him dying about day-light of Saturday, the day on which he died; but we thought his disease of a catching nature, and with the rest of the family did not chuse to be near his person, nor did any one sleep or sit up in his room, and very few had communication with him at all, and no person for any length of time while he was at Mrs. Smith's house.

Muller told me during the short time I saw him, on my inquiring, what was his disease, that "*he knew he should die, for he believed he had THE FEVER, which he brought from the Havanna.*"

GILBERT BARKER.

Dated Brooklyn, Nov. 26th, 1809.

I do hereby certify that the above statement, as far as respects myself, to be correct and true.

her

MARY X SMITH.

mark.

The above Gilbert Barker, and Mary Smith, signed the above in presence of

ROSEWELL GRAVES,

Agent of the Board of Health.

Muller, I have ascertained, sailed from the Havanna in the ship Concordia, Captain Coffin, about the beginning of June last, at which place, I am credibly informed by three respectable persons now in this city, the yellow fever raged all last winter and spring, until the time when they left it, which was on the 23d of May, only a few days before the Concordia. This vessel arrived at the quarantine on, I believe, the 17th of June, and having complied with the regulations enjoined upon her there, she was permitted to come up, and anchored in the East River; after which she hauled into Sands' lower dock, at Brooklyn, about

half way between the old and new ferries. On the 29th of June, Muller had been discharged and gone to New-York a day or two before, where he sickened, and then returned to the ship at Brooklyn, and from thence was carried in her boat to Mrs. Smith's, where he died the next day.

Immediately after this, the officer of the Concordia ordered her hold to be washed and purified with vinegar, which induces at least the suspicion that he apprehended something malignant in the nature of Muller's disease.

The Concordia went down in consequence of the order of your board on the 26th July. But the disease by the 12th of July had already appeared in different persons. Doctors Ball and Wendall have certified in the public papers that they had attended five cases of it at that date (see their certificate of August 21st.) They also state in answer to Dr. R. Seaman, that "of those of our patients *first* taken, (and we have observed the first case,) eight can be traced to persons having connection with different ships."

Mrs. Spencer, who died on the 10th of July, and was the first case of the inhabitants that excited particular alarm in the town, was a sailors' washer-woman; and, moreover, she died in one of the dwelling houses nearest the Concordia. It will appear, too, from the map\* which accompanies this report, that the disease was from beginning to end *almost exclusively confined within a circle of two hundred yards semi-diameter from that vessel.* It is also true, that the early cases and deaths were in Fisher's Row, or Dock-street. Several cases afterwards

\* This map is in the possession of the Board of Health.

occurred at the new ferry, viz. John Jackson, who was sent to the New-York hospital on the 18th of July, and died on the 20th; and John Donlevy, sent to the almshouse of this city on the 18th of July, and died the same day. They were both ferrymen in the employ of Mr. Ammerman, who also died on the 28th July. The following account of the disease in Dock-street, which, as Dr. Ball informs me, was the place alluded to in his certificate, is from a letter published by Doctors Ball and Wendall, July 26th. "That a fever attended with the most malignant symptoms, which seized as it were a whole neighbourhood in a moment, and which, with the rapidity of a pestilence, hurried its unhappy victims from a state of perfect health to their graves in the short period of four and six days, notwithstanding the most prompt and assiduous medical attendance, is a fact too awfully true to be in the least questioned."

Two different causes have been assigned by the public, as well as by physicians for this epidemic. The one that it derived its origin solely from local causes; the other that it was to be attributed to a contagion imported at a season of the year when the local circumstances of the place were favourable to its extension. It is stated in favour of the first, that it originated from an extraordinary assemblage of nuisances in the lower parts of the town of Brooklyn, consisting of a variety of putrefying vegetable and animal substances, together with water lodging in many low, sunken places, particularly at the New Ferry, and also, that it was partly owing to the contents of the *mud turtle*\* being exposed for some days on the wharf of that ferry, so as to be offensive to the neighbourhood.

\* A machine for cleansing docks.



But to this it might be answered, that as the part of the village here spoken of has for several years past been in nearly the same situation as respects cleanliness, as it was last season, and as many of the summers of those years were extremely sultry and favourable to the production of yellow fever; nay, when it has actually raged in New-York, and once at the Wallabout,\* and not at this spot, it is most extraordinary, that it should have made its first appearance here, and destroyed from thirty to forty lives in a summer so very remarkably cool as the last. As to the fact respecting the relative accumulation of nuisances last season, and those that preceded it, I am not competent to judge. On this point, therefore, I shall content myself by subjoining the two following letters.

New-York, December 12th, 1809.

SIR,

Agreeably to your request, I took particular notice in surveying the sickly neighbourhood at Brooklyn, concerning the elevation of the ground above high-water mark, as well as the situation of the streets, yards, or buildings; and found the same as follows, to wit:

To give an opinion in general of the ground and situation of that part of Brooklyn, I find the ground along Front-street, from twelve to twenty feet above high-water mark, and descending along Dock-street and Main-street to Water-street, over a sandy soil. Water-street and that part towards the river is new-filled ground, and only three feet above high-water, but it does not appear to me to be more filthy, than is common in streets adjoining wharfs and slips in this city. The only places appearing to me to be offensive, are behind the Gin Distillery, and a narrow street leading from Dock-street to the Old Ferry, occupied by stables, &c. &c.

\* A place about one mile distant, north of Brooklyn, on the same shore.

The yards behind Brooklyn Hotel and Captain Smith's, are also occupied by stables, where manure is collected; but I could not perceive any offensive smell, and in general the yards are roomy and clean. Back-Alley is a high, open, and clean street, having only seven dwellings, and two work-shops on it. The store houses erected along the wharfs in that part of Brooklyn are clean, and mostly new buildings.

I am with great esteem, your obedient servant,

CHARLES LOSS,

City Surveyor.

Dr. GILLESPIE.

NEW-YORK, Dec. 21st, 1809.

DEAR SIR,

Agreeably to the request of yourself and the Secretary of the Board of Health, I went to Brooklyn yesterday, in order to obtain information from the inhabitants there respecting the origin of the late epidemic which prevailed in that place.

The first enquiry I made was of a Mr. Chichester, who resides near the New Ferry. He informed me that the first case was a man by the name of Muller, who came in the ship Concordia, from the Havana, and that he died at a Mrs. Smith's about the first of July—that shortly after *the fever* made its appearance at some boarding houses, at the lower end of Fisher-street, and soon spread to different parts of the village, particularly near the new ferry; he thinks the village was as cleanly as in former years.

The next person I conversed with was Henry Stanton, who stated the origin and progress of the fever much as Mr. Chichester. On enquiring of him the relative state of the village (as it respected nuisances) compared with former years, he replied, that excepting a quantity of pickled herrings which were stored in Sands' white store, and the sheds near it, the mud taken from the ship by the mud machine, and which lay on the dock and at the ferry-house and yard belonging to Ammerman, the ferry-master, the village was as cleanly as it had been for twenty-eight years, the time he had resided there.

From thence I proceeded to the houses mentioned by Chichester in Fisher-street, where I saw Mrs. Magee, at whose house four persons

sickened, (two of whom died) about the middle of July. Saw Michael Harvey, who lives opposite Magee's, and at whose house four persons died, from the 10th July to the 6th of August. He did not appear to recollect dates, but thinks a Mrs. Spencer died on the 10th July; a Mr. Bennet, who lived next door to Harvey, died about the 20th July, and a Mr. M'Intire about the same time. I then proceeded to Mrs. Smith's, at whose house Muller died, and obtained the certificate of his case signed by herself and Gilbert Barker, a boarder with her. I then waited on Dr. Wendall, and requested of him the dates of the deaths of those persons who died in Fisher-street, as they were his patients; but could not obtain any information from him.

I then called on Mr. John Doughty, the town clerk, from whom I got a list of the deaths of all the persons that died in the village during the last summer. I also enquired of several other persons, but received but little information from them: with the most of them there appeared a studious reserve.

I am, sir,

Your most obedient  
humble servant,

DR. GILLESPIE.

R. GRAVES.

I will only add, that as to the mud-turtle, she commenced cleansing the new ferry-slip, July 15th, more than a fortnight after Muller's death: and besides, the mud, which consisted of innocent bluish clay, was removed on the afternoon of the 20th. My informant, Mr. Chichester, who resides near the spot, says he stood for some time on this accused baked heap of clay, some of which he crumbled with his hand, and applied to his nose, but could not even discover any unpleasant smell from it; and that on Sunday the 16th, the day after it was deposited, the weather being remarkably fine, a great number of passengers of every description were arriving at the spot from New-York, all day long. Besides, the machine has been there every season for six or seven years

past, particularly three years ago, when she cleansed out all the soft mud of the slip. These circumstances, I think, render it conclusive, that the machine had no agency in originating the disease.

It may, however, be said, 1st. If Muller died of a disease so highly contagious, how did it happen that no person received the disease from him? This is answered by the certificates of Mrs. Smith and Barker.

2d. As twelve passengers arrived in the *Concordia*, why were not at least some of them affected with fever? This seems a plausible objection at first sight, but on referring to their bond in the mayor's office, I find that they consisted of eight Frenchmen from the West-Indies, and four natives of New-Orleans. This class of people, from acquiring a West-India constitution, or seasoning, as it is called, together with temperate and cleanly modes of life, have always been considered not very liable to the yellow fever. There were also among them four transient persons bounded as passengers, all sailors. In fact, the whole of them may be considered as transient; for it is not known whether they continued in this city, or whether they left it immediately.

3d. Why did not the ship communicate the disease to persons that were on board her after she went to Brooklyn? As the vessel was unloaded and laid up, it is not probable that many persons were on board of her, although some doubtless were; but it does not appear that any of them went down into her hold, or remained any considerable time in the cabin, or eat, or slept on board. But within a few days after coming to the wharf, her hold was entirely white-washed. Besides, it is never pretended

that a vessel coming to a healthy spot, will at her first arrival, and before the atmosphere is rendered impure, communicate contagion to all that approach her.

I have thus stated such facts as I possess respecting the yellow fever at Brooklyn. These I have endeavoured to obtain from the best information I could on the spot ; and I trust it will be found that I have stated them with the candour and impartiality that is due to myself, as well as the respect I owe the guardians of the public health.

I have to apologise for the unexpected delay of this report, which has arisen from the following circumstance : I was incidentally informed by Dr. Wendall, in one of my visits to Brooklyn on the subject of this enquiry, that after the death of Muller, he had addressed a letter to captain Coffin, (captain of the Concordia) respecting the condition of that vessel and crew. The reply to this letter, he said, unfortunately contained an injunction of secrecy as to part of its contents. Dr. W. however assured me he would endeavour to procure the consent of captain Coffin, on his return from sea, to my perusing the letter ; and in the mean time earnestly requested that I would in no manner till then allude to it. Captain Coffin did not, as we expected, return here, but as I have been lately informed by his consignee, has sailed from a southern port on another and long voyage. I hope, therefore, that the Board will excuse a delay in this communication, which has arisen from a desire to connect with it every circumstance I could collect relative to the subject of its contents.

JOHN D. GILLESPIE.

*New-York, June 5th, 1810.*

*Inland Navigation.*

WHOEVER considers the great advantage that commerce has derived in the ancient empire of China, or the modern empire of Russia, from the numerous canals by which those countries are intersected, will not wonder that we have formed sanguine expectations concerning the benefits which the state and city of New-York may derive from inland navigation.

It is known to many of our readers that there is a sufficient supply of water upon the highest ground between Albany and lake Ontario, to perfect an easy and safe navigation between those places. The company who have the direction of *The Western Inland Lock Navigation*, have been employed in the improvement of this communication. But little more has hitherto been done than to show the benefits of lock navigation. We have a great and fertile western country, whose produce should come to Albany by a safe and cheap conveyance, and there is a country farther to the westward, that must give sustenance to millions, who will probably receive their foreign supplies through the city of New-York. It is believed that canals of a moderate depth, but of sufficient magnitude (as in Flanders) to carry boats of fifty or sixty tons burthen, may be conducted from the Oneida lake, by way of the Seneca lake to lake Erie. The country in general is level and abounds in small rivers. Whether that canal should pass from the waters of Genesee river, by those of Cataragus creek, into lake Erie, or by some other more practicable route, will probably be determined in a few months.

When foreign supplies have entered lake Erie, it is easy to discover that they may be conducted, at a small expense, to the inhabitants of the Western States. It is known that, in the spring season, when the snow has melted, people pass in their boats, from the waters of Michigan, or Miami of the lakes, to the waters of the Wabash or Illinois. It will readily be perceived that canals of a moderate depth will convey such boats when the waters have subsided. Probably the time is not far distant when the people of the Wabash, or on the waters of the Ohio, will receive their European and India supplies, by the way of Hudson and the Mohawk rivers, cheaper than they can obtain them by the Mississippi or any other channel of conveyance. We observe with pleasure that the legislature of this state have entered with spirit into the consideration of inland navigation, and we persuade ourselves that the business will be properly executed ; for it is committed, as all national matters should be, to men of capacity and public spirit, without regard to their political sentiments. The commissioners have already entered upon the duties of their important mission. The following copy of a vote of the legislature, passed at their last session, will explain the object of their appointment.

*STATE OF NEW-YORK.*

*In Senate, March 30th, 1810:*

Whereas the agricultural and commercial interests of this state require that the inland navigation from Hudson's river to lake Ontario and lake Erie be improved and completed on a scale commensurate to the great advantages derived from the accomplishment of that important object. And whereas it is doubtful whether the resources of the Western Inland Lock Navigation Company are adequate to such improvements, Therefore,

*Resolved* (if the honourable the assembly concur herein) that *Gouverneur Morris, Stephen Van Rensselaer, De Witt Clinton, Simeon De Witt, William North, Thomas Eddy, and Peter B. Porter*, be, and they are hereby appointed commissioners for exploring the whole route, examining the present condition of the said navigation, and considering what further improvements ought to be made therein, that they be authorised to direct and procure such surveys as to them shall appear necessary and proper in relation to the object, and that they report thereon to the legislature at their next session, presenting a full view of the subjects referred to them, with their estimates and opinions thereon.

And whereas numerous inhabitants of the counties of Oneida, Madison and Onondaga, have by their petitions represented, that by reason of the spring freshes, the Oneida lake is usually raised so high as to inundate large tracts of land adjacent thereto, which are thereby rendered unfit for cultivation, and highly injurious to the health of the neighbouring inhabitants, and that the said evils may be easily remedied by removing a bar and deepening the channel at the outlet of the said lake, Therefore,

*Resolved* (if the Hon. the Assembly concur herein) that the commissioners above named be, and they are hereby directed, to examine the subject of the said petitions, and to report to the legislature their opinion as to the practicability, the expense, and the effects of removing the bar and deepening the channel at the outlet of said lake.

By order,

S. VISSCHER, Clerk.

*In Assembly, March 15th, 1810.*

*Resolved*, that this house do concur with the honorable the Senate in their preceding Resolutions.

J. V. INGEN, Clerk.



*Account of the Sheep-Shearing at Clermont, the residence of the Hon. Robert R. Livingston, late Minister to France: communicated in a letter to Dr. Hosack, from the Hon. Edward P. Livingston, Esq.*

Clermont, 19th June, 1810.

DEAR SIR,

I embrace the earliest opportunity, to fulfil my promise of sending you the result of the sheep-shearing at Clermont. As the wethers have not yet been shorn, my account of the quantity of wool cannot be so particular as I could wish, but the facts which I am now able to furnish, will, I believe, afford the information you requested of me.

On the morning of the 15th instant, about two hundred respectable farmers, and other gentlemen from this and the neighbouring states, assembled at the house of Mr. Livingston, when the different flocks, amounting to two hundred and five ewes of different grades, (from half to full bred both included,) a number of rams, and about sixty wethers were shown in their fleeces; together with about two hundred lambs, from three-quarters to full bred, both included. The common flock, with their half bred lambs, amounting to two hundred and sixty-eight, were not shown, as they had been shorn about ten days before. The shearing was performed in the presence of numerous spectators, all of whom were fully convinced by this exhibition of the superiority of the Merino flocks. And indeed, circumstances that passed under their eyes must have convinced the most prejudiced. Although nine-tenths of the ewes had lambs, yet the following was the produce of their fleeces, which you will find proportioned

not only in value but in quantity to the purity of their blood. The sheep were kept as clean, as plenty of litter during the winter, and extensive pastures in summer could make them. In addition to which, the week before shearing, such torrents of rain fell for six days and nights in succession as had washed their backs and their sides. Previous to the shearing they were taken up and the tags cut off, so that they were much cleaner than unwashed Merinos generally are. All the rams and part of the ewes were shorn on the 15th, and finished on the 16th: a number of gentlemen remaining to inspect the shearing during the whole time. Every fleece was rolled up and weighed, and the weight immediately entered into a book, so as to avoid any possibility of mistakes.

The following table shows the result.

Account of the Clermont Sheep-Shearing, on the 15th and 16th June, 1810.

Clermont Stock Rams	Rambouillet,	lbs. 9.
	Clermont,	9.
	Jason, a Shearling, or one year old ram,	11 11 oz.

	lb. oz.	heaviest. lb. oz.	lightest. lb. oz.
Average weight of fleeces of full bred ewes,	5 13	8 12	3 7
Average do. do. of 7-8 do. ewes,	5 6	8 4	3
Average do. do. of 3-4 do. ewes,	5 3	7 9	3
Average do. do. of 1-2 do. ewes,	5 1	8 0	2 8

One old ram was shorn, that gave seven pounds; but as this is below the standard which Mr. Livingston has

established for his stock rams, he has let him for the two last seasons.

On the morning of the second day, those gentlemen who had previously engaged lambs had them taken up and marked, and such was the demand for the higher grades, that many were disappointed in not being able to procure them. The lambs sold at the following prices :

Full bred ram lambs	- - - - -	\$1000.
Fifteen-sixteenths bred ram lambs	- - - - -	250.

These last would have readily sold much higher, had not that price been long since fixed for this season. Five hundred dollars were offered and refused for one of a year old, by a gentleman who purchased him at Clermont last year, and exhibited him to show the beauty of his fleece ; and contracts have already been made at four hundred dollars for the next year, for lambs of that grade. Seven-eighths lambs sold at one hundred dollars, and three-quarters, at thirty dollars each. The wool was sold previous to the shearing, to manufacturers in this and the neighbouring states, at the following prices, unwashed as it came from the sheep's back. Full bred, two dollars per pound. Seven-eighths at one dollar and an half. Three-fourths at one dollar and a quarter, and half-bred at seventy-five cents per pound. Common wool unwashed will not bring more than twenty-five cents per pound. On these data it will be easy to compare the difference between the profit resulting to the farmer from these sheep, and a common flock.

I remain dear sir, your obed't serv't.

EDW. P. LIVINGSTON.

*Elgin Botanic Garden, New-York.*

AMONG the number of those distinguished friends of science in Europe, who have manifested an ardent desire for the extension of useful knowledge in these states, may be justly esteemed Monsieur THOUIN, the celebrated professor of Botany and Agriculture, at the *Jardin des Plantes* of Paris. This gentleman who has long sustained, by universal consent, the character of an eminent and successful cultivator in those branches of science, has, on several occasions, afforded abundant evidence of his disinterested zeal for their promotion. Dr. Hosack, the proprietor of the Elgin Botanic Garden, has repeatedly been favoured by him with a great variety of seeds, from the rarest and most valuable plants of the continent; and he is happy to add, that they have always been received in such a state of preservation, as scarcely in a single instance to have frustrated the liberal intentions of the donor. Indeed, many of the most valuable plants in his collection are the products of the seeds presented him by Monsieur THOUIN.

To the Hon. SAMUEL L. MITCHELL, M. D. Professor of Natural History, &c. &c. in the College of Physicians, the proprietor of the Botanic Garden is also indebted for many valuable additions made to his collection of living plants, as well as for many specimens added to his Herbarium, collected by the same gentleman, during his residence at Washington, (as Senator of the United States,) and in the Western parts of the state of New-York, when on his late tour to the falls of Niagara. The meritorious exertions of this gentleman on the floor of the legislature of this state, at their last session, in ob-

taining the act which was passed for the advancement of medical science, also merit the grateful acknowledgments of the profession.

Important additions of the native plants of Georgia have also very recently been made to this institution by JOHN LECONTE, Esq. whose acquaintance with the various departments of natural history, gives us reason to regret that he has not yet made an offering to his country of the fruits of his researches.

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*Native Magnesia in New-Jersey, discovered by  
Doctor Bruce.*

“Although magnesia enters into the composition of many mineral substances, yet its existence in the mineral kingdom, in an uncombined state, has, till within these few years, been unknown.”

At Hoboken, in New-Jersey, on the estate of Mr. John Stevens, is found a mineral which agreeably to the experiments of Professor Bruce, contains, in the hundred parts,

Magnesia,	70
Water of Crystallisation,	30
	<hr/>
	100

*Bruce's Mineralogical Journal.*

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*Coal discovered in Pennsylvania.*

An account of a coal mine in Rhode-Island with a view of the qualities of the coal compared with those of Europe, not long ago appeared in Boston, and has since

been re-published in the third supplement of Dr. Barton's Medical and Physical Journal, and in the Mineralogical Journal conducted by Dr. Bruce. We are happy to learn that a coal of a similar quality, which resembles that of Kilkenny, has also been discovered on the banks of the Susquehanna, in the neighbourhood of Wilkesbarry, in Luzerne county, Pennsylvania. From experiments made in this city in some of our breweries and smiths' shops, it is found to possess all the properties of the Kilkenny coal; which render it peculiarly valuable in the several manufactories of earthenware, in all kinds of pottery, in the burning of lime and bricks; and to those artisans with whom the casting of metal is a necessary part of their process. A specimen of it has been sent to the editors. We hope in a future number to present an analysis of it to our readers.

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RALEIGH, (N. C.) *March 1, 1810.*

On Tuesday, the 30th of January last, at two o'clock, P. M. there was a fall of meteoric stones in Caswell county. Their descent was seen for a considerable distance round, and two reports distinctly heard at Hillsborough, a distance of thirty miles. A fragment weighing a pound and three quarters struck a tree in the new ground of a Mr. Taylor, near where some wood cutters were at work, who apprehending the fate of Sodom and Gomorrah, ran home without once looking behind them. Encouraged, however, by a woman, whose curiosity was superior to her fears, they returned with her to the place, and brought away the stone, which was still hot. We understand that governor Williams, of the Mississippi Territory, now in Rockingham, intends sending it to the chemical society in New-York to be analysed. It is,

he informs us, of a dark brown colour, porous, and probably contains iron.—*Public Paper.*

MEDICAL, LITERARY, AND BENEVOLENT  
INSTITUTIONS.

*State Medical Society.*

At the Anniversary Meeting of the Medical Society of the State of New-York, held at the Capitol in the city of Albany, on Tuesday, the sixth day of February, 1810, the following persons were elected officers for the ensuing year :

- DR. NICHOLAS ROMAYNE, President.  
DR. ALEXANDER SHELDON, Vice-President.  
DR. ANDREW PROUDFIT, Treasurer.  
DR. JOHN STEARNS, Secretary.

CENSORS.

- |                         |                     |
|-------------------------|---------------------|
| DR. WESTELL WILLOUGH-   | DR. ABRAHAM ALLEN,  |
| BY, jun.                | DR. WILLIAM WILSON. |
| DR. WILLIAM M'CLELLAND. | DR. JOSEPH WHITE.   |

COMMITTEE OF CORRESPONDENCE.

- |                        |                         |
|------------------------|-------------------------|
| DR. NICHOLAS ROMAYNE,  | DR. ALEXANDER SHELDON.  |
| DR. ANDREW PROUDFIT,   | DR. JOHN STEARNS.       |
| DR. HENRY H. SHERWOOD, | DR. OLIVER C. COMSTOCK. |
| DR. JOHN SOFFORD,      | DR. HENRY WHITE.        |

*The following Circular Communication from the Medical Society of the State of New-York, to the several County Medical Societies, for the year 1809, will explain the nature and objects of this institution :*

*To the President of the Medical Society of the County of—*

SIR,

THE Medical Society of the State of New-York, view with much satisfaction the organization of the several Me-

dical Societies of the counties, by virtue of the law of the 4th of April, 1806, for regulating the practice of Physic and Surgery ; and they entertain no doubt but due exertions will be made by every incorporated Medical Society, to satisfy the just expectations of the legislature and the public respecting these institutions.

This law not only contemplates the establishment of such regulations, in the practice of physic and surgery, as may give respect to the medical profession, and promote the public good ; but also such as tends to improve our knowledge of the healing art, and encourage professional education. The society do not doubt, but that the powers with which the county medical societies are invested, will be exercised with moderation, and that nothing will be done to give offence to the public ; they will recollect that *medicine* has been justly considered one of the liberal professions, and that this character can be supported only when it is exercised on principles just and liberal.

The Medical Society of the State, at their first institution, deemed it expedient to invite their members to such scientific investigations, as would be interesting to the profession, and important to the public.

In a new country, many of whose resources are still unknown, superior beneficial effects must result from favouring scientific researches ; and though the pecuniary means of the society have been limited, yet they have offered premiums to encourage such inquiries as might be useful and interesting.

Few exertions have yet been made to examine and re-



cord the various productions of vegetable nature throughout the state ; nor has much been done to investigate the several objects connected with the mineral kingdom, with the formation of the earth, and the aspect of its surface.

These subjects, the medical society of the state earnestly recommend to the attention of your society ; and they make no doubt but a spirit of investigation will be duly encouraged.

As the medical profession can only be respectable in a well-informed community, and as the ignorant and illiterate are the only dupes of empiricism, the county medical societies will see the usefulness of exerting their influence to promote education, and of uniting their efforts with the Regents of the University for such purposes.

The science of *Medicine* comprehends almost all the sciences and useful arts, which contribute, in some form or other, to preserve health, and to prevent and cure diseases ; it is, therefore, requisite, that the county societies should unite their efforts with the agricultural and other societies of the state, to aid in their labours the promotion of the useful arts.

It may also be useful for the medical societies to collect and record such historical facts as are connected with the settlement of their respective counties, and such other circumstances as will elucidate the history of the state.

Whatever relates to the causes, the nature, and cure of diseases, will obviously claim the attention of every medical society ; and they will no doubt invite their respec-

tive members to the due exercise of their professional duties, as well as to those observations which may contribute to extend the usefulness, and add to the importance of the profession.

The medical society of the state cannot conclude this circular communication, without affording assurances of their perfect disposition to promote the respectability of the several county societies, and to exert their efforts to extend the usefulness of the medical profession.

By order of the Medical Society

of the State of New-York,

JOHN STEARNS, M. D. Sec'ry.

Albany, Feb. 6th, 1809.

*Medical Society of the County of New-York.*

At the anniversary meeting of the Medical Society of the county of New-York, held on Monday, July 2d, 1810, the following gentlemen were elected charter officers :

DR. JAMES TILLARY, President.

DR. WILLIAM MOORE, Vice President.

DR. JOHN ONDERDONK, Treasurer.

DR. WALTER W. BUCHANAN, Secretary.

CENSORS.

DR. WRIGHT POST.

DR. DAVID HOSACK.

DR. ARCHIBALD BRUCE.

DR. WILLIAM BARROW.

DR. JOHN NEILSON.

DR. JOHN R. B. RODGERS, Delegate.

*Society of Useful Arts.*

The following gentlemen were elected officers of the Society for the Promotion of Useful Arts, &c. of the state of New-York, for the year 1810, viz.

ROBERT R. LIVINGSTON, President.  
SIMEON DE WITT, 1st Vice-President.  
SAMUEL L. MITCHILL, 2nd Vice-President.  
CHARLES D. COOPER, Treasurer.  
JAMES LOW, Recording Secretary.  
DAVID HOSACK, Corresponding do. New-York.  
JAMES GEDDIS, do. Western District.

COUNSELLORS.

STEPHEN VAN RENSSELAER, Sen. Counsellor.	
JOHN TAYLOR.	DEWITT CLINTON,
G. W. VAN SCHAICK,	ISAAC HUTTON,
BENJAMIN DE WITT,	WILLIAM M'CLELLAND,
ALEXANDER MILLER,	ANTHONY VAN SCHAICK.

*To the members of the Society for the promotion of useful arts of the state of New-York, and the lovers of the science of mineralogy in every part of the state.*

The society for the promotion of useful arts of the state of New-York, having observed, that the science of mineralogy, which is so intimately connected with, and so eminently subservient to, most of the arts, and which has been so extensively and eminently cultivated in many other countries, is almost entirely neglected in our state, have endeavoured to do away that imputation, by passing a resolution for collecting and preserving such specimens of earths and metallic ores, as our state may afford.

In order to carry this desirable object into effect, the society for the promotion of useful arts invite the members of the society, as well as the lovers of science in every part of the state, to forward to the recording secretary in Albany, such specimens of earths, fossils and metallic ores, as they may severally meet with, and request them to accompany all such specimens with as particular an account of their natural (geological) situation, as possible,

and to forward with the specimens a portion of their *matrix*, the earthy or stony substance in which they were imbedded.

The society intend to arrange and preserve these specimens in a proper cabinet, for the inspection and use of its members, and those persons who may have contributed to it. By order of the Society,

JAMES LOW, Recording Sec'y.

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*American Academy of Arts.*

At a late meeting of the American Academy of Arts, held at the government house, the following gentlemen were elected officers for the ensuing year :

ROBERT R. LIVINGSTON, President.

JOHN R. MURRAY, Vice President.

CHARLES WILKES, Treasurer.

JOHN G. BOGERT, Secretary.

DIRECTORS.

DEWITT CLINTON.

WILLIAM CUTTING.

DAVID HOSACK.

ARCHIBALD BRUCE.

ROBERT FULTON.

INSPECTORS.

DAVID HOSACK.

WILLIAM CUTTING.

MALTBY GELSTON.

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*New-York Historical Society.*

At a stated meeting of the Historical Society, held at the government house on Tuesday, the 9th of January, 1810, the following gentlemen were elected officers for the ensuing year.

EGBERT BENSON, President.

GOVERNEUR MORRIS, First Vice President.

DEWITT CLINTON, Second Vice President.

SAMUEL MILLER, Corresponding Secretary.

CHARLES WILKES, Treasurer.

JOHN PINTARD, Recording Secretary and Librarian.

STANDING COMMITTEE.

WILLIAM JOHNSON.

SAMUEL L. MITCHILL.

JOHN M. MASON.

DAVID HOSACK.

JOHN M'KESSON.

GUILIAN C. VERPLANCK.

ANTHONY BLEECKER.

DR. HUGH WILLIAMSON is appointed to deliver the oration at the next anniversary meeting.

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*Humane Society of New-York.*

MATTHEW CLARKSON, President.

JOHN R. MURRAY, Treasurer.

J. VANDENHEUVEL, Secretary.

EDMUND H. PENDLETON, Attorney to the Board.

The Society having taken into consideration the means of recovering persons *apparently dead from drowning*, and of preventing the *fatal effects of drinking cold water*, have adopted and recommended to the notice of their fellow-citizens, the following directions, as in their opinion best calculated to effect these important objects.

*Directions for the recovery of persons apparently dead from drowning.*

1st. Avoid any violent agitation of the body, such, as *rolling it on a cask*, or *hanging it up by the heels*, but carefully convey it with the head a little raised, to the nearest house.

2d. Strip and dry the body, and lay it in a warm blanket, which must be renewed every few minutes. If a *child*, place it between two persons in a warm bed.

3d. Immediately apply warm spirits or brandy to the *temples, breast, belly, feet, and hands*; at the same time, the whole body should be diligently rubbed with warm woolen cloths, or if at hand, immerse the body in a *warm bath*.

4th. Introduce the pipe of a pair of bellows into one nostril, keep the other nostril and the mouth closed, inflate the lungs till the breast be a little raised, the mouth and nostrils must then be left free, and the chest gently pressed in imitation of natural breathing, the bellows should then be applied as before, and the whole process repeated and continued at least fifteen or twenty minutes.

5th. Inject into the bowels by means of a syringe a pint of warm *spirits and water*, composed of one part of the former to two of the latter: this injection the Society prefer to *tobacco smoke*, usually recommended in cases of this sort.

6th. When the physician who has the care of the apparatus, arrives with the same, he will, with the machine for this purpose, inject into the stomach some warm *spirits and water*, with a small quantity of *spirits of hartshorn*, open a vein, or cause such other remedies to be applied as are indicated.

7th. Renew the external application of hot spirits to the surface of the body, and diligently continue the friction with woolen cloths at least two hours, or till signs of returning life are apparent.

8th. *Do not despair*—By perseverance in *warm friction alone* many lives have been restored, and in some instances where the bodies have remained in the water for the space of *half an hour*.

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*Directions to prevent the fatal effects of drinking cold water.*

1st. Avoid drinking whilst the body is heated, or during profuse perspiration.

2d. Wash the hands and face with cold water before drinking.

3d. If these precautions have been neglected, and *cramps*, or *convulsions* have been induced, let a *tea-spoon full of laudanum* be given immediately in a cup of *spirits and water*, and repeat the dose in half an hour if necessary.

4th. At the same time apply fomentations of spirits and water to the *stomach and bowels*, and to the *lower extremities*, covering the body with a blanket; or immerse the body in a *warm bath*, if it can be immediately obtained.

5th. Inject into the bowels a pint of *spirits and water*, mixed in the proportion of one part of the former to two of the latter.

With the view of carrying into effect the foregoing directions, the society have appointed six *physicians*, who are provided with the necessary apparatus, and whose province it is to take charge of such persons as are contemplated in this provision, and on whom our citizens are requested to call when accidents of this nature may occur.

Published by order of the Society,

THOMAS EDDY, }  
DAVID HOSACK, } Standing Committee.

*New-York City Dispensary.*

At a late meeting of the Trustees of this Institution, the following gentlemen were elected officers for the ensuing year.

REV. DR. JOHN ROGERS, President.  
JAMES SCOTT, Treasurer.  
ROBERT WATTS, Secretary.

CONSULTING PHYSICIANS.

WRIGHT POST.                      WILLIAM MOORE.  
DAVID HOSACK.                      VALENTINE SEAMAN.

ATTENDING PHYSICIANS.

SAMUEL SCOFIELD.                  BENJAMIN R. ROBSON.  
FAYETTE COOPER.                  E. F. R. SMITH.

JOHN D. GILLESPIE, Physician to the Kine-pox department.  
ROGER M. BURN, Apothecary.

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*University of Pennsylvania.*

The trustees of the University of Pennsylvania, with a view to a more complete system of *Medical Education* in that Seminary, have lately established a Professorship of NATURAL PHILOSOPHY for the medical department, and divided the Professorship of ANATOMY and MIDWIFERY into two separate Professorships.

Dr. CASPER WISTAR, is elected the Professor of *Anatomy*; Dr. THOMAS C. JAMES, the Professor of *Midwifery*: and ROBERT HARE, jun. the Professor of *Natural Philosophy*.

*College of Physicians of Philadelphia.*

At a stated meeting of the College of Physicians, held on the 3d of July, 1810, the following gentlemen were chosen officers for the ensuing year.

DR. ADAM KUHN, President.

DR. SAMUEL DUFFIELD, Vice-President.

DR. THOMAS C. JAMES, Treasurer.

DR. THOMAS T. HEWSON, Secretary.

## CENSORS.

DR. THOMAS PARKE,

DR. CASPAR WISTAR,

DR. SAMUEL P. GRIFFITTS,

DR. WILLIAM CURRIE.

*Columbia College.*

At the public medical graduation, held in the Hall of Columbia College, on Tuesday, May 1st, 1810, the degree of Doctor of Medicine was conferred on Mr. ROBERT MORRELL, after having defended his inaugural dissertation on Animal Heat, before the faculty of physic, and the other professors of that institution.

*Medical Society of the City and County of New-York.*

At a Meeting of the Medical Society of the City and County of New-York, held in the City-Hall, on the 1st of April, 1810, Mr. GERARDUS A. COOPER, was admitted a Licentiate for the practice of Physic and Surgery in this state.



Bill of Mortality, for Portsmouth, New-Hampshire, for A. D. 1809. Communicated to the Editors, by Lyman Spalding, M. D.

Complaints.	Age.	No
Aneurism	57 years	1
Angina Pectoris	18, 54 years	2
Aphtha	2 years, 2 weeks	2
Apoplexy	74, 48 years	2
Atrophy	2m. 2y 9, 1, 1, m 1, 1, 70, 60, 54y	10
Cholera of infants	6 weeks	1
Consumption	35, 33, 22, 40, 39, 34, 50, 35, 32, 20, 15, 35, 36, 39, 32, 24, 35 y.	17
Convulsions	4m 2d 6w 3m 63y 1w 1 2 2m 2y 6m	11
Debauchery	58 years	1
Dropsy in the brain	1y, 8, 5, 2 months	4
Dysentery	4 months	1
Erythema	2, 1, 3 months	3
Fever pulmonic	78, 70, 56, 68, 69, 70, 77 years	7
Fever typhus	48, 65 years	2
Inflammation of the stomach	68 years	1
Mortification from ossified arteries	77 years	1
Old age	97, 94, 84, 78, 85, 85, 78, 81, 75y	9
Palsy	69, 50 years	2
Quinsy	4 months	1
Scirrhus liver	55 years	1
Spina bifida	10 months	1
Sudden	57, 67 years	2
Syphilis	39 years	1
<i>Casualties.</i>		
Choaked	5 years	1
Suicide	51 years	1
<i>Births.</i>		
Males	146	} 289
Females	143	
Still born,	8	
Marriages,	69	

Total 85

Portsmouth, the capital of the State of New-Hampshire, situated 43 degrees 5 minutes north latitude, and 6 degrees 26 minutes east longitude from Washington, contains about 7000 inhabitants.

The town has been remarkably healthful during the whole year; the deaths have been far less than in any year since bills have been kept.

Account of Patients admitted into, and discharged from the New-York Hospital, and their diseases, during the year 1809.

Patients' Diseases.	Admitted.		Discharged.							Total discharged and died.	Remaining 31st Dec. 1809.		
	Remaining 31st Dec. 1808.	Admitted in 1809.	TOTAL.	Cured.	Relieved.	Request.	Incurable.	Disorderly.	Eloped.			Died.	
Abscess	3	16	19	11			5					16	3
Abortion		1	1	1								1	
Amenorrhœa		4	4	3						1		4	
Anascara	1	15	16	9			3			4		16	
Asthma		4	4	1						2		3	
Ascites		4	4	1			1		1			3	1
Burn	1	12	13	10			1					11	2
Cancer		2	2				2					2	
Caries	2	1	3	2						1		3	
Catarrh	1	12	13	8	1	1	1			2		12	1
Cephalalgia		3	3	1	1	1						3	
Cholera		2	2	2								2	
Consumption	11	42	53	13	8	6		1	1	22		46	7
Contusion	5	30	35	25	2	3				3		33	2
Constipation		2	2	1		1						2	
Cynanche Tonsillaris		4	4	3						1		4	
Cataract		2	2			2						2	
Concussion	2		2	2								2	
Debility		10	10	5			1		1			7	3
Diarrhœa	1	13	14	4	2		1			6		13	1
Dyspepsia		3	3	2		1						3	
Dysentery	5	15	20	14		2		1		2		19	1
Dropsy		8	8	4	1					3		8	
Dislocation		3	3	1		1						2	1
Disabled	1		1	1								1	
Erysipelas	2	4	6	3		1	1			1		6	
Enteritis	1	2	3				1			1		2	1
Elephantiasis	1		1					1				1	
Epistaxis		1	1						1			1	
Excrescence		1	1	1								1	
Eruptions	1		1	1								1	
Fevers	12	64	76	57		6	1	1		7		69	7
Fistula	2	9	11	4		5						9	2
Fracture	4	20	24	12	1	1		1		1		16	8
Frost		22	22	18		1				1		20	2
Gonorrhœa	1	13	14	10		2	1		1			14	
Gravel		1	1							1		1	
Gastrodynia		1	1	1								1	
Hæmorrhoids		2	2	2								2	
Carried forward	57	347	455	183	11	43	6	5	4	60	362	43	

Account of Patients, &c. continued.

<i>Patients' Diseases.</i>	<i>Admitted.</i>		<i>Discharged.</i>								Total discharged and died.	Remaining 31st Dec. 1809.
	Remaining 31st Dec. 1808.	Admitted in 1809.	TOTAL.	Cured.	Relieved.	Request.	Incurable.	Disorderly.	Eloped	Died.		
Brought forward	57	347	445	183	11	43	6	5	4	60	362	43
Hæmoptysis		4	4	2						1	3	1
Hepatitis	1	4	5	2						3	5	
Hydrocele		2	2	1		1					2	
Hernia	1	4	5	3	1						4	1
Hydarthrus	2	9	11	6	1		1			1	9	2
Hydrothorax		1	1								1	1
Herpes		2	2	1							1	1
Hydrocephalus		1	1	1							1	
Hemiplegia	2	2	4	3	1						4	
Hypochondriasis		3	3	2					1		3	
Injured spines		3	3				1				1	2
Inflammation		5	5	4	1						5	
Incontinence of urine	1		1							1	1	
Jaundice		1	1	1							1	
Lumbago	1		1	1							1	
Mania	44	80	124	48	4	16			6	8	32	42
Menorrhagia		1	1			1					1	
Ophthalmia	1	16	17	12	1	1		1			15	2
Odontalgia	1		1	1							1	
Paralysis	2	9	11	3	1	2	2				8	3
Paraphymosis		2	2	1	1						2	
Poison		1	1							1	1	
Pneumonia	7	31	38	26	1	2				8	37	1
Pregnant	7	32	39	32		2					34	5
Rheumatism	28	111	139	96	4	3	4	3	6	2	118	21
Swell'd testicle	1	10	11	8	1				1		10	1
Syphilis	51	188	239	158	9	20	1	8	3	10	209	30
Scrofula		3	3	1						1	2	1
Sprain	1	9	10	6	1	1					8	2
Stricture		1	1									1
Physconia splenica		1	1		1						1	
Sphacelus		1	1									1
Suppression of Urine		2	2	2							2	
Small pox	1	1	2	1						1	2	
Tumours	3	6	9	2	1	3				1	7	2
Vertigo		1	1	1							1	
Ulcers	33	140	173	96	3	17	2	11		7	166	37
Wounds	5	32	37	23	2	4		1	1	4	35	2
<b>Total for year 1809,</b>	<b>250</b>	<b>1067</b>	<b>1317</b>	<b>777</b>	<b>45</b>	<b>116</b>	<b>17</b>	<b>29</b>	<b>22</b>	<b>109</b>	<b>1115</b>	<b>202</b>

*Observations on the Weather and Diseases of the City of New-York, from the 1st of January, 1810, to the 30th of June, inclusive.*

In recording the weather and diseases of this city, the Editors avail themselves of the reports of the New-York Hospital, the City Dispensary, and the weekly bills of mortality, as well as of their own private observations. They will also occasionally introduce some practical remarks upon those diseases which are of most frequent occurrence, or which, from their fatality or other circumstances, merit attention.

JANUARY.

*Average height of Farenheit's Thermometer in the shade.*

A. M.	P. M.	P. M.
At 7	3	7
28	36	30

The weather until the 18th day of this month was remarkably mild, the mercury in the thermometer being seldom much below the freezing point. The wind chiefly from the south and south-west, accompanied with a humid state of the atmosphere. Considerable quantities of rain also fell. On the evening of the 18th a sudden alteration took place; the wind changed to the north-west, and blew a constant gale until the 23d, during which time the mercury was at 0; a degree of cold of such continuance had not been experienced for twenty years past.\*

\* This sudden and very remarkable change in the weather of this month occurred in many other of our states. At New-London (Connecticut) on the 19th, the mercury fell six degrees below zero, and the day was the coldest since 1780. At Boston it was nine degrees below 0. At Portsmouth the variation was in twenty-four hours fifty-four degrees, and on the twentieth the mercury fell thirteen degrees below 0.

The remaining days were mild and fair. A small quantity of snow fell on the 30th.

*Prevailing diseases.* They consisted chiefly of pneumonia, rheumatism, and catarrhal affections. Several cases of croup (angina trachealis) also occurred during this month. In one instance it appeared with great severity in a lady about twenty-five years of age, who had lately removed to this city from the southern states. This was the first attack she had ever experienced of this disease, having never been subject to it in infancy. Bloodletting and antimonial emetics, with a blister applied to the throat, were immediately employed, followed with small doses of calomel and James' powder. By these remedies she was immediately relieved. Some cases of typhus also occurred: but to persons labouring under *consumption of the lungs* this month was unusually fatal; sixty deaths from this disease are recorded in the bills of mortality.

## FEBRUARY.

*Average height of the Thermometer.*

A. M.	P. M.	P. M.
At 7	3	7
29	39	35

Until the 10th of this month the weather was for the most part pleasant: but little rain; and wind generally from the south and south-west. On the 10th a considerable change in the temperature took place; the wind blew strong from the north-west. From the 13th to the 20th generally overcast and rain; wind south-west. The remaining days were mild and pleasant, though somewhat humid. Wind southerly.

*Prevailing diseases.* This month was remarkably healthy, excepting the usual inflammatory diseases which prevail at this season; but even these were few in num-

ber. Some cases of whooping cough are recorded as having proved fatal. Consumption of the lungs, the great outlet of human life in this city, also, in many instances, terminated fatally.

#### MARCH.

*Average height of the Thermometer*

A. M.	P. M.	P. M.
At 7	3	7
34	43	38

The weather was unusually temperate until the 5th, when the wind blew very strong from the southward during the whole night, accompanied with some rain. On the 6th, 7th, and 8th, the wind continued from the same quarter and some hail, snow, and considerable rain fell. Overcast on the 13th and 14th, when we had more rain. On the night of the 20th, there fell about two inches of snow. The remaining days were generally overcast or rainy: wind north-east. The quantity of rain which fell this month was unusually great.

*Prevailing diseases.* Catarrh, sore throat, croup, ophthalmia, erysipelas, pleurisy, and other inflammatory diseases were frequently observed; some few cases also occurred of scarlatina, measles, and whooping-cough, which last diseases had been occasionally met with throughout the winter. Several instances of remitting fever, assuming the typhus character, appeared in the month of March.

#### APRIL.

*Average height of the Thermometer.*

A. M.	P. M.	P. M.
At 7	3	7
50	62	57

At the commencement of April, there was a quantity of rain, with the wind easterly. The weather afterwards

became clear and pleasant. On the 8th a quantity of rain fell, and the wind continued to blow from the north-east till the 15th, when it changed to the south-west, followed by a mild and agreeable state of the atmosphere. Towards the latter part of the month, considerably overcast, wind north-east, and on the 27th more rain. For the last three days there was a very heavy fog in the morning, and a humid atmosphere during the day. Wind easterly.

*Prevailing diseases.* Besides the usual inflammatory diseases of the spring, viz. catarrh, rheumatism, sore-throats, and pneumonia in its different forms, several cases of apoplexy occurred, in some instances proving fatal, in others attended with hæmiplegia, from which the patient partially recovered. Intermitting fevers were also frequently met with; some few cases of remittents, ending in a tedious typhus, occurred in this month as well as in the last.

## MAY.

*Average height of the Thermometer.*

A. M.	P. M.	P. M.
At 7	3	7
56	71	64

The weather at the commencement of May was cool and pleasant, and on the night of the 3d a considerable quantity of rain fell. The remainder of the month was remarkable for the number of sultry days and its uninterrupted dryness. The mercury often rose to the height of 85, and on the 28th day was as high as 89 at 3 o'clock, in the shade. Vegetation in many parts of the country was not only suspended but destroyed, insomuch that many trees dropped their leaves as in autumn.

*Prevailing diseases.* In this, as in the preceding month, diseases of an inflammatory type prevailed; ophthalmia;

croup, inflammation of the tonsils, and pleurisy fell under our notice. In several instances also we met with hæmoptysis and uterine hæmorrhage. Whooping-cough, measles, and scarlet fever appeared in a few families; but were rarely fatal. The scarlet fever in children generally assumed a mild character, readily yielding to the ordinary treatment. But in a few instances it occurred in women advanced in pregnancy; in all of whom it produced abortion, and terminated fatally. Intermittents and remittents occasionally appeared throughout the month.

## JUNE.

*Average height of the Thermometer.*

A. M.	P. M.	P. M.
At 7	3	7
64	75	66

The first three days of June were clear and pleasant, wind from the south-west. On the 4th we had a heavy thunder shower, followed by a violent north-east storm, that continued with short intermissions for several days, during which the temperature of the weather was so remarkably cool that fires and the usual clothing of winter were rendered agreeable. Between the 12th and 16th the heat became extremely oppressive, the mercury in the thermometer was several times as high as 85; the wind south-west. On the 27th a small quantity of rain fell.

*Prevailing diseases.* During the whole of this month, notwithstanding the vicissitudes of the weather, the city was unusually healthy. Some few cases of intermittent, remittent, and typhus fevers were occasionally noticed. Some deaths from diarrhœa infantum, dysentery, and whooping-cough, are also recorded in the bills of mortality.



But of all the diseases in this city, consumption of the lungs is of the most frequent occurrence, and most generally fatal. In some instances the use of mild emetics, given two or three times a week, as recommended by Dr. Reid, in his valuable work on Phthisis Pulmonalis, has been found of service, when exhibited in an early stage of that disease. By this practice, followed with the use of bitters, exercise on horseback, and a nutritious diet, we have witnessed some cases in which a perfect cure has been effected. For the most part, however, it obstinately resists the use of the lancet, blisters, mercury, fox-glove, and the other remedies usually prescribed.

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*Michaux's American Silva.*

F. A. Michaux, M. D. well known as the author of an interesting volume of travels to the west of the Allegany Mountains, performed in 1802, and as the editor of the *Flora Boreali-America*, a work of his late distinguished father, is now in Paris, zealously engaged in arranging for publication the valuable observations on the woods of America, which he made during his second tour through the United States, in 1806, 7, 8. Our correspondent, in a letter, dated March the 9th, 1810, states, that M. Michaux had already made great progress in his undertaking, and that probably the *American Silva* will be republished either at New-York or Philadelphia, in the course of the present year. From the acquirements of M. Michaux, the indefatigable attention which he has bestowed on the subject, and the ardent zeal we know him to possess for every thing connected with botanical science, we have no doubt of receiving much valuable information from his work, and that it will prove an import-

ant addition to the present knowledge of our native forests, and of the various purposes to which they may be applied.

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*Bruce's American Mineralogical Journal.*

The first number of the American Mineralogical Journal, conducted by Archibald Bruce, M. D. Professor of Mineralogy in the university of the state of New-York, has lately issued from the press of Messrs. Collins and Perkins. Believing that this country, in the variety and importance of its mineral productions, is not exceeded by any other in the world, and that a journal devoted exclusively to the elucidation of the geology and mineralogy of the United States, has been long wanting, we cannot but congratulate the public on the appearance of the present work.

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*Spafford's Gazetteer of the State of New-York.*

A Gazetteer of the state of New-York, by Mr. H. G. SPAFFORD, will in all probability appear during the present season. Judging from the author's circular address, this publication will embrace a more minute detail of the numerous objects of importance which claim the attention of the scholar and the man of business, than any work of a similar kind heretofore offered for public patronage.

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*Vanderdonk's History of New Netherland.*

The Rev. Dr. BASSET, of the Boght, near Albany, is at present engaged in preparing for the press, a translation, from the original Dutch, of Adrian Vanderdonk's work,

first published at Amsterdam in 1665. This book, which contains much curious and authentic information of our early history, and many interesting particulars relative to our animal, vegetable, and mineral productions, has now become so extremely scarce, that the antiquary himself will in vain search for a copy of it. These circumstances, as well as its being written in a foreign tongue, have induced Dr. BASSET to favour the public with the present translation, which we are confident will be received as a valuable document by every lover of American history.

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*American Edition of John and Charles Bell's Anatomy.*

An American edition, (*printed entire*) of the ANATOMY OF THE HUMAN BODY, by *John and Charles Bell*, has lately been published by Messrs. Collins and Perkins, of this city. The acknowledged celebrity of the authors and of the work itself, is such, as to require no commendation from us. We should however do injustice to the enterprising editors who have issued this edition, not to notice the correctness and elegance with which they have compleated this great undertaking. The type and engravings do credit to our country, at the same time that the work is offered at a price less than half of that at which the London copy is sold. Both the student and practitioner of medicine will doubtless avail themselves of an opportunity of possessing this inestimable work.

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## FOREIGN INTELLIGENCE.

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### *Pearson's Experiments on Expectorated Matter.*

We have just received from that celebrated physician and chemist, Dr. George Pearson, of London, whom we are proud to enumerate among our correspondents, a copy of his valuable paper on this subject, lately read before the Philosophical Society. We regret that, through want of room, we are unable to give a minute account of the numerous interesting experiments which Dr. Pearson has instituted, in order to obtain a correct knowledge of the properties of the matter secreted by the bronchial membrane. We, however, shall insert the result of his observations, believing with him, "that the investigation of the properties of the animal fluids will afford gratifying instruction to the researcher in natural science, and important practical information to the physician."

The varieties of expectorated matter, according to Dr. Pearson, may be arranged under seven different heads.

I. The jelly-like semi-transparent kind of a bluish hue, excreted in a healthy state.

II. The thin mucilage-like transparent matter, so copiously expectorated in bronchial catarrhs.

III. The thick opaque straw-coloured, or white and very tenacious matter, coughed up in a great variety of bronchial and pulmonary affections; especially in that of tubercles.

IV. Puriform matter secreted without any division of continuity, or breach of surface of the bronchial membrane, very commonly occurring in pulmonary consumptions.

V. The matter which consists of opaque viscid masses, together with transparent fluid; or the second sort above stated, with nodules of the third or fourth kind.

VI. Pus from the vomica of tubercles.

VII. Pus from vomica by simple inflammation of the lungs, and without tubercles.

“Other kinds of matter, adds Dr. Pearson, are occasionally coughed up, such as calculi, masses of self-coagulated lymph; serous fluid; blood itself, and perhaps the vascular substance of the lungs; but I do not write on these matters, because they either do not belong to any particular recognised disease; or they are rare occurrences in some well known disease, and are too obvious to require description.

After having detailed at some length the sensible properties of the first five varieties of matter, to which Dr. Pearson has in this present paper restricted his attention, we are presented with an account of the action produced on them by caloric. Caloric has no effect of importance unless the temperature of the expectorated matter is raised to about 150 degrees. At 155, coagulation commences in the first, third, fourth, and fifth kinds. At the temperature of 160 or 170, a large portion of curd is formed. The second kind of matter does not afford the curdy masses at the temperature above mentioned; its viscid texture is destroyed, and it becomes a whey-like liquid. “After this agency of caloric, the expectorated matter is much less prone to putrefaction.”

The several forms of matter were also subjected to the action of sulphuric ether; water, cold and hot, and acetic acid. The author's conclusions we shall insert entire.

“From the preceding experiments and observations, and from others which I might have related, it does not appear that the various kinds of expectorated matter differ in the ingredients of their composition, but merely in the proportion of them to one another.

“2. It has been shown that expectorated matter consists of coagulable, or, as it is also now frequently termed, *albuminous* animal substance, and of water impregnated with several saline and earthy bodies—that the largest proportion of the animal substance which may justly be called oxide, amounts to one twelfth, and in some very rare cases to one tenth of the expectorated matter, reduced to a brittle state by evaporation; and that the smallest proportion of this oxide, in rare instances, amounts to one forty-fifth of the expectorated matter; but that the usual proportions of it vary between one twentieth and one sixteenth of this coagulable oxide to the evaporable water, that is, between five and six per cent. of the expectorated matter.

“3. The impregnating substances have been shown to be muriate of soda, varying commonly between one and a half to two and a half per 1000 of the expectorated matter—Potash varying between one half and three fourths of a part per 1000—Phosphate of lime about half a part of 1000—Ammonia, united probably to the phosphoric acid; phosphate, perhaps of magnesia; carbonate of lime; a sulphate; vitrifiable matter, or, perhaps silica, and oxide of iron. But the whole of the last six substances scarcely amounting to one part in 1000 of the expectorated matter, it would be useless to estimate the proportion of each of them. It is very probable that the proportion and quantities of these ingredients, vary much more than now represented in different states of diseases and health.\* It is very probable also, that some of the ingredients may occasionally be absent, and others of a different kind be present, agreeably to the different states, on different occasions of the other secretions.

“4. It is manifest that the different states of consistence of expectorated matter are owing to the proportion of albuminous or coagulable oxide, but I purposely avoid giving an account of the different conditions of health, on which the differences of consistence depend.

“5. The thicker the matter, the smaller I commonly found the quantity of saline impregnation. Hence in sudden and copious secretions of the bronchial membrane, the matter is asserted to be salt, and to feel hot. In such instances, the proportion of coagulable mat-

\* *In one case, the opaque expectorated matter in a pulmonary consumption having been exsiccated to brittleness, became almost liquid after a night's exposure to the air.*

ter was small, but that of the saline impregnations, particularly of the muriate of soda and neutralised potash, so great, that the exsiccated expectorated substance tasted very salt, and presently grew moist, or even partially deliquesced; but the opaque ropy or puriform matter afforded a much larger proportion of exsiccated residue, which was but slightly salt, and generally only became soft on exposure to the air. This property of growing moist depends upon the potash.

“6. Each of the human fluids, according to my experiments, contains neutralised potash; at least, this is the fact of the blood, dropsy fluid, pus of abscesses, and pus secreted without breach of surface; the fluid effused by vesicating with cantharides; the urine; and in course in the very abundant secretion from the nose by a catarrh. The alkali being united to oxide of animal matter in these fluids, it is easily demonstrable.

“7. Although I think I have discovered many properties by which expectorated secretion may be distinguished from expectorated pus, I shall not speak of them, on this occasion, further than just to observe that the saline impregnation of pus, particularly that of potash, and muriate of soda, is in very much less proportion than in expectorated secretion; and hence it does not become moist after exsiccation on exposure to the air.

“8. It has been, I believe, uniformly asserted, that the circulating and secreted fluids are impregnated with soda; that it is especially in the matter secreted by the bronchial membrane. The experiments of others must confirm or disprove mine. It seems, however, much more reasonable that the human fluids should be found to contain potash than soda united to some oxide or destructible acid; because the former alkali is daily introduced with the vegetable food and with the drink of fermented liquor, and it is as little likely to be destroyed as the muriate of soda also induced in the very same way. But our food and drink do not commonly at least contain the soda united to a destructible acid, or an oxide.

“9. It is plain from the preceding experiments, that expectorated matter belongs to the class of coagulable fluids and not of gelatinizable, or, as commonly asserted, mucous fluids. It differs from the coagulable fluid serum of blood, in forming a much thicker fluid with a much larger proportion of water: for serum and also the water of blisters, is quite liquid, although they afford, on exsiccation one twelfth to one eleventh of their weight of brittle residue, while some kinds of expectorated matter, of the consistence of mucilage, afford

only one fortieth of dry residue, and others of the consistence of thin paste afford only one fourteenth of residue.

“ 10. But for the unavoidable extent of this paper I should trouble the learned Society with various other conclusions and remarks, especially concerning the *globularity* of expectorated matter, which seems to indicate organization. Although ANTONIUS VAN LEWENHOECK, above a century ago, discovered the globularity of the blood, and even noticed it in other animal fluids, neither he nor any other person, as far as I know, investigated the subject in any fluid but the blood, till by Mr. HOME’s acuteness and industry, at a very early period of life, it was observed in pus. I have in this paper related, that expectorated matter, especially the opaque ropy kind, as well as the puriform, is full of globules, and that except by such agents as destroy charcoal, they are scarcely destructible. Do these spherical particles consist chiefly of organized carbonaceous matter ?

#### RECENT PUBLICATIONS.

A late discovery extremely interesting to Planters and Farmers, relative to fertilizing poor and exhausted ground, upon a cheap and easy plan, with some remarks and observations on Orcharding and Gardening. By George Reed Washington. Daniel Rapine.

Essay on Sheep; their varieties, account of the Merinos of Spain, France, &c. reflections on the best method of treating them, and raising a flock in the United States; together with miscellaneous remarks on sheep, and woollen manufactories. By Robert R. Livingston, L. L. D. &c. &c. Second ed. enlarged, 12mo. Collins & Perkins.

An Essay on the Climate of the United States; or, an inquiry into the causes of the difference in the climate between the eastern side of the continent of North America and Europe, with practical remarks on the influence of the climate on Agriculture, and particularly the cultivation of the Vine—“*Rerum cognoscere causas.*”—Virg.—Philadelphia, Hopkins and Earle. 42 pages, 8vo.

Memoirs of the Connecticut Academy of Arts and Sciences. Vol. I. part. 1.

#### TO CORRESPONDENTS.

Although we have considerably exceeded the number of pages originally proposed, we have still to regret the postponement of several valuable communications from practitioners of eminence in this country, besides other articles, of foreign intelligence, prepared for this number. Some important papers from Dr. ALIRE R. DELILE, our friend and correspondent at Paris, are also unavoidably omitted.



THE  
A M E R I C A N  
MEDICAL AND PHILOSOPHICAL  
REGISTER.

OCTOBER, 1810.

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ORIGINAL COMMUNICATIONS.

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I.

OBSERVATIONS *on* NAVIGABLE CANALS. *Communicated to the Editors of the American Medical and Philosophical Register. By an* OBSERVER.

THE public attention, for several years past, has been chiefly engaged by turnpike roads, as the means of conveying produce to market, whence it is suspected that many of our fellow-citizens have not fully considered the great and solid advantages that would be derived, especially in this state, from navigable canals.

It may be taken for a general rule, that canals abound, in different governments, in direct proportion to the industry, economy, and wealth of the inhabitants. Not that wealth begets canals, but canals are the natural ef-

fect of economy and industry, which never fail to beget wealth. It is known, by every man who has travelled in Europe, that Holland abounds in canals. No heavy loads, in that government, are conveyed in waggons; every thing is transported by water. But we know that the Dutch have been proverbially rich. Few, very few of us have ever seen the empire of China, but we know perfectly well that China, in all directions, is scarified by navigable canals. China is not, as some people imagine, a perfect plain. But there are canals in that empire, notwithstanding the hills, seven or eight hundred miles long. That ancient and prudent nation have discovered that the transportation of produce by horses is very expensive and would effectually check their prosperity. It is known that China, by economy of this kind, maintains more inhabitants than any other government on the face of the earth, upon the like number of acres. Peter, the emperor of Russia, one of the greatest men recorded in history, is known to have civilized a nation who were nearly savage. This he did by introducing commerce and learning among his subjects. Imitating the wise policy of the Chinese, he projected navigable canals through every part of his empire. Part of that great and useful work was executed in his life time, the remainder has been diligently prosecuted by his successors. A large boat may now pass from the Caspian to the Baltic; a distance of one thousand three hundred and thirty-four miles, without unloading any part of her cargo. Boats may also pass, by rivers and canals, from the White sea to Petersburg; or to the Caspian sea. And they may pass by the river Memel in the Baltic or by the Duna and then by certain canals into the Don or Dniester, and by those rivers into the Black sea; or turning to the northward, after they have left

the Memel or the Duna; they may pass by other canals and rivers into the Caspian sea. By the means of this internal navigation Russia is become a great commercial empire; its inhabitants are civilized, and fourteen or fifteen hundred ships, of foreign nations, are loaded every year with its produce.

It is within the memory of man that the first navigable canal was dug in England; a country that was supposed to be sufficiently improved. But canals are now become numerous in that kingdom, and the subjects have discovered that their former means of transporting produce had been improper and very expensive.

The Spaniards, an indolent nation, who are therefore among the hindmost, in every useful improvement; whose wealth for ages, has not been the effect of personal industry or economy, have lately attempted some navigable canals. But those canals, projected by pride and not by prudence, were begun upon too large a scale, and being too expensive, they were soon deserted.

Some canals there are, in other countries, larger than those in Spain, but they have been formed for a different purpose. They were intended for conveying shipping from one sea to another; not for the purpose of carrying produce to a shipping port. The canal of Languedoc, projected by Lewis the 14th, is of this kind. The Holstein canal, begun in the year 1777, and finished in 1785, is also of this kind. It is one hundred feet wide at the top, fifty-four feet wide at the bottom, and not less than ten feet deep in any part. Ships drawing nine feet four inches water may pass through it. Vessels pass by that

canal from the German ocean, in the vicinity of Tonnin-gen, into the Baltic. From two to three thousand ships have passed through it one year. The expense of the canal and locks was a little more than one million and a half of dollars. The canal in Scotland, that passes from the river Forth to the Clyde, though projected on a much smaller scale, was also intended for the passage of sea vessels. There is a canal in Sweden, not yet finished, whose object is to convey ships from the Baltic to the Categate, near Gottenburg, without passing the sound. Part of this canal is cut through a solid rock of granite, above seventy feet deep, at a great expense. The canal proposed to be cut in this state, will not be attended with difficulties or expences such as occurred in forming any of the canals last mentioned. But it will be infinitely more profitable to the community than any canal hitherto formed, in any country; some of the canals in China and Russia excepted. It must be much more profitable than any canal in England, Scotland, Holland or Flanders, because no spot of land, in either of those countries, can be very far from the Sea, or from a navigable water.

The object of the canal to which I refer is to convey small craft from the tide water in Hudson river by the course of the Mohawk, Wood creek, Oneida lake and Seneka river across the Genessee river, and then by the Cataragus or Tanawanda creek into lake Erie. This is stated as the general bearing of the canal. But it is not to be understood that I would in all cases take the bed of a river as a cheaper or better mode of conveying produce than by canals near the river. On the contrary, I know that a canal supplied by the river, in many cases is greatly to be preferred to the natural bed of the stream.

By means of such canal we should preserve the commerce of our own citizens, we should render their lands valuable by doubling or trebling their produce, and we should command the commerce of the great Western country, without a rival, except the state of Pennsylvania.

It is well known that there is not a single river in the Atlantic states that passes through the Allegany mountain, or the great chain of ridges, called the Appalachian mountain, except the Susquehannah and Hudson. Hence it follows, that no state in the union, except Pennsylvania and New-York, can bring produce by water from the western country; for no canal can be made across the mountains that are about three thousand feet high. We say nothing about the trouble and expence of making six hundred locks, viz. three hundred on each side of the mountain; since there would not be a proper supply of water on the tops. In this rivalry, it is conceived that New-York has considerably the advantage of Pennsylvania. We admit that the navigation of the Susquehannah, in the upper part of that river, is much better than the navigation of the Mohawk. If the bed of the river should be used, for that river is deeper and less incommoded by rocks and ripples. But the lower part of the Susquehannah is frightfully dangerous, nor is it possible, in some places, to desert the bed of the river, by running a canal along its bank. On the contrary, the navigation of the Hudson river, below the Mohawk, is delightful, and the Mohawk itself, by removing rocks and by the help of a few canals along its bank, may be made navigable with safety and ease. After we have attained the highest ground, at the head of the Mohawk, all difficulties vanish. There is no scarcity of water upon the summit level, and the naviga-

tion of Wood creek may be exchanged, at a small expense for a canal. The internal navigation from Oneida lake, by rivers and canals, to lake Erie, may be effected as we are told, without much difficulty. Nature has already done about half of the work by the Seneka river and one of its branches. But here is a canal to be dug, of considerable length, between the waters of Seneka river and those that discharge themselves into lake Erie. There is no mountain in the way.

The water in lake Erie is about two hundred and seventy feet higher than the water in the Oneida lake. This does not indicate a great number of intermediate locks, whatever need there may be of locks in crossing rivulets or small ridges. It will be observed, that I contemplate the running a canal entirely through our own state, without visiting lake Ontario. I have seen more projects than one, for improving our navigation, by forming a canal from Oneida lake to lake Ontario, and then by opening a canal that, passing the falls of Niagara, shall connect lake Ontario with lake Erie. The project may certainly be executed, but I never could discover the policy of that measure. We know that the river St. Lawrence is navigated at present with boats, and the navigation of that river, at a moderate expense, may be made perfectly safe. Is it contemplated to make the subjects of another government our chief carriers? If our produce once gets into lake Ontario, I deem it certain that it will never return to the United States. Is it not recollected that the carrier of produce, in every case, has prospered, whatever the case of the seller or the buyer may have been. What was it that created and enriched the cities of Tyre and Palmyra, Alexandria, Venice, and Amsterdam? It was

not any thing made by the inhabitants, or produced in their vicinity. It was the profits of a carrying trade ; a trade that has never failed to enrich the parties interested.

I am aware that a great proportion of our fellow citizens, who live in the north-eastern part of this state, find it their interest at present to carry their produce to Montreal ; but if a canal should be cut from the Oneida lake into the Ontario, by way of Salmon creek or Salmon river, the case would not be altered. It may be alleged that such a canal would accommodate the inhabitants on the waters of Black river, but I deem it certain that whenever those people have conducted their produce to lake Ontario, they will take it directly to Montreal, instead of taking it, by many locks and canals, to Albany. I repeat the former observation, that every bushel of wheat that shall once be afloat upon lake Ontario, must be expected to be landed in Montreal.

It will probably be said, that the river St. Lawrence is unfriendly to commerce, for it is frozen five or six months in the year ; but the river Mohawk, and the adjoining canals, must also be frozen several months every year. The general process, as I presume, will be as follows : The farmer will clean his wheat in the winter, and carry it to the side of a lake, river or canal, from which it may be taken to market, when the waters are clear from ice. The river St. Lawrence will be clear to Montreal full as soon as the canals are clear. Therefore the wheat will go by the cheapest passage. The market price at Montreal will not be depressed by the want of shipping to carry off the produce, nor by the want of capital, for houses in England will have their factors there.

Perhaps it will be said, that boats fit for common canals cannot live upon the lakes, therefore, produce that comes from lake Huron, or from the upper end of lake Erie, will be transported in large sloops; but the canal to be cut by the falls of Niagara may be fitted for such sloops, in which case they may pass on to the east end of lake Ontario. Such would doubtless be the case, but we should gain nothing, that I can discover, by the sloop navigation of Ontario, since it is certain that the river Mohawk can never be fitted for any thing above boat navigation. For this reason the produce, in one place or another, must be transferred from the sloops into boats, and I conceive that the change had best be made at the east end of lake Erie.

For the reasons stated, I take for granted that our legislature will cause the navigable canal to be conducted through their own territory. It will naturally run a little to the northward of the middle ground.

Let us try to calculate the real value of such a canal, or how much our fellow-citizens would save by it. The average breadth of our state, the western part of it, is about ninety miles, and its length from Wood creek to the western boundary is on a medium one hundred and sixty miles. In this case, if the canal should pass through the middle ground, the mean distance of each farm from the canal would not exceed twenty-three miles.

The length and breadth mentioned gives nine millions, two hundred and sixteen thousand acres of land, which will give forty-six thousand and eighty farms, each containing two hundred acres. The several owners of those



farms may be expected to raise, one with another, one hundred bushels of wheat for sale, every year, or other marketable produce of the like value. This implies four millions six hundred and eight thousand bushels of wheat for sale every year. I presume the medium price of wheat, at tide water, on the Hudson, may be stated at one dollar and a quarter. According to this estimate, when all the new lands in this state are settled, and properly cultivated, the produce of one kind or another that is ready for market every year will be worth five millions seven hundred and sixty thousand dollars. Whoever takes the trouble to examine will find that the distance to be travelled, from the several farms, within the bounds mentioned, one with another, to tide water on the Hudson, is at least one hundred and fifty miles. Suppose this travelling to be on a turnpike road, it is ascertained that wheat cannot be carried, upon such road, at less than forty-five cents per bushel, for one hundred miles, or sixty-seven cents for one hundred and fifty miles, the medium distance to market. In this estimate I am guided by the prices now paid, on good turnpike roads, in Pennsylvania. The price stated is a heavy tax upon the farmer; more than half the value of his crop. It amounts to three millions, eighty-seven thousand, three hundred and sixty dollars. Let us consider the amount of the losses that the farmers in general, or the public, would sustain by taking such wheat, or other produce, to market in wagons. A wagon, as I presume, with four horses, would carry fifty bushels of wheat to market. The several trips, going and coming three hundred miles, good weather and bad weather included, may be performed in a fortnight; or twenty-five trips in the year. At this rate, three thousand six hundred and eighty-six wagons would be employed all

the year in taking the wheat to market. The wagon and four horses may be valued at four hundred dollars; the whole value, one million, four hundred and seventy-four thousand, four hundred dollars. A wagon and team, in constant service, cannot be supposed to last more than eight years. But the consumption of one million, four hundred and seventy-four thousand, four hundred dollars, in eight years, implies the loss of one hundred and eighty-four thousand three hundred dollars every year in horses and wagons, beside the vast quantity of grain that must be consumed by fourteen thousand seven hundred and forty-four horses. Each team of horses must consume at least one bushel of oats per day, which, valued at twenty-five cents, amounts to one million, three hundred and forty five thousand, three hundred and ninety dollars per annum for the whole. I am yet to take some account of three thousand six hundred and eighty-six men in perfect health, who, instead of raising provisions on a farm, are employed the whole year in cracking wagon whips on the road. Their wages and provisions cannot be stated at less by the year than two hundred and forty-four dollars each man. This comes to eight hundred and ninety-nine thousand two hundred and eighty-four dollars for the support of wagoners. If the produce should come to market by canals, it could not, in the case of good management, cost more than a fourth part of the necessary cost when brought by wagons. It would not employ more than a fourth part of the number of labourers. The wear of boats would not be equal to a fourth part of the wear of wagons; and nine-tenths of the vast expense of horses would be saved. The annual difference in those two modes of taking the produce to market would be about one million, eight hundred and twenty-one thousand, seven hundred and thirty dollars.

It will probably be said, that the above calculation is extravagant beyond measure, for it supposes more than ten times the quantity of wheat that has ever been raised in that part of the state, in one year. This objection for the present is perfectly correct, but the reader will be pleased to consider that I do not calculate for the present year. I do not calculate for the scattered inhabitants of a wilderness; for people who have done little more than erect shelters for their families, and raise a little grain for their support. I look forward to a period when every part of that wilderness will be laid off into farms, and settled with industrious yeomanry; a period that will arrive before thirty years have finished their course. The object of a wise legislature is to promote industry and virtue in the state; but we know that people who live far from market, and cannot sell their produce, naturally become indolent and vicious. Having little to do, they do less. It is the hope of reward that promotes industry; without such hope, men become savages. There are people in the western country, settled on a bountiful soil, who do not raise a bushel of grain except what is eaten by the family, or what is made into whiskey, for the purpose of drowning thought, and destroying soul and body. By the help of a navigable canal through the western country, our fellow citizens there would be removed, as it were, towards the coast; their lands would be doubled or trebled in value; they would be industrious, because they would enjoy the fruit of their labour. The lands would be well cultivated, and the inhabitants well instructed. We shall be guilty of a criminal neglect if we do not furnish those people with the means of sending their produce to market. Beside the duty that we owe to a rising generation, the duty of promoting industry and guarding their

morals ; it is obvious that sound policy, on other accounts, demands, with an imperious call, that we should promote internal navigation. The waters of the Mississippi are found to be an impracticable conveyance for foreign supplies to the western country. Some channel must be formed by which foreign goods and domestic produce may be conveyed to and from the western settlements. It remains to be determined whether that channel will pass through the state of Pennsylvania or New-York. Such a channel of conveyance might be made by the inhabitants of Canada on easy terms. The river St. Lawrence may be cleared without much trouble, and they have only to pass the falls of Niagara by a navigable canal. But they are provincials, and a mixed people, circumstances that are unfriendly to such exertions. The legislature of Pennsylvania has shewn a liberal spirit in promoting roads and canals. They will doubtless make the north-east branch of the river Susquehannah a safe and cheap channel for the conveyance of produce from the head of that river, in which case they will carry off the produce, and secure the commerce of a considerable part of this state. They will do more ; they will not fail to form a navigable passage to lake Erie. The western branch of the Susquehannah passes through the Allegany ridge, and there are not many dangerous falls or rapids on that branch. It will be practicable to make a navigable canal from the west branch into the waters of the Allegany river, and thence into lake Erie. But it would be a tedious navigation, for some of the channels through which it must pass are very crooked. Hence it will follow, that if we had effected a canal navigation into lake Erie, we should continue, in all probability, to enjoy the carrying trade without a competitor. It is pretty

clear, that whoever carries the produce that goes to market from the east end of lake Erie, must also be the carrier of a great part of the produce of that fertile country that extends westward to the Illinois river. There is no manner of difficulty in passing from lake Erie to lake Huron, upon which a settlement will be formed before time shall have covered the heads of our children with gray hairs.

I am aware that the canal I have recommended will be objected to as a greater work than any thing that has been attempted in the United States ; as a measure that would be attended with great expense. But the reader will be pleased to consider that there are few places on the face of the earth where a canal can produce such great and profitable effects. There are not many places on the face of this globe, in which a great and fertile country is so completely cut off from navigable waters, as the country of which I have been speaking. I do not urge the propriety of such canal because it would be the means of bringing wealth and prosperity to the city of New-York ; for this city, from its happy situation, must prosper without the benefit of canals. But such a canal would be the means of preserving knowledge and civilization in the western country ; it would be the means of bringing prosperity and comfort to millions yet unborn ; and it would promote and bring into existence an immense quantity of valuable produce, that otherwise would never see the light.

If the reader conceives that my calculations are visionary and extravagant ; if he thinks that a farmer, on good land, instead of raising one hundred bushels of wheat, will only raise ten bushels for market ; let him take his

pen and cut down every other article according to the same scale. Let him make the western people, in his imagination, as idle and drowsy as he pleases, still he will find that the proposed canal would bring the state an ample reward. The tenth part of the sum above-mentioned is one hundred and eighty-two thousand one hundred and seventy-three dollars. And it will be admitted that one hundred and eighty-two thousand one hundred and seventy-three dollars per annum have a sufficient claim upon legislative attention.

#### AN OBSERVER.

Annexed is a small sketch of the country through which the canal is proposed to pass.

- A. The head of the Mohawk.
- B. Wood creek.
- C. Oneida lake.
- D. Seneca river.
- E. Mud creek.
- F. Genessee river.
- G. Allen's creek.
- H. Tanawanda creek.
- I. Buffalo creek.
- K. Cateragus creek.
- L. Susquehannah river.
- M. Allegany river.
- P. Pennsylvania N. boundary.
- S. Seneca lake.

P. S. Observing that the legislature of this state had turned their attention to the subject of internal navigation, I presumed that it would not be improper to shew, by plain calculations, the vast superiority of navigable ca-







nals to common land carriage, for the conveyance of produce. The calculations and remarks were intended for the citizens of this state, in particular, to whom, as a fellow-citizen, I owe certain duties. But it is obvious that the canal I have recommended has very urgent claims upon the attention of the United States. Claims that will force attention, if it is not freely paid. It has been questioned, not without reason, whether congress are vested with authority to expend the national treasure in making and repairing roads in the several states. But no man has alleged that congress has not a right to sell the vacant lands of the nation; nor has it been alleged that they should not employ the best means of bringing those lands to a good market. If they had a large tract of drowned lands, not saleable, they might, with propriety, expend twenty thousand dollars in draining those lands, provided the lands, when drained, would certainly bring them forty thousand. Now it is absolutely certain that if congress and the state of New-York, that has a particular interest, should open the proposed canal, the public lands would not only be doubled in value, and the sale of them be expedited, but people who are indebted to the treasury for lands already sold, would be enabled to pay debts, to a great amount, which otherwise are at least very doubtful. If there should arise in the western country, a great body of people, loaded with a heavy debt to the United States, which they could not discharge, the integrity of the union would be greatly endangered by the circumstance.

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## II.

*A REVIEW of the DOCTRINE OF DISEASES, taught at present by BENJAMIN RUSH, M. D. Professor of the Institutes and Practice of Medicine, &c. in the University of Pennsylvania.—Continued from page 60, and concluded.*

### OF THE PROXIMATE CAUSE.

IN his account of the phenomina and proximate cause of fever, Dr. Rush says, fever is a modification of disease which has its seat in the blood vessels and consists in “an irregular action or convulsion of the arteries,” and that this convulsion is the proximate cause of fever. This is the same as if he had said, fever and its proximate cause are one and the same. This is a violation of the rules of logic, which lays it down as a maxim that cause and effect are never to be identified. The irregular action in which he says fever consists, cannot be the proximate cause of fever, otherwise it would be the cause of itself. If that were possible, every event that occurs in the universe might be the cause of its own existence, which is contrary to experience and therefore inadmissible.

The proximate cause is that cause which is nearest to an effect, and in medical language means that condition or circumstance on which disease or a deviation from health directly depends, and which necessarily ceases to exist upon the removal of that condition or circumstance. If, therefore, the theory taught by Dr. Rush were true, and he reasoned consistently with the principles which he has

adopted, he ought not, in my opinion, to consider the convulsion of the arteries to be the proximate cause, but the excitability accumulated in the fibres of the arteries, for by his own doctrine, the convulsion of the arteries, is occasioned by the stimulus of the circulating blood upon their redundant excitability.

If irregular action were the proximate cause of diseases in general, and of fever in particular, blood-letting would cure the disease, when the excitement is too high, or the irregular action too strong, or when the excitement is too low. Because so long as the arteries retained a surplus of excitability, and the blood continued to circulate, it would produce irregular action, or a convulsive motion. For as emptying part of the water boiling in a pot, will not render what remains cooler, so long as the fuel which occasions its heat continues to burn, though its heat may be diminished by adding water of a colder temperature to it, so bleeding, on the principles of this doctrine, could not diminish the temperature of the animal body, so long as the surplus of excitability or the causes of its accumulation remained undiminished. Blood-letting, however, does afford relief when the excitement is to excess or the irregular action very strong, and therefore furnishes incontestible evidence of the fallacy and imperfection of this doctrine.

But as the most certain method of discovering the truth of any theory or doctrine, is to subject it to the test of experiment, let us enquire how this doctrine agrees with practice.

The scurvy, which is confessedly brought on by gradually debilitating powers, if its proximate cause were irregular action, or redundant excitability, should be cured by the application of stimuli of sufficient strength to exhaust the system of the surplus of excitability; but this treatment is not found to cure the disease; whereas a plentiful supply of the juices of sub-acid vegetables, and particularly of lemons and oranges, seldom fails. This being a notorious fact, furnishes another proof of the fallacy and imperfection of this doctrine.

If febrile diseases were capable of being cured by having their surplus of excitability transferred by means of a mercurial salivation from the arteries to the glandular or lymphatic portion of the system, and all diseases depend upon the same proximate cause, differing only in the circumstance of being seated in different portions of the system, and in the degree or force of irregular action, as the doctrine under review teaches, what portion of the system does scurvy occupy, that mercury not only fails in curing it, but when exhibited in a late stage of the disease, as well as in a late stage of malignant fever, forces out life in rapid streams?

Tetanus, which has its seat in the muscular portion of the system, and which, according to this doctrine, has the very same proximate cause as fever and every other idiopathic disease, and in which, in the language of electricians, the excitability is *plus*, while it is *minus* in the blood vessels; if this doctrine were true, would require precisely the same remedies as fever. But the remedies which Dr. Rush acknowledges to be most efficacious in this disease, are in direct contrast with

those which he advises in the cure of fever, particularly in that form which he calls malignant. But as the practice to which this doctrine leads, never succeeds, if the theory of curing one disease by producing another of stronger action, or of transferring the surplus of excitability from one portion of the system to another and thereby adjusting it to the force of the customary stimuli, was substantiated, a disease might be produced in the blood-vessels more powerful than that existing in the muscles, by first subjecting the patient to a very low temperature, for the purpose of debilitating the arterial portion of the system, and thereby permitting the excitability to accumulate in the arteries, so as to exceed that in the muscles, in aid of which fasting and immoderate evacuations might be added, after which, the application of great heat and other powerful stimuli, would produce such powerful action in the arteries, and such high excitement in that portion of the system, as would counteract the excitement of the muscles, and transfer the surplus of their excitability to the parts more highly excited.

To render the effect of the usual diffusible stimuli more certain, blisters and a salivation might be superadded, as they have, in Dr. Rush's opinion, the effect of collecting and concentrating scattered and painful sensations and carrying them out of the system. This opinion is expressed in his treatise on the gout.

If, however, the muscles in cases of tetanus contain a greater quantity of excitability, comparatively, than the arteries, and we were to attempt to transfer the surplus from the former to the latter, by means of stimuli, for the purpose of *balancing* these two different portions of the sys-

tem, we should be very much disappointed, for the agents that would stimulate and increase the action of the arteries would stimulate the muscles in a proportionable degree at the same time, hence the relative disproportion of the excitability in the different parts of the system would remain the same as if no stimuli had been applied.

This doctrine, therefore, not being calculated to serve as a guide to practice must be not only useless, but pernicious, in proportion to the tendency it has to confuse and mislead, and, with the doctrine of Brown, of which it is a supplement and commentary, "ought for the good of mankind to be consigned to the tomb of all the Capulets." For though men of enthusiastic dispositions and fertile imaginations, who only study the principles and maxims of medical science as an amusement, or to gratify curiosity, without any view of applying their speculations to practice, may be allowed to gratify themselves with extravagant hypotheses and conjectures, yet when the lives of their fellow-creatures are concerned, I cannot think any theory that has not been fully confirmed by experience, ought to be taught and recommended as a guide to practice from the chair of a professor. In his defence of blood-letting, the professor of the institutes and practice of medicine, has asserted, that a discoloured state of the blood in malignant fevers, is a sign of the highest degree of excitement and activity in the blood-vessels; and that its dissolved state is owing to the immoderate action of the blood-vessels upon it, which "tear and rend it to pieces."

To prove the doctor's mistake with respect to the cause of this condition of the blood, those who have had oppor-

tunities of examining and comparing the blood drawn in the latter stage of phrenitis, pleurisy, or enteritis, with that drawn in the same stage of a malignant fever, may be appealed to, for they know that in the diseases first mentioned, the blood separates into serum and crassamentum, and the crassamentum when cool, is almost always covered with a thick, tough, white or buff-coloured coat, resembling size or glue, whereas in the late stage of a malignant fever the blood continues uniformly fluid, and resembles dark-coloured, bloody water, though in the former diseases the force and action of the arteries are evidently much stronger than in any case of malignant fever.

In proof of the harmless effects of blood-letting, Dr. Rush has quoted several instances from different authors, and among others from the ingenious and illustrious Haller, of persons who had lost more blood by means of the lancet, in the course of the very few weeks than the human body ever contains at one time; for the circulating fluids in a man of common size, do not exceed 25lb. or 400 ounces. But the cases collected and mentioned by Dr. Rush being rare and extraordinary, only prove that some persons have such extraordinary constitutions, that they can bear losses of blood with impunity that would be fatal to others; as some persons can bear a quantity of opium or of ardent spirits that would be destruction to the generality of mankind. To argue, therefore, that blood-letting is a safe and necessary remedy in malignant fevers, because some persons have recovered after its operation, without taking into the account the multitude that have been injured by it, is no better proof of its being an efficacious remedy in such a disease, than the circumstance of some persons having recovered from an inflammation of the

lungs or from a fracture of the skull without blood-letting, proves the safety or propriety of such omission, or than the recovery of some persons from the small-pox, by the use of the hot regimen, proves that method of treatment to be preferable to the cold regimen.

The doctor's partiality for novel and singular sentiments and opinions appears to have led him to advance some very extraordinary paradoxes in his writings; of which the following may serve as specimens.

In his observations on *phthisis pulmonalis*, he says, the inability of the patient to bear a remedy, serves only to demonstrate, (i. e. to prove with mathematical certainty) the necessity and advantage of such remedy.

In his treatise on tetanus (vol. 1. p. 336, edition 3d) he says, "in general, this disease is so completely *insulated* in the muscles, and the arteries are so far below their *par of excitement* or force, that little benefit can be expected from bleeding." The disease in these cases seems to call for an elevation instead of a diminution of the excitement of the blood-vessels. But, he adds, "perhaps bleeding *ad deliquium animi* might so far relax the muscles, as to enable the blood-vessels and other parts of the body to abstract from them their agreeable and natural portions of excitement." And by way of encouraging such an experiment, he gravely tells the reader, that "it is certain that the muscles of a horse affected with tetanus, become *relaxed*, the *instant he dies*."!

If the utility of remedies were to be estimated according to the inability of patients to bear them in other dis-



eases as the doctor says they ought to be, in cases of consumption, strong emetics would be the best remedies in gastritis and vomiting of blood ; and copious blood-letting in chronic asthma and flatulent colic, and mercury in scurvy.

If such a rule as this was universally adopted, there would be no necessity for the mad ambition of an Alexander, or a Cæsar to thin the ranks of mankind, and prevent the world from being incumbered by a population too numerous for the means of subsistence, without which, or some public calamity, such as the devastations of plague or famine, according to the speculative calculations of Mr. Malthus, a great portion of the human race would be under the inhuman necessity of becoming canibals in their own defence.

To conclude. The doctrine taught at present by doctor Rush is not only calculated to reduce the exalted science of medicine (which has the noblest and most interesting objects for its end) to the degraded condition of a conjectural and uncertain art, but it may at least be questioned if it is not calculated to aid the cause of infidelity, and to enlarge the sphere of moral depravity, inasmuch as it appears to inculcate that the soul of man is *mortal*, and perishes with his body. For if life is a forced state, as Dr. Rush (adopting the opinion of Dr. Brown) maintains in his lectures on animal life, published in the first volume of the third and last edition of his *Medical Enquiries*, or is only the effect or product of stimuli upon the organs of sense and motion ; and “thought,” as he asserts, “is as much the effect of stimuli upon the organs of sense and motion as any other phenomena of

life ;” and as no effect can survive its cause, thought, or the operations of the mind, must necessarily cease when the organs of sense and motion, upon which they depend for their temporary existence, lose the capacity of being acted upon by stimulating agents.

As this is the true and legitimate induction from this doctrine, it would be in vain for its advocates to pretend to deny what necessarily flows from its principles.

As the conduct and practice of every person is governed more or less by the theory which he embraces on medical as well as theological subjects, and as false theories have done irreparable injury to society in all ages, the opinion which the *Reviewer* entertains of the dangerous tendency of the doctrine on which he has animadverted in the preceding strictures is his inducement for thus pointing out what appears to him to be some of its most dangerous errors and imperfections, and he hopes will be considered, not only by physicians in general, but by the doctor himself, as a sufficient apology for the freedom with which he has treated it, especially as there are but few things of more importance, or more to be desired in this world, than the establishment of truth, on a subject which has the safety and welfare of mankind for its object.

## III.

*A singular case of the spontaneous and sudden cure of DROPSY of the lower extremities. Communicated by WILLIAM MOORE, M. D. Vice-President of the Medical Society of the County of New-York.*

New-York, August 31st, 1810.

DEAR SIR,

THE case of a spontaneous cure of partial anasarca, which I mentioned to you, and which you was kind enough to request me to send you, I find recorded nearly in these words: "Mrs. S.— during the latter months of her first pregnancy, became extremely unwieldy and uncomfortable from the great size of the uterus, and the enormous distension of her lower extremities. She could not walk without the greatest difficulty, and was quite unable to turn herself in bed. A few days previous to her delivery, her feet, legs and thighs, became so swoln, and the skin so pale, tense, and transparent, that they resembled sacks of water. Indeed, the swelling and tension were so great, that it was seriously apprehended, the skin of her feet or ancles would burst. Fortunately for her, her labour came on, and she was happily delivered, May 26th, 1794, of two fine boys. Both children presented naturally, and were expelled by the labour pains, as were also, in due time, the placentæ. The mother was bandaged up and left tolerably comfortable. In a few hours after her delivery she began to complain of pain in the lower part of the abdomen, which was not attended to at first, as it was thought to be after-pains; but it very soon increased to such a degree as to become

almost intolerable, and was attended with great swelling and tension of the part. Upon examination it was discovered that a considerable absorption had taken place in the lower extremities, as the skin was not near so tense as before delivery; and that a great quantity of urine had been secreted, as the bladder was very much distended and extremely sore to the touch. As she had passed but very little water naturally, the catheter was immediately introduced, and upwards of two quarts were evacuated at once. This operation was performed sixteen times in the course of the ensuing week. On the third day after delivery, she passed, by means of the catheter, thirteen pounds and a half of urine.

“ Finding it troublesome to introduce the catheter so frequently, and wishing to devise some method of keeping the bladder empty, that it might have an opportunity of recovering its tone, it was determined to introduce a flexible male catheter, composed of gum-elastic, and fasten it to her thigh. This was done in the evening, and it was left in all night; in the morning she was found perfectly deluged; the water had run all through her bedding and was extending itself over the floor. This expedient had the desired effect, for the swelling seemed to melt away like a snow-ball in the sun: at the end of a week it had entirely subsided, her urine was diminished in quantity, her bladder had recovered its tone, and she passed her water without assistance. She very soon recovered, and both her children did well.”

Thus you see, sir, that the little industrious absorbents, went to work with great alacrity as soon as the embargo

was taken off, and the port opened to give a free egress to the proceeds of their labour.

I am yours, &c.

WM. MOORE.

DOCTOR DAVID HOSACK.

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#### IV.

*A DISSERTATION on the effects of a poison of Java called UPAS TIEUTE, and also on the NUX VOMICA, the BEAN of ST. IGNACE, the STRYCHNOS POTATORUM, and the VONTAC APPLE, (la pomme de Vontac,) being all of the same genus of plants as the Upas Tieuté. Extracted from a memoir presented to the faculty of Medicine of Paris, on the 6th of July, 1809, by M. DELILE, of the Institute of Egypt, Doctor of Medicine, &c. Communicated by the author to Dr. D. HOSACK, of New-York.*

EXPERIMENTS made with poisons on animals, are the most effectual means of discovering what are the particular functions which suffer most from their various deleterious actions, and also of ascertaining the vital powers most capable of resisting the irritating causes.

The poisons which M. Delile has made use of in his experiments are very active and produce tetanus, a disorder often fatal, and which is known to be frequently occasioned by very different causes.

Upas Tieuté is the name of a poison called also Bohon Upas, a denomination which has been rectified by M.

Leschenault. During his residence in Java, this gentleman, who was one of the Savants, and naturalist and geographer of a naval expedition, was fortunate enough to see the upas gathered, and was the first who brought it to France. Until this time a number of strange stories had prevailed respecting the upas. The poison is a juice extracted from the roots of a small creeping shrub of the order or family of the *strychnos*.

To prove the phenomena of poisoning with the upas, M. Delile in concert with M. Magendie, prosector to the faculty of medicine at Paris, made a variety of experiments on living animals. Many of them were wounded with pointed pieces of wood which were imbued with the upas in the same manner as arrows are poisoned.

Fifteen grains of the upas in its dried state, killed a horse stabbed with it in the thigh, and a grain, or half a grain, applied in the same manner, was found sufficient to destroy a dog.

To prove mortal, the upas must remain a certain time in the wound. It has no effect if drawn out immediately after its introduction; and is perfectly harmless when applied in a liquid state by drops, unless injected through the cellular membrane into the flesh.

Animals wounded with the upas are seized with tetanus a few minutes afterwards. Its operation is more or less rapid, according to the age or size of the animal and the quantity of the poison. There is generally a remission after the first attack of tetanus, which is succeeded by repeated attacks which do not in the least affect either

the hearing or the sight: but respiration becomes extremely difficult; the muscles drawn tight over the thorax keep it immoveable, and death succeeds by asphyxia.

The tetanus depends on the irritation of the spinal marrow, which the upas, dissolved and absorbed in the wound, produces. If the spinal marrow be divided transversely near the occiput, the tetanus occasioned by the upas, continues; but ceases immediately when the spinal marrow in the vertebral canal, is destroyed.

If the upas is applied to the spinal marrow in a place cut cross-ways, the tetanus succeeds instantaneously. If it is applied to a nerve only, it produces no effect. Injected into the veins or arteries, it acts very rapidly.

The upas diffused in water and injected into the serous cavities, such for example, as those of the heart or the lower regions of the belly, is quickly absorbed, and the animals die of tetanus and asphyxia.

All the mucous surfaces are capable of absorbing the poison. If given with the common aliments, or injected into the rectum, vagina, or bladder, it infallibly brings on tetanus, unless the dose be extremely small. Applied to the conjunctive nerve, it produces the same effect.

When taken into the stomach, a greater quantity is required to kill an animal, than when applied to a wound. On the eyes this poison has no effect, unless used in large quantities.

The upas acts by absorption, and through the medium

of the blood which is impregnated with it. It has been applied to parts almost entirely separated from the body of an animal, and which had no means of communication left, but by an artery and a vein. In the first experiment made on a dog, a few drops of upas were enclosed between ligatures in a cavity of the intestines divided from the mesentery, and having no other connexion with it, than by a vein and artery.

In a second experiment the thigh of a dog was amputated with the exception of the trunks of the crural vein and artery, the thigh was then pierced with a pointed piece of wood dipped in the upas. In both cases the poison was carried from the isolated parts into the general circulation by the vessels which remained, and the animals died of tetanus.

A ligature immediately placed on a limb, over a wound made with the upas, prevents the effect of the poison from shewing itself, whilst it remains on; but it appears as soon as the ligature is taken off.

A general numbness produced by opium, or evacuations by means of salts, have no effect in resisting the action of the upas. Injecting air into the lungs by any convenient mode to cause an artificial respiration on the appearance of asphyxia succeeding tetanus, will prolong the life of a dog and sometimes save it, if the dose of upas introduced into a wound or the organs of digestion has not been too considerable. Even when the dose has been excessive, the animal may live an hour or more, if an artificial respiration be excited.



The *nux vomica* and St. Ignace's bean, are seeds of two trees of the same genus or order as *upas tieuté*, and produce the same effects.

In a great number of experiments, the phenomena observed in varying the application of extracts of the *nux vomica* and St. Ignace's bean, were invariably the same as those produced by the different applications of the *upas*.

The *nux vomica* and St. Ignace's bean, like the *upas*, act as powerful stimulants on the spinal marrow. The extracts of both, particularly if made with alcohol, are extremely active and bitter like those of the *upas*. There are however in the genus, *strychnos*, certain species, such as the *strychnos potatorum* and the *vontac* apple that are not bitter, and have no dangerous effects on the animal economy.

The extracts of the bitter species of the *strychnos*, such as the *nux vomica*, St. Ignace's bean, and the *upas*, in the organs of digestion, have a limited effect. It is known that the *nux vomica*, and St. Ignace's bean, have been often employed as medicaments in moderate doses. Little advantage, however, has been derived from them, because their effects have not been sufficiently known, and because they have been prescribed in maladies which they could not affect.

The bitter species of the *strychnos*, act particularly on the spinal marrow; and M. Delile concludes that in those which depend on the atony of this organ, they might be prescribed with good effect.

(Signed)

DELILE, D. M.

Paris, Oct. 31, 1809.

## V.

*Account of the SPOTTED FEVER, which lately prevailed in ORANGE County, (N. Y.) read at the last Anniversary Meeting of the Medical Society of said County. By DR. D. R. ARNELL, and communicated to DR. HOSACK, M. D.*

THE appearance and prevalence of the spotted fever or typhus petechialis in this district of country has been so considerable, and its progress, in many instances, so fatal, that it has arrested the attention of the most of our society, and induced me to write on that disease. Perhaps I shall not be able to throw any new light upon the subject after so much has been written by the eastern physicians, who have been more acquainted with its progress, duration, extent, and termination. From what I have read of their writing they have uniformly considered it a new disease; for my own part, I think it only a species of the typhus petechialis of Cullen, and in reading the *Medicus Novissimus* which was published one hundred years ago, I find a fever there described as prevailing about London at that time, partaking of all its most prominent symptoms. A short extract from that work, page 272, may be of service in establishing the analogy of the disease there described as the prevailing malignant fever with the one which we are now considering.

“ It is attended with very severe symptoms, as violent pains of the head and stomach, frequent shivering, and a sudden but very great weakness, without manifest cause,

anxiety and pains in the back and loins, the breath smells strong; there is great thirst, continual waking, spots sometimes appear on the body, the pulse is unequal and very low; urine not so high coloured as in simple fevers. There are sometimes convulsions, deliriums, &c. &c. It may be caused by an infectious air; by eating corrupt food, or drinking unwholesome liquors, as stinking water and the like. This is a very dangerous disease and oftens kills in a very little time. An unequal, quick, and weak pulse is a bad sign. If the hands tremble much when the pulse is felt, the disease doth most commonly end in death, especially if there be a foul tongue, a ghastly countenance, and the eyes sunk in the head. The cure must be undertaken as soon as possible, for this disease admits of no delay." The medicines recommended for the cure consist of spirituous and heating remedies and alexipharmics, and when the spots appear on the surface of the body they are to be promoted by sweating medicines; blistering plasters are to be applied to the legs and thighs, especially if the cuticular eruptions advance but slowly or seem to retract before the state of the disease.

I have omitted Dr. Woodman's theory of the coagulation and dissolution of the blood, as the proximate cause of this disease, and only taken the leading symptoms to shew that the spotted fever is one hundred years old. Nay, I believe the fever described by the celebrated Dr. Sydenham under the title of "the new fever," and which prevailed in several parts of England, and began in February 1684, to be the very same disease,\* and I am inclined to believe that it has been frequently and perhaps at

\* See Dr. Pechey's translation of Sydenham, page 410.

regular periods a visitant among the nations of the earth in some and perhaps distant parts of the world. No regular history of fevers since the time of Sydenham has been handed down to us until the yellow fever made its appearance, since which time, until lately, the spotted or petechial fever has never made its appearance. The first cases of it which occurred were in Winchester, Litchfield county, Connecticut, about the 10th April, 1807. It has since prevailed in many places in that state, Massachusetts, and in Vermont, as well as in this part of the state of New-York.

I shall now proceed to describe the symptoms of the disease as it appeared here. The patient is generally seized with a pain in some particular part, most frequently in one of the limbs, the hip or the shoulder, shifting from place to place and often to the head or stomach, with great anxiety and restlessness. These symptoms are accompanied with cold shiverings and other marks of fever, which are soon succeeded by sickness at the stomach, indescribable distress about the precordia, numbness of the extremities, a remarkable and general prostration of strength, and a depraved action of the sensitive organs. In some violent cases the sight is much impaired, and even totally, though temporarily, lost. The pupil of the eyes is for the most part contracted in the beginning of the disease, though after its continuance for some time, it becomes considerably dilated or enlarged. The tongue has been invariably covered with a whitish coat and moist. The pulse is generally low, a little increased in frequency, remarkably intermittent, and unequal both in strength and weakness; but in some few mild cases it is very little altered. Respiration is in all cases much disordered. Pe-

techiæ or livid blotches, or a red, fiery eruption in most cases, appear on some part of the body and sometimes they are general; though they are not always a constant attendant. There is in most cases a delirium attending from the attack through the whole course of the disease, though this was not universally the case. The duration of the disease has generally been from twenty-four to forty-eight hours, when the patient has either died or the disorder run into the form of a mild typhus of uncertain duration.

The indications of cure are as various and deceptive as the symptoms which accompany the disease. There is, however, one object to be kept constantly in view, and that is to restore the vital powers by bringing about a reaction of the system, or in other words, to reverse or overcome the prevailing morbid actions, and to force a new train of actions upon the system.

I have generally pursued the following method of cure with those whom I have attended. To an adult, I have immediately given about twelve grains of calomel and if the vomiting was considerable, a solution of volatile alkaline salts until the vomiting had in some measure abated; then another dose of calomel according to the age and strength of the patient: this has been followed with an injection. I have next given the compound powder of ipecacuanha which if it did not soon produce a pretty general and copious perspiration, I have made use of blocks boiled in water and applied hot in the bed to the sides and extremities, together with a drink of tea made of the Rad. Serp. Virg. to which if the pulse was low and sunk, I added spirits, diluted alcohol

or brandy. The blocks I have generally used were of hemlock, though I did not believe them better than any others, yet I generally found that my patients had more confidence in them than others, which confidence I was willing to increase by every means in my power, and I have frequently found it to act like a cordial in very low and debilitated cases.

The stimulants which I have used were mostly of the diffusible kind such as brandy, laudanum, ether, and whiskey, and always proportioned to the violence of the disease. In some cases I have given a quart of brandy in six or eight hours with the happiest effect; though I have not generally used stimulants to so great an extent. But frequently in the latter stages of the disease it has been found necessary to add wine, bark, and other durable stimuli more effectually to invigorate and strengthen the system. Wherever I have found a considerable affection of the brain (which was the case in several instances) I have omitted the stimulants altogether and depended entirely upon calomel together with the employment of the several means which tended most powerfully to the surface of the body. The sweating should always be continued until the disorder gives way, which will frequently take one, two, and sometimes three days. In the hazardous stages of this disease, when an evacuation from the bowels is necessary, it is better promoted by injections than cathartics as the former do not debilitate so much as the latter.

This is the treatment which I have generally pursued and I am happy to add, that in about forty cases which I have attended, only two have proved fatal. I consider its mortality to be ascribed to the general law of epi-

mics, that those most susceptible of disease are liable not only to receive it the soonest but with the most severity, and that on its first appearance it is most mortal, when, after a certain period it becomes as much under the controul of medicine and as manageable, as ordinary diseases.

As I know we have generally little time to spare on our anniversary meetings, I have endeavoured to make the history and treatment as concise as possible. I do not believe that this disease is contagious, for I cannot discover a single instance where it appears to have been communicated from one to another; neither have I ever known a single person who has had the cow-pock to have the spotted fever. As preventives, will not emetics be useful? And what will be the effect of mineral acid fumigations, made of oxygenated muriatic gas?

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## VI.

FACTS and ARGUMENTS *in favour of the FOREIGN origin and CONTAGIOUS nature of the PESTILENTIAL or MALIGNANT YELLOW FEVER, which has prevailed in different commercial cities and seaport towns of the United States, more particularly since the summer of 1793. Communicated in a Letter from Dr. WILLIAM CURRIE, Member of the College of Physicians, Philadelphia, Fellow of the American Philosophical Society, &c. to DAVID HOSACK, M. D. Member of the College of Physicians, of Philadelphia, &c.*

Philadelphia, September 8th, 1810.

IF it can be made to appear that the pestilential fever, usually called the yellow fever, occurred with all its complicated horrors in some of the commercial cities or sea-

port towns of this country at an early period after their first settlement, when none, or but few of the causes existed to which the origin of the disease has been imputed by the advocates of its domestic origin; and, if it can also be shewn that this pestilential disease did not make its appearance for many years previously to the year 1793, in any of those commercial cities or seaport towns, though the enumerated causes existed in much greater abundance during that period than they did at an earlier period, or than they have existed since the year 1793; we are most egregiously deceived if it may not be fairly and satisfactorily concluded, that it does not originate from those sources.

In tracing the malignant yellow fever to its earliest occurrence in this country, we find from the Journal of Thomas Story, Esq. Recorder of the city of Philadelphia, vol. 1st, that a very mortal fever prevailed in Philadelphia, in the autumnal months of 1699, which carried off six or eight persons daily, and some days ten or twelve. Mr. John Gough in his account of this fever, in his History of the Friends, vol. 3d, p. 516, says, that the fever which occurred in Philadelphia in the year 1699, was the same as that which has since been called the yellow fever, and had been prevalent for some time before in several of the West-India islands. This fact is also confirmed by a letter written by Isaac Norris, Esq. who resided in Philadelphia during its prevalence, who also relates that it was very mortal in Charleston at the same time. It also appears from an extract from Hewatt's History of South Carolina, communicated by Dr. Tucker Harris, that a great number of the inhabitants of Charleston were destroyed by it in 1699, that they suffered very much from



a hurricane the same year, and that the greatest part of the town was laid in ashes by fire.

There are no records of the occurrence of this disease in New-York, in the year 1699 ; but the late Dr. John Bard mentions in a letter, a copy of which was published in Carey's Museum for the year 1788, page 453, that he had heard from the ancient inhabitants of that city, that so long ago as the year 1702, a malignant fever little inferior to a plague was imported into it, which from its extreme mortality was distinguished by the name of the *great sickness*. This event is also recorded by Mr. Story in the 2d volume of his Journal. According to Mr. Hewatt's history, the yellow fever made its second appearance in Charleston in the year 1703, at which time the inhabitants were apprehensive of an invasion from the French and Spaniards. It appears from Hutchinson's history of New-England, that a similar fever was imported into Boston in the year 1693, from Martinique, by the fleet of Sir Francis Wheeler : see Hutchinson's history, vol. 2, p. 72. At the time of its first appearance in Philadelphia and Charleston, it was, and had been for several years prevalent in several of the West-India islands, into which it had been imported in the year 1686, from Siam in the East-Indies, by a fleet crowded with passengers and disappointed adventurers from that kingdom, according to the testimony of Labat, a Catholic missionary, who was sent from France to Martinique in the year 1694, to take charge of the churches there, which was eight years after that distressing occurrence.

It is also stated by Dr. Pouppe Desportes, who practised physic in St. Domingo from 1732 to 1748, in his obser-

vations on the diseases of that island, that the yellow fever, which he calls the "putrid malignant fever," was for a long time unknown in the islands, and that the first event which rendered it remarkable, was its appearance at Martinique soon after the arrival of a fleet from Siam. The regularity of its reproduction, however, at particular seasons of the year, he thinks, seems to require that it should be classed among the indigenous diseases of tropical climates.

Sauvages takes notice of this disease, in the first volume of his *Nosology*, p. 557, and says it was imported into Martinique in the year 1686, from Siam, by a ship called the *Oriflame*. A similar belief is expressed by Dr. Chevalier, as quoted by Dr. Lind. M. de St. Mery, in his history of the French part of St. Domingo, delivers a similar opinion with respect to the origin of the yellow fever in the West-India islands, and relates some additional facts respecting its spreading to several of the other islands; for the particulars of which, the reader is referred to the history of the French part of St. Domingo (in French) p. 700. After the year 1703 there is no record or popular tradition that I can learn of the appearance of the yellow fever in any part of the continent of North America for twenty-five years, though it continued its ravages in the islands for many years after that period, as we learn from Mr. Hughes' *Natural History of Barbadoes*, and from Warren's and Hillary's publications, as well as from Moreau de St. Mery's *History of St. Domingo*.

Mr. Hewatt, in the history already quoted, relates that in the year 1728, after an uncommonly hot and dry summer, a dreadful hurricane occurred in the month of Au-

gust, and the same year an infectious and pestilential distemper, called "the yellow fever," swept off multitudes of the inhabitants, both white and black. Mr. Hewatt also mentions the occurrence of the same disease, in the years 1739 and 1740. Dr. Harris says there is no medical record of the existence of the yellow fever at Charleston previous to the account sent by Dr. John Lining of Charleston, to Dr. R. Whytt of Edinburgh, from which it appears that it was prevalent in that city in the years 1732, 1739, 1745, and 1748; and in the opinion of Dr. Lining, it was an imported disease and contagious. I understand that you have some additional facts on this subject, preserved in the Manuscript notes of Dr. Prioleau. Dr. Harris states that he knows of no documents of the existence of the yellow fever in Charleston from the year 1748, to the year 1792; I presume he means 1794; though he recollects that it made its appearance there in the year 1761, and proved fatal to some strangers, and to one person who, he had been told, had long resided there.

At the time the yellow fever prevailed in Philadelphia and Charleston in 1699, and for several years after that period, the population was very inconsiderable, the buildings scattered, and many of them unconnected; consequently, but little of the filth and putrefaction, common to populous cities, could have existed in them at that time. There were no common sewers or covered drains, and but very few docks or wharves. The privies were not numerous; the water of the pump wells certainly was as pure as at present, nor were the grave yards numerous or crowded with dead bodies. Consequently but few of the causes assigned by the supporters of the doctrine of the domestic

origin of the yellow fever had “ a *local* habitation or a name,” at least to any considerable extent, and yet the disease did make its appearance and spread with resistless fury, not only in Charleston, but in Philadelphia and New-York. From the year 1703, there was an interval of twenty-five years before its next appearance at Charleston, and upwards of forty years between the first and second time of its appearance at Philadelphia or New-York. It afterwards occurred in Philadelphia in the years 1741, 1747, and 1762, and at New-York in 1748, after which it was no more heard of in this country till the year 1793, when it made its triumphal entry into Philadelphia, and marked its way with dreadful mortality. Charleston escaped its invasion till the year following; and New-York a year later, since which time the frequency of its occurrence and the deplorable mortality occasioned by it are too strongly impressed upon the memory of those who have survived, to need particularizing. Having now shewn, that the pestilential yellow fever made its appearance in this country at a period when there existed none, or but very few of the sources to which its origin is ascribed by those who believe it to be derived from domestic causes, let us in the next place take a view of subsequent periods, when filth and all the enumerated causes of its generation had greatly increased, and had become offensive to the senses; and we shall find that no such disease was the consequence.

In the years 1777, 1778, and 1779, the city of New-York, and the city of Philadelphia in the year 1778, were in possession of a large army of British and Hessian soldiers, and in the years 1780, 1, and 2, Charleston was also in possession of an army of nearly six thousand fo-

reigners. During those periods less than usual attention was paid to cleanliness, as the minds of the inhabitants were kept in a constant state of alarm and uncertainty: hence putrefying animal and vegetable substances were suffered to accumulate and contaminate the air with their noxious exhalations; yet not a case of yellow fever occurred in either of those cities among the natives or foreigners. It is true, a great mortality occurred among the American prisoners that were confined on board the memorable Jersey prison ship, stationed in the harbour of New-York, during the hot season, with symptoms of great putridity, and the disease was contagious; but not a case with the diagnostic symptoms of yellow fever made its appearance either among those confined on board, or among the inhabitants of that city. The American prisoners, many of them from the northern states, were conveyed from crowded prison ships to hospitals in the city of Charleston, yet not a single case of yellow fever occurred.

At that time there were numerous docks, sewers, gutters, privies, and a variety of other sources of putrefaction in each of the cities which have been mentioned as well as for several years after that period; and cleanliness was much less attended to by the police from that time to the year 1793, than it has been since; yet no yellow fever spread destruction and desolation through the streets of those cities, during that interval, as it has done since the period last mentioned.

We have now shewn, that the yellow fever made its appearance in the cities of Philadelphia and Charleston at an early period of their infancy, when but very few of the causes which are supposed by those who pretend that

it originates from the confined and impure air of populous towns existed. We have also shewn that for a long period after those cities had become populous, and the sources of putrefaction had multiplied, and particularly, that during those years that the British and Hessian forces had possession of those cities, at which time the enumerated domestic sources which have been so confidently pronounced to be the cause of its origin, existed with aggravated circumstances, no yellow fever made its appearance or was the consequence.

If to these facts we add the well-known circumstance of the escape in 1793 of every seaport and commercial town in the union, with the exception of Philadelphia, and recollect that it had made considerable progress, and had occasioned very extraordinary mortality in several of the West-India islands, and particularly in Grenada, St. Vincent, and Dominica, several months before it made its appearance in Philadelphia, and that when it did make its appearance, it was distinguished by an assemblage of symptoms which had never been observed in any disease that had occurred in Philadelphia since the year 1762, and in that year, according to the notes of the late Dr. Redman, late president of the College of Physicians of Philadelphia, it was imported from Havanna, and communicated by a seaman to the family with whom he lodged in Jackson's Court, near the New-Market; if we recollect that the disease was new to all the physicians that had commenced practice in Philadelphia since the year 1762, and that Drs. Ross and Stephens, who at that time resided in Philadelphia, (the former of whom had lived and practised medicine many years in the East Indies, and had suffered by a fever, attended with

very violent and dangerous symptoms at Bassorah, on the Euphrates, in the year 1781, and the latter had been in constant and extensive practice for many years in St. Croix in the West-Indies,) had never seen a fever with the particular and extraordinary symptoms by which that disease which prevailed in Philadelphia in the summer and autumnal months of the year 1793, was distinguished; and if we bear in mind that this destructive malady prevailed in New-Haven in Connecticut, Baltimore in Maryland, and Charleston in South-Carolina, in the year 1794, while all the intermediate seaports escaped; and that in 1798, Easton in Maryland, including Fell's Point, Baltimore, Charleston and Savannah, (places noted for the insalubrity of their atmosphere in the autumnal season) escaped; while Boston, New-London, New-York, Philadelphia, and almost every other commercial town, and several of the villages on the navigable rivers in the eastern and middle states were sinking under its resistless fury; it appears a matter of astonishment, that any person of sound understanding can hesitate in deciding, whether it is of foreign or domestic origin.

To extricate themselves from the dilemma to which they have been reduced by facts and arguments similar to the preceding, some of the leading and most influential of the advocates for the doctrine of domestic origin of yellow fever, have had recourse to the power of imagination, and rejecting contagion as a vulgar error, have revived and adopted the more vulgar and exploded doctrine of planetary, cometic, and volcanic influence upon the constitution of the atmosphere extended round the spacious globe; and have dogmatically pronounced, without offer-

ing any but the most puerile and frivolous evidences in support of their opinion, that a noxious and impure change has taken place in the proportion of the constituent principles of the atmosphere ; a doctrine, which is so foreign from correct observation, and so destitute of proof, that its adoption could only be excusable in the dark age of Gothic barbarism, when the human mind, unenlightened by a liberal education, and paralyzed by the fears of superstition and the arts of imposters, rose in intellect but a small degree above brutal instinct. In short, to ascribe the occurrence of the yellow fever in Philadelphia, after an exemption of thirty-one years, to a noxious and *invisible* change in the constitution of the atmosphere, without furnishing direct and unequivocal proof that such change has taken place, is one of the tricks of ingenuity to impose upon and mislead unreflecting credulity, and is no more worthy of credit or respect than the Arabian Nights Entertainments, than the conceits of the astrologers and conjurers in the ages previous to the revival of literature, when every disease as well as every natural phenomenon not obvious to the senses, was ascribed to the influence of the planets. In point of absurdity and folly it is a match for the story related by Monsieur Poqueville, of the ignorant and credulous Greeks of the present age, who, he says, believe that a decrepid spectre to which they have given the name *Cacodæmon*, always precedes the plague, dressed in a funeral shroud, and glides along the roofs of the houses, calling the names of those who are destined to be cut off from the number of the living, while dogs howl hideously responsive to solemn music and murmuring voices which they are supposed to hear in the air.



If this puerile and superstitious nothing of the modern Greeks is rejected with contempt by all men of cultivated understandings, because it does not correspond with the experience of observers qualified to discern realities from the delusions of the imagination ; the doctrine of a noxious or pestilential change having been produced in the constitution of the atmosphere, being the mere creature of the imagination, and unsupported by adequate and satisfactory evidence, ought to be rejected for the same reason.

If such a revolution had taken place in the constitution of the atmosphere as is pretended, it would be unreasonable to suppose it would have operated in such an irregular and capricious manner as has been the case, if the yellow fever was the consequence or production of such a change, because it is contrary to the common course of things.

If such an extraordinary and unsalutary change had taken place, its operation would have been regular and uniform, and its influence would have extended to every place upon the globe under similar circumstances, and its presence would have been manifest from the change it would necessarily have produced on every other species of disease that owes its origin to the particular condition or qualities of the atmosphere, as well as to fevers ; but no such change is observable in cases of the quinzy, pleurisy, small-pox or meazles, that have occurred since that change in the atmosphere has been said to have taken place. If a pestilential constitution of the atmosphere existed, all our sea-ports would have suffered at the same time every year, and not one in the centre of the union this year, one in the northern extremity, and one or two in the southern

extremity the next, and one or two in a different direction the year after, as well as in other places in an irregular manner several times since, while adjacent and intermediate ones remained entirely exempt, as we know from our own observations, as well as from the information of others, has been the case. And as no change has taken place in other diseases, as is pretended to have occurred in the fevers which appear periodically in cities, though no such change is apparent in those in marshy situations in this country, or in any other form or variety of disease, as has been satisfactorily shewn by Dr. Stringham, of New-York, in a paper relative to this subject, published in the first volume of the *Edinburgh Medical and Surgical Journal*, and as I know from my own observations, it may be fairly concluded that no such change has taken place in the constitution of the atmosphere.

During the prevalence of the yellow fever in Philadelphia in the year 1793, more than two hundred persons were confined in the prison appropriated for criminals, exclusive of one hundred and six French soldiers confined there by order of the French consul, and a considerable number of debtors in an adjoining prison. The Pennsylvania hospital contained its usual number of patients at the same time. There were more than four hundred paupers in the alms-house, and more than two thousand emigrants, recently arrived from the island of St. Domingo, were at the same time dispersed over different parts of the city and suburbs. All the prisoners in the jail, the patients in the hospital, the paupers in the alms-house, and the emigrants from St. Domingo dispersed over different parts of the city, almost to a man, escaped the disease, though they were surrounded by the sick, the

dying and the dead for several weeks, and breathed the same air as the rest of the inhabitants, with the exception of that confined in the apartments of the sick.

Circumstances like these establish the fact more forcibly than a whole volume of arguments, that the disease was not an epidemic, or derived from any general cause existing in the atmosphere, or from any derangement or alteration in the quality or proportion of its constituent principles, but was propagated by contagion alone, otherwise the persons circumstanced as just mentioned could not possibly have escaped more than the rest of the inhabitants: but on the contrary, the emigrants from St. Domingo, not accustomed to this climate, would have been the first to experience its effects, and would have suffered much more severely from the impurity of the atmosphere, if that had been the cause of the disease, than the native inhabitants; for it is a fact confirmed by long and extensive experience, and which admits of no exception, that strangers are the greatest and most certain sufferers from exposure to the causes of the indigenous diseases of the climate into which they migrate. But a contagious fever is communicated only from the sick, or articles contaminated by them. No sick persons were admitted into the prison, the Pennsylvania hospital, or the almshouse, during the prevalence of the yellow fever; and the emigrants from St. Domingo, having arrived at Philadelphia just as the disease began to make its appearance, had formed little or no acquaintance with the inhabitants, and of course had no intercourse with the sick. This, and this alone is the true reason of their escape, and is a very strong and direct proof that the disease was not derived from the causes which have been

assigned by those who contend that it is of domestic origin and not contagious.

If the disease had arisen from the domestic sources already enumerated, or from the joint effect of these and a deranged state of the atmosphere, all that breathed the air of the city, at least, if not all round the world in the same latitude, would have suffered more or less by it, and nearly at the same time, and not in that gradual and successive manner as they have done every time the yellow fever has made its appearance in any of the seaport towns of this country, and as is observed always to be the case with all the diseases that are acknowledged to be contagious.

The symptoms, also, by which the yellow fever is distinguished from the most dangerous cases of the bilious fever that occur in any part of the world, not excepting the indigenous fevers of Batavia, Calcutta, Goree, or Surinam, which are universally acknowledged to originate from the exhalations of putrefying animal and vegetable substances, furnish additional evidence of their being different not only in degree, but in kind, and consequently that they are derived from different sources.

To infer that the yellow fever is only a variety or higher grade of the indigenous intermittent fever of this country, because it generally occurs, progresses, and terminates at the same time of year as the intermittent, is confounding or mistaking coincidents for causes. By this mode of reasoning the plague of the Levant, with all its complicated horrors, is nothing more than a common intermittent, rendered malignant, or increased in power

by the influence of a deranged state of the constitution of the atmosphere upon its cause, or upon the constitution of the patient; for, when it has been imported into the temperate climate of Europe, from Egypt, Syria or Turkey, it has generally commenced, progressed, and terminated in the same seasons as the common intermittent. For proof of this, see Hodge's account of the plague in London, in 1665, and Martin's account of its rise and progress in Moscow, in 1771.

If coincidence of events always depended on identity of cause, the pleurisy and the measles would depend on the same cause, and though differing in degree, and in the character of their symptoms, they would be the same in kind, and agree in their nature, and would require a similar mode of treatment; for, according to Sydenham's account, they both begin in the month of February in the climate of England, increase during the spring months, and terminate about the summer solstice.

The only circumstance in which the yellow fever and the intermittent or bilious fever do agree, is, in being both destroyed or disarmed of their noxious power by frost. This, however, only proves that the *contagious principle*, which is the cause of the yellow fever, requires the same portion of caloric to preserve its volatility, and keep it suspended in the atmosphere as the miasmata of marshes, or the exhalations from putrefying substances, and that it requires considerably less caloric to render the contagion of the typhus of temperate climates volatile, and to keep it suspended in the atmosphere. But the contagion of the yellow fever, like that of the typhus or jail fever, requires to be accumulated or concentrated in the atmosphere in confined and unventilated situations, in order to render it

capable of producing any disorder in those exposed to it ; and as the poison of arsenic becomes harmless by copious dilution in water, that also becomes harmless by diffusion in the open air. This is the reason why the disease is so rarely communicated from one to another in country situations, where there is a constant circulation of fresh air. They, therefore, who deny the yellow fever to be contagious in any situation, because it is rarely so in the open and free air of the country, might with equal reason deny that the jail or hospital fever, the typhus gravior of systematic writers, to be contagious, because it only operates in confined and unventilated situations, where cleanliness is neglected, with sufficient power to produce any morbid effect ; but like the noxious gases, or other volatile poisons, becomes impotent and inactive by diffusion, or by mixture with a certain portion of fresh and untainted air. Those, therefore, who seem to think it so very extraordinary that the yellow fever, if contagious, does not produce the same noxious effects in the country as in the confined and less pure air of a populous city, I refer for a satisfactory explanation to a collection of facts on this subject published in Dr. Barton's Medical and Physical Journal, vol. 2d, part 1st. I shall now conclude with observing, that if the circumstances stated and detailed in the preceding pages are authentic and correct, and I challenge any person to disprove them, every disinterested and unprejudiced enquirer that examines and compares them with the facts and arguments of the advocates of the domestic origin of the disease must be convinced, that the yellow fever has never originated from domestic causes in this climate, but is exclusively of foreign origin.

I remain your friend, &c.

WM. CURRIE.

DR. D. HOSACK.

## VII.

*Extract of a Letter from Dr. FELIX PASCALIS, of New-York, to Dr. ALIRE R. DELILE, on the subject of the Poisons of the UPAS TIEUTE of Java, and other Strychnos.*

New-York, February 10, 1810.

DEAR SIR,

I lately received your inaugural dissertation on the poisonous effects of the *Upas Tieuté* of Java, and other *Strychnos*, which you have presented to, and defended before, the faculty of medicine in Paris. I hasten to tender you my thanks for your attention, and to bear evidence of the excellence of your memoir. The subject was entirely new, and you have connected it with as many interesting physiological questions as your experiments could embrace. The means by which that violent poison rapidly pervades the sources of life; those by which it may be expelled or rendered inert, and in fine, the progress of its influence, which is chiefly active on the spinal marrow; all these different points form a highly interesting inquiry. I see also, with infinite pleasure, that you illustrate the new doctrine lately introduced by the celebrated Gall and others, that the spinal marrow is a centre of action totally distinct from that of the brain.

While you prove that tetanus and asphyxia are the immediate effect of the upas, I am prompted to inquire whether this latter is the exclusive and necessary consequence of the former; that is, of the stiffness and immobility of the thorax, as you call it, without any other cause?

Whenever blood is not accumulated in the brain or in the heart, we find that the simple contact of the lungs with atmospheric air is sufficient, with very little motion, to sustain life a long time, as is evinced by numerous instances of catalepsy, during which, no current of air can be perceived through the mouth or nostrils. It might therefore not appear objectionable to you, if I state that as the nerves of the respiratory organs originate from the *par vagum*, and as this also arises from the lateral part of the medulla oblongata, the sudden invasion of the poison on the spinal marrow necessarily palsies all the bronchial, pulmonary, and diaphragmatic nerves, and thus puts an end to life. In many instances of tetanus, opisthotonos, &c. I have witnessed, and which proved fatal, the stiffness of the muscles of respiration lasted many days, before death was induced; all your cases, however, are but of a few minutes duration.

The other strichnos, is *la fève de St. Ignace*, or St. Ignatius' bean, which name the Jesuits gave it when they imported it from India, as a sovereign remedy for the fever and ague. This explains why Lewis thought it was a more powerful febrifuge than Peruvian bark, and Lind praised it so much in the quartan fever. I must be permitted to relate to you a family anecdote. My father had been presented with one of those beans by a missionary Jesuit, the efficacy of which he thought inexhaustible. He was directed to infuse that large, black, angular seed in a tumbler of cold water during night. This must be drunk in the morning upon an empty stomach. The draught, which was detestably bitter, never failed to effect a cure, and the bean was again kept for a similar use, perhaps twenty years. This fact proves that a cold infusion of this strichnos, could not in the least develope its



deleterious qualities; and had the pious men who distributed and recommended it, suspected that it was a kind of upas of Java, they would not surely have designated it by the name of the great apostle of Loyola and the patriarch of their order.

As for your subsequent experiments, performed conjointly with Dr. Magendie, to prove the effects of this poison by its contact with the blood only, and without the functions of the absorbent vessels, they are, I think, pursued with an uncommon degree of accuracy. It is surprising, notwithstanding, why the poisoned blood of an animal, transferred into the veins of another is not more deleterious. Blood, according to the celebrated John Hunter, is liquid flesh, and its vitality is the product of the whole of its elements and localities. As soon as it is transfused from one living body into another, it is no longer the same living fluid; and cannot be considered but like a vehicle of that or of an other substance. Now, since you have proved that the poisons strychnos, applied in their natural liquid state are inactive; (no doubt owing to want of concentration) we must conclude that blood from a poisoned animal, transfused into another is but a part of the whole that was necessary to kill the first.

Leaving this subject, it appears to me, that we have no need to suppose an apparatus of absorbent vessels, in the cavities of the veins to explain the immediate effect of the poison when introduced in them. It is sufficient to conclude that they contain numerous nervous filaments or papillæ, all naked and ready to be acted upon. This cannot be objected to; for you may remember that until very lately, respectable physiologists roundly asserted that the heart itself was deprived of nerves, but

Scarpa has dispelled the mist of error, and proved that they are numerous and naked on all the points of surface of that muscle. But you may oppose your experiment of the upas proving inactive on the crural nerve of a dog. No, no sir, long before I had read your interesting dissertation, I firmly believed that the functions of the nerves, and especially their irritability were always in an *inverse ratio of the points of their origin, and of the united trunks of their innumerable ramifications.*

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## VIII.

*Account of an EPIDEMIC which prevailed in GEORGIA in the year 1809. Communicated in a Letter from JOHN LECONTE, Esq. to Dr. DAVID HOSACK.\**

THE following account of a disease which appears to be entirely new, may have something in it worthy of attention. The facts communicated are altogether collected from the writer's own experience ; hence, although something may be omitted which might not have escaped a more accurate observer, what has been observed by him is scrupulously correct ; and as no one at the time of its occurrence thought proper to attempt a description of it,

\* In recording this account of the epidemic of Georgia, we are reminded of the *malignant pleurisy* which prevailed on Long-Island some few years previous to the American revolution. A history of that disease was drawn up by the late Dr. John Bard, and has been perused by several of his medical friends, but never published. As the manuscript is probably in the possession of some gentleman, to whom it has been loaned, the Editors take this opportunity to request any person possessing it, to forward it to them for the purpose of publication.

he offers this with a hope of its proving interesting to those whose professional duties make the study of diseases their particular care.

In the beginning of the year 1809, an epidemic of a peculiar character, and attended with a distressing mortality made its appearance in some of the southern counties of Georgia. The preceding summer had been remarkably dry, scarcely any rain having fallen for the space of nearly four months; the winter also set in rather early, and although it did not bring with it any very severe weather, the easterly winds that constantly prevailed, made what little cold we had more sensibly felt than it would otherwise have been. From such a state of the atmosphere it was natural to expect, that the inflammatory diseases so common at this season of the year would have been more so than usual. But in their stead appeared a disorder infinitely more to be dreaded both on account of its fatality and its rapid extension.

At its commencement, to a superficial observer, it had all the appearance of pneumonia; for when a patient was first attacked, he complained of an intolerable pain in the head and breast, and of a cough which at first was slight, afterwards became more violent, unaccompanied by any expectoration except in some few cases of florid blood. But in a few hours came on a fever which soon removed every such erroneous opinion; for the quick, low, and intermitting pulse, the great depression of spirits and little thirst, clearly marked it as belonging to the opposite diathesis. In some, who were but slightly affected, the disease proceeded no farther, but in others more formidable symptoms shortly made their appearance: the tongue

became covered with a thick brown crust, so hard and dry as often to impede its motion: this frequently occupied only the middle or edges, and was generally sprinkled with a few livid spots. In those that recovered, it would crack and peel off in resemblance of the thickest skin. The pains which before were felt only in the head and breast, would now attack every part of the body, and shift with remarkable celerity from one to the other. None of the viscera or limbs seemed exempt from them, and they were sometimes so violent as to destroy all power of motion. In a few days after this period a highly putrid and offensive effluvia was exhaled from the body nearly similar to that which is observed in the last stage of dysentery, entire loss of appetite and of the digestive powers of the stomach then succeeded; the strength which before had rapidly declined was completely lost; delirium and a colliquative diarrhœa closed the scene. There never was any nausea experienced, and when the contents of the stomach were ejected, there was nothing remarkable in them. If the virulence of the disorder were not so great as quickly to destroy the vital powers, a critical sweat broke out. On the tenth or fifteenth day, the fever vanished, the pains were diminished, expectoration became easy and copious, and the patients slowly recovered, but were a long time before their former strength and activity returned.

Many, for months after their recovery were afflicted with a dull and heavy pain in the head, and, upon any exertion, were liable to be seized with a sudden vertigo. To such, an exposure to the sun sometimes proved fatal. It is remarkable that in every stage of the disease there was an evident tendency to gangrene in any wound that had been received a short time before its appearance, or whilst

its influence lasted, and even ulcers that had been healed for a number of years, were apt to break out afresh, and to spread with astonishing malignity. This, under bad treatment, when nature had cured the primary disorder, not unfrequently occasioned death.

The persons most subject to attack were those above the age of twenty, the young and healthy as well as the old and feeble, and more men than women were its victims.

Such are the outlines of a disease which seemed to confound the art of our physicians; which left them at a loss how to act, and in which experiment was to teach them. With regard to the mode of treatment, those who considered mercury as a universal medicine, administered it with a liberal hand to all who fell under their care; and, as might have been expected, found that nearly one half died. Those who were equally fond of venesection experienced a like dreadful result from their practice. On the contrary, when nothing was given but gentle sudorifics of *eupatorium perfoliatum* and other plants of similar virtues, there were but few, who, if careful to prevent a relapse, did not soon recover from the more violent symptoms, and then a tonic and restorative diet easily restored them their former health,

## IX.

*Information concerning the CANADA THISTLE, a Plant which exceedingly annoys the Agriculture of the Northern and Western Counties of New-York. In a Communication from SAMUEL L. MITCHILL, Member of the Legislative Assembly of New-York, &c. to Dr. DAVID HOSACK, Professor of Botany, &c.—Dated July 20, 1810.*

ON Monday, the 12th of February, the petition of the board of supervisors of the county of Jefferson was read in the assembly, praying that the legislature would adopt some mode of destroying a noxious weed, called the *Canadian Thistle*, which threatens to become a serious inconvenience to that part of the state. This was referred to a select committee, consisting of Messrs. Kent, Bronson, and Wheeler; and on the 2d of March, the Chairman reported their opinion that some legislative provision ought to be made to prevent the further spread of that plant, which is becoming very injurious to agriculture in those parts of the state where the petitioners reside. Leave was given to present a bill for that purpose; which was accordingly reported under the title of "an act to amend the act relative to the duties and privileges of towns." This bill enlarges the powers of the freeholders and inhabitants of towns, to make and enforce such regulations as they may think proper, for the extirpation and destruction of the *Canada Thistle*.

Some valuable facts concerning the introduction of this plant into New-York, and the progress made by it there,

are contained in the letter which Mr. Bulkley, member of the assembly from Madison County, received from Mr. Timothy Dewey, an actual and intelligent observer. That statement was made at my request, and very obligingly placed at my disposal. I now transmit it, together with another letter from the same gentleman to me, and a parcel of the plants themselves, for your consideration. I hope, with your aid, the botanical name and character of this vegetable intruder may be established. And I ask all the force you can bring into action, against a foe which threatens to dispossess man and beast from their respective occupancy of land.

SAMUEL L. MITCHILL.

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No. I.

Letter from Mr. Dewey to Mr. Bulkley, dated  
Albany, April 2, 1810.

SIR,

Agreeably to your request, I give you some of the leading traits in the character of the *Canada Thistle*.—It is found in the state of Vermont, on the east side of the Green Mountains, and in the middle and northern parts of the state of New-Hampshire. It grows most thriftily in loamy or sandy land; such as is covered with the sugar maple, basswood, elm, butternut, birch, beach and mountain ash. It is rarely found on a clay or marshy soil. It resembles in colour and its general features and properties, the large annual thistle, of this and the eastern states, except its not being an annual plant; the stalk being much smaller and growing much higher. It grows from three to six feet in height, and frequently so thick

that it is impossible for any animal to pass through the beds, or plats of it. It destroys all other vegetation, whenever the land is infested with it. I know of no vegetable that will thrive with it. It appears to be a certain poison to most plants. *Potatoes* may grow on land infested with it if hoed five or six times in the season; and I think it the only vegetable that can grow to any advantage on ground where it is; corn seldom thrives with it. Flax in a wet season will partially conquer it. Various methods have been tried to destroy it, but no one has yet succeeded except hoeing, which is practised two years in succession, and at least six times every summer; cutting it, pulling it up, and covering it with chips, straw, swingling-tow, have been practised to no purpose. It will migrate from field to field in the course of a few years, apparently exhausting in one place all the nourishment fitted for the support of its noxious qualities. It is propagated by transplanting it; and by the seed, which is blown to great distances by the winds, by means of a down attached to it. The frost kills the root annually as far into the earth as it is communicated to it. The roots descend to great depth if not stopped by *rocks, clay, or hardpan*. The roots are frequently found twenty feet below the surface. Its blossom is of a pale pink colour, and shaped like the saffron, and like it armed with innumerable prickles from an eighth to half an inch in length, as are also every leaf from bottom to top, I do not know that it has any medicinal qualities. It has a bitter and slightly astringent taste.—It exhales, particularly when in bloom, an unpleasant narcotic odour. Cattle feed sparingly on it at any time. Some horses will feed upon it if cut when young and dried like hay.—In fact, I know of no good that it



does on earth. I think it difficult to describe the appearance of it satisfactorily to you without a drawing of it, which I have not time to perform at present. If these observations should be of any service I shall be rewarded for penning them. If it should be your wish I can get a drawing of the plant, also a correct botanical description of it, from a friend of mine in the State of Vermont. I shall be happy in doing any thing to rid society of such a noxious plant or to alleviate, in any degree, the evils produced by it. I am with respect, &c.

TIMOTHY DEWEY.

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No. II.

Letter from Mr. Dewey to Dr. Mitchill, dated  
Albany, 14th July, 1810.

DEAR SIR,

I send you by the steam-boat, a specimen of the "Canada Thistle," which I think will enable you to form a more correct opinion of its qualities than you could gain from any description that could be given of it. I think the description which I sent Mr. Bulkley, last winter, from recollection was correct in all its material parts. The specimen which I send was taken from a small plot of it in the town of Coemans about ten miles from this city. I have not been able to get a botanical description of it, nor any thing new relative to the best method of destroying it. I am inclined to believe that hoeing two or three years in succession is the only way it can be conquered. I have seen a letter (which was published in the Albany Register,) from Mr. Saunders\* of the Vermont university. He

\* See No. 3, under this article.

seems to think it a "friend to agriculture," and one of the "greatest blessings" that the farmers of Vermont can enjoy. It is my misfortune not to agree with the learned gentlemen of the Vermont University.

I am happy to afford you an opportunity of giving a correct botanical description of the pernicious weed, as also a correct drawing of it. If the pains I have taken to procure the plant should afford you any, the least, satisfaction, I shall think myself amply rewarded. I wish to do every thing in my power for the prosperity of our country.

I am with much esteem, sir,

Your obedient servant,

TIMOTHY DEWEY.

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No. III.

Letter from Daniel C. Sanders, Esq. of the University of Vermont, to a friend in Albany, on the excellence of the Canada-Thistle; dated Burlington, 28th June, 1810.

DEAR SIR,

Your favour, dated "Albany, N. Y. 6 mo. 8, 1810." has just come to hand by mail. You request what information I possess concerning the plant which is called the "*Canada Thistle*." I have no evidence that the name is significant of its origin. It is to be found in every part of Vermont, and took possession of the lands before the oldest of the present inhabitants. The plant is not yet in bloom and maturity. I had cut off a head of it, in order to give you a botanical description of it. But

its parts, necessary to a description on Linnæan principles, are not yet sufficiently ripened and expanded. Something further may be done, should you continue to desire it, whenever the sexual and seminal parts shall be *matured*.

In the mean time, let me allay the fears and mitigate the complaints of your New-York agriculturalists. I have myself observed the thistle for *eighteen* years; and can speak certain things from knowledge, derived from my own experience. The plant is in itself unpleasant, armed at all points, and threatening hostility to every being who is bold enough to invade it. Its right to the soil is founded on possession immemorial. The Vermont farmer, however, possessing physical power, forgot its imprescriptible rights. They united all forces to exterminate it, "*vi et armis*." In a very early period of our existence as a state, the *legislature* of Vermont passed an act, not that it should *grow* any more, but that every landholder should cause the thistles to be *mown* before they were ripe and had any power to disperse the seeds to any greater extent. But amidst the "*veto*" of legislation and the "*caveat*" of spirited agriculturalists, *nature* said they should grow. As if they shared in the *obstinacy* of mankind, amidst resistance, they *increased* the more beneath the severest discipline of the hoe, plough, harrow legislation, and even the fire. The farmers absolutely *despaired* in the unequal contest. Since they have done nothing, the dreaded enemy has seemed to retire; and the thistles in this part of the world, have evidently and greatly *diminished*.

We seldom know the extent of the blessings we enjoy. Some of our most experienced farmers, who laboured

with the greatest zeal to exterminate these thistles, now see in them, not enemies, but *friends*, in a rough dress indeed, but still salutary. Several advantages are obvious. 1. They *enrich* land, serving as a valuable manure. 2. They keep the soil *loose*. 3. They serve as *food* for cattle. The stocks of clover and other large grasses will be left often *uneaten* in a yard, but the thistle *never* escapes, being always the object of desire to *some* kind of cattle. 4. It is conceived to be *healthy*, a remedy or a preventive of the diseases common to the brute creation. One of the most experienced farmers in Vermont has lately expressed to me his wishes for the *increase* of this plant on his farm, where he once tried long and ardently to *destroy* it; but he now has fears that it will ere long totally *disappear* from this section of the country.

*Mowing* it down before its seeds are ripe will not prove a sure *prevention* of its growth. The cultivation of land by *hoeing* and *ploughing* serves to extend and facilitate its perfection. Sowing lands with the ranker *grasses* will soon choak and destroy it. But, here, *time* seems to threaten its everlasting banishment, very contrary to all former expectations.

*Nature* has, however, made large provision to ensure its permanency, two ways. 1. By propagation from its *root*. This runs into the ground to a great depth. Some say, it extends *twelve* feet beneath the surface. I have seen it grow well from the root left in cellars dug *six* feet deep from the top of the soil. Any *part* of a root will be enough to become the embryo of a *new* plant. 2. By its *seeds*. Nature ripens these about two feet above the ground, in a fine situation, elevated for easy dispersion. It is one of those composite flowers which

opens its pericarpium when the seeds are ripe. These numerous seeds are endowed with *wings*, downy appendages, finely globular, which enable it to float in the air, and very generously waft the prolific race to distant fields, which are not its own. It is the swelling of its downy pinions which overcomes the resistance of its coats, opening a door for the eager seed to escape from the prison, where its further confinement would prove useless to all the purposes of vegetable life.—After all nature's ardent care to give this plant "*a local habitation and a name,*" her success in Vermont does not seem to be adequate to her efforts; and threatens nothing inauspicious to the industrious cultivator of the varied field.

I am happy to see you, amidst your *literary* labours, so engaged to promote the *first* interest of our beloved country, *agriculture*. However hasty the present letter, you may make any use you please of my observations on this subject, as they may tend to diminish the fears and complaints respecting the Canada Thistle. D. C. S.

## X.

*Botanical description of the Canada Thistle or Cnicus Arvensis, with Observations on the Means of destroying it, or preventing its Increase. Communicated in a letter to the Hon. S. L. MITCHILL, M. D. &c. from DAVID HOSACK, M. D.*

New-York, July 21st, 1810.

SIR,

I HAVE examined the plant which you sent me yesterday as the Canada thistle, and find that it is well known

in Europe, both to the farmer and botanist. In Great Britain it is vulgarly called the *cursed thistle*, which appellation the *Canada* thistle no less merits in this country. You will find it described by Linnæus as the *serratula arvensis*. Mr. Curtis, in his *Flora Londinensis*, where you will see an excellent coloured figure of it, describes it as a species of *carduus*. Professor Willdenow, with more correctness, places it in the genus *cnicus*, retaining the specific name *arvensis*.

Upon carefully examining the *pappus*, especially with a glass, you will find it to be manifestly *plumose*, which is the character by which he distinguishes the genus *cnicus* from the *carduus* and *serratula*. The following description of the plant by Mr. Curtis so perfectly corresponds with that with which our country is infested, that with the aid of the annexed drawing of the plant, made by my friend Mr. J. Inderwick, from the specimen you sent me, it will readily be recognised by the farmer into whose fields it may intrude itself, and thereby enable him to take those measures for its destruction which have been found by experience to be the most effectual.

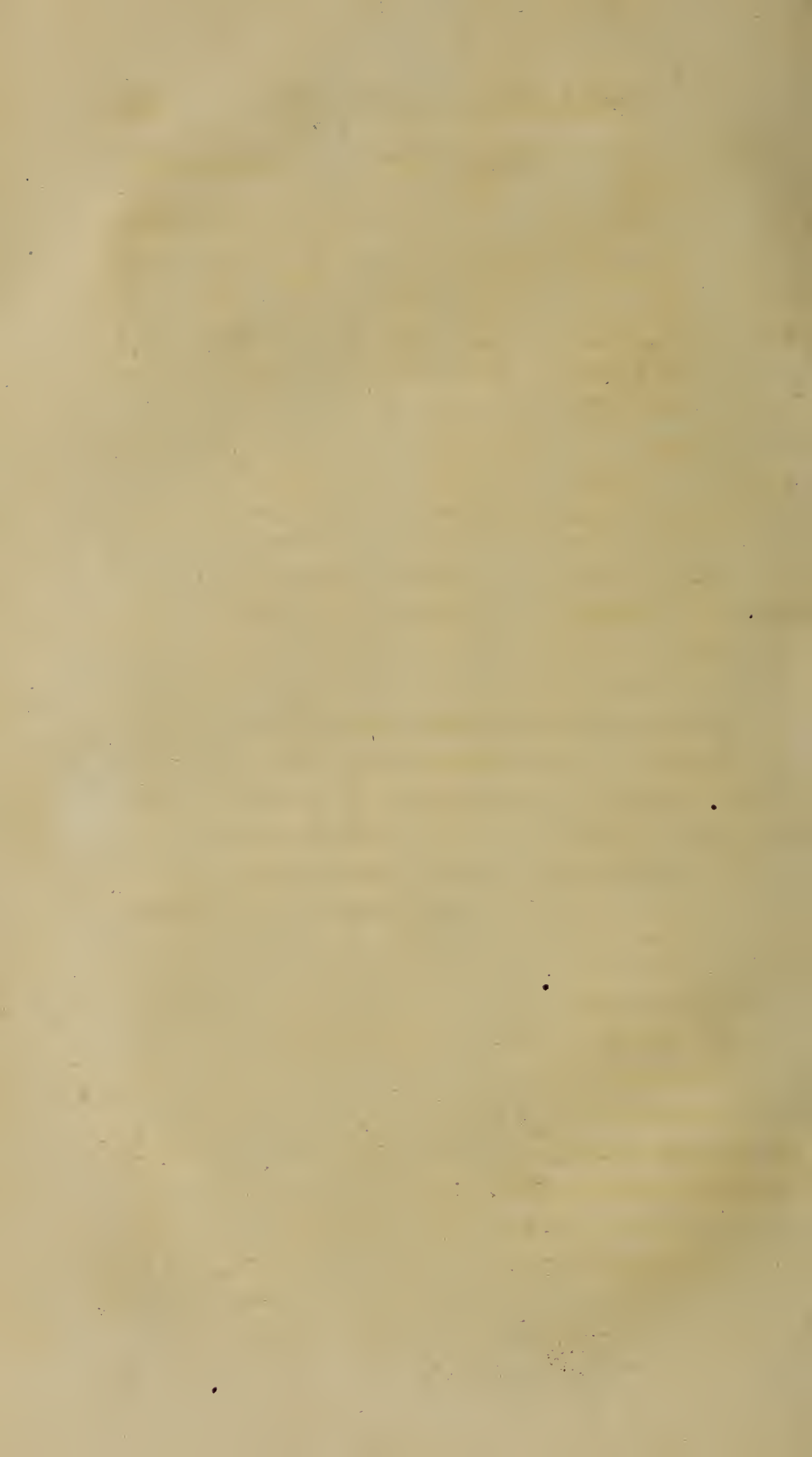
“ **ROOT** perennial, round, almost the thickness of the little finger, of a dirty white colour, penetrating deeply, and creeping far and wide  
**STALK** three feet or more in height, upright, somewhat branched, at the base round and somewhat wooly, above angular and smooth.  
**LEAVES** sessile, alternate, lanceolate, cut in so as to be somewhat pinnatifid, the sides somewhat pressed together, sinuated, wavy, and curled, spinous, above smooth, green, beneath paler, scarcely villous, the uppermost ones almost entire.

**FLOWERS** middle-sized, of a pale purple colour, very fragrant.

**FLOWER-STALKS** leafy, one or two flowered, above somewhat wooly.

**CALYX** common to all the *florets*, ovate, contracted at top, imbricated, the scales numerous, pressed, close, lanceolate, sharp at the back,







terminated by a pointed appendage, purplish, points turning a little back, and mild.

**COROLLA** compound, tubular, uniform, all the *florets* hermaphrodite, nearly equal, monopetalous, funnel-shaped, the *tube* very slender, the limb divided into four, linear, reflexed segments, one more deeply divided than the rest.

**STAMINA**: five capillary *filaments*, very short and white: *antheræ* united into a cylinder, shorter than the corolla, the mouth five-toothed, the teeth white at the tips.

**PISTILLUM**. German ovate, compressed; *style* filiform, longer than the stamina, of a whitish red colour: *stigma* obtuse, finally bifid.

**SEEDS** linear, slightly four cornered: *down*, feathered, sessile.

**RECEPTACLE** hairy, hairs glossy.”\*

After this minute description of the plant, Mr. Curtis makes the following observations upon the means of destroying it.

“ We have bestowed on this plant the harsh name of *cursed*, with a view to awaken the attention of the agriculturalist to its nature and pernicious effects; repeated observation has convinced us that many husbandmen are ignorant of its economy, and while they remain so, they will not be likely to get rid of one of the greatest pests which can affect their corn-fields and pastures.

“ Of the thistle tribe the greatest part are annual or biennial, and hence easily destroyed; some few are not only perennial, but have powerfully creeping roots, and none so much as the present; in pulling this plant out of the ground, we draw up a long slender root which many are apt to consider as the whole of it, but if those employed in such business examine the roots so drawn up, they will find every one of them broke off at the end, for

\* Curtis' *Flora Londinensis*, Fasc. 6, fig. 18.

the root passes perpendicularly to a great depth, and then branches out horizontally under ground.

“ To give an idea of its astonishing increase, we shall subjoin from the memoirs of the Bath agricultural society an experiment made for the very purpose of ascertaining it.

‘ April 1st, 1778, I planted in a garden a piece of the root of this thistle, about the size of a goose-quill, and two inches long, with a small head of leaves, cut off from the main root just as it was springing out of the ground: by the 2d of the November following this small root had thrown out shoots, several of which had extended themselves to the distance of eight feet, some had even thrown up leaves five feet from the original root: most of the shoots which had thus far extended themselves were about six inches under ground, others had penetrated to the depth of two feet and a half; the whole together, when dug up and washed from the earth, weighed four pound. In the spring of 1779, contrary to my expectation, this thistle again made its appearance on and about the spot where the small piece was originally planted; there were between fifty and sixty young heads, which must have sprung from the roots which had eluded the gardener’s search, though he was particularly careful in extracting them.’

“ When this paper was delivered to the society from experiments then made, I was of opinion that repeated mowing or spudding would not destroy this thistle. I have since had cause from further observation and experiments to think differently; so deep, however, does it penetrate, that these operations are the only ones which can well be applied to its destruction, and if they do not effectually overcome, they will greatly enfeeble it.

“ This species is seen every where by road-sides, too

frequently in corn-fields, and more rarely in pastures ; it flowers from June to August."

In the *Flora Rustica* of Doctor Martyn, Professor of Botany in the University of Cambridge, you will also see a figure and description of the same plant, under the Linnæan name of *serratula arvensis*. After describing the plant he observes :

" This thistle is known every where by road sides, too frequently in corn fields, and *more rarely* in pastures ; flowering from June to August.

" It has the habit of the thistles, and is universally called so in English, though Linnæus makes it *aserratula*. It is the worst pest of arable lands, having strong creeping roots, striking down to a great depth, and then branching out horizontally, so that it is very difficult to root it out where it has once got possession. *Frequent and deep ploughing in dry weather* will destroy it in arable land. In pastures it should be pulled or forked out when the ground is well soaked with wet. Mr. Curtis affirms that repeated mowing or spudding, if they do not effectually overcome, will greatly enfeeble it.

" To us mowing has always appeared to make it run more at the root.

" The goat and ass will eat it ; horses will sometimes crop the head when young and tender, but no other cattle seem to touch it. It is said to yield a very pure vegetable alkali when burnt."\*

\* Martyn's *Flora Rustica*, vol. 4, fig. 132.

Such is the information to which I have been led by the examination of the Canada thistle. In addition to the practice of frequent mowing and spudding, as the best means of destroying this weed, I would suggest the following system of culture :

1st. After deep and frequent ploughing, to occupy the ground with corn, potatoes, or some other crop which will require frequent hoeing and clearing.

2d. In the autumn, after taking off the crop, again to give the land another deep ploughing, leaving it in the rough state, so as to expose the roots of the thistle to the frost of the ensuing winter : this process will also the better prepare the soil to be laid down in grass the following spring. In doing this I would also suggest the propriety of

3dly. Sowing a much greater quantity of grass seed to the acre than is usually done. By pursuing the practice recommended by Lord Kames, of sowing from twenty to twenty-four pounds of clover seed to the acre, I have remarked that the grounds at the Elgin Botanic Garden are much more free from weeds than those of my neighbours, at the same time that the grass is much more delicate for feeding, less apt to be thrown down by the storm, and makes a less succulent hay, both more easily cured and better preserved than where it is more thinly spread, but of stronger growth. How far these may prove additional means of counteracting the growth of the thistle in question, I submit to you and other practical farmers.

I am sir, yours, &c.

HON. S. L. MITCHILL.

DAVID HOSACK.

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## R E V I E W.

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ART. I. *A Plain Elementary and Practical SYSTEM of NATURAL EXPERIMENTAL PHILOSOPHY; including Astronomy and Chronology. By the late JOHN EWING, D. D. Provost of the University of Pennsylvania. Being the course of lectures, delivered by him in that Seminary (enlarged and improved from time to time) for upwards of twenty years. Illustrated by copper-plate engravings. The whole carefully revised and prepared for the press, with sundry explanatory and supplementary Notes, by ROBERT PATTERSON, Professor of Mathematics in the said University: with a Biographical Sketch of the Author. Philadelphia, Hopkins and Earle, 8vo. pp. 563.*

DR. JOHN EWING was born in East Nottingham, Maryland, on the 22d of June, 1732. He commenced his classical studies under the care of the late Francis Allison, D. D. with whom also, he afterwards made considerable progress in the science of mathematics. The ardent zeal he possessed for scientific pursuits overcame every difficulty, and from his books and the conversation of his affectionate preceptor, he acquired a habit of close thinking, for which he was ever after distinguished. In 1754 he removed to the College of Princeton where by his persevering industry he became a favourite pupil of President Burr. In 1765 he took the degree of A. B. and finding himself restricted in his pecuniary circumstances, he accepted the appointment

of tutor in the college. About this period he resolved to choose a profession, and theology being most congenial to his turn of mind, he entered upon that study under the direction of his former friend and preceptor, the Rev. Dr. Allison. At the age of twenty-six he was employed to instruct the philosophical classes in the college of Philadelphia, during the absence of the provost, the late Dr. W. Smith. In 1759 he accepted an unanimous call from the first presbyterian congregation in Philadelphia, of which he continued a minister until his death.

From the year 1759 to 1773, he discharged his duties with a diligence and zeal not often surpassed. During this period his studious researches enabled him to collect materials for the compilation of his Lectures on Natural Philosophy. In 1773, he was commissioned, in conjunction with Dr. Hugh Williamson, to solicit subscriptions in Great Britain, for the academy of Newark, in the state of Delaware. In all the several places he visited in England, Scotland, and Ireland, he met with a cordial reception from gentlemen of the most distinguished reputation. In the summer of 1775, at the commencement of the revolution, he returned to America, though he was earnestly solicited to remain in England, and liberal proffers made to him for that purpose. In 1779, he was elected provost of the university of Pennsylvania. On his appointment, he prepared the lectures which are now published, and which he delivered during a period of twenty years. He was one of the founders and a distinguished member of the American Philosophical Society, to which he contributed several valuable papers. To the astronomical articles of the Encyclopedia published by Dobson, he made many additions. In the year 1795 he undertook the com-

pilation of a course of lectures on natural history ; but owing to his imperfect health, was unable to complete his plan. He died in September 1802. Dr. Ewing was an eminent proficient in mathematics, astronomy, and every branch of natural philosophy. In the Latin, Greek, and Hebrew languages his knowledge was very considerable ; in logic, metaphysics, and moral philosophy, one of the most accurate and profound of scholars.

From the life of Dr. Ewing, which we have extracted, chiefly from the interesting memoir prefixed to the work, we enter upon an examination of the subject matter of the volume.

This system of philosophy is preceded by an introduction, in which are first briefly mentioned the difficulties which have obstructed the progress of natural science. These were caused principally by the desolations of war, the hypothetical methods of philosophising, and the superstition and selfish views of the priests. Our author next remarks on some of the more important events which have contributed to the present free and rational method of investigation, and to the consequent advancement of knowledge. The most important of these was the reformation in religion. About the year 1640, Descartes published his philosophy, in which he maintained, that nothing was to be received upon mere authority. " Although he carried the humour of doubting somewhat too far," says Dr. Ewing, " and admitted only of the self-evident proposition, *I think, therefore I am*, he has the honour of introducing a more safe and liberal method of philosophising and thereby of paving the way for all the discoveries that have since been made in physics." This encomium bestowed on Descartes, appears to us to belong with equal

propriety to Bacon. Indeed, Dr. Ewing does not seem to have duly appreciated the stupendous labours of that extraordinary man. While to Descartes is attributed the superlative honour of having drawn a distinct line between the material and the intellectual world, and of having destroyed the power of the Aristotelian sect, Bacon is acknowledged as the father of experimental philosophy. At the time too, when the several productions of Descartes were offered to his countryman, the works of Bacon were making their way throughout the learned world, and that lasting monument of his fame, the Instauration of the Sciences, had already begun to effect a revolution in the empire of science, and to lay the foundation of natural knowledge on the sure basis of fact and experiment.

Of the investigations of Galileo. Dr. Ewing speaks in terms of commendation, and of the discoveries of Sir Isaac Newton, in language bold and decided. The introduction closes with some appropriate reflections on this branch of human learning.

The lectures commence with a general definition of natural philosophy, which is followed by the Newtonian rules of philosophising. The common and universal properties of matter are next detailed, and the several kinds of attraction explained. Succeeding the remarks on capillary attraction are some observations which we shall take the liberty of transcribing, as we were somewhat surprised that Dr. Ewing should have found a ready solution to several phenomena which have hitherto remained inexplicable to other philosophers.



“Hence too,” says Dr. E. “the more subtile parts of medicines, used for the cure of diseases, are incorporated with the juices of the body, being attracted and carried to the remotest members by the force of these capillary tubes. Thousands of these vessels terminating in the pores of the skin, conduct the juices to the surface of the body, where they must be expressed by the action of the solids, and appear on the skin in large drops of sweat, or being greatly rarified by the natural heat of the body, are attracted by the air, and carried off in an imperceptible vapour, called insensible perspiration.

“The motion of a drop of oil towards the angular point of two planes, or in a tapering tube towards the smaller end, shows the construction and operation of the inhaling vessels of the skin. The large orifices of these vessels terminating in the surface of the body, attract and inhale the humid particles that either float in the air, or otherwise come into contact with them, and convey them to the internal parts of the body. Hence we see the rationale of all external applications in the cure of diseases, and the way of receiving infectious disorders.” p. 27, 28.

Under *evaporation* the following observation occurs.

“Although air attracts both water and oil separately, yet, because of the natural repulsion between these two fluids, it cannot attract and dissolve them both at the same time. Hence the suffocating nature of air impregnated with oily particles, in a chandler’s shop, or from lamps and the wicks of extinguished candles; the air in this situation not being able to attract and carry off the moisture of the lungs. But when air is saturated with poisonous and pestilential particles collected from putrefying substances, hospitals, or gaols, it may in respiration exchange them for the moisture of the lungs, and thereby produce various diseases, by what is called by the chemists a single elective attraction; the lungs attracting these poisonous particles more forcibly than their own moisture, while the air attracts the moisture of the lungs with greater force than that by which it attracts these noxious particles.” p. 39, 40.

The remarks on the attraction of magnetism are, upon the whole, satisfactory. The observations on electricity

are well calculated to inspire the student with a desire of becoming familiar with the nature of this wonderful agent. After a detail of the Franklinian theory, follows an explanation of several atmospherical appearances dependant thereon, and an account of some interesting experiments made upon the *Gymnotus electricus*.

“ One of these eels,” says Dr. E. “ having been brought to this city by a poor man, and showed for money, I went to see it among others, and upon receiving the first shock, immediately proclaimed it to be the electrical shock, from the sameness of the sensation it excited in my arm. This led us to make experiments for the confirmation of the conjecture ; and the success answered my expectations. When a single person put his hand in the water and irritated the eel, he received the shock, which he felt as high up as the wrist or the guard of the arm, according to the violence of it. The same happened when he irritated the eel by a rod of metal of any kind. I then proposed to try whether the shock could be communicated through a number of persons connected together by joining their hands ; and, to our satisfaction, we found the whole circle shocked in the same manner as by the Leyden bottle. This was a convincing proof that the power which the eel possessed was the same with electricity. Little fishes being thrown into the water with the eel, it first shocked and then swallowed them ; those that were too large to be swallowed, it stunned and then neglected. We tried to render the spark visible in its passing between two wires set nearly together, and forming part of the communication ; but we could not succeed in this experiment, though all the persons whose hands were joined felt the shock. We made many other experiments, and often repeated those above mentioned ; and the result of all was a full confirmation of the truth of our hypothesis. The owner of the eel would not suffer us to take it out of the water, that we might ascertain the particular part of its body in which this unusual virtue resided, or whether it was diffused over the whole. This has been since done with respect to the *torpedo*, by Mr. Walsh, who went over to the coast of France to make similar experiments on that fish, as many of that species of fish are found there. He found that the shock received from it was the electrical shock ; and that the fish possessed the power of shocking only in two parts of its body, direct-

ly opposite to each other, and near to the head. A spot on the back and another on the belly opposite to the former being of a different colour, led him to make the experiment, and he found that the electrical virtue was confined to these, and that any other part of the fish might be handled, without receiving a shock, while it was out of the water. Either of these places separately might be handled, without the shock being received, until a communication between them was formed. This makes it appear probable that the same may also be the case with the Guiana eel. One of these spots must therefore be always in the positive, and the other in the negative state; or possibly each of them may be alternately in the positive state, while the other is in the negative state; or rather, they are both generally in the natural state, until by an effort of the fish's will they are suddenly put into different states; as we frequently found that the hand might be in the water, which formed the communication, without receiving any shock: which cannot be the case with the Leyden bottle when charged, which suddenly discharges itself upon forming the communication.

“Whether there be any electric atmosphere round these spots in the torpedo, we cannot tell; as we had no opportunity of examining this matter in the eel, nor have we heard whether Mr. Walsh made any experiments for ascertaining this matter.” p. 69, 70, 71.

The article electricity concludes with a notice of Mr. Eel's hypothesis, which, notwithstanding the zeal of its inventor, and the partiality of his friends, has lost the popularity it once possessed. This section of the work, though not altogether equal to the expectations we had formed of our author, is by no means void of merit. Dr. Ewing might have dwelt with advantage on the important discoveries in this branch of science made by our illustrious countryman Franklin. Our author next treats of motion in general, of the laws of non-elastic and elastic bodies, of mechanics and of the mechanic powers, of compound machines, of friction, of equable motion, of

motion in vacuo and through a resisting medium, of motion on inclined planes, of pendulums, of projectiles, and of the motion of bodies round a center. These several subjects are explained in a concise and perspicuous manner. The doctrine of pendulums, of projectiles, and particularly that of central forces, is clearly and ably illustrated.

On hydrostatics, which may be considered as the second grand division of the present work, the author is brief, and at the same time sufficiently plain to be comprehended by the general reader. On the specific gravity of solids immersed in fluids he has enlarged with great propriety.

Having explained the nature and properties of incompressible and unelastic fluids, the consideration of those which are elastic and compressible engage the author's attention. The construction of barometers and thermometers, the methods for determining the altitude and density of the atmosphere, and the several rules for obtaining the heights of mountains, are very judicious and valuable. Under the head of hydraulics, the usual information is communicated: little, however, is said on pumps, and the steam engine is dismissed in less than a page. This division of the work concludes with an account of the production of tides, winds, and sound, communicated in a plain and popular manner.

As our remarks have already extended considerably beyond the limits originally designed, we are prevented from expressing in detail all we could wish on the execution of the succeeding subjects of the present volume,

optics and astronomy. The author has proved himself eminently qualified, in every respect, to illustrate those sublime studies. This portion of the work, will be perused by the student with a decided advantage over many of the systems of the present day, and may be reviewed with profit by those who are desirous of refreshing their memories with the object of their former study.

Before we conclude, we cannot but acknowledge, that the editor, in offering to the public the present work, has performed a service honourable to himself and useful to the cultivators of science. When we reflect, however, that these lectures were prepared not less than twenty years ago, we think the value of the work might have been much enhanced by the insertion of some of the late and more important improvements in the several branches of science on which it treats. On compound machines abundant room was left for the exercise of the talents of the editor. The article pneumatics ought to have been enriched with the recent discoveries in modern chemistry. The observations on pumps and the steam engine might have been enlarged with much practical advantage, and notice might have been taken of the present application of steam to the propelling of boats. What is said on the winds of the United States is mortifyingly defective. The article optics, though extremely rich, shows an evident want of recent information ; the explanation of the manner in which the eye adapts itself to different focal distances is no less old than incorrect ; some of the numerous experiments instituted to determine this long agitated question should have been detailed, and the present generally received theory given. The same remarks, with equal propriety, may be made on the section astronomy. On

this subject we expected much, considering the reputation of the author, nor are we disappointed ; though it would have still more effectually recommended itself to the attention of the student, had the editor judiciously availed himself of the late discoveries made in that science.

We are well aware of the impracticability of enlarging sufficiently in a single volume on the numerous subjects embraced in a course of natural philosophy, and that the imperfections which have been mentioned, as well as some others that might be pointed out, have been occasioned principally through a desire of confining, within a moderate compass, the present publication. For our own part, we should have preferred the work of Dr. Ewing, improved by the notice of the recent discoveries in philosophy : its claims to popularity would have been more powerful. As it is, it affords honourable evidence of the distinguished talents of its amiable author.

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ART. II. MEDICAL PAPERS, *communicated to the Massachusetts Medical Society.* Vol. II. Part 2d. 8vo. pp. 178. Boston. T. B. Waite & Co.

THE Massachusetts Medical Society was established as early as in the year 1781. The first number of their papers was published in 1790 ; a second number did not appear until 1806 ; this was followed in 1808 by the publication of a third. In 1809 was offered the 4th number, being the first part of the second volume, and we are now again favoured from the same highly respectable body with the publication of the second part. To this number we shall at present confine our attention.

It is in general well known that the spotted or petechial fever, has prevailed with greater violence in several districts in the eastern states than in any other parts of our country. As the disease was, in an especial manner, calculated to enlist the attention of all who had an opportunity of witnessing its symptoms, the faculty at large became particularly solicitous to obtain what information they could relative to the peculiar character of the distemper. In the laudable exertions which have been made for this purpose, the members of the Massachusetts society have eminently distinguished themselves. In order more effectually to collect, from the most authentic sources, whatever was calculated to shed light on this extraordinary disease, a committee was appointed by the counsellors of the society, consisting of Drs. Walsh, Jackson, and J. C. Warren, whose object it was to frame a series of questions, embracing every thing relative to the causes, history, and several modes of treatment that had been pursued. A circular letter to this effect was published on the 30th of March 1810, and a copy sent to every person from whom information was to be expected, and also widely circulated through the medium of the public prints. From the several communications\* which the committee received on the object of their enquiry, a report was drawn up affording an abstract of the information they possessed, with such remarks of their own, as

\* It is but justice to observe that these communications were obtained from Doctors Payne, Fiske, Rabbit, Rice, Robert Cutler, Whitton, Flint, William Cutler, and Haskell, in the county of Worcester: and from Doctors Bartlett, Hurd, and Chaplin, in the county of Middlesex, all of whom are fellows of the society. From several gentlemen of respectability in the state of Connecticut, some particulars have been obtained.

the subject suggested. This report was read and accepted at a meeting of the counsellors, held on the 21st of June, and ordered to be printed. It occupies 120 pages of the present number.

From this luminous document, which greatly excels all that has been offered on the subject of the spotted fever, and from the perusal of which we have realized all we anticipated from our enterprising Massachusetts brethren, we take this early opportunity of laying before our readers some of the principal facts which it contains.

“The last summer and autumn, and the first part of the winter were remarkably healthy throughout the country. The disease under consideration appeared first in the town of Dana, about the beginning of the present year, but not in any considerable number of instances until during the cold weather, after the middle of January. From the accounts transmitted to the committee it appeared at Petersham in the latter part of February, and at Barre, Oakham, Rutland, Paxton, Hardwick, New Braintree, Brookfield, Spencer, Sturbridge, Winchendon, Athol, Gerry, Leicester and Worcester, in the course of the month of March, mostly about the third week in that month. The above mentioned towns are all in the county of Worcester. It appeared in that portion of Cambridge, called Cambridgeport, Middlesex county, on the 24th of March, and in April at Lancaster, county of Worcester. In the course of April and May a few cases have occurred at Boston, and perhaps an equal number in proportion in many towns in the counties of Worcester and Middlesex. During May it appeared in Springfield, county of Hampshire, and had not subsided in the second week of June.

“Most of the country, in which this disease has appeared, is inland and very elevated; it abounds with hills and vallies, has many ponds and many running streams and fresh-water rivers. In Cambridgeport, the first place near the sea-coast, at which it was observed, it was confined for the most part to the land which was recently salt meadow, and which is now intersected by many foul ditches. In



Boston this disease, as also typhus, has occurred most frequently in those parts of the town exposed to the flats and water." p. 120—1.

From the natural history of this disease, it appears to have been of various degrees of severity, and though in some cases it destroys life suddenly like the plague, yet in a large proportion of cases it is very mild. The committee are of opinion that the communications which have been made to them relate chiefly to the disease in its most malignant forms.

“ The invasion of the disease is generally sudden and violent. In its course all the functions of the body are more or less interrupted, and often some of them are entirely suspended. The subject of it is seized in the midst of his usual labour or occupation, and oftentimes is struck down suddenly, almost as by a stroke of lightning. The first symptoms are various, such as local pain or paralysis, delirium or coma, and rarely spasms or convulsions.

“ The disease often commences with shifting pains. The patients suddenly feel a pain in one joint or one limb, often in a finger or toe, in the side, stomach, back, neck, or head. Sometimes the sensation is like the stinging of a bee, frequently it is most excruciating pain, which at once arrests and commands the whole attention. This pain moves from place to place without losing its violence, generally approaching the head, and is often confined to one side of the body. It is said that the left side is more frequently affected than the right. The head is more frequently first affected with pain than any other part; and when not affected at the first moment, it almost invariably becomes so in a short time. The pain in the head is oftentimes intolerably severe, so that it is compared to the beating of hammers upon the part; and the patient says he shall become crazy, if it continues.

“ Partial loss of sensibility and paralysis are, in other cases, the first symptoms, and often occur in the course of the disease, when they do not in the beginning. The powers of sight are affected in various degrees from a slight dimness to absolute blindness. In like manner the sensibility of the skin and parts subjacent is diminished, so that a

limb becomes numb or feels as if it had been asleep. The other organs of sense have not been noticed to undergo similar affections." p. 122—3.

“ In whatever form the disease commences, there suddenly ensues great prostration of strength. In some instances the patient is described as almost immediately falling down under the weight of disease. This prostration is accompanied or followed by universal or partial chills ; the skin becomes dry and pale, or mottled like one who has been long in the cold, eyes glassy, nose contracted, the face sublivid, with paleness round the mouth, and the countenance expressive of the utmost anxiety and distress, or its features dissolved with a loss of all character and expression ; the whole body becomes cold, respiration very laborious, especially in children, pulses very small and feeble, slow at the commencement but shortly very frequent. If there be neither coma nor delirium, the spirits are very much dejected, the patient suffers extreme solicitude and anxiety, with apprehensions of death, frequent sighs, restlessness, and agitation. He complains of oppression and faintness, with undescribable distress about the præcordia, and a sensation of fullness at the stomach. Frequently eructation, nausea and vomiting ensue, and also fainting in the early stages of the disease ; and the vomiting occasionally becomes incessant, embarrassing and defeating every effort to give relief by internal medicines, while it exhausts the patient.” p. 123.

The different stages of this disease, as well as the duration of each, are not particularly distinguished. In the opinion of the committee this has happened on account of the diaphoresis which was generally established at an early period of the disease.

“ Among the varieties of the disease, the following is given as a description of some cases which have occurred especially among females. ‘ Universal deadly coldness ; skin white as polished marble and smooth ; countenance perfectly placid ; not one distorted muscle ; pulse in the wrist imperceptible ; motion of the heart scarcely to be felt ; respiration visible only by gasping, and that not frequent ; and as it were only a step between this imperfect state of life and death.’ Even from this state of deadly stillness patients have been restored to life and health.

“As has been already mentioned, some die in the early stages of this disease. A few are taken off suddenly in ten or twelve hours; others in twenty-four, thirty-six, or forty-eight hours from the first symptom of disorder. Death rarely occurs after the third day; indeed some of those practitioners who have been most conversant with the disease, consider their patients safe if they pass through the first twenty-four hours without any mortal symptoms.” p. 126.

Having remarked that all the symptoms mentioned were not to be observed in every case, but that on the contrary, the spotted fever exhibited a great diversity of character both in the several affections and in the order in which they occurred, the committee have collected together in one view the most important symptoms. No apology, it is presumed, will be necessary for our inserting it entire.

“The face and eyelids are often swollen; and in some cases the face is swollen and black like that of a person strangulated. The eyes are mostly described as being deprived of their natural lustre, dull and glassy, or red and watery, with the pupil, sometimes contracted, more frequently dilated. Sometimes the pupils are seen to vibrate from one extreme to the other. The eyes are also described as appearing more brilliant than usual, with a wild penetrating stare; and it is said that this state of the eyes is sometimes noticed several hours before the patient is aware of any morbid affection.

“The sensations in the head are various, such as dizziness, vertigo, pain; throbbing, severe, excruciating pain; and stricture across the forehead and eyes. These sensations are often followed and sometimes accompanied by delirium. The delirium has all the varieties observed in other acute diseases, from that which is mild and light, and indeed little else than incoherence of ideas, to that which is low and muttering, or that which is violent with rage. Coma as well as delirium is of frequent occurrence, and is even more common in the late stages of severe cases. There are instances, especially in adult males, in which consciousness remains to the last unimpaired, although the issue be fatal.

“ There are also other symptoms which appertain to the animal system ;\* the following are particularly noticed. Numbness or total insensibility and paralysis in a larger or smaller portion of the body, which occur often in the first stage of the disease, and continue through its whole course, and even after other symptoms have subsided ; a sense of lassitude and weariness ; soreness of the flesh, especially in children ; and spasms which frequently occur, and shift suddenly in the same manner as the pain does from part to part ; sometimes resembling hysteric spasms, sometimes occasioning the head to be drawn back as in opisthotonos.

“ The respiration is much and variously affected ; in general it is difficult. Cough rare occurs, and the difficulty of respiration has not commonly appeared to rise from an inflammation of the lungs. In two cases, however, symptoms of pneumonia have arisen, and in one of them the existence of that affection was demonstrated after death.†

The actions of the heart are very feeble in this disease ; about its region there are often very distressing sensations, described as death-like feelings. These sensations are occasionally relieved by spontaneous vomiting, and possibly they may have some connection with the gastric region. In a few mild cases the pulses are little altered ; but commonly they are very feeble, and except at the commencement, frequent. It is said that they sometimes denote more strength in the system than it is found to possess. They are sometimes hard ; more often they are intermittent, and irregular both in force and frequency ; they are remarkably variable, so that in the course of an hour, and indeed in much less time, they change from quick to slow, from strong to feeble, and vice versa ; at the accession of delirium early in the disease, they have been observed to undergo a sudden

\* This phrase is used in the sense given to it by Bichat—under this division he comprehends the brain and its dependant organs—viz. the nerves and voluntary muscles, so far as they are dependant on the brain.

† These cases are specially noticed, because we are told that this disease has prevailed on the borders of lake Champlain, in Vermont, and also in Montreal and its vicinity ; and that in those places it has been combined with pneumonic inflammation.

acceleration from sixty or seventy to one hundred and twenty, and even to one hundred and fifty in a minute. The pulsation of the carotids is often very considerably greater than that of the radial artery.

“ The phenomena of the skin have received considerable attention ; some of them have given to this disease its vulgar name. In the early stages the skin is perhaps invariably dry ; at a later period spontaneous sweats have broken out on the head, chest, and superior extremities. A doubt has been expressed whether universal sweating would not occur without the aid of art. In a few cases which have occurred in Boston and its vicinity there has been observed a great tendency to this evacuation, and it has very readily become profuse. Doubtless there have been cases in which it was very difficult to excite diaphoresis, but in many it has been sufficient to put the patient in bed, and give him a cup of any warm liquid. The sweats are said to have an offensive and peculiar odour ; it is fetid ; but this does not seem to describe it sufficiently ; It has been compared to the smell which arises from a dead rat within the wainscot of a room. It has also been compared to the smell of a mercurial sore mouth.

“ In many cases the skin is said to be remarkably smooth ; but this is not an universal appearance.

“ The *spots* on the skin are of various descriptions. They occur in all stages of the disease ; less frequently however on the first than on the subsequent days. Frequently a rash or miliary eruption only appears, or a few blotches on the inside of the elbow, and other similar parts : and it has been suggested that these may be produced by the mode of treatment usually adopted. The blotches are florid, or red and fiery. An appearance like measles has also been noticed, and likewise vesicles and pustules, which have been compared to the vaccine and variolous eruptions. In some cases these spots and eruptions have appeared at successive periods two or three times in the course of the disease. The vesicles and pustules are very frequently torn by scratching ; after which, or without being torn, they are commonly followed by scabs of a brown colour ; but occasionally they are followed by ulcerations which do not heal until after recovery. These affections of the skin are often attended with itching ; and independent of them, itching very frequently occurs, especially on the third day, when the symptoms become more favourable at that time.

This itching is sometimes extremely violent, so that the patient will almost tear up his skin in endeavouring to alleviate it. All these affections are frequently noticed at the time when the more important symptoms abate, or subside.

“ In a few instances, vesicles containing a bloody fluid occurred in the county of Worcester. These vesicles were compared to blood blisters, and were about the size of a large pea; they appeared in various parts of the body and limbs; in a few days they broke, discharged a bloody fluid, and scabbed over. In one case, in which the attack was very violent, blisters resembling those produced by cantharides appeared on the second and third day on the breast, and on one foot. They were about five inches in length, and nearly one in breadth. On the fourth day from the attack, some of those on the breast and that on the foot became black and dry, and the skin was sphacelated. The eschars with due treatment left clean ulcers, which healed without difficulty.

“ The appearance of petechiæ and vibices has been noticed. They occur in comparatively few cases of the disease. They are of worse portent in proportion as they are more dark coloured. They do not however always occur in fatal cases, nor are they confined to such cases.

“ It is not easy to determine in how large a proportion of subjects the skin is affected with spots and eruptions. Under the observation of some gentlemen, they have been very rare. One remarks that in eighty cases, among which twenty were very severe, he had seen only four instances in which spots or eruptions of any kind had taken place; and he adds that these had not been the worst cases under his care. Another estimates the proportion of cases, in which there had been discovered some of the affections which we have described, to be two thirds of the whole. He includes, however, very slight affections, which have often disappeared in a few hours.

“ Desquamations of the cuticle, and more rarely œdematous swellings of the extremities, have occurred at the termination of the disease.

“ The tongue is usually moist and white through the whole disease, when it terminates within three or five days. When it continues

longer, the tongue becomes darker coloured, yellow or brown. It is sometimes very clean and red.

“ There is seldom any remarkable thirst ; in a few cases it has not been at all greater than natural. Some patients have a desire for cold water, but not for any other liquid. The appetite is diminished, but it is not always so entirely destroyed as in most other acute diseases. Children particularly sometimes express a strong desire for food. Nor are the powers of digestion always suspended so entirely as in most other febrile diseases. Vomiting very frequently occurs, but in the first few weeks in which the disease prevailed bile was very rarely thrown up. The matters ejected from the stomach were commonly the articles recently swallowed and a ropy mucus. Yet at all times there has been discharged by some persons a dark green liquid ; and in some instances a liquid of a blueish colour.

“ The bowels are commonly very quiet, and are not readily excited to action, especially on the first day of the disease. When discharges are made from the bowels on those days, they are commonly of a dark, green colour, and to cursory observation, resemble tar. It is said by one gentleman that the discharges from the stomach and bowels are rarely coloured by natural, healthy bile, until the third day. In two cases we are told that dysentery supervened in an advanced stage of the disease ; but it was of short duration. Patients sometimes complain of soreness of the throat ; and on inspection, the fauces are found very red, but not swollen in any part. The sensation of soreness it often just below the fauces where the parts cannot be seen. Aphthæ have been occasionally observed.

“ In most cases the urine has not been very different in its appearance from that in health, but the quantity has been less. Strangury has been ranked among the occasional symptoms ; but a question may be permitted whether this has not been produced by the remedies employed.

“ There is an irregularity in the course of the symptoms in this disease, and so also in their duration. Blindness continues from half an hour to twenty hours ; severe pain in the head, and delirium from four to twenty hours ; deep coma from six to twelve hours, and even from the beginning to the end of the disease, especially in children.

“ In a few instances slight affections of the parotid glands have been observed, but in general, glandular swellings have not been noticed by our correspondents. In some cases swellings have occurred on the joints and limbs. These have been very sore to the touch, and their appearance has been compared to that of the gout. The parts so affected feel as if they had been bruised. These swellings arise on the smaller as well as on the larger joints, and are often of a purple colour. Those on the small joints especially sometimes disappear as the disease approaches its crisis. It is not stated that the disease of the whole system ever subsides when these local affections take place. By some practitioners the inflammation in these cases is called erysipelatous, and probably with justice.

“ In a few instances purulent discharges from the ears have been noticed. They have not been accompanied by any remarkable change in the course of the disease. In a small number of cases the disease has been followed by deafness, from which the patients have not speedily recovered. Two persons were affected in this way in the year 1808 at Amherst, and their hearing has not yet been restored.

“ By some of our correspondents it is said that recovery from this disease has been rapid, and the subsequent state of health as good as usual. But the exceptions to these remarks are certainly numerous.

“ The attack of this disease has been described as sudden and violent ; but there are cases in which the ordinary symptoms occur in a slight degree, and increase gradually for hours and even for two or three days before the disease becomes very serious. We may also add in this place that in some parts of the country there were many persons who exhibited some of the symptoms of the disease such as local pain, and numbness, but who were not so much affected as to be confined.

“ In general our correspondents do not recognise this disease as having before occurred under their notice. Two gentlemen believe that they have in the course of many years seen a few cases of the same character. Six or eight cases occurred in Amherst in 1808.



“The replies to our questions respecting the diagnosis are not very full. It seems to be generally believed that the disease is to be distinguished only by attending to the combination and course of the symptoms. One gentleman states that the most general characteristics are ‘universal prostration of strength, and a depraved action of the sensitive organs.’

“It is very generally agreed that this disease is not contagious.

“Neither very young infants nor aged persons have been so subject to this fever as persons in middle life. In one town nearly all those affected were between eighteen and thirty years of age; but the same remark was not made elsewhere. By some gentlemen it is remarked that females are more subject to the disease than males; and this was true in Worcester, the only town from which we have received a list of the sick. Yet one gentleman states that it attacks more especially the most healthy and robust, male and female. Women in different stages of pregnancy have had severe attacks and have done well; but they have not all been so fortunate. Blacks are not exempted from the disease.

“To this part of our Report, which with a few alterations is the same as it was when read to the counsellors at their meeting on the second of May, we have now to add, that in cases of this disease which have occurred since the middle of April, as observed in Boston and Lancaster more particularly, some change has been noticed in the symptoms. Discharges of bile from the stomach, and foulness of the stomach and bowels, have become more common; and so also have hardness of the pulse and heat on the surface of the body. In many of these cases the bile has appeared in undue quantity and much altered in its character; its consistence very thick and tenacious, and its colour dark. In several fatal cases at Lancaster, and in two not fatal, a dark matter was thrown up, which was called ‘black vomit.’ Whether this matter was the same called by that name in the autumnal fevers of warmer climates, the committee are not assured.

“It appears also that in various parts of the commonwealth the common typhus is much more frequent than usual at this season of the year; appearing in many instances with its ordinary symptoms; but in others with a character more or less resembling the disease which we have described.” p. 128, 9, 130, 1, 2, 3, 4, 5, 6, 7.

As to the number of deaths by this disease, though the committee were unable to give an accurate statement, it does not seem to have been by any means as fatal as was formerly represented. Under the inspection of one physician in the county of Worcester, there occurred but two deaths in one hundred and thirty patients, under that of another, one death in upwards of fifty patients, and under another, one death in nearly one hundred patients. What a complete refutation of the accounts given in many of the public prints do these facts afford !

A general statement of the most common morbid appearances which appeared on dissection is next given. For want of room, we can only insert some few particulars. Soon after the patient expires, the skin assumes a formidable livid colour. This appearance is either generally diffused over the skin, or else it exists in spots commonly of an irregular form, but occasionally rounded. Wherever the cuticle has been removed by vesication, the skin is almost black and often covered by fluid blood. *Head.* When the cranium is separated from the dura mater the membrane usually discharges a considerable quantity of blood. The whole surface between the dura mater and tunica arachnoides is found to be quite moist with fluid, oftentimes transparent like water, sometimes quite red coloured. The longitudinal sinus is filled with blood, and great fullness of the veins on the surface of the brain exists. In some cases the two hemispheres of the brain adhered to the dura mater, near the longitudinal sinus, and to each other with so much strength, as often to require a laceration or incision through the substance of the brain, in order to arrive at the corpus callosum. The medullary substance exhibited a great

number of bloody points at the sections of the vessels, while the cortical part seemed paler than usual. The lateral ventricles always contained a notable quantity of water. The membranes at the basis of the brain presented the same appearances as at the vertex. *Thorax.* The heart generally exhibited some appearance of disease. In every instance the small vessels on the surface of the organ are beautifully injected. The right and left cavities usually contained a small quantity of black blood, and even the aorta has been seen gorged with the same dark coloured fluid. The lungs were not usually deranged. Their substance contained a very variable portion of blood. Their colour externally was an ill-looking purple, and the pleura over them seemed to be shrivelled and adhered to the diaphragm. *Abdomen.* The contents of this cavity have scarcely shown any marks of disease. The coats of the stomach were generally free from the slightest morbid appearance ; its contents had sometimes a resemblance to coffee grounds, or more nearly to brown soup, while in other cases they consisted of greenish mucus : each without any offensive odour. The whole tract of the intestinal canal was in a healthy state. The liver and spleen were distended in various degrees, and quite free from any morbid change, except an extreme lividness. The gall bladder was generally full of bile, which was sometimes of a dark colour and ropy consistence. The pancreas and kidneys presented nothing extraordinary. The bladder was commonly full of urine. The muscular substance, as well as all other parts which were filled and exhibited the colour of blood, were of a livid appearance, such as is not witnessed in other diseases.

From the several modes of treatment which have been

adopted, it does not appear that blood-letting and other evacuations usually made in the commencement of acute diseases were so generally practised. The lancet, however, has been employed, and the committee have cited particular cases, in their judicious remarks on venesection, in which it has been used with benefit. *Cathartics* were thought injurious, until the third day of the disease; *enemata* were sometimes administered. "In general, emetics have also been thought injurious on the first and second days; but in this respect the caution had not been so universally regarded." The most effectual manner, however, of treating the spotted fever, that which has been most generally pursued, is the *sudorific* method. We most cordially unite with the committee in their opinion on this subject. Many of the accounts published of the salutary effects of stimulants in this disease appeared to us no less incredible than the reports of its mortality. But we are fully apprised that many eminent practitioners have employed in some instances, the cordial, stimulating method with advantage. The experience of each day, however, throws additional light on the character of the disease, and we confidently believe that as its nature becomes better understood, the sudorific method will be more and more generally adopted. We cannot resist inserting the observations of the committee on this point.

"The practice which has been by far the most generally pursued, and considered of primary importance, is to produce early and long continued sweating. In many cases, especially mild ones, this has been very easily effected; in some severe cases it has been very difficult. The means which have been adopted for this purpose are very minutely detailed. The remedies are internal and external. The internal remedies employed have not gene-

rally been those now most commonly directed to produce diaphoresis in fevers, such as antimonials; and which appear to excite the capillary vessels without increasing the actions of the heart or large vessels either in force or frequency. Preparations of antimony particularly seem not to have been at all tried; but ipecacuanha, which resembles in its operation the preparations of that mineral, has been employed very successfully by some in combination with opium.

“ In general the internal remedies administered in this disease with a view to produce sweating have been those called cordials. The external remedies have been warmth and moisture, and such articles of cloathing as would more effectually confine both. The following is a summary of the directions commonly given on this subject.

“ The patient is first put into a warm bath, or his feet are bathed in warm water; then, being well rubbed, he is to be laid in bed between blankets, and bed cloaths added in proportion to his sensations, or to his actual temperature when his sensibility is very much diminished. Around him are to be placed bottles of hot water, or billets of wood heated in boiling water and wrapped in flannel; or he is to be wrapped in flannel wrung out of boiling water; sinapisms are applied to the feet; and he is to swallow frequently some warm liquid of the description given above, preferring to use the weakest which appears adequate to the particular circumstances of the case. The articles most commonly employed for this purpose are hot infusions of the leaves of mint, penny-royal, and other similar plants, wine-whey, wine and water, wine, brandy and other ardent spirits more or less diluted, camphor, sulphuric ether and opium. It is not generally thought useful to excite profuse sweating. To this there appears to be a very considerable tendency, when moisture is once produced on the skin; and some very judicious practitioners have thought it necessary to check this great evacuation by wiping and rubbing the skin with warm dry cloths. But it has been thought very important to maintain the perspiration in a moderate degree for a length of time proportioned to the severity of the case; that is from twenty to forty hours, and even longer in some instances. To maintain this process not only cordials, but nourishment is given, such as the patients stomach can bear; which in many cases is strong soup.

“ Under this treatment most commonly the violent symptoms and not very rarely all the appearance of disease have subsided. When relief has thus been obtained the diaphoresis must not be suddenly checked, nor must the patient be hastily moved from his bed. The skin should be allowed to dry gradually, or if very much loaded with moisture should be frequently wiped and rubbed ; but the patient should not be removed nor the bed cloaths shifted till the third day.

“ The administration of the articles mentioned has been regulated not merely with a view to promote diaphoresis. They are also thought necessary to excite the actions of the heart and large vessels and to produce warmth. In proportion to the necessity of the case, the strength and quantity of these articles have been increased or diminished. In many cases very mild cordials assisted by external heat and cloathing have been found sufficient to effect the purposes desired ; in others the most bold and liberal use of the strongest cordials has been thought necessary ; they have been borne in very large quantities, and it is said that life has appeared to depend on their effects. In administering medicines of this description the quantity has not been regarded ; the practitioner has measured the use of them only by their effects. In cases of extreme coldness, great torpor and frequent vomiting, ardent spirit has been given undiluted ; and when it would not remain on the stomach if given cold, it has been made hot. Under such circumstances a quart of brandy has been given in twelve hours. It should however be noticed that some of our correspondents who have been very conversant with the disease protest strongly against this liberal use of cordials ; and believe that much injury has been produced by them. In the lethargic state, which is, it is said ‘ the death state of the disease, unless a speedy change be produced,’ tincture of opium has been thought eminently serviceable. In cases which have been thought desperate, fifty to a hundred drops of this tincture administered every half hour “ have almost invariably removed the lethargy.” When deglutition has been rendered impossible by paralysis, opium has been administered in enemas with the most salutary effects. In cases of spasm also, opium has been given in large doses\* with the most happy consequences.” p. 146, 7, 8, 9.

\* In one case a scruple was given in the course of three hours ; in another forty-two grains in forty-eight hours.

*Vesication* on the back of the neck, or on the head, forehead and temples, has been followed by the most decidedly good effects. Blisters over the stomach have very successfully been employed to check incessant vomiting, and generally to remove the morbid irritability of that organ. The bark is too slow in its operation; what little use has been made of it, was attended with some benefit. Preparations of quicksilver have been exhibited, more particularly by a gentleman in Worcester, and relied on in cases where life was not immediately threatened. The quicksilver was combined with camphor, ipecacuanha, and opium. "This mode has been pursued until a slight affection of the salivary system has been produced. The success attending this practice certainly was not exceeded by that of any other; and, while pursuing it, the very liberal use of cordials has not commonly been found necessary." p. 151.

We pass over the accounts respecting the disease in other places. Its appearance in Connecticut in 1808-9, was taken notice of in the former number of the Register.\* For the learned disquisition on the name and character of the spotted fever we must refer the reader to the report itself.

As to the *predisposing* causes of this disease the committee do not take upon them to pronounce an opinion. They however expressly assert, that the suggestions that bad grain has been in any measure influential in producing the disease, are not corroborated by any evidence which they have received. The *exciting* causes appear

\* Vide the review of Dr. Strong's Dissertation in the Register for July. p. 87—95.

to be much better known. Errors in diet, exposure to sudden changes of temperature or to damp air, fatigue, watching, anxiety of mind, &c. are among the number mentioned.

To the report is subjoined the history of sixteen cases of the spotted fever, with a detail of the morbid appearances of six cases ascertained by dissection. These are extremely interesting and greatly enhance the value of the publication.

The second and concluding article of the present number is a dissertation on the progress of medical science, in the commonwealth of Massachusetts, by *Joseph Bartlett*. The circumstantial account which is here given of the increase of medical knowledge in the state of Massachusetts will be perused with much pleasure by every one who feels an interest in the prosperity of our literary and scientific institutions. We sincerely hope that this example set by Dr. Bartlett may be followed in this and other states of the union.







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## DOMESTIC INTELLIGENCE.

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*Description of the FEZZAN RAM, lately imported into New-York.—In a letter from Dr. MITCHILL to ROBERT R. LIVINGSTON, LL. D. dated New-York, August 27, 1810.*

(See the annexed engraving, by Anderson.\*)

DEAR SIR,

George Davis, Esq. one of our consuls for Barbary, has just returned from Tripoli. He has brought with him a singular sheep, who is safely landed, and the only survivor of several which that enterprising and patriotic gentleman attempted to introduce among us.

This creature has been the subject of so much conversation, that I have thought it worth while to view

\* This ingenious artist was formerly a practitioner of medicine of this city. Having qualified himself by a regular course of studies at the medical school of Columbia College, he received the degree of Doctor of Medicine, in 1796, on which occasion he defended an interesting inaugural dissertation on "*Chronic Mania.*" He then entered upon the duties of a profession of which he promised to become a distinguished member. The natural disposition of his mind, however, led him to abandon the practice of physic, and to direct his attention to a most useful and agreeable employment, that of engraving, particularly on wood. The numerous evidences he has already given of his proficiency in this art, by the execution of a *History of Quadrupeds*, which he published in 1804, besides many others which might be mentioned, fully justify all that has been said of this self-taught artist. The engraving which accompanies the present article, may be examined, we believe, as a specimen by no means unworthy of our American Bewick.

THE EDITORS.

him at pasture in Bloomingdale. Mr. Jarvis, our distinguished and excellent portrait-painter, made a sketch of the form, while I noted the characters by which it appeared to differ from most other sheep I had seen.

Looking up to you as the great merino-chief in these parts, I think you are entitled to early and correct information about every thing of a pastoral nature. I therefore forward you a figure of this animal, as done by Mr. Jarvis, from the life. I also send a sample of the fleece, which I was obligingly permitted to take. And I annex to the drawing and the specimen, a few words of description which will probably enable you to comprehend the breed to which it belongs.

This ram is a fine one of his race ; and of a variety, as I believe, not described by European zoologists. He is tall, and his long legs are covered with short hair. He has but two horns, which are spiral, and small for a male of his size. His front has a noble aquiline curve. There is a considerable tuft of his coating below his throat, and near his breast. There are fawn coloured and dark spots about his face and ears. The tail is slender, and reaches several inches below the heel or gambrel joint, being covered with short hair like the legs. The covering of his body is white hair, beneath which appears as you open it, a fine portion of wool or fur. The ears are pendulous. There is a groove or furrow in an oblique direction down the nose from the inner angle of the eye. But what is more remarkable than all is, that he has a *scrotum duplex*, and the testes instead of being inclosed in one skinny purse, are contained in two distinct pouches.

These, except the latter, are marks belonging to the ADIMAN, or *Sheep of Africa and India*, whom Buffon describes as being “a large race, with coarse hair, short horns, hanging ears, and a sort of dewlap and pendants under the neck.” This breed of the sheep, like all others, is subdivided into varieties, several of which are known to naturalists under the name of the *Senegal Ram*, the *Guinea Ram*, the *Angola Sheep*, and the *Barbary Sheep*.

The abovementioned distinguished naturalist of France, considers the ADIMAN as that variety of the domesticated sheep which approaches nearest to the state of nature, or to the wild *Moufflon*, whence he supposes both it and all the other tame species are descended. And he infers this from its size, strength, activity, and ability to subsist with less protection from man.

It ought however to be considered, that there are some varieties of the sheep not yet recorded in the books.— This appears to be one. And this ram, as an individual of a curious race, deserves to be carefully observed. The *divided cod* is a very striking peculiarity. And among sheep, as in dogs, neat cattle, and swine, new varieties are constantly forming. I hope some of our breeders will feel encouraged to make trial of his powers by crossing with the common ewes.

Yours, with high consideration and respect,

SAMUEL L. MITCHILL.

Letter from the Hon. R. R. Livingston to the Hon. Samuel L. Mitchill,  
in answer to the foregoing, dated, Clermont, 9th Sept. 1810.

DEAR SIR,

I thank you for your drawing and description of the Fezzan ram. I had before received from Mr. Davis and Mr. Dey samples of his fleece, but accompanied by no description of the animal. I from thence conjectured that he was probably the *Ovis Aries Guineensis*, or a cross between that and the Barbary sheep, because I found his wool much longer than that of the Guinea sheep that I had seen, as well as less fine. The Guinea sheep, at least such as I have seen, (one of which I now have) is without horns. The coat of hair is short, close, and fine, very like that of a horse. Beneath this, as the winter approaches, is formed a covering of short wool which is finer even than the wool of Spain; nor is the sheep so large as the Fezzan ram, though larger than our common sheep. The ram you describe is, however, sometimes called the *Ovis Aries Guineensis*, as forming one species of it, but is, properly speaking the Adiman, or ram of Angola, which is thus described by Valmont Bomare: "Adiman, ou Adem-Mim, on nomme ainsi une grande race de brebis a poil rude, a cornes courtes, a oreilles pendantes, avec une espèce de fanon ou de pendans sur le cou. Elle habite les contrées le plus chaudes de l'Afrique et des Indes; elle est connue des naturalistes sous le nom de Belier de Senegal, Belier de Guinie, brebis d'Angola. Elle est domestique et sujette a bien des variétés. Elle est plus grande, plus fort, et plus léger, et par consequence, plus capable qu'aucune autre de subsister par elle même," &c.

With its present coat, I do not see that it will be of any use except it be to raise a large race for the butcher ; it is possible that by crossing with fine woolled ewes, the hair may be eradicated. I am now making the experiment upon the crossing of a Guinea with a Merino sheep, though I have no great hopes from it. I have before me the several publications you mention. Dr. Mease's account of his sheep, &c. has set me to run over the book in which you saw the weight of all my fleeces entered. I have drawn from it several very important conclusions, which I had not before made, and as the entries were noted under the inspection of the most respectable witnesses, and some very jealous sheep-breeders, any mistake was next to impossible. I have sent them to Dr. Mease to shew that he has inadvertently done injustice to my flock, which is of little consequence to me, but of much to the public, who are deeply interested in knowing what a treasure they possess in sheep, who not only give the *finest*, but when duly improved, the *heaviest* fleeces in the United States. In enumerating my rams' fleeces he has omitted Jason's, that averaged 11 lb. 11 oz. He states the weight of my ewes' fleeces at from *four* to *five* pounds, when in fact the general average of *all* my full bred ewes at the last shearing was five pounds thirteen ounces. These facts, with what I shall add, are very important, since they carry with them the most conclusive evidence, that the merino sheep of the improved breed, actually give *more* wool than such of the long woolled sheep which have as yet been publicly exhibited in the United States. No gentleman that I know of, has imitated my practice and published the average produce of their *whole* flock, but have generally stated the produce of a few selected sheep. To compare mine with theirs, I must therefore

follow their practice, and select an equal number from my breeding flock ; the result will be greatly in favour of the Clermont merinoes. Eight of Col. Taylor's fine ewes are stated to have given sixty-two pounds and a half of wool. Eight of my ewes, having lambs at their sides, gave as follows :

No. 1	- - - - -	8 lb. 12 oz.
2	- - - - -	8     6
3	- - - - -	8     4
4	- - - - -	8     0
5	- - - - -	8     0
6	- - - - -	7    14
7	- - - - -	7    14
8	- - - - -	7    12
		<hr/>
		64    14

which is nearly eight pounds two ounces average. The average upon twenty-four of Col. Taylor's long woolled sheep was a little more than five pounds. (It is not said whether they were all ewes.) This falls short of the general average upon *all* my full-bred ewes thirteen ounces per head, and is not equal by some ounces to that of my whole flock of the full and mixed merino-blood ewes, to the number of two hundred and thirty-eight. The average on ninety-six ewes and four rams of different grades, was six pounds ten ounces. There are few flocks of long woolled ewes in England that yield a greater average weight than this. And considering how much cleaner they are than the French flocks that feed on fallows and are folded at night, they do not fall far short of the Rambouillet flocks. Mine never run on any but the cleanest grass grounds, are never folded in summer, and during the winter are plentifully supplied with litter. As the inferior grades have lighter fleeces than the full bred, I have no doubt that when my whole flock are seven-eighths,



and upwards, they will average upwards of seven pounds, particularly when I have a sufficient number to begin to sell off the worst, as is commonly done at Rambouillet. Already, taking the weight of the fleeces of *one third* of my full bred and seven-eighth ewes, I find that at the last shearing they yielded me one with another *seven pounds three ounces and twelve penny wt.* And as they are in a progressive state of improvement, owing to their advance in blood, and the selections I can now make of rams, I have no doubt that if they meet with no misfortune, they will at the next shearing yield a greater quantity of fine wool than can be shorn from any long woolled flock of equal numbers in the United States.

That the wool is of the first quality is allowed by all that have compared it with the samples of wool that have been produced from various flocks, and even with the celebrated wool of Dr. Parry, which is, like mine, much longer than that of any of the sheep imported directly from Spain. Dr. Mease was so kind as to shew some samples I sent him in the year 1809 (since which the staple has improved) to the members of the cattle society at Philadelphia, who all (as he writes me) declared that they never had seen such beautiful samples; that it had a length, a silkiness, and a wavy appearance which they had not found in any other. And indeed, this might have been inferred not only from the avidity with which it is purchased by manufacturers at two dollars the pound in the grease, but from its being equal to that of any imported Rambouillet sheep, and in some individuals finer: and these sheep are admitted to have the finest as well as the heaviest merino fleeces in Europe. The estimation in which they are held may be inferred from a letter which I have lately received from Mr.

Delessert, (who sent over Don Pedro and keeps a very fine flock near Paris.) In this letter he informs me that the price of the pure merino sheep in France is from two hundred to three hundred franks, but that choice rams of the Rombouillet stock sell as high as fifteen hundred pounds. It is a very extraordinary fact that the price of these sheep, has been rapidly advancing as the numbers of imported merinoes and those bred from them have increased.

You wrote to me on the subject of sheep, and you see my dear sir I have repaid you with interest. But you know that since I have relinquished political pursuits, I have become more ardent in those in which an old man may be indulged, and by which he may possibly render himself useful. Among these you may rank my desire of improving the manufactures of our country, and as the basis of them, the improvement of our sheep. To this end it is necessary that every prejudice should be removed, and our farmers convinced that the merino sheep, by care and attention in the choice of their rams, may be made to produce *more fine* wool than they can obtain of *coarse wool* from other races. I draw this inference from my own flock, because I know too little of any other to speak with certainty, and because I can refer to your evidence, and that of a number of the most respectable witnesses, for the accuracy of my statement. I am to thank you for your analysis of the Schooley Mountain water, and your pleasing and philosophical account of the country in its vicinity.

I am with much esteem, dear sir,

Your most obedient humble servant,

ROBERT R. LIVINGSTON.

SAMUEL L. MITCHILL, Esq.

*The Yellow Fever of Brooklyn in 1809.*

The following remarks of Dr. Rodgers on the report of Dr. Gillespie, published in our last number, are taken from the "New-York-Medical and Philosophical Journal and Review," in which work Dr. Gillespie's Report was given as an original article, without acknowledging the source whence it was copied. Subjoined is Dr. Gillespie's answer to Dr. Rogers, and some observations by the Editors of the Register close the subject.

*To the Editors of the New-York Medical and Philosophical Journal and Review.*

GENTLEMEN,

Being informed that you will insert in your Journal of this month the report of Dr. Gillespie on the yellow fever which prevailed at Brooklyn in the summer of 1809, and published in the Medical Register, I have taken the liberty to make a few remarks on the variance of facts, as stated in that report and the one made by me to the Board of Health last autumn—and to confirm what I had before advanced.

Dr. Gillespie says, that the Concordia sailed from Havanna about the beginning of June, "at which place," he is "credibly informed by three respectable persons now in this city, the yellow fever raged all last winter and spring," &c. To this I reply, that the Concordia left the Havanna the 28th of May; and, without impeaching the credit or veracity of Dr. G.'s informants, declare, that, from the affidavits of ten masters of vessels, sailing at different times from Havanna, it appears that the Havanna was perfectly healthy the whole of the months of March, April, and May. I have even one affidavit of Havanna being healthy on the 2d of June, and of its being so on the 12th, though it was then sickly among the shipping. This intelligence of the shipping being sickly made us interdict the communication between Havanna and New-York before it was sickly ashore. If Dr. G.'s informants are right, then have ten masters of vessels deliberately perjured themselves; but we are not to suppose this latter circumstance. And yet Dr. G.'s informants still have related what they heard, though their information might have been incorrect. It

is from the oaths of masters of vessels that I have said, and do believe, that the Havanna was healthy when the Concordia sailed.

In order to inculpate shipping, Dr. Gillespie says that, of the patients first taken, “ *eight* can be traced to persons having connection with different ships.” This is the truth, but not all the truth: these persons had worked on board of ships, *but not of infected ships*—the ships they had worked on board of were the *Alligator*, the *Brutus*, and the *Phæbe*, neither of which was sickly, or had come from any foreign port, or had impure materials on board. *Not one of them had been on board of the Concordia, or had any connection whatever with any one who had.*

Dr. G. goes on to state, that Mrs. Spencer died on the 10th of July, and was a sailor’s washerwoman, “ and died in one of the dwelling-houses nearest the Concordia.” No particular use is made of this observation, nor any direct inference drawn from it: the reader may, if he please, suppose that Mrs. Spencer washed some clothes of the Concordia, or had been on board—neither was the fact—she never had any connection with the ship. Mrs. Spencer was the wife of a man belonging to the navy-yard, and washed clothes for the seaman belonging to the Wallabout. On her death-bed she was asked if she had been on board of any ship? She replied, that she had been on board the Brutus, to inquire for a man for whom she was bound, but no other, and had only stepped on to the deck and directly back again. Now, the Brutus did not lay near the Concordia, and was healthy; nor did the proximity of Mrs. Spencer’s house to the Concordia do her any harm. There were houses and shops, constantly worked in, much nearer the Concordia than Mrs. Spencer’s. It deserves to be remembered, that the people living in the houses and shops nearest to, and *immediately facing the Concordia*, and having most communication, *namely, the only people of the village who had communication with this ship*, were wholly and entirely free from disease.

The last point of variance of fact between Dr. G. and myself is respecting the persons who had communication with the Concordia. In the 8th page of his letter, and last paragraph, he says, that “ it does not appear that any of them went down into her hold, or remained any considerable time in the cabin, or eat or slept on board.”

It has been shown in my report, that the *mate* and *three* seamen lived constantly on board, eat and slept there, and continued well. It appears also, that at least *twelve*, if not more masters and mates of vessels, were in the habit of going very frequently on board, and that they often staid till late at night, so as to make long visits, and stay a considerable time aboard. These were all in the cabin, and the strong probability is, that they eat and drank very often on board: these all continued well. Let it not be said that they took infection to the village of Brooklyn—they did not live in Brooklyn, but went directly to their houses in New-York, and their families all continued well. It appears that *two* men cleaned out the limbers of the ship, and if there had been any filth in the ship would have suffered first: they have continued well. The wharfinger and his son were often on board, in the cabin. It appears then, that *twenty* persons at least were very frequently on board at Brooklyn, and not one has suffered. More than *seventy* persons had communication with the Concordia from the time of her arrival at New-York till her leaving Brooklyn, and have continued well. Although no one pretends that any injury arose from Nathaniel Mullen, yet a certificate is given respecting him, to prove the importation of his disease. Mr. Barker states, that Mullen told him, during the short time he saw him, “that he (Mullen) had the fever which he brought from Havanna.” Nothing is said of Mullen previous to this. We know, however, that Mullen was in perfect health the whole of the voyage, and till the 29th of July. He left the ship directly coming to New-York, and, after a week of carousing, and spent in the usual apartments of sailor lodging-houses, he returned to the ship on the 28th of July, *excessively drunk*. He was in that situation all that day, and lay on the open deck, exposed to the heat of the sun; the night after, still intoxicated, he lay on deck exposed to the air and dew. In the morning of the 29th he awoke with a violent and raging fever. From such violent exciting causes we, of necessity, expect violent effects. On the 30th, without any proper attempts, that we know, to help him, he was taken to Mrs. Smith’s, at Brooklyn, and there he died early on the morning of the 31st. With this state of facts before our eyes, and with such a knowledge of the predispositions of the patient, and of the exciting cause of his disease as we now have, we must conclude, that it would be next to a miracle if he had possessed his reasoning powers when he spoke to Mr. Barker. It appears, by the certificate of this person, that he was under great apprehension of danger, and refused to go a second time into Mullen’s room, which he had been in but for a short time. It is very presuma-

ble that his state of mind and shortness of visit made him misapprehend what Mullen said to him. It deserves notice too, that nothing of this kind was said either to the physician or nurse, who were with him constantly.

But Mullen could not have brought the disease from Havanna in his own person: he had been thirty days and more from the Havanna, and during that time been perfectly well. Now, it is allowed that febrile contagion will not rest on a clean and healthy subject so long a time without showing itself—the theory of our health laws, and the practice founded on them, is in conformity with this opinion.

Upon the whole, it appears that no evil whatever arose from Mullen, and that no charge against the Concordia is substantiated; for she had no foul or impure materials on board—no person who had ever communication with her, either at New-York or Brooklyn, was in the slightest degree indisposed; nor had any of those who died at Brooklyn any connection with any person who visited her.

I have abstained from any other remarks on Dr. G.'s letter than what were immediately connected with my report. I refer the candid reader to the report of the Brooklyn Board of Health of last summer, the letter of Dr. E. F. Smith, and the report made to the Board of Health last autumn.

With respect, I am gentlemen,

Yours, &c.

August 22, 1810.

JOHN R. B. RODGERS.

*To the Editors of the American Medical and  
Philosophical Register.*

GENTLEMEN,

I have just seen in the last number of the New-York Journal a letter from Dr. John R. B. Rogers, formerly health officer of this city, in which that gentlemen has undertaken to “make a few remarks on the variance of facts,” stated in my late report to the board of health on the yellow fever which prevailed at Brooklyn in 1809 and those in his own report on the same occasion

and to "confirm (as he says) what he had before advanced." After an attentive examination of this letter, I feel it to be a duty which I owe to the public, to the cause of truth, and to my own character, to answer it through the same medium which contained my report.

Long before that report was completed I had seen and considered the report which had been made by the health officer for the purpose of vindicating himself from the charge of negligence, in permitting the ship *Concordia* to leave the quarantine ground before it was safe and proper; a vindication, which, it must be allowed, was looked for by the citizens of New-York after their Board of Health had determined that it was necessary she should return again to that place, in order to be cleansed. How far the health officer succeeded in that vindication, I was perfectly willing to leave every reader to judge for himself, unbiassed by me. In my statement of facts, I therefore passed over the doctor's report unnoticed; certainly believing that in so doing, I was consulting his tranquillity, and little imagining that he would ever think of entering into a controversy with me on this delicate subject. I have, however, been mistaken. The doctor persists in his former assertions, and he treats all evidence that disproves them, with a levity, more suited to a less important occasion.

In my answer to Dr. Rodgers I shall be as brief as the subject will permit, and with this view, I shall confine myself to what only, I consider facts of moment; leaving less interesting ones unnoticed.

That the yellow fever prevailed in the village of Brook-

lyn in the summer of 1809, and did not prevail in the city of New-York, eight hundred yards distant, across the river, is a fact now admitted by every one. The only question, therefore is, whence did this fever originate? In Brooklyn; or was it imported thither, in the same manner that small pox and other contagious diseases are imported? On this question, Dr. Rodgers and myself are at issue, before the public; he asserting that it originated in that village, and I being fully of opinion that facts shew it was brought there from abroad.

In my report to the board of health I stated, that the ship Concordia lay at a wharf in Brooklyn near which the disease first appeared, and to the neighbourhood of which it was almost exclusively confined; that the Concordia was from the Havanna; that the yellow fever "prevailed" at the Havanna, when she left it, as well as for four months before; and lastly, that the very first case in Brooklyn had been traced to one of the hands of the Concordia, who died with it, and who declared in his last illness that it was the yellow fever which he had brought with him from the Havanna. Such are the facts which I have stated in my report, and on which I rely. Can Dr. Rodgers disprove them? If he can, he may congratulate himself on the success of his efforts; if he cannot, the conclusion, to my understanding, is inevitable. Let us proceed to these facts in the order in which they stand.

*First.* The Concordia lay at a wharf near which the disease first appeared, and to the neighbourhood of which it was almost exclusively confined. The Concordia lay at Sands' lower dock, and I have been at the trouble to procure a reputable surveyor to make a survey, and even



a map of that dock and the adjacent neighbourhood, in which the fever prevailed ; from the inspection of this map now in the possession of our board of health, it appears, as stated in my official report, that “ the disease was, from beginning to end, almost exclusively confined within a circle of two hundred yards diameter from the Concordia.”

*Secondly.* The Concordia was last from the Havanna, which she left on the 28th of May, and arrived here on the 17th of June ; these are facts admitted by Dr. Rodgers himself.

*Thirdly.* The Havanna was a sickly port when the Concordia left it. On this very important fact the doctor and myself are at issue ; I asserting that the yellow fever prevailed at the Havanna all last winter ( 1809 ) and spring, until the time when the Concordia left it, and Dr. Rodgers asserting, “ on the affidavits of ten masters of vessels, that the Havanna was *perfectly healthy*, the whole of the months of March, April and May ;” and on the affidavit of one, “ that it was so on the 2d and 12th of June ;” though he admits “ *it was then sickly among the shipping.*” It is of the last importance to the question before the public to ascertain which of us is correct. I cannot but lament that the doctor has contented himself with barely stating the amount, or rather his ideas of the amount of the ten affidavits of these ten captains, without affording us the sight of a single one of them, that we might read and judge for ourselves ; because it sometimes happens that oaths as well as narratives declare one thing and mean another, which is often discoverable on a little examination. Besides, the oaths of sea captains under the dread of performing quarantine and deter-

mined if any way possible, and almost at all hazards, to avoid it, are certainly no better than the oaths of partial and highly interested witnesses, and always to be received with suspicion. And that they ought to be so received has been proved in every case of this sort I have ever seen investigated. Again; these oaths can at least be but negative. The disease might exist at the Havanna and the captains never hear of it, or hearing, might not believe. Lastly, the law as it stands, leaves an opening for the captains to swallow their oaths with tolerable safety, by the loose terms in which it is couched. It does not require them to swear that the yellow fever did not *exist*, in the port, at their departure, but that it did not "*prevail*" there. Now what is *prevailing*? Does it mean that the disease extends itself over the whole place, or what does it mean? Ask these ten affidavit-makers and they will probably give you ten different opinions, and every man swore according to his own. Such is the nature of the testimony, of which Dr. Rodgers relates, at second hand, the *amount*, according to his conception of it. Is it such, I ask, as ought to satisfy the public?—Let us turn to the evidence on the other hand.

In the first place I present that of Muller; a species of evidence, which even in courts of justice, and in capital cases, is received with equal solemnity, and considered as entitled to equal credit as if delivered under oath. Muller before his death, told Mr. Gilbert Barker, that "he knew he should die, for he believed *he had the fever which he brought from the Havanna.*" Here is the evidence of one under the awful impression that he was soon to launch into eternity, and who could have had no earthly motive to deceive any body on this point. It is full, plain,

and explicit. Let me ask if it be possible to believe that this dying man could have made use of the above words, that he could have supposed he had brought the fever from the Havanna, if no fever was there at the time he sailed? This evidence alone must overpower the most obstinate incredulity.

But in confirmation of this evidence of Muller, I now introduce the following letter of a gentleman of this city, who happened to be at the Havanna at the period in question, and who therefore is qualified to speak, of his own knowledge, as to its precise situation.

New-York, Sept. 13th, 1810.

SIR,

In answer to your inquiries respecting the health of the Havanna in the spring and summer of 1809, which you formerly put to me and now repeat, I have to inform you now as I did then, that I was at that place from the 17th January to the 23d May, during which period several Americans died at different times, after a few days of fever, which we, Americans, believed to be, and called the *yellow fever*; but no alarm was occasioned thereby. On the 23d of May, I left Havanna, and returned there the 16th July, when I found the fever had increased, particularly among the shipping, and the alarm had now become great, owing to the number of sudden deaths and the warmth of the weather. On the 23d July, I left the Havanna.

During the above period, from January to May, several Americans, and some of my own acquaintances, were on the list of deaths, and it cannot be denied that they died with every symptom of what we here call the *yellow fever*.

With respect your obedient servant,

DR. GILLESPIE.

A. J. ADRIANCE.

On this letter I shall make no comments. None can be necessary. It is precise, positive and satisfactory. That the yellow fever then, prevailed at the Havanna before,

and at the sailing of the *Concordia*, I consider as now established beyond contradiction. Dr. Rodgers may still assert, if he chuses, that it was “*perfectly healthy*” at that period, and if he can find people willing still to believe the assertion, in the face of evidence to the direct contrary, he is perfectly welcome to the benefit of such adherents.

The next fact of importance on which we are at issue is the statement I made, that Drs. Ball and Wendall had certified in the public papers, that “of their patients *first* taken, (and they had observed the *first* case,) *eight* could be traced to persons having connection with different ships.” Dr. Rodgers now changes this into a certificate made by myself, and this he does with the express view of charging me with a suppression of truth, for the purpose of “inculcating the shipping.” “This,” says he, “is the truth, but not *all* the truth.” If there is a suppression chargeable to any one, Dr. Rodgers could not be ignorant that it is to Drs. Ball and Wendall, and not to me, who have made no certificate whatever. But since I am engaged, once for all, as I hope, in discussing this subject, I will answer for these gentlemen, and shew that, in *this* instance at least, neither have they been guilty of suppression.

Dr. Rodgers proceeds to make out his charge thus: “These persons had worked on board ships, *but not of infected ships*—the ships they had worked on board of were the *Alligator*, the *Brutus*, and the *Phæbe*, neither of which was sickly, or had come from any foreign port, or had impure materials on board. *Not one of them had been on board of the Concordia, or had any connection whatever*

with any one who had." If, then, I can understand the doctor, the criminal suppression consists in Drs. Ball and Wendall having omitted to declare that the ships were *not infected ships*, which the doctor himself very fearlessly does. I here sincerely confess myself at a loss how to proceed, or in what terms to express myself. What? does Dr. Rodgers venture to hope that he can dispose of important facts in this unceremonious manner? How can he assert that "not one of the first eight cases had any connection whatever with the Concordia," when the very first of the eight, Muller, was one of her hands, who was carried ashore with the fever upon him, and died of it? Nor is he correct in asserting that neither of the three other vessels mentioned had any impure materials on board. If we turn to his own report to the board of health, we shall there find that two men were taken sick working on board the *Phæbe*, and that one of them charged her with having *foul ballast*; in which, to be sure, he thinks the man must be mistaken, but as to which many others might think very differently. For my own part, I must be allowed to believe that the man who was made sick by foul ballast, must be more likely to know whether it was foul or not, than the health officer residing at Staten-Island, who never saw it; nay, who, in his report, confesses, in so many words, that he "was not prepared to say what was the state of her ballast at the time the two men worked on board." And yet he now so far forgets himself as to assert positively that there were "*no impure materials on board.*" Let me, then, ask what becomes of the doctor's charge of suppression? Of the four vessels named, as being those to which the first eight cases are traceable, one is shewn, at least, to have had foul ballast in her hold; and the other is proved to have come last

from a port where the yellow fever prevailed at the time of her departure ; one of whose hands was first seized with it at Brooklyn, and died with it in its worst forms. And now I am charged with keeping back part of the truth for the purpose of inculcating the shipping, because I did not add, what I did not believe, nor can believe, that *none of the shipping was infected.*

The first case among the inhabitants was that of Mrs. Spencer, a sailor's washerwoman, who died on the 10th of July, and whose death created some alarm in the village. Here Dr. Rodgers again deals in round assertions, and he heaps one upon another as if he thought that assertions were equivalent to testimony. He tells us that Mrs. Spencer washed for the seamen at the Wallabout, and never washed for any of the seamen belonging to the Concordia, and that on her death-bed she said she had been on board the Brutus once, but no other vessel. The doctor gives us all these assertions, and challenges our belief of them, without even deigning to inform us whether he makes them of his own knowledge, or whether it is only hearsay, or hearsay of a hearsay. I take the liberty of opposing to these assertions such circumstantial evidence as I could procure. The following is an extract of a letter from Mr. Millward, Jun. " I knew Mrs. Spencer, the washerwoman, whose death occasioned the first alarm in the neighbourhood. I was present at the ship Brutus *when she took the mate's cloathing on shore to wash.* Whether she also washed for the Concordia I do not know." This is introduced merely to shew that she did not confine her washing to the seamen of the navy yard. The following is the testimony of Mrs. Spencer's next door neighbour and most intimate friend.

“Eleanor Hubbert declares on the Holy Evangelists, that the following statement which she voluntarily maketh, is, to the best of her belief, true: viz. That she very well knew Mrs. Spencer, as washer woman who lived at the lower end of Fisher’s Lane, Brooklyn, near the east river, and who died there of the yellow fever about the 10th of July 1809, during whose sickness this deponent visited her very often; that this deponent doth not know whether Mrs. Spencer washed clothes for any persons of the ship Concordia or not, nor does she believe any person can undertake to say whether or not this was the case, as she believes none were more intimate with her than herself; although she thinks it highly probable she did work for some of the people of that vessel, as this deponent, who then lived within one door of her did, on application from the mate of the Concordia, wash for him several times. The house in which Mrs. Spencer lived and died was occupied as follows: below stairs Michael Harvey and his wife who kept a dram shop or tavern; above Wm. Cutler and his wife; in the room adjoining Mrs. Spencer, making in all five persons, of whom four died of the yellow fever: viz. Mrs. Spencer, Mr. and Mrs. Cutter, and Mrs. Harvey, all of them after Mrs. Spencer\* who was the first case in Fisher’s lane, which soon after became very unhealthy, in consequence of which this deponent and most others removed.

(Signed)

ELEANOR HUBBERT.

Sworn to before me this 19th day of September, 1810. Signed, BEN LEDYARD, Not. Pub.

The doctor next asserts, that “the proximity of Mrs. Spencer’s house to the Concordia did her no harm.” This, with the doctor’s leave, is only a very simple method of begging the question. The doctor also asserts, that “there were houses and shops constantly worked in *much nearer* the Concordia than Mrs. Spencer’s.” Now I am certain, that in this instance, at least, the doctor speaks entirely from hearsay. If he will be at the trouble to inspect Loss’ map, deposited in the health-office, he will

\* W. Cutter was seized July 16th, and died July 22d. Mrs. Catharine Cutter and Mrs. Harvey died on the 6th of August.

find that he has been imposed upon. He will see that Mrs. Spencer's house is only opposite the way to two wooden buildings under one roof, which alone are a few feet nearer the Concordia; and he will also find, upon inquiry, that only a single shop was worked in of all those he refers to; the rest stood unoccupied. The doctor closes with saying, that "it deserves to be remembered, that the people living in the houses and shops nearest to, and *immediately facing the Concordia,*" "were wholly and entirely free from disease." There is but the above double house that can be said "immediately to face the Concordia," and to be nearest to her; that house was then occupied in one part by a man and his wife, with three children, who all left it soon after the alarm began; but in the part occupied by M'Gee, four persons were attacked with the yellow fever, and two of them died of the disease. I cannot but hope, therefore, that when the doctor comes to discover that in the facts he thus presses with so much emphasis, the direct contrary of all he has stated is the truth, it will suggest to him the propriety of observing a little more caution how he lends his credulity to the assertions of others, or, at any rate, how he adopts them and gives them to the public as his own.

The last thing I shall take notice of in the doctor's letter, is the ingenious method he takes to escape from the testimony of Muller; for as to his repeating over again so carefully the great number of people who were on board the Concordia at different times, even were it all true as stated by him, and as I have no doubt was stated to him, I must consider it, and I think every person conversant with the nature of the disease in question will consider it, as of very little moment. In answer to Mr. Barker's cer-



tificate of what Muller said to him, the doctor observes, that Mr. Barker "was under great apprehension of danger," and it was "very presumable that his state of mind and shortness of visit made him misapprehend what Muller said to him." This, to be sure, is a very short and easy way of getting rid of evidence, and if admitted, there is no longer any such thing as proof in existence. But, adds the doctor, "It deserves notice, that nothing of this kind was said either to the physician or nurse, who were with him constantly." It indeed deserves notice, that we have here the doctor's bare assertions once more, and only his assertions; but neither evidence nor presumption to support it. Who was this nurse, and who this physician? I should be extremely glad to see them. The physician, indeed, I happen to know, and I also know that from certain motives he will make no disclosures whatever. I only wish he would. If he would tell all he knows, there would soon be an end to all controversy about the origin of this disease in Brooklyn. As to the nurse, I venture to assert that Muller never had a nurse. Indeed, that there can be no room whatever for this statement about the nurse or the physician, appears from the certificates of Mr. Barker and Mrs. Smith, as given in my report to the board of health. Again, I have been assured by Mrs. Smith herself, and also by some other persons, that no one was with him even at the time of his death. While they were conversing below with the physician, a noise was heard in his room; they hastened up stairs, and Muller was found dead upon the floor, about two yards from his bed, out of which he had risen: one of the most decisive evidences of the disease of which he died. And, after all, supposing, for a moment, that Muller's declaration was not heard by the nurse and physician, it would

be, at best, but negative evidence, and could not invalidate the positive testimony on the other side. But the doctor has an argument in reserve which settles the whole business at a blow, viz. that Muller *could not* have brought the disease from the Havanna in his own person, because he had been thirty days and more from that place. If he *could not*, then it is pretty clear that he *did not*: but is Dr. Rodgers now to be informed, that nothing is more common than for sailors from a sickly place to retain their health during all the voyage, but to become sensible of disease shortly after reaching port and breaking bulk? This is a fact of which, I believe, few medical men are at this time of day ignorant.

However, I now state for the satisfaction of Dr. Rodgers, the following facts, copied by myself from the present health officer's book, which he was polite enough to submit to my examination. The schooner Richard arrived at the quarantine ground July 30th, 1810, from Porto Rico, after a passage of seventeen days, with a cargo of fustick and cotton. She reported that she was from a sickly port, and of course was detained, although, to appearance, she was extremely clean in all respects and in every part. She had lost one seaman on the 20th of July, after a fever of nine days, and two others, who were at the same time unwell, recovered. She was thrown down to be sheathed, and David Bell, one of her seamen, apparently in perfect health, was employed to work upon her, which he did until August 19th, when he was seized with fever, twenty days after his arrival. On the morning of the 21st, Bell was received into the hospital, where he died in about an hour with black vomit and other unequivocal symptoms of the yellow fever. On this case,

so similar to Muller's, I shall merely remark, that whatever may have been pretended of nuisances at Brooklyn, capable of generating yellow fever, no one has ever gone so far, nor I presume ever will, as to impute such nuisances to Staten-Island, always so clean and so salubrious.

On the whole, I must still retain my first impressions: that it is satisfactorily accounted for why the disease in question did prevail in Brooklyn, by the fact that a vessel from a port where the same disease prevailed at her departure, and for a long time before, lay at a wharf in Brooklyn until she was ordered back by the board of health; and on the other hand it is equally satisfactory to account why it did not prevail in New-York at the same time, in precisely the same climate, with precisely the same degree of heat and moisture, and certainly with streets and wharves far less cleanly, namely, because neither that vessel nor any other similarly situated was permitted to approach the city.

I have now disposed of every thing I thought at all material in Dr. Rodgers' letter to the editors of the *Journal and Review*, and will thank you, gentlemen, to give that letter a place along with this, in your next number, leaving it to the public to decide upon the evidence before them, and the arguments that have been offered on both sides of so highly interesting a question.

I am, &c.

J. D. GILLESPIE.

*Observations by the Editors.*

Hitherto we have abstained from making any observations on the interesting subject before us; chusing first

to put the reader in possession of all the facts that could be collected by industry on both sides of the question. Those facts are at length presented to the public, and probably some observations may now be expected from the editors.

It must be in the recollection of all who took particular interest in the controversy respecting the origin of the yellow fever in Brooklyn in the summer of 1809, that those who maintain the theory of domestic origin, failing to find any adequate causes for the appearance of such a disease, at such a place, in such a season, denied for a considerable period, that it was the yellow fever, or indeed, any epidemic whatever. It was the common bilious remittent : it was even dysentery ; in short it was any thing, but what it proved to be. To account for the appearance of yellow fever, by appealing to the thermometer to show the high degree of heat, or the barometer to show the great degree of moisture, was here utterly in vain ; because it so happened, that the city of New-York, only separated by a river of eight hundred yards in width, was exposed to the same heat and to the same moisture, and yet continued entirely exempt from the disease. Climate, then, or "*constitution of atmosphere,*" as they sometimes call it, in this instance, at least, as in that of the Wallabout, could have no agency in producing it. It was therefore denied that the disease which was daily becoming so fatal and so alarming, could be the yellow fever. At length, however, facts appeared too strong ; and the existence of the yellow fever at Brooklyn was admitted by every body, with the exception of a single domestic gentleman of the faculty, who still continued to believe it was dysentery. Heat, moisture, and filth being their grand agents to pro-

duce yellow fever in our country, and the two former unhappily failing to account for it, nothing now remained for the domestic theorists but to find out that Brooklyn was a more filthy place than any part of New-York : it being declared by the editors of the Medical Repository, that “ nothing but an extraordinary assemblage and concentration of nuisances in Brooklyn could account for the prevalence of this disease in a season of such *unprecedented* mildness.” Thus a decision was pronounced on evidence afterwards to be discovered. The superstructure was raised, and then materials were to be sought after to lay the foundation. Accordingly Mr. Ephr. Fitz R. Smith, a young gentleman of the faculty, was dispatched to Brooklyn on an errand of discovery ; to lay his hand upon this same “ assemblage and concentration of nuisances” wherever he could find it, in the streets, or alleys, or cellars, or yards of Brooklyn. Dr. Smith was successful beyond his most sanguine wishes. He returned and drew up a statement of his discoveries in a letter to the health-officer. He had discovered in Brooklyn “ a very crooked lane,” leading down to the wharf where the disease first appeared, through which lane the water sometimes ran freely, and sometimes when obstructed, not so freely, as was very natural for water to do : he also saw a cellar of an unoccupied house, which contained animal and vegetable substances, under water to be sure, but still “ a fermentative process he says, was so perceptible to the eye, that the surface was covered with bubbles, continually *bursting*, and emitting a gas intolerable to the smell :” on which he takes care to observe to the health officer, that he, the health officer, can readily conceive that “ *thousands* of poisonous vapours might exhale from the cellar and not only a small village but a large city might be infected by such a cause.” Dr.

Smith also discovered that in the above crooked lane there were several stables very dirty and offensive to the smell ; and lastly, he found a distillery, and, on *inspection*, he declares, he also found that “ the owner of this distillery kept a number of swine which were fed from the gleanings of the still-house, and an *immense* mass of filth lay directly below their pens.” Such is the amount of Dr. Smith’s discoveries, as stated in his letter ; and on this letter Dr. Rodgers appears to place much reliance. Where it of consequence, it would be an easy matter to shew, that, unfortunately for the two doctors, these nuisances, and the cases of yellow fever did not go together. In the house over the cellar, so minutely described, no person lived : in the house adjoining, no person was taken ill : but in the house adjoining that, Mrs. Spencer, who was first seized, occupied the second floor, while those occupying the first floor nearest the cellar, were only taken ill after her death : but neither is it ascertained that the cellar of this house was at all filthy. An important fact, however, which Dr. Smith omitted to state is, that this house stands within eighty yards of the Concordia. Another equally important fact is, that in the house opposite, and a few yards nearer the ship, four persons sickened, two of them died ; although the house (Mrs. Magee’s) had no cellar whatever belonging to it. So much for the fermentative process in the cellar exhaling *thousands* of poisonous vapours. As to the stables and the pig pen, we venture to believe this is the very first time that the yellow fever was ever seriously attributed to such sources. If this be any thing more than fancy we cannot conceal our surprise that in all the livery stables in this city, and in all our slaughter houses with their pig pens annexed, no one, neither master, servant, or visitor has ever yet been suspected to have

caught the yellow fever. One would have thought that his Lancisi would have informed this gentleman better. If he will turn to that learned and industrious writer, he will find that so far from considering such places as the causes of disease, he maintains directly the contrary; considering them as promotive of health. Nor is he alone in this. It is a commonly received opinion.

Next to Dr. Smith's discoveries, Dr. Rodgers places his reliance on the report of the Brooklyn committee of health. "The supposition," he observes, "that the yellow fever might be produced in Brooklyn this season, is strengthened into *firm belief*, when we consider the report of the Brooklyn committee." And as the editors of the Medical Repository (a work so much devoted to maintain the doctrine of domestic origin) also place great reliance on this same report, it may not be amiss to present it to our readers entire.

"The late calamitous situation of this village points out the absolute necessity of removing nuisances of every description, until proper authority be appointed for that purpose. With respect to the nature or origin of the disease, your Committee do not conceive themselves qualified to determine. It may not however be improper to observe, that the machine for cleaning slips, &c. belonging to the Corporation of New-York, was, about the beginning of July, employed in cleansing the New Ferry Slip, and the contents thereof exposed to the direct rays of the sun, which, for some days, emitted so great a stench as to become extremely offensive to the neighbouring inhabitants, and compelled them to apply to the Corporation of New-York for its immediate removal; and also, that several lots and cellars, situated in low places near the New Ferry, were filled with stagnant water, which, from its stench and appearance, must have been collecting for months. It may not be improper to add, that, with one or two exceptions, those persons who were the first vic-

tims to the disease, were such as lived or worked in the vicinity of the abovementioned nuisances, and who were generally exposed to the heavy rains which fell at that period." vol. 13, p. 197.

We confess we cannot but regard it as rather singular, that this report should be seriously adduced to remove our doubts about the domestic origin of the disease, by shewing that the Brooklyn committee believed in that doctrine, when we observe this committee positively declining to give any opinion whatever on that point, and expressly declaring in so many words, that with respect to the nature and origin of the disease, *they do not feel themselves qualified to determine.* After which they mention certain nuisances ; such as the mud machine, and several lots and cellars filled with stagnant water, adding, that the first victims to the disease, *with one or two exceptions,* were those persons who lived or worked in the vicinity of these nuisances. But whether they mean to intimate that these nuisances *originally caused,* or only aided in the propagation of the disease, does not very clearly appear. From their excepting the *first cases,* it would seem they were of the latter opinion. Indeed, it is a fact substantiated in Dr. Gillespie's report, that the mud machine was not in operation at Brooklyn until July 15th ; a fortnight after the first case made its appearance. So much for the evidence to be gathered from the report of the Brooklyn committee of health, in favour of domestic origin. But since the opinions of health committees have been thought so valuable in this case, why may we not also refer to the opinion of the committee of health for this city? An opinion they had no scruple in declaring ; nor are we left in any doubt as to what it was. The fact of their ordering the Concordia back again to the quarantine ground, there to remain until she was purified, speaks for itself in language



that cannot be misunderstood. It is indeed an emphatic language; one that can be neither altered nor misrepresented.

But if reliance is to be placed on the testimony of disinterested witnesses, every remaining doubt respecting nuisances at Brooklyn must be dispelled by the certificates of Messrs. Loss, Chichester and Stanton. The first tells us that he visited Brooklyn for the purpose of examining the ground, situation, &c. of the sickly neighbourhood, of which he formed the map to which reference has more than once been made, and that he found "the ground along Front-street, and descending along Dock-street, (which is Dr. Smith's *crooked lane*,) over a sandy soil," and that "Water-street, and that part towards the river, which is the part where the disease first broke out, did not appear to him more filthy than is common in streets adjoining wharves and slips in this city." As to the stables, he says, "he could not perceive any offensive smell, and, in general, the yards are roomy and clean." Mr. Chichester says, that the village, in his opinion, was "as cleanly as in former years." And lastly, Mr. Stanton, an old inhabitant, in answer to Mr. Grave's enquiry as to the relative state of the village, as it respected nuisances, compared with former years, said, "that excepting a quantity of pickled herrings in Sands's store and the sheds near it, (which are not pretended to have caused any mischief,) and the mud taken from the slip, (which, as before observed, was not done till the middle of July, after several cases had occurred,) *the village was as cleanly as it had been for twenty-eight years*, the time he had resided there." After this, we cannot but think nothing more should ever be mentioned about local nuisances,

There is, in truth, no longer any room for the pretence.

Let us return for the last time, and but for a moment, to Dr. Rodgers and the Concordia.

Before the doctor dismisses the Concordia, in order to leave no fact unanswered, he undertakes to consider the argument that had been drawn against this ship from the circumstance of the mate's having poured vinegar upon the ballast for the purpose of cleansing it. It had been supposed that this act of the mate's betrayed his suspicions at least of the foulness of the ship. But this, he says, was after Muller's death, and the mate, "supposing that Muller had *caught* it somewhere, might fear that he had or would communicate it to the ship; with this apprehension he used vinegar, believing it might destroy all contagion. "Now," says the doctor, "his doing this *then*, and not before, and telling of it, is a proof that he had no idea of any danger or evil being in the ship, except as resulting from Muller alone; and instead of being against the ship, is in her favour." &c. Turning to the doctor's letter to the board of health, we find it there stated, that Muller returned to the ship from New-York on the 28th, excessively drunk; that he continued so all that day and the next night, and during all this time lay on the open deck, exposed to the heat of the sun by day, and to the air and dew by night; that on the 30th he was taken sick, and was removed to Mrs. Smith's, where he died. And here the doctor assures us, with unaffected gravity, that, in his opinion, the mate must have poured the vinegar on the ballast in order to destroy the contagion which he apprehended had been or *would* be communicated from

Muller. Muller lay all the time, after his return from New-York, drunk and sick upon deck, and therefore the mate gets a quantity of vinegar and goes down with it into the ship's hold among the ballast, upon which he pours it, in order to prevent the sick man upon deck from communicating his contagion to the ballast in the bottom of the ship. Really, so far from believing with Dr. Rodgers, that the mate, in all this, acted like a rational being, one cannot but think the poor man must have fairly taken leave of his senses.

It now remains to consider the question which has been more than once put, and with a seeming triumph, on the part of our opponents, namely, how could the disease be imported into Brooklyn and not into New-York? The answer is, because infected vessels were permitted to haul up to the wharves of Brooklyn, but were not permitted to haul up to the wharves in New-York, but were prevented from approaching nearer the city than 300 yards. But rejoin the querists, how is that in the above season many persons who were seized with the fever in Brooklyn, came over to New-York and died there, and that too "in several instances where the patients were lodged in houses excessively crowded, and where filth was deplorably accumulated"\* without communicating the disease in any cases whatever? Varying the form of expression the question may be stated thus: why is it, that the yellow fever, if a contagious and consequently an importable disease was contagious in Brooklyn and not in New-York, subject to the same degree of heat and moisture, and even in situations "deplorably filthy"? This question is important and interesting; nor will the answer be less so.

\* *Medical Repository*, vol. 13, p. 199.

A satisfactory one shall be given, and it will be seen in the sequel that the advocates of domestic origin have not, upon their own principles, an inch of ground left to stand upon.

Preliminarily to this answer, we must take occasion to state what we mean by the contagiousness of the yellow fever; an occasion we have long desired in order to put an end to the many misconceptions and misrepresentations of our opinion on this point. By the contagiousness of yellow fever then, we mean the communication of it, *under certain peculiar circumstances*, from one person to another, or from things to persons. By *communication*, however, we do not mean, first, that it is to be conveyed only by touch, like the itch or syphilis; nor, secondly, by touch and through the medium of a pure atmosphere, like the small pox and measles; but thirdly, we mean that it is conveyed from a diseased person to those in health, or from infected materials to persons in health, under circumstances of an atmosphere of a peculiar impurity, and under such circumstances only. "The yellow fever, like typhus, jail, ship, hospital or lake fever, and dysentery, is a disease *only* communicable through the medium of an impure atmosphere; in a pure air, in large and well ventilated apartments, when the dress of the patient is frequently changed, all excrementitious discharges immediately removed, and attention paid to cleanliness in general, these diseases are not communicated, or very rarely so, from one to another. But in an impure air, rendered so by the (presence of a foul or infected ship) decomposition of animal and vegetable substances, such as takes place in low marshy countries, or by concentrated human effluvia, as in camps, jails, hospitals, or on ship-board, they are rendered not only extremely malignant

and mortal in themselves, but become communicable to others who approach the sick, or breathe the same atmosphere which has become assimilated to the poison introduced, in so much that the same specific disease is communicated, whether it be the plague, yellow fever, typhus, or dysentery.\* But neither is it every kind of impure atmosphere that will form a medium for conveying this disease; but it is that kind of impurity which has become "assimilated to the poison introduced by the disease." Hence, therefore, a single person may be ill of the yellow fever in even an uncleanly lodging, but of which the air has not become *assimilated* to the poison of the disease, and if care is taken to change the patient's dress, remove excrementitious discharges, and in case of death to destroy the bedding and purify the apartments, the disease may not be communicated to any others in the house. That this full degree of attention and circumspection was invariably observed by the agents of the health office in this city, in every instance where a case of the yellow fever was brought from Brooklyn, we are fully assured by the agents themselves. The above furnishes, we conceive, an answer, and the only rational and satisfactory answer that can be given to the question that has been put. We are now fully prepared to account why the yellow fever was contagious at Brooklyn, and was not so at New-York. It was because in Brooklyn the atmosphere was affected with that peculiar kind of impurity arising from its being assimilated to the air in the hold of a foul ship, while in New-York there was no such ship, no Concordia poisoning us night and day, by pumping out her foul and infected bilge water.

\* Hosack on Contagion. Vide Edinburgh Medical and Surgical Journal, for October, 1809.

Having thus answered the question so triumphantly put by our opponents, permit us with much greater propriety, as we think, to put a similar question in turn to them. We ask then, if filth combined with certain degrees of heat and moisture produced yellow fever in Brooklyn, how did it happen that filth also, nay "*filth deplorably accumulated,*" and combined with the same degrees of heat and moisture in New-York, failed to produce it here? If the advocates for domestic origin will answer this question, without involving themselves in inconsistencies and contradictions, we confess, they will accomplish more than we at present believe they can. If we understand them, they attribute the production of the yellow fever in this country to two sources only, to wit, the state of weather, and the state of the city; they have hitherto maintained that when a certain degree of heat was united with a certain degree of moisture, this state of weather combined with filth, would always produce yellow fever. We have in the case before us all these requisites combined. There was both heat, moisture, and, if they please, filth in Brooklyn, and there the disease prevailed; there was in like manner the same degrees of heat and moisture in New-York that there was in Brooklyn; and as to filth, we have their own acknowledgements that in New-York was "*filth deplorably accumulated,*" and yet in New-York the yellow fever did not prevail. We leave it to these gentlemen to account for this, if they can, upon any principles, or consistently with any theories they have hitherto maintained. Before we conclude, there remains still one question more, and a last one to be disposed of. Our querist, then, shall be allowed to rejoin, a second time, and to ask,

If the yellow fever be a contagious disease, how happens it that such a number of persons exposed to it escape being at all affected? This is the grand argument to which the gentlemen of domestic origin are forever resorting, and on which they seem to place entire reliance; as if they considered it conclusive and altogether unanswerable. We scarcely recollect an instance when the question was in agitation that they have not triumphantly urged this argument upon us. It is, we believe, to be found in almost every discussion of the subject in the *Medical Repository*, numerous as they are. It shall now be answered.

First, then, we say that no disease, yet known to us, is universal in communicating its contagion. The small pox is perhaps the disease which allows of the fewest exceptions; and yet it is a well authenticated fact, recorded by Dr. Lind,\* that this disease so far from being universal in its operation when it once broke out among a ship's crew at sea (a situation most favourable to its spread) on board the *Royal George*; out of eight hundred and eighty men who had never had it nearly one hundred escaped; and the disease quite exhausted itself and entirely disappeared before the ship's return into port. Indeed, were it otherwise, were contagious diseases to be communicated to all within the sphere of their influence, without an exception, the human species would have been extinct, ages ago. The same argument, then, that would prove the yellow fever to be non-contagious, would prove the small pox and every other known disease, to be so.

Again; has it never occurred to these gentlemen that

\* *Papers on Infection*, p. 112.

their argument proves too much in another point of view? Has it never occurred to them that the exceptions on which they rely would equally prove that neither is the disease of domestic origin? *We* maintain that the yellow fever is a disease, brought to this country, from some sickly foreign port, and is communicated by persons infected, or by the ship bringing it, to persons in health: *they* say, that this cannot be so, because many persons, exposed to the pretended contagion, escape receiving it. On the other hand they maintain that the yellow fever is a disease of domestic origin, and is produced by miasmata or the filth arising from putrefied animal and vegetable substances which engendering a poisonous atmosphere infects those who inhale it. Now as the same exceptions, precisely, are found here, the disease, whatever may be its cause, is certainly no more universal in its operation in one case than in the other; and if exceptions are evidence of its not being contagious, it inevitably follows, that the same exceptions are evidence of its not being of domestic origin. There is no possible escape from the conclusion. It appears then, that this grand argument, though so often relied upon, must after all, share the fate of all those grand arguments which, proving too much, consequently prove nothing.

To finish in a sentence. We have seen the yellow fever prevailing for four months, in a village within eight hundred yards of the city, while the city remained exempt from it. We have seen that this village was as cleanly as had been customary for eight and twenty years, during which period no such disease was known there, nor was their wharves a receptacle for shipping, forbidden to approach New-York: we have seen a ship at this time lying



at one of its wharves, which ship was last from a port where the yellow fever raged at her departure, on board of which the first case occurred terminating fatally, and in the neighbourhood of which the disease first broke out, over which it spread, and to which it was almost exclusively confined, the few exceptions being traceable to the same source ; during all which time the city of New-York wholly escaped infection. Let the impartial lover of truth now say, whether he thinks Brooklyn generated this fever, or whether he is not perfectly satisfied that it was brought thither in the Concordia.

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*Recent Arrangements of the College of Physicians.*

CIRCULAR.

At a meeting of the Senatus Academicus of the College of Physicians and Surgeons, held at the College buildings, in the City of New-York, on Monday, the 17th day of September, 1810,

It was ordered, that the following extract from the communications of the Regents of the University, signed by Francis Bloodgood, Esq. their Secretary, be published for general information.

At a meeting of the Regents of the University, held pursuant to adjournment in the Senate Chamber, on Monday, the 5th day of March, 1810,

“ Resolved, that the Professor of Anatomy and Surgery, and the Professor of Chemistry, shall each be entitled to receive a sum not exceeding Twenty Dollars from each Student for every Course of Lectures ; and all the other Professors shall each receive a sum not exceeding Fifteen Dollars for their Courses of Lectures respectively delivered in the said College.”

No regulations having been made by the Regents of the University respecting the privileges heretofore extended to medical students, recommended by the Presidents of County Medical Societies, *it is understood that the same are no longer in force.*

By order of the Senatus Academicus,

ARCHIBALD BRUCE, M. D.

Register.

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*Medical Lectures in Columbia College.*

OCTOBER 1, 1810.

The Faculty of Physic of this College, will commence their course of Public Lectures on the first Monday in November, according to the following arrangement.

Anatomy and Surgery, by Dr. POST.

Practice of Physic, by Dr. HAMERSLEY.

Materia Medica and Botany, by Dr. HOSACK.

Chemistry and Legal Medicine, by Dr. STRINGHAM.

Institutes of Medicine, by Dr. OSBORNE.

Midwifery, &c. by Dr. BUCHANAN.

The Clinical Lectures will be delivered by the Professors of the Institutes and Practice of Physic.

The Faculty having discovered that Students of Medicine have been recommended by the County Medical Societies of this State, to attend these Lectures gratuitously, whose circumstances were amply sufficient to have paid for their public instruction, have determined to receive only such students *gratis* as are unable to defray the expenses of their medical education, and do therefore request that none others may be recommended, and that this recommendation should always proceed from the society of that county where the student actually resides.

By order of the Faculty,

JAMES S. STRINGHAM, M. D.

Secretary.

*Lectures on Surgery and Anatomical Demonstrations.*

Dr. MOTT will commence his Lectures on Surgery and Anatomical Demonstration, early in November next. The Trustees and Faculty of Physic of Columbia College having obligingly favoured Dr. Mott with apartments, his lectures will be delivered in that institution. *Fees for attendance, \$10.*

Shortly after Dr. Mott received the honours of the Medical School of Columbia College, he went to Europe, where he resided nearly three years in the cities of London and Edinburgh, during which time he enjoyed the advantages of acquiring much practical knowledge in the several branches of medical science, particularly those of anatomy and surgery. Upon his return to this city in the spring of 1810, he delivered a course of lectures on surgery, which was well received by a respectable class. From the course now announced, which is designed to be much more extensive than the former, and to include the latest improvements in operative surgery, we have no doubt the pupil will receive much valuable information, at the same time that it will prove an important addition to the numerous sources of instruction which are afforded at the Medical School of Columbia College.

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*Griscom's Lectures on Natural Philosophy and Chemistry.*

Mr. John Griscom purposes to give two courses of lectures during the ensuing season; one on *Natural or Experimental Philosophy*, and another on *Chemistry*. In the former course he will be aided by a new and valuable collection of philosophical apparatus, which he has

just received from London. Some addition has also been made to the chemical apparatus. Both courses will be given in the evening.

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*Appointment in Harvard University.*

The honourable, the Board of Overseers of HARVARD UNIVERSITY, have confirmed the appointment of the Reverend JOHN THORNTON KIRKLAND, D. D. as president of that institution, in the place of the Reverend SAMUEL WEBBER, D. D. lately deceased.

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*Observations on the Weather of the City of New-York,  
for the months of July, August, and September, 1810.*

JULY.

The weather from the 1st to the 6th of this month was of a moderate temperature, clear, and agreeable, wind chiefly from the southward. On the 6th it became cloudy, and continued so until the night of the 7th, when we had a considerable quantity of rain. Much rain also fell on the 8th, accompanied with a strong wind from the north-east. From the 8th until the 15th inclusive, the weather was variable, at times extremely hot and oppressive; frequent falls of rain, and very little wind. The thermometer was several days as high as 83 at 3 o'clock, in the shade. From the 15th to the close of the month an uncommon quantity of rain fell; and though the showers were unusually heavy, there was little thunder or wind. The thermometer during this time was generally at summer heat.

## AUGUST.

August set in with very little variation in the weather ; the warm and sultry days which were so oppressive the greater part of July were frequently experienced. On the 6th, however, it became clear, the evenings were cool, and refreshing breezes from the south-west ; at mid-day the thermometer varied from 70 to 78, in the shade. This weather continued until the 11th. On the 11th and 12th it became extremely oppressive, during which time we had several showers. On the night of the 13th the rain fell in torrents. The thermometer on the 12th and 13th, at 7 A. M. was 76, at 3 P. M. 83, and at 7 P. M. 77. The two following days were again cooler ; wind northerly. From the 15th to the 21st, overcast, and oftentimes there was rain, the mercury in the thermometer from 66 to 76. On the 21st, a most violent north-east storm, which continued with little intermission all day and night, until 2 P. M. of the 22d. The cellars of those houses situated in the neighbourhood of docks were inundated, and in many other parts of the city the same circumstance took place ; the cisterns overflowed, and the yards were filled with water. Thermometer on the 22d, at 3 P. M. was 70. On the night of the 24th there was another very heavy shower. The wind now changed to the south-west, and though at the early parts of the day the atmosphere was humid, it was not so oppressive ; there was however little wind. On the 30th, the thermometer stood at 7 A. M. at 60, at 3 P. M. 73, and at 7 P. M. at 64. This was lower than on any other day this month.

## SEPTEMBER.

We had many clear, cool, and agreeable days from the 3d till the 12th of September. Wind chiefly south-west :

thermometer varying between 69 and 78 at 3 P. M. On the 12th a heavy shower of rain fell, and another on the 14th. It now became cooler, and from the 15th to the 18th we had refreshing breezes from the north and north-west. From the 18th to the 26th the weather was extremely disagreeable. A north-easterly storm prevailed nearly the whole time, though the quantity of rain that fell was by no means great. The thermometer at the same time was unusually low for the season. On the morning of the 24th, at 7 o'clock it stood at 54, at 3 P. M. at 56, and at 7 P. M. at 55. The weather for the remaining days of the month was clear and pleasant. Wind chiefly from the south-west.

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*Observations on the Diseases of July, August  
and September.*

Upon examining the bills of mortality published by the corporation, the records of the city dispensary, and those of our private practice, we find that the diseases of the last three months have consisted chiefly of *intermitting*, *remitting*, and *typhus* fevers; diseases of the bowels, viz. *colic*, *cholera morbus*, *diarrhæa*, and *dysentery*. In each of the three months, we have also observed, and what is unusual at this season, a great number of inflammatory complaints, particularly *catarrh*, *pneumonia*, and *rheumatism*; no less than twenty-one cases of the last disease are recorded in the practice of the dispensary alone. Some instances of *hæmoptysis* were also met with in our private practice, in which we have experienced great advantage from the active use of cathartics, the practice lately recommended in

various diseases by Dr. Hamilton, of Edinburgh.\* Some cases of *ophthalmia*, *cynanche tonsillaris*, and *enteritis*, have also been noticed among our inflammatory complaints; *fluor albus* has also in several instances occurred, and which appears to have been greatly aggravated by, if not altogether the effect of, debility induced by heat. In the treatment of this disease, we have found more benefit from the use of injections of the sulphate of zinc, in the proportion of three grains to the ounce, than from any other remedy we have prescribed; at the same time, however, the usual tonic remedies, viz. cold bathing, general and local, bitters, &c. were made use of. In a late number of the *Journal de Medicine*, an injection composed of the bark of the root of the elm, boiled in red wine, has been very successfully prescribed in the same complaint by Mons. Pingusson.

*Phthisis pulmonalis* has been attended with its usual fatality within the period mentioned; no less than eighty-five deaths are recorded from this disease alone. Some cases, where the physician has been called in in the forming or inflammatory stage of this disorder, have yielded to the free and repeated use of the lancet, blisters, and emetics; after which exercise, especially a journey into the country at a distance from the sea shore, with a nutritious diet, and the use of bitters, have completely restored the patient to health. But in the majority of cases of this disease which present themselves to the physician, he can do little more than alleviate some of its most distressing symptoms.

Another disorder of a very fatal nature in this climate, especially in the summer and fall months, is the *cholera*

\* See his valuable work on the use of Purgatives.

*infantum.* From this disease, without enumerating other bowel complaints, eighty-six children have perished within the last three months. Our numerous opportunities of observing this complaint during the past summer, have convinced us of the propriety of considering it as similar to the bilious remittent of adults; and that it very properly is denominated by Dr. Butter the *infantile remittent fever*. Dr. Mann, of Wrentham, (Mass.) in his valuable prize dissertation on the autumnal diseases of children, which work we earnestly recommend to the notice of every practitioner of medicine, has taken a similar view of this disease; accordingly, instead of prescribing anodyne and astringent mixtures to lessen the discharges by the bowels, which are probably the effect of the general excitement of the system occasioned by the heat of the season, and frequently the additional irritation of teething, we more rationally direct those remedies which are calculated to allay the general febrile excitement, and thereby to remove the irritations of the intestinal canal. Accordingly, it has been found that the most successful mode of treatment is in the first instance to empty the stomach and bowels by small doses of ipecacuanha and rhubarb. Calomel and antimonial medicines are also frequently prescribed with good effect in this stage of the disease. When the stomach and bowels are freely evacuated by these means, if the fever continues, small doses of ipecacuanha may still be continued with advantage, for the purpose of preserving a perspirable state of the surface of the body. Warm bathing is also at this time made use of with advantage. When the febrile symptoms are removed, weak brandy and water, or port wine and water, beef tea, the liquor of clams or oysters, are most grateful at the



same time that they are most useful in restoring the tone of the stomach and bowels. But if the irritations of the intestinal canal continue after the febrile symptoms are removed, the chalk julep of the dispensatory, with the addition of laudanum or paregoric elixir is very advantageously prescribed. In some instances where the diarrhœa is attended with tenesmus, severe gripings, and the discharges are tinged with blood, small injections composed of starch and laudanum are more effectual in relieving the sufferings of the patient than anodynes administered by the stomach, while they are less apt to disturb the functions of that organ: in other instances astringent remedies are indicated to restrain the profuse liquid evacuations from the bowels. For this purpose we have found none more effectual than an infusion of the root of the marsh rosemary, the statice limonium of Linnæus.\* But of all the remedies prescribed either for the purpose of preventing or of curing this disease, we know of none so effectual as removal to the cool air of the country, particularly near the sea shore, where the atmosphere is not only cooler, but in a peculiar manner restores the appetite and strength of the patient. “It is extremely agreeable, says Dr. Rush, to see the little sufferers revive as soon as they escape from the city air, and inspire the pure air of the country.”† But among the means of prevention we also recommend the use of flannel worn next the skin: this preserves the action of the vessels on the surface, at the same time that as a non-conductor, it guards the tender infant from the extreme heat and vicissitudes frequently experienced in the hot season of the year. Warm bathing at this season,

\* See an Inaugural Dissertation on this subject, by Dr. Valentine Mott.

† Rush's *Med. Inq. and Observ.* vol. 3. p. 370.

by lessening the effects of heat upon the system, is no less useful to children than to adults.

As before remarked, *intermitting*, *remitting* and *typhus fevers* have also been among the prevailing diseases of the last three months, and are still daily met with both in our private practice and public institutions. Intermittents have appeared in all their variety of forms of quotidian tertian; double tertian, and quartans. Remittents also assumed their varied character according to the constitutions in which they occurred. In some they manifested all the symptoms of the true *bilious remittent*, in which the patient throughout the whole course of the disease discharged large quantities of bile both by vomiting and stool; while in others, especially those of a sanguine temperament or who may have recently arrived from a more northern latitude, it exhibited all the characters of the "*ardent fever*" or "*causus*." This form of fever from the violence of its symptoms and shorter duration than the ordinary bilious remittent is frequently confounded with the yellow fever of the tropics, and it must be acknowledged that in many symptoms it bears a greater resemblance to that species of fever than to any of the indigenous fevers of the United States: we are therefore not so much surprised that by those who believe in the *unity* of fevers they should be pronounced one and the same disease. In the first number of this work these two forms of remittents have been very happily described by Dr. Norcom, in his account of the fevers of North-Carolina.

In many instances the remittents of the season have terminated in typhus, and in some cases have proved fa-

tal. We however are happy to add that our city has enjoyed a total exemption from that occasional scourge of our sea ports, the yellow fever. Although some cases appeared at the quarantine ground introduced by vessels from the Havanna or Porto Rico, and in North-Carolina from the same sources, as we are credibly informed, we believe it will be on all hands admitted, such has been the vigilance of our present health officer, such his rigid and impartial performance of the duties enjoined upon him, that not a single case of yellow fever has been seen in the city of New-York or the village of Brooklyn this season. We believe it must also be granted that we have had all the requisites for the generation of it, that the advocates for its domestic origin have ever considered necessary viz. *moisture, heat, and filth.*

As to moisture, we can safely assert that no season can be mentioned in which we have had more repeated falls of rain or in greater quantities than in the months of July and August. For a period of about six weeks scarcely a day occurred in which we had not one or more showers of rain, insomuch that the docks were overflowed, and the cellars in the lowest part of the city filled with water. The seasons of 1795 and 1798 in which the yellow fever prevailed with a mortality that will never be forgotten, bear no comparison to that we have just passed through. The thermometer also pointed out during many weeks of that time a degree of heat far above our ordinary temperature at this season, and greater in the aggregate than was experienced in either of the above years, as will be seen by examining the tables that were kept. Nor have we wanted the materials for this heat and moisture to operate upon. On the contrary,

we are compelled to observe, that our streets, docks, and market places have never within our recollection, exhibited more subjects of putrefaction both of animal and vegetable matter, than they have in the past season. Peck-slip in particular, is acknowledged to have been in a most offensive condition, insomuch that vessels were not permitted to go into it for fear of disturbing its waters. These have been and continue to be, in a state of fermentation, emitting their exhalations to the great annoyance of the whole neighbourhood. Yet surprising to be told, if yellow fever be the produce of domestic filth, similar causes have, in the present instance, ceased to produce similar effects ; for with the exceptions already noticed, our city has enjoyed an unexampled degree of health.

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*Godon's Treatise on Mineralogy.*

The prospectus of a new work on Mineralogical Science has been lately issued, entitled "A Treatise on Mineralogy, adapted to the present State of Science ; including important Applications to the Arts and Manufactures. By S. GODON." It will be divided into two parts, according to the divisions generally admitted, and followed in the lectures of the author. The first will treat of minerals considered as simples. The second of minerals in their state of aggregation, with their usual disposition on the body of the earth : these two divisions denoted by the names of *Oryctognosy* and *Geognosy*, including the whole series of mineralogical knowledge. The work will also contain a great number of local observations on the territory of North America, either made in the course of the travels of the author, or communicated to him by

respectable authorities. These memorandums will give an additional degree of utility to this publication, and are calculated to render it a *national work*. It will be comprised in two volumes, octavo, with one volume of plates in quarto, and be published by Messrs. Birch and Small, of Philadelphia.

#### RECENT AMERICAN PUBLICATIONS.

Sketches of a Tour to the Western Country, through the States of Ohio and Kentucky; a voyage down the Ohio and Mississippi rivers; and a trip through the Mississippi territory, and a part of Florida. Commenced at Philadelphia in 1807, and concluded in 1809. By F. Cuming. With Notes and an Appendix, containing some interesting facts, together with a notice of an expedition through Louisiana. Cranmer & Co. Pittsburgh.

A Practical Treatise on Vaccina or Cow Pox. By Samuel Scofield, M. D. &c 12mo New-York. Collins & Perkins.

The American New Dispensatory. By James Thatcher, A. A. & M. S. S. 8vo. Boston. T. B. Waite & Co.

The History of Printing in America, with a Biography of Printers, and an Account of Newspapers. To which is prefixed, a concise View of the Discovery and Progress of the Art in other parts of the world. In two volumes octavo, with five Plates, one of which is a *fac simile* of the first articles known to be printed in Europe by the discoverer of the art; two are *fac similes* of the printing types first used in England; another represents cylindrical presses; the fifth is an Indian Gazette. Boston: Isaiah Thomas, jun. 2 vols. 8vo. Price \$6 in boards.

Nos. 1. & 2. Archives of Useful Knowledge: a work devoted to Commerce, Manufactures, Rural and Domestic Economy, Agriculture, and the Useful Arts. By James Mease, M. D. Secretary to the Agricultural Society of Philadelphia. New-York. Williams and Whiting.

The natural and civil history of Vermont, by Samuel Williams, L. L. D. member of the American academy of arts and sciences of Massachusetts, &c. in 2 vols. octavo. Second edition, corrected and much enlarged, with a map of the state. Burlington. S. Mills.

The Poems of Ossian. Translated by James Macpherson, Esq. To which are prefixed, Dissertations on the Aera and Poems of Ossian, and a Preliminary Discourse, or Review of the recent controversy relative to the authenticity of the Poems. With engravings on wood, by Anderson. New-York. E. Sargeant.

Report from the Secretary of the Treasury, on the subject of American Manufactures, prepared in obedience to a resolution of the House of Representatives, April 19, 1810. Referred to Mr. Macon, Mr. Pitkin, Mr. Fisk, and Mr. Clopton. Boston. John Eliot, jun.

Papers for 1810, communicated to the Massachusetts Society for promoting agriculture. Published by the trustees. Boston. Russel & Cutler.

The History of South Carolina, from its first settlement in 1690, to the year 1808, in two vols. By David Ramsay, M. D. New-York. David Longworth. 8vo.

Shultz's Travels on an inland Voyage through the States of New-York, Pennsylvania, Virginia, Kentucky, Ohio, Tennessee, and through the Territories of Indiana, Louisiana, Mississippi and New-Orleans, including a tour of upwards of five thousand miles, performed in the years 1806 and 1807. 2 vols. 8vo. maps and plates

Journal of the Voyages and Travels of Captains Lewis and Clarke, by Patrick Gass, 2d edition, embellished with six engravings. Price \$1. Philadelphia. M. Carey.

An Enquiry concerning the intellectual and moral faculties and literature of the negro, with an account of the lives and works of fifteen negroes and mulattoes, distinguished in science, literature, &c. by H. Gregoire, formerly Bishop of Blois, Member of the Conservative Senate, &c. Translated by J. B. Warden, Esq. Brooklyn. T. Kirk.

#### PROPOSED AMERICAN PUBLICATIONS.

*By E. Earle, Philadelphia.*—Observations on the Diseases of the Army. By John Pringle, M. D. F. R. S. with copious Notes, by Benjamin Rush, M. D. &c. Philadelphia.

*By Conrad & Co. Philadelphia.*—The History of the Expedition of Captains Lewis and Clark, through the Continent of North America, performed during the years 1804, 1805, 1806, by order of the government of the United States.

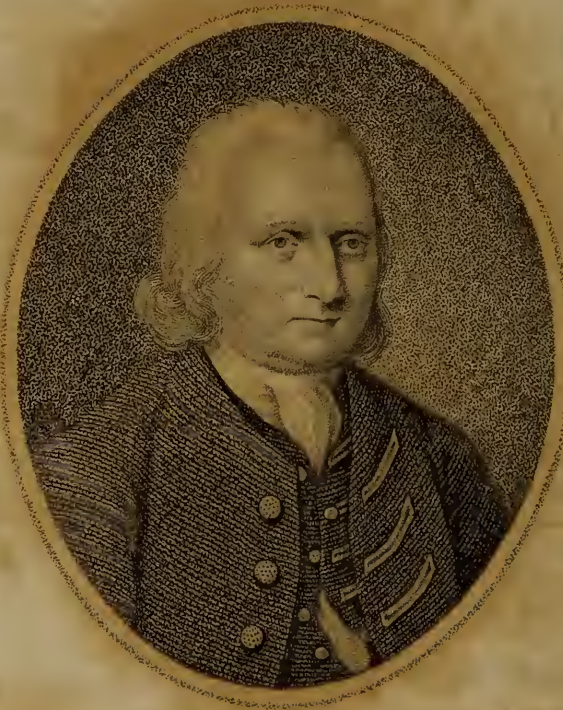
*By E. Earle, Philadelphia.*—The Eclectic Repertory and Analytical Review, Medical and Philosophical, Edited by a society of Physicians.

*By Collins & Perkins, New-York.*—The Modern Practice of Physic, By Robert Thomas, M. D. with an Appendix, by Ed. Miller, M. D.

*By I. B. Waite & Co. Boston.*—Elements of Zoology: or outlines of the Natural History of the Animals. By Benjamin Smith Barton, M. D. Professor of Materia Medica, Natural History and Botany, in the University of Pennsylvania.

*By J. Simpson & Co. of New-Brunswick, New-Jersey.*—An Essay on the Causes of the Variety of Complexion and Figure in the Human Species; to which are added, Animadversions on certain remarks made on the first edition of this Essay, by Mr. Charles White; in a series of Discourses delivered before the Literary and Philosophical Society of Manchester in England. Also, Strictures on Lord Kaims's Discourse on the Diversity of Mankind. By the Rev. Samuel Stanhope Smith, D. D. President of the College of New-Jersey, and Member of the American Philosophical Society. The second edition, enlarged and improved.





C. COLDEN, ESQ.

*Engraved from an Original Painting  
in the possession of C.D. Colden Esq<sup>r</sup>.*



THE  
A M E R I C A N  
MEDICAL AND PHILOSOPHICAL  
REGISTER.

JANUARY, 1811.

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ORIGINAL COMMUNICATIONS.

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I.

BIOGRAPHICAL SKETCH *of the late Honourable CAD-*  
*WALLADER COLDEN, formerly Lieutenant-Governor of*  
*New-York, with an account of his writings.*

(See the annexed Engraving.)

**T**HIS truly eminent and worthy character who united in himself the several qualities we are accustomed to admire in the physician, naturalist, and philosopher, was the son of the reverend Alexander Colden, of Dunse in Scotland, and was born on the 17th day of February, 1688. After he had laid the foundation of a liberal education under the immediate inspection of his father, he went to the university of Edinburgh, where in 1705 he completed his course of collegiate studies. He now devoted his at-

tention to medicine and mathematical science until the year 1708, when being allured by the fame of William Penn's colony, he came over to this country about two years after. He practised physic with no small share of reputation till 1715, when he returned to England. While in London, he was introduced to that eminent philosopher Dr. Edmund Halley, who formed so favourable an opinion of a paper on Animal Secretion, written by Dr. Colden in early life, that he read it before the Royal Society, the notice of which it greatly attracted. At this time he formed an acquaintance with some of the most distinguished literary and scientific characters, with whom he ever after maintained a regular correspondence. From London he went to Scotland and married a young lady of a respectable Scotch family by the name of Christie, with whom he returned to America in 1716.

In 1718, he settled in the city of New-York ; but soon after relinquished the practice of physic, and became a public character : he held in succession the office of surveyor-general of the province, master in chancery, member of the council, and lieutenant-governor. Previously to his acceptance of this last station, he obtained a patent for a tract of land, designated by the name of Coldenham, near Newburgh, in this state, at which place he retired with his family about the year 1755, where he spent a great part of his life. Here he appears to have been occupied without interruption in the pursuit of knowledge, particularly in botanical and mathematical studies, at the same time that he continued his correspondence with learned men in Europe and America.

In 1761, he was appointed lieutenant-governor of New-York, which commission he held until the time of his decease, the administration of the government repeatedly falling on him by the death or absence of several governors in chief. His political character was rendered very conspicuous by the firmness of his conduct during the violent commotions which preceded the revolution. His administration is also memorable among other things for several charters of incorporation for useful and benevolent purposes. After the return of governor Tryon, in 1775, he was relieved from the cares of government. He then retired to a seat on Long-Island, where a recollection of his former studies and a few select friends, ever welcomed by a social and hospitable disposition, cheered him in his last days. He died in the 89th year of his age on the memorable 28th of September, 1776, a few hours before the city of New-York was in flames, retaining his senses to the last, and expiring without a groan.

Dr. Colden began at an early period of his life, to pay great attention to the vegetable productions of America, in which delightful study his daughter afterwards became distinguished, and in honour of whom Linnæus named a plant of the tetrandrous class, *Coldenia*. This plant Miss Colden had first described. He was attentive to the physical constitution of the country, and left a long course of diurnal observations on the thermometer, barometer, and winds. He also wrote a history of the prevalent diseases of the climate, and if he was not the first to recommend the cooling regimen in the cure of fevers, he was certainly one of its earliest and warmest advocates, and opposed with great earnestness, the then prevalent mode of treatment in the small pox.

In the years 1741 and 2, a fever which occasioned great mortality, prevailed in the city of New-York and created much alarm. He communicated his thoughts to the public on the most probable method of curing the calamity, in a small treatise on the occasion, in which he enlarged on the pernicious effects of marshy exhalations, moist air, damp cellars, filthy stores, and dirty streets: showed how much these nuisances prevailed in many parts of the city and pointed out the remedies. The corporation of the city presented him their thanks, and established a plan for draining and clearing out the city, which was attended with the most salutary effects. He published a treatise "On the Cure of Cancer." Another essay of his "On the Virtues of the Great Water Dock," introduced him to an acquaintance with Linnæus. In 1753, he published some observations on an epidemical sorethroat, which appeared in Massachusetts in 1735, and had spread over a great part of North America. These observations are to be found in Cary's American Museum.

When he became acquainted with Linnæus' system of botany he applied himself with new delight to that study. His descriptions of between three and four hundred American plants, were printed in the *Acta Upsaliensia*. He published the "History of the Five Indian Nations," in 2 vols. 12mo. But the subject which drew Dr. Colden, at one time of his life, from every other pursuit, was what he first published under the title of *The Cause of Gravitation*, which being much enlarged, was republished by Dodsley, in 1751, in 1 vol. 4to. entitled, *The Principles of Action in Matter, &c.*

This book cost him many years of close and severe study.

Though his principal attention after the year 1760 was necessarily directed from philosophical to political matters, yet he maintained with great punctuality his literary correspondence, particularly with Linnæus of Upsal, Gronovius of Leyden, Drs. Porterfield and Whytte of Edinburgh, Dr. Fothergill and Mr. Collinson, F. R. S. of London. There were also several communications on mathematical and astronomical subjects between him and the earl of Macclesfield. With most of the eminent men of our own country he held an almost uninterrupted epistolary correspondence. Among them we may mention the names of Dr. Garden, Mr. J. Bartram, Dr. Douglass, Dr. John Bard, Dr. Samuel Bard, James Alexander, Esq. and Dr. Franklin. With Dr. Franklin in particular he was a constant and intimate correspondent, and they regularly communicated to each other their philosophical and physical discoveries, especially on electricity. In their letters are to be observed the first dawnings of many of those discoveries which Dr. Franklin has communicated to the world and which so much astonished and benefited mankind. In a letter to one of his friends Dr. Franklin gives an account of the organization of the American Philosophical Society, in which he mentions that Dr. Colden first suggested the idea and plan of that institution.

The numerous manuscript papers left by Dr. Colden at the time of his death, and which for many years were supposed to have been lost have been lately found and are now in the possession of his grandson, Cadwallader D. Colden, Esq. attorney-general for the southern district of this state. They are chiefly on historical and philosophical subjects, and many of them are of the greatest value. Among these are observations on Smith's

History of New-York, in a series of letters to his son, Alexander Colden. An Introduction to the Study of Philosophy. A corrected copy of his Account of the Fever which prevailed in New-York, in the years 1741-2\*. An Inquiry into the Principles of Vital Motion. A Translation of the Letters of Cicero, with an Introduction by C. Colden. *Plantæ Coldenhamiæ in provincia Noveboracensi spontanea crescentes quas ad methodum Linnæi Sexualem, anno 1742, observavit Cadwallader Colden.* A corrected and augmented copy of his Principles of Action in Matter. A Treatise on Electricity, &c. Besides these there is a great mass of correspondence on medical, philosophical, and literary subjects. A correspondence with Dr. Benjamin Franklin, from the years 1740 to 1757—with Linnæus from 1747 to 1751. With Gronovius from 1743 to 1755—with Dr. Garden, of South-Carolina, from 1748 to 1768—with Dr. W. Douglass, of Boston, from 1720 to 1747—with J. Bartram, of Pennsylvania, from 1742 to 1774—with Dr. Whytte from 1758 to 1763:—Letters to Dr. John Bard from 1747 to 1764, on the small-pox—correspondence with J. Alexander, of New-York, on the King's Council, from 1747 to 1764—with Mr. Collinson, of London, from 1740 to 1769—with the earl of Macclesfield. In addition to all these, there are the manuscript copies of the works he has published, and innumerable letters to and from very celebrated persons of Europe as well as in America. These carry his correspondence back as far as the year 1710, and bring it down, almost uninterruptedly, till the time of his death. There are, too, a great variety of papers on public affairs, which must be considered as documents of primary im-

\* See the third article of the present number of the Register.

portance, as they necessarily contain numerous facts which throw light on the history of this state. Dr. Colden was unquestionably a man of various and extensive learning, of superior talents, of the most indefatigable industry, and, indeed in many respects, his character will not suffer by a comparison with that of our illustrious countryman, Benjamin Franklin.

We are happy to announce that Cadwallader D. Colden, Esq. intends, ere long, to offer to the public a biographical account of his venerable grandfather, together with a selection of the most important of his writings. Such a work cannot fail to meet with a hearty reception from the American people, and to afford another and durable monument of the talents, industry, and various acquirements of this celebrated physician and philosopher. It is proper, however, to add, that through the kindness and liberality of Mr. Colden, the editors are put in the possession of many highly interesting articles for publication, written by Dr. Colden, and that they will be given to the public through the medium of the Register.

Those who are desirous of obtaining farther particulars relative to this distinguished character will consult the American Museum, vol. 3d. the American edition of Dr. Rees's Cyclopædia, Hardie's Biographical Dictionary, the Port Folio, new series, vol. 3d. Dr. Miller's learned Retrospect of the 18th century, and the excellent New Biographical Dictionary of William Allen, lately published.

## II.

ACCOUNT of the CLIMATE and DISEASES of New-York,  
by CADWALLADER COLDEN, Surveyor-General of the  
Province. Communicated to the Editors by his Grandson,  
C. D. Colden, Esq.\*

THE city of New-York lies nearly in 40 deg. and 40 min. of North latitude, and about five hours west from London. The climate partakes of the extreme climates : sometimes the summer is as hot as in the torrid zone, and the winter often is not less cold than in the northern parts of Europe. The heat and cold depend very much upon the winds, and, for that reason, in the same season of the year, are very various. In the summer, when the wind blows from the north-west (which frequently happens) the air is agreeably cool, but in the winter it is piercing cold. A southerly and south-westerly wind, \*if it continue any

\* The present article gives an account of the climate and of the diseases of this city as they prevailed here almost ninety years ago ; and as we have but very few observations relative to our country of a similar kind, and written at so early a period, the editors have considered it worthy insertion in the Register ; as introductory to the author's celebrated paper on the fever of 1741-2, it is particularly deserving of attention. And by those philosophers who have so strenuously contended that an amelioration in the temperature of our climate has taken place, in a regular and constant ratio with our numerous settlements and extensive improvements, the remark of Dr. Colden, when he says, he " doubts not it will in time become one " of the most agreeable and healthy climates on the face of the " earth," will be considered as correct, and corroborated by common observation and experience.

EDITORS.



time, in summer, becomes very hot, and if we want winds, which sometimes happens in July and August, the air becomes sultry. Southerly winds in winter make the cold very moderate. We have much less rain or snow than in England, and the heaven is seldom overcast with clouds. The north-west wind being so extremely cold, even so far south as North-Carolina, I believe is owing to the high ridge of mountains which lies to the westward of Virginia, Maryland, Pennsylvania, and this province, though it be generally attributed to the great lakes which lie to the north-westward of this province: for it is observed in all other countries, that the winds which come from any great quantity of water, are not so cold as those that come from mountains, and are always accompanied with rain or moisture, whereas the north-west winds here are very dry; besides, the winds from the lakes must be stopt in their course by these high mountains which lie betwixt us and the lakes. This is confirmed by what I am told by those who have continued some time in the Sennekas country near Iagara, on the west side of these mountains, that the north-west winds there are always accompanied with rain as the easterly winds are here.

Though there be so great a variety of weather in this country, the height of the mercury in the barometer does not suffer so great changes as in England. I have had a barometer by me about six years and never observed the mercury lower than 29 inches and 7 or 8 tenths of an inch, and it is generally betwixt 30 and 30 and an half inches high, though I have sometimes observed it 31 inches high, which is as high as it is ever observed in England or I think any where else; but it is so high only in the time of very hard frost.

The spring is much later than in England : we perceive but very little of it before the latter end of April : March is generally cold and windy, though for the most part the latter end of February be mild and warm. The winds in March are generally northerly, and they as well as the cold are owing to the melting of the snow to the northward of us, for these winds are always preceded by some warm weather either in the latter end of February or beginning of March. The lateness of the spring is owing to the whole country being covered with wood, so that the sun cannot easily dissolve the snow which lies under the trees, or warms the earth. The lateness of the spring makes it short, the hot weather succeeding the cold very quickly. In the spring the people are subject to pleurisies and inflammatory fevers, as in all other countries, upon the breaking up of hard winters ; but not so much as in Pennsylvania and in the countries to the southward. The country people, and such as are most exposed to the cold, are most liable to these distempers. Perhaps the reason of the southern countries being more subject to pleurisies is, that in those countries the poorer sort are not so well cloathed and have not such warm houses as in this.

The summer begins in the end of May, and continues hot to the beginning of September. July and August are the most sultry months, and very often rainy. The air in these two months is always full of moisture, so much that the doors and windows are observed then to be more swelled than at any other time of the year, and iron rusts so much that it is difficult to keep any instrument clean which is made of that metal, though the weather be extremely hot at the same time. A far

greater quantity of dew likewise falls in these months than at any other time, and begins to fall a considerable while before sun-set. The mornings are frequently foggy, especially near the river and marshes, after sun-rising. This proceeds from the quantity of vapour which falls in the night, and is easily raised, but it is generally dissipated before ten in the morning. The heat in these months is a great deal more uneasy than in June, though a greater quantity of the sun's rays falls upon the earth in that month than in these. This is owing to the quantity of vapour in the air, which retains the heat and becomes in a manner scalding. For it is always observed that the heat is a great deal more uneasy before rain (though the sun does not shine clear) than it is after a shower, when it shines with its greatest brightness; and a burning-glass before rain does not burn so vehemently as it does after rain. If the air continues sultry after rain, we expect more rain speedily, or a great quantity of dew that night. The air is frequently fanned in the hot months with sudden gusts of north-west winds. They commonly arise in the afternoon, and blow violently for half an hour or a little more, with heavy showers of rain and thunder-claps, and leave the air agreeably cool and serene. When the country was first settled, these gusts were very frequent, hardly a day in the hot seasons passing without them: but now, since the country begins to be cleared, the summer is not so sultry, and these gusts are not near so frequent. They are likewise much more frequent in the provinces to the southward of us than in this.

The thermometer (mine is of Mr. Patrick's make) in the summer, within doors, where the sun cannot reach, is generally about 20, though at sometimes it is above 15, and at other times below 30. In June, I tried the difference

betwixt what it was in the house and the open air, where it was exposed to the sun's rays betwixt 2 and 3 in the afternoon, which is generally the hottest time of the day, and found the spirit rise 36 degrees, or parts, marked on the thermometer, above what it was in the house. The thermometer in the house stood at 26, and exposed to the sun rose 5 degrees above the place marked 0.

The months of July, August, and beginning of September are the most sickly months in the year; more people being sick and more children dying than in all the rest of the year. The epidemical diseases are intermitting fever, cholera morbus, and fluxes. The intermitting fevers are not near so frequent in this province as in those more to the southward, but I think fluxes are more frequent in this town than in Philadelphia. Two reasons may be assigned for this: first, the poor people at this time eat abundance of water-melons and other such kinds of fruit more than they do in Philadelphia: the other is, that the water in the town is not near so good as there, being brackish and so hard (as it is commonly termed) that it will not dissolve soap.

The fall in this country (and all over the main of America) is most agreeable from the beginning of September to the middle of November; the weather being mild and dry, the sky always serene, and the people healthy.

We reckon the winter from the middle of November to March, though the violent frosts do not usually begin till about Christmas, and then to the middle of February it is extremely cold; the great river, during that time, being frozen so hard, that horses and sleds pass daily upon it. However it does not every year freeze within several

miles of the city, but in that time there is often so much ice floating that it is not safe for vessels to go to sea or to come in. The winter is above six weeks longer at Albany than at New-York, that place being 160 miles further up Hudson's river. It is likewise longer at Philadelphia than here, though that town be above a degree and a half more to the southward. This is owing to that place being situated upon a fresh-water river, which more easily freezes, and to its distance from the sea.

The thermometer in the month of January is generally about 80. I observed it twice at 100, and once at 103; then the frost and cold were excessive: all liquors, except spirits, froze. I found Madeira wine (which is a very strong wine) frozen in the morning in a room where there had been a good fire all day till eleven at night. Hudson's river was then frozen over at the town, where it is about two miles broad and the water very salt, so that people passed over upon the ice in crowds; but the ice did not continue fast at this place above three days. In the beginning of winter people are in danger of rheumatic pains, and in February of bastard pleurisies.

The air of the country being almost always clear, and its spring strong, we have few consumptions, or diseases of the lungs.\* I never heard of a broken-winded horse in

\* How shall we account for the extraordinary mortality occasioned by this disease at the present day? If our climate at that early period was so conducive to health, and particularly well calculated for pulmonic affections, and if what change has been effected in it be for the better, we must attribute it principally to the increase of dissipation, and the great imprudence in dress, and not to what many have asserted, the very nature and vicissitudes of our seasons.

this country. People inclined to be consumptive in England, are often perfectly cured by our fine air, but if there be ulcers formed they die in a little time.

The climate grows every day better as the country is cleared of the woods, and more healthy, as all the people that have lived long here testify. This has even been sensible to me, though I have been but about twelve years in the country; I therefore doubt not but it will in time become one of the most agreeable and healthy climates on the face of the earth. As it is at present I prefer it to the climates of England, and I believe most people that have lived any considerable time here, and are returned to England, will confirm this.

### III.

*OBSERVATIONS on the Fever which prevailed in the City of New-York in 1741 and 2, written in 1743, by the late Hon. CADWALLADER COLDEN. Communicated to Dr. DAVID HOSACK by C. D. COLDEN, Esq.\**

SIR,

ACCORDING to my promise in our conversation upon the late sickness in New-York, I now send you an abstract of the piece I then shewed you, with my thoughts

\* The present essay, on the fever of 1741 and 2, is printed from a copy corrected and enlarged by the author himself, and has been very lately found in a manuscript volume of his papers. Thus improved, it will doubtless be read with great interest by the philosophical as well as medical reader.

on the sickness, and how I conceive it may be prevented for the future. I shall be glad if it prove of any use, and  
Am, Sir,

Your humble Servt.

No man who has any share of humanity or regard for the welfare of the society wherein he lives, can with indifference observe or hear of the mortality which has prevailed among the inhabitants of the city of New-York these two last summers, but will be desirous to give what assistance to his neighbours he can, by any information which has come to his knowledge, or by any other means in his power. When any disease yearly returns in a particular place, while the country around remains free from it, people naturally conclude, that it is owing to something peculiar to that place, and in order to discover whether any thing peculiar to the soil or air of New-York may reasonably be supposed to be the cause of these epidemical fevers, I shall make an abstract from a book which I have by me on the subject of malignant and pestilential fevers, occasioned by a faulty air or soil in particular places, wrote by Lancisi, physician to Pope Clement XI. a man of great character both as to his skill in physic and his probity, who treats of this subject more fully and clearly than any author I have seen. I expect this may be the more acceptable because it is a rare book and perhaps not another copy of it in this part of the world besides that which I have.

I think there is the more reason for admonishing the inhabitants of New-York on this, because, by their being originally from the northern climates, where the ill effects of stagnating waters are not so remarkable as in the warm

climates, they may be more negligent in this point, and less apprehensive of the danger that arises from thence. These fevers recur yearly in the summer from the time the weather begins to grow hot to the end of September : they commonly cease during the winter colds : they are milder at their first appearance, but grow more and more malignant as the season advances ; they are at first commonly of the intermittent kind, but more frequently (especially as the hot weather advances) the paroxisms only remit, and at the same time many have continued fevers, with frequent exacerbations rather than remissions : the sick contract a dead, dusky, yellow complexion, and before they die purple eruptions frequently happen on the skin : the intestines are almost always affected, and have been found generally sphacelated in the bodies which have been opened ; the brain is likewise often affected and all the worst symptoms of fevers generally attend these before death, though sometimes the fever appears so mild, that the sick is not thought in danger till apoplectic or comatose symptoms appear, which declare him past recovery : they have seldom any regular crisis, but the sick, when they recover, continue long weak and infirm, and they are often succeeded by chronical distempers.

These are the general characters of these fevers, collected from several parts of this book. Lancisi at first gives a more general account of these fevers, from the ancient Roman historians, and first he observes, that the place whereon Rome was built was, in its natural state, unhealthy, and for that reason avoided by the first inhabitants of the country ; that this unhealthiness was occasioned by swamps and stagnating waters between the hills on



which the city was afterwards built, as appears from Ovid 6. Fastorum.

“ Hic ubi nunc fora sunt, udæ, tenuere paludes ;  
Amne redundatis fossa madebat aquis.  
Curtius ille lacus, siccas qui sustinet aras  
Nunc solida est tellus, sed lacus ante fuit.  
Quæ Valebra solent in circum ducere pompas  
Nil præter, solices, cassaque canna fuit.”

As the first inhabitants of Rome suffered much from these stagnating waters, their kings bestowed a great part of their care in draining these low grounds, and it is taken notice of by historians, as a memorable act of Tarquinius Priscus, that he drained Velabrum by a very notable canal. Pliny takes notice, as one of the greater works of M. Agrippa, that he cut through mountains in order to bring seven rivers into the city, to wash and cleanse the canals and sewers of all filth, and that he had in a manner undermined the whole city, in order to keep it clean and healthy. The Roman historians observe, that as often as these drains were neglected and stopped, so that the water and filth stagnated, the city became unhealthy, and the inhabitants were wasted by malignant and pestilential fevers. When this happened the Romans spared no cost to cleanse and keep the city clean. C. Aquilius writes, that the common sewers being by neglect stopped the censors bestowed a thousand talents in opening and cleansing of them. In order to keep the city always clean, the Romans chose magistrates, called ædiles, and curatores for that purpose, who had under them several companies of men continually employed in that work : they wore a particular badge to distinguish them, and, for their encouragement, enjoyed special privileges, and were freed from all other public services.

The Romans, likewise, under severe penalties, forbade diverting of the money to any other use, under pretence of any necessity however urgent, and by special laws, laid heavy penalties on those, who by negligence suffered the water or filth any where to stagnate and remain. Such was the care of this wise and prudent people ; and certain it is, that without taking such care of the health of the inhabitants, they never could have rose to that grandeur they did : and the effect of this care is very manifest, when so great a city, crowded with such vast numbers of people, during all the time of its grandeur remained exceedingly healthy ; though, as has been observed, by the nature of its soil, it was most likely to be otherwise. But after all these great works, for keeping the city clean, were destroyed by the incursions of the Goths and Vandals, Rome became exceedingly unhealthy, as appears by the following verses of Damiani, wrote in the eleventh century.

Roma vorax hominum domat ardua colla virorum ;  
 Roma ferax febrium, nicis est uberrima frugum ;  
 Romanae febres stabili sunt jure fideles,  
 Quem semel invadunt vix a vivente recedunt."

And Pope Innocent the 3d writes, in the 12th and 13th centuries, that few in Rome reached forty years of age, and scarce any sixty.

Lancisi observes, that many of the places where the ancient Roman senators had their country-seats, are now infamous for their unhealthiness, which could not have been so in their time, considering their delicacy in their choice of every thing for their pleasure ; but that this unhealthiness of those places has happened since, by the neg-

ligence of the present owners in suffering waters to stagnate there. Aquileia, once a flourishing city, the metropolis of the country and the seat of a patriarch, is now reduced to a pitiful country town, by the negligence of the inhabitants, without any calamity of war, or misfortunes from abroad, but merely by their suffering it to grow unhealthy by stagnating waters in moist slimy ground. Dr. Rosinus Lentilius, the Duke of Wurtemburgh's chief physician, observes, that there having been formerly a large swamp in the neighbourhood of Stuttgart, the capital of the country, that city was yearly subject to malignant fevers; but, that swamp being drained, and converted into meadow grounds, the city afterwards became healthy. So likewise Rome, in the 16th century, was in a great measure restored to its former state of health, by the care of the pope who reigned at that time, who caused all the stagnating waters to be drained off, and took care that the city was every where kept clean. But one particular place where the inhabitants were obliged to carry and throw the dead carcasses of beasts and other filth into the river, was frequently subject to the return of these annual malignant fevers, by the inhabitants not taking sufficient care to throw their filth far enough into the stream, whereby such nastiness remained upon the shores, or kept floating in the eddies, and occasioned an offensive smell there.

The river Morano, in 1608, having by a flood overflowed its banks, filled the adjacent lower parts of the city of Rome with stagnating waters, which remaining there corrupted, and sent forth stinking vapours, whereby the adjoining houses were infected and became unpeopled by the death and flight of the inhabitants. Pope

Clement the 8th ordered a large drain to be cut, by which that part of the town was kept dry, and it continued afterwards always as healthy as the other parts of the city.

In 1695, that part of the city of Rome called the Leonine, became offensive to the inhabitants by a stinking smell: the inhabitants of that quarter were seized with epidemical fevers, as likewise the adjoining parts to the northward of it, while the parts immediately to the southward, and the more distant parts remained free: this was found to be owing to a neglect in scouring the ditch of the castle into which that part of the town was drained: by cleaning out the ditch and opening the drains, that part recovered its usual healthiness. Our author likewise takes notice that the owners of a particular part of the town where there were ruins of some old great buildings, having dug deep into these ruins for materials for building, and suffering the waters to stagnate in the pits, it began to stink, and the inhabitants of the neighbourhood were seized with malignant fevers which continued till these pits were filled up, after which they entirely ceased.

The Tiber having overflowed its banks the 23d of September, 1704, Lancisi, chief physician to the reigning Pope, Clement XI. signified to the pope the danger that the health of the inhabitants would be in from the stagnating waters if they were not removed before the summer's approach. He set forth that the turbid water being carried into the lower parts of the town, fills the cellars of the houses and the wells, the waters of which chiefly serve the common people for drink; these waters, as

they are strained off the earth leave behind them all the filth with which they were impregnated from the dead bodies of insects, and the carcasses of dead beasts, &c. : that this slime during winter remains fixed, and sends forth no vapours, but after the summer heats begin, it ferments, and sends forth noxious vapours, exceedingly prejudicial to all the vital parts of the human body, and productive of fevers of the worst sort. He adds, that noxious vapours are not only thus produced at Rome, but in every other warm climate, except where they have frequent gusts of northerly winds during the summer which disperse those vapours which otherwise would hover and remain in the circumambient air where they are generated. He puts the pope in mind, that not long before a great destruction had happened among the inhabitants by camp or pestilential fevers, and that by the neglect of the governors of the city on an occasion like this, the prudent pope, pursuant to his physician's advice, issued an edict for draining the waters, and cleaning the city from all the slime and filth, and for keeping it clean and dry for the future ; and care being taken to have this edict effectually put in execution, the city had remained to the time Lancisi wrote his book, the space of fifteen years, entirely free from all fevers of that kind. Pisaro is situated at the mouth of a river, near the Adriatic sea, in a plain near great quantities of marsh and oozy grounds, and was infamous in ancient times for the unhealthiness of the place, as appears from the following distich of Catullus.

*Præterquam iste tuus moribunda a sede Pisauri  
Hospes, inaurata pallidior statua.*

It continued so for many ages ; so that scarce any of the inhabitants ever reached fifty years of age, until it had

the good fortune to fall under the government of a wise prince, who, in order to relieve the inhabitants from the mischievous effects of the situation of this place, opened the channel of the river, cut its course more straight, made large canals for draining off the water from the low places, and where they could not be drained filled them up. This was done in the years 1515, 1517, 1518, and from that time the city became healthy, populous and opulent, until the citizens, forgetting from what causes they enjoyed such blessings, suffered the canal of the river to fill up, and neglected their drains, and this occasioned in the years 1708 and 9, grievous malignant fevers. An engineer was sent by Lancisi's advice to Pisaro, to contrive proper methods for draining the country, which being effected, the city was restored to its former state of health. In 1705, malignant pestilential fevers became yearly epidemical in Urbevetano, a town formerly very healthy; this Lancisi said was occasioned by the inhabitants digging many pits in their low lands near the town for rotting flax and hemp, at the same time neglecting these drains, and suffering their streets to become offensive to the smell by the filth that remained upon them. By Lancisi's advice, the pope ordered these pits near the town to be filled up, and others made at a greater distance from the town. That the drains, cisterns, and cellars of the town, and the pits for rotting the flax and the hemp should be yearly cleaned in the months of January and February, that the slaughter-houses be removed out of the city, and set in such places where the filth exhaled be constantly washed away by every rain. These orders being effectually put in execution, the fever did not return the following summer; and the town kept free of them to the time Lancisi wrote in 1716. The citizens erected

an inscription on one of their gates, in commemoration of their deliverance from these pestilential fevers, and of the means by which it was procured.

On the first of May, 1707, the hilly grounds to the southward of the town of Bagnarea, after continued great rains, began to fall into the river which was near that town in such a manner that whole vineyards were moved from their places, and some houses entirely, without falling: in one of them a woman was delivered of a child, while the house was on its march. The channel of the river was choaked and filled up. Many cracks, gaps, and holes were left in several parts of the ground, in which the waters stagnated, and they being impregnated with sulphureous minerals, with which the earth there abounded, they became exceedingly offensive to the smell. In the summer heats, the colour of the inhabitants became of a dead swarthy yellow, and grievous pestilential fevers seized them. These were confined to the southern and lower parts of the town, while the other parts which stood high and at a distance from the stagnating waters, out of reach from the vapour which arose from thence, remained healthy, as usual. The channel of the river, by order of the magistrates, being cleared, drains made for carrying off the water, the places where it stagnated cleared, and the cavities, which could not be drained filled up, the inhabitants were the next summer freed from them till the time Lancisi wrote, and he doubts not that they will continue so as long as they shall continue to keep the town and adjacent parts clean and free from stagnating water.

In the public thanksgiving, ordered for this deliverance, the bishop declared the obligations they were

under to Lancisi, by whose advice they had been delivered from such pernicious diseases.

Our author, in like manner, observes, that Ferentino, by his advice was delivered from such like epidemical distempers, in which I find nothing particular to be taken notice of, but that the necessary works for draining the stagnating waters and keeping the town clean were obstructed for some time, by the avaricious penury of some of the inhabitants, and the private interest of others, which in such cases must sometimes unavoidably suffer. Lancisi was so much confirmed by long experience in his opinion, that these kinds of fevers are always occasioned by stagnating waters, that whenever he heard of such fevers breaking out in any place he did not doubt to affirm, that they were occasioned by filthy offensive water, a slime stagnating in those parts, and that before he had information of such cause, and frequently before the inhabitants themselves had taken notice of the cause. This, his conjecture, was always confirmed upon a proper inquiry. I shall only add that Ramazzini likewise observes, that in 1690, the inhabitants of the low moist parts of Modena were seized with epidemical fevers, while those of the high parts of the city remained healthy. All the writers in physic confirm the truth of these observations whenever they have occasion to write on this subject, and indeed stagnating waters have been infamous from all antiquity for their noxious quality, and for that reason by the ancient poets described under the representation of the hydra, throwing out a poisonous deadly breath. Clear, deep ponds, are not found unhealthy, though they have little or no motion. Nor are salt water ponds ; but the more saturated they are with mud and slime, especially with the



dead carcasses of insects or of beasts, or other nastiness, or of sulphureous or arsenical minerals, the more mischievous they are ; and the greater variety in the mixture, they are thought to be thereby the more noxious. Salt water, when it is mixed with fresh water, thus saturated, is more mischievous than fresh ; hence the marshes, where the salt and fresh waters meet, are more unhealthy than either the salt marshes or the fresh water marshes. Places situated on the north side of those slimy wet places, are more unhealthy than those on the south side of them, because the warm moist southerly winds increase the fermentation, and consequently the quantity of noxious vapours rising from it, and carries them to the northward. Stagnating waters are not so hurtful to those that have been accustomed to such an air, as to those that come from a clear, healthy air. It is more dangerous to sleep in such an air, than to use exercise in the same air, for it is observed, that the vessels of any animal imbibe more of the moisture of the atmosphere, while they sleep, than when awake.

The ill effects of noxious vapours increase with the heat, and frequently grow pestilential about autumn : the reason of this is, that in the beginning of summer, the vapours are diluted and mixed with a greater quantity of water (which blunts the force of the noxious particles) than in the autumn, when the purer parts of the water are all spent and carried off. Stagnating waters are never noxious in the winter, because the winter colds stop all fermentation, consequently the emission of noxious vapours. The ill effects of noxious vapours are different in different constitutions of the air, and in different climates, for all fermentations are altered by the different state of the atmosphere, and this is the reason why the same kind of

spirit cannot be produced from molasses in North America, that is produced from it in the West-Indies ; and of the different kind of spirit produced in the several islands ; the different state of the atmosphere, is the reason of the different effects that the noxious vapours from stagnating filthy water have on the animal œconomy ; because, not only different kinds of vapours are raised, from a different fermentation in the stagnating fluids, but they raise likewise different fermentations in the animal fluids ; hence different kinds of fevers produced in different constitutions of the air, and, for the same reason, physicians are never certain of the method of cure, till by different and repeated experiments they discover what is prejudicial or helpful ; for the different state of the atmosphere is not to be discovered by the organs of our senses. For this reason likewise, the safest prescription a physician can make to his friend is, the *pilula ex tribus*, as it is commonly expressed, *viz. cito, longe tarde, ac cede cito : longinquus abi, serusque revertē.*

These two last years (so far as I can recollect from my memory, for I have not made any particular observations) we have had fewer thunder-gusts than usual, though sometimes a few sharp ones in particular places, and fewer north-west winds succeeding these thunder-gusts. Now, thunder-gusts disperse these vapours, and are observed likewise to obstruct fermentation, as appears by their effects on fermenting liquors—beer, wine, and cider, while new and fermenting, and upon eggs while hatching. If this be confirmed by the observations of others, it may give a reason why those noxious vapours may have produced more direful effects these two last summers than usual. I shall next take notice of some things which one not very nice in observing may have taken notice of in America, in confirmation of Lancisi's observations. First,

it is generally taken notice of all over North America, that where the salts and freshets meet, if it be in marshy, oozy grounds, those places are most subject to intermittent fevers, and sometimes to a fever of a malignant nature. I remember that several years since, when I was at Bristol in Pennsylvania, opposite to Burlington, which is situated to the northward of a large space of swamp ground, they told me that they had been from the first settling of Bristol subject to intermittent fevers, of a malignant kind, and indeed, the aspect of the inhabitants shewed the ill effects of the air which they breathed. While I saw them they assured me, at the same time, that not above two or three children, born in that village, since its first settling, had attained to the age of maturity; but, since that time, these swamps having been drained and converted into profitable meadow grounds, I am informed that Bristol is in a great measure freed from these annual epidemical fevers.

It is well known, that the Paltz-river, or Wallkill, in Ulster county, in this province, has been long taken notice of as very prejudicial to the health of those who live near the banks of it. The waters of this river are of a dark colour, and come from a large space of ground overflowed with stagnating waters. The inhabitants along this river, are yearly afflicted with intermittent fevers, during the summer season, and a constant fog or vapour is observed almost all the summer (except in the time while the north-west or northerly winds blow) to arise over that river, and to remain there at a certain height and distance every morning, till the heat of the sun disperses it, and frequently likewise in the evening.

I have observed these intermittents to have different

degrees of malignity in different years, and that these two last years they have been more malignant than usual. There may be a reason given for this malignity this last summer ; besides that of the fewer thunder-gusts which were common with the year before, viz. the great number of ground caterpillars, which destroyed the grass in the meadows, from whence this river and the streams which run into it arise, and which died there, and raised a very offensive smell. I have known some of the inhabitants along this river, who by removing their habitations to a small distance from the river, to a higher ground, and to the south side of the river, have freed their families from the influence of these noxious vapours ; but that a removal on the north side had not been so effectual in preventing these ill effects, though it was to a high ground. I shall in the last place, endeavour to apply some of the preceding observations to New-York in particular.

1st. It is well known that part of the town chiefly afflicted with the epidemical distemper these two last summers, is built upon a swamp or moist slimy ground ; that it is flat and the waters not easily drained from thence ; that some other parts of the town are likewise built on low swampy grounds, and that the moisture of these grounds is to be observed in every cellar of the houses built on them. 2dly. No person that walks along the docks, but is sensible of the filthy smell there, especially in the slips ; that by an intolerable carelessness, the nastiness of the town is thrown into these slips, at such a distance from the stream of the river, that it is not carried off, but remains there, and is observed to ferment to such a degree, that it appears as if it was boiling to the eye of the spectators. 3dly. That there is no constant and suffi-

cient care of the drains by which the cellars are freed from stagnating waters, and that the cellars themselves are seldom or ever cleaned after the settling of corrupted slime. 4thly. That these parts of the town have always been subject to epidemical disorders, every summer towards autumn, especially among children, and that there is yearly a mortality among infants, and disorders more frequent at that time than usual in healthy places. I know that the fruit of that season is generally blamed as the cause of disorders among children; but if it be considered that the children of the country eat more plentifully of all kinds of fruit, and yet remain free from those disorders, and that keeping the children in the city entirely free from fruit does not save them from the epidemical distempers of the town, they must be attributed to some other cause; and, from the above observations, what more likely to be the cause than a faulty atmosphere of the place?

What has been before observed, naturally leads us to the preventive remedies of the annual epidemical diseases of New-York; that is, faithfully to drain out the slimy wet grounds, to fill up the slips, to take care that all the filth and nastiness of the town be emptied into the stream of the river: for which purposes, it will be necessary for the magistrates to think of effectual regulations, and to put them diligently into execution. I am of opinion this cannot be done effectually, but by the drains being put entirely into the hands of the corporation, for as they are now in the hands of private persons, managed only by a voluntary subscription, and dependent on the humours and inclinations of a great number of persons, many of them penurious, negligent, and insensible of the prejudices which follow on the drains not being kept in good order, and as the work cannot be carried on but by a general consent,

it must often fail, as is but too well confirmed by experience ; whereas, if these drains were managed by a public tax, then every one, as it would cost him no more, would be desirous of having his cellar clean and dry, and his nostrils freed from an offensive smell. But even in this case, to make this work be carried on effectually, the care of the drains must be put under the direction of men of known industry and zeal for the welfare of the town, and to bind those who have the direction more effectually to their duty, it should be so ordered, that every man may have an action for any damage he shall suffer by the neglect of the drains. If the magistrate should think the aid of the legislature necessary, more effectually to enable them to perform their duty, in this case it cannot be doubted but that they will easily obtain it, on a proper information and application.

It will be objected probably, that the late distemper in New-York has been imported, by infection from abroad. Suppose it be, yet this does not make it less necessary to drain the wet and moist grounds in and about the city, and to keep it clean and sweet ; for it is well known that some airs and constitutions of the atmosphere, are much more proper to feed and propagate infection than others ; that an air filled with corruption is a fit nourishment for infection ; for it is observed often to proceed from thence, as has been many times observed in camps, towns besieged, prisons, and in ships crowded with people, where sufficient care has not been taken to keep them clean. The different state of health was very remarkable in the city of London, before the *fire*, when the streets were narrow, ill paved, and few drains. Since that time, the streets are straight, open and airy, and many drains, and the streets are carefully

kept clean ; but especially by the advantages of the new river, which since that time has been brought into the city, by which all the filth and nastiness of the town is washed away.

In the year 1590, 25,886 died, of which number 11,503 of the plague.  
1603, 37,294 died, of which number 30,561 of the plague.  
1625, 51,758 died, of which number 35,403 of the plague.  
1630, 10,595 died, of which number 1,317 of the plague.  
1636, 23,359 died, of which number 10,400 of the plague.  
1665, a greater number died of the plague than any time before.

By which it appears that the plague was in London once in twelve years, one time with another, before the fire of London ; whereas, since the fire, it has not been there in seventy-seven years.

Indeed, the supposition of the infection being brought from abroad, makes the reasons for cleansing the city and keeping it clean, more strong, rather than weakens them. It is well known that these infections are like a leaven, which will lie dead in cold weather ; but as soon as the weather becomes hot, they ferment anew, and propagate and spread wherever they can find a proper subject to work upon, which, it is allowed by all, is filthy corruption mixed with moisture. It is likewise observed, that some constitutions of the air or atmosphere are much more proper for propagating pestilential infection than others, as may have been particularly observed of the small-pox ; that sometimes it has been imported into places, where only one or two or a very few, have been taken with it, after which it has ceased without any particular care of the inhabitants to avoid it, but from the atmosphere being void of these vapours which are proper and perhaps necessary to feed it.

The plague has not been less frequent in several places with which London entertains commerce, since the year 1665, than before ; on the contrary, the commerce of the city of London has been much increased since that time, and for that reason, it can hardly be doubted, but that infection has been several times imported since the year 1665, and there are some instances of its having actually appeared in some parts of London ; but the atmosphere of London being less proper to propagate the infection, it has been much more easily stifled by the inhabitants. But besides this of taking away the proper nourishment of the pestilential leaven, it will be necessary to destroy the leaven itself, and as this most probably is preserved in the filth of the town, so it is likewise observed to be often retained in clothes, especially woolen clothes, which keep it warm and defend it from the severity of our winters, when the cold otherwise would destroy it. It may be necessary, for this reason, that, by public authority, every house and corner of the house be cleaned out, and under severe penalties when neglected, and all the clothes and apparel be exposed to the open air, in the coldest season of the year, and that for several days together. It is very difficult for the magistrates to take that care to have this effectually done in every house and corner ; some people are so wretchedly stupid, that rather than take some trouble for a few days, they will risk their own health and even the destruction of the whole community. It is for this reason, that many wise legislators instituted religious fasts and purifications towards the end of winter, in order to engage the more thoughtless people to the performance of so necessary a duty, by enforcing it on their consciences as a religious duty, commanded by the immediate edict of the deity.



There is no doubt, that it is a duty incumbent on us by all laws, human and divine ; and whenever the magistrates shall enjoin this work, it will be the duty of christian ministers to inculcate the punctual performance of it on their hearers, that men's consciences may be awakened by the heinousness of the sin, as the neglect of so necessary a duty certainly is the nourishment of this destructive leaven. In the last place, it is necessary to observe, that the summer is no proper season for cleansing the city from corrupting filth, for the stirring it at that time increases the quantity of vapours, and the doing it at that time has been observed to produce the most direful havoc among the inhabitants. The most proper season is, toward the end of winter, when the fermentation is entirely destroyed, and the doing it at that season will have another advantage, that less filth collected in the winter will remain on the approach of summer.

**P. S.** I forgot to mention a remarkable confirmation, in sight of the town, of what has been advanced in the preceding treatise. A fresh water pond and meadow of stagnating water, not half a mile to the northward of the city of New-York, has been lately drained for the benefit of the soil, without any thought of any advantage to the health of the neighbouring inhabitants, though its effects in that respect be very manifest. Every summer the inhabitants of the houses on the north side of it, before it was drained, were subject to malignant intermittents, and several, in the few houses there, yearly died. Since the draining of that place, these houses are become as healthy as any in the neighbourhood. Caspar Cantarini, in his account of the republic of Venice, mentions a new college, or council of magistrates, appointed not long before his time,

to take care of the health of that city, and whose business, among other things, was to cause all filth and every nuisance to be removed, and the city kept clean. He observes that, before this institution, Venice had been frequently subject to pestilential distempers, insomuch, that many of the inhabitants for that reason had deserted their houses, and removed their families to the continent, but, that after these magistrates were appointed, who continued vigilant in their duty, the city had always remained free from any grievous pestilential distempers, though there had been several instances of such like distempers breaking out from time to time in private houses and quarters, which, by the care of this magistracy, had been always kept from spreading or becoming epidemical.

#### IV.

OBSERVATIONS *on the FALLS of the OHIO*, by Col. JONATHAN WILLIAMS, *President of the United States' Military Philosophical Society, Fellow of the American Philosophical Society, &c. &c.\**

(Read October 5th, 1806.)

*To the Chairman of the United States' Military Philosophical Society.*

West-Point, October 4th, 1806.

SIR,

I HAVE more than once heard it observed, that it is the duty of every man, to make the natural history of his

\* In conformity to a vote of the United States' Military Philosophical Society, the Editors have been favoured with a copy of the following valuable communications (the 4th and 5th articles) made to that body, by their learned President.

EDITORS.

own country as much known as possible, and, if his knowledge were but a mite, he is bound to throw it into the common stock ; thereby to improve and extend the benefits which Providence has bestowed on this favoured part of the world.

Impressed with this sentiment, I am induced to send you my mite, which if it cannot rise to the title of a benefit, may at least gratify curiosity.

The river Ohio, which, on account of its peculiar beauty, was emphatically called "*La Belle Rivière,*" by the French, has but one bed of rocks, that runs across it, throughout its whole course, from Pittsburg to the Mississippi. This obstruction is at Louisville, and, although the rapids occasioned by it, are called Falls, they are not such, as absolutely prevent navigation: but they are sufficient to render it both difficult and dangerous. My examination of these falls, being incidental to my passage down the river, and confined within the limits of a traveller's time, a full and minute description cannot be expected ; but, in order to convey, as accurately as possible, all that was discovered, I shall adopt the style of narrative, and mention every circumstance.

In the month of August, 1801, I descended the Ohio, with troops and stores under my command, in large boats, and arrived at Louisville, when the waters were at the lowest, and but one of the shoots,\* as they are called, could be navigated.

\* Probably a corruption of the French, *chute*, or fall.

Mr. Nelson, of Louisville, who was engaged to pilot the boats through, observed to me, in the course of conversation, that there were a great many curious petrifications on the rocks in these Falls, particularly of the excrements of geese, and of buffaloes' horns. This account appeared to me fabulous, for it was inconceivable that light substances could be retained an instant, in a rapid current, far less was it possible to believe, that they could become petrified in that spot alone, and not in other parts, where the water, being in a more quiet state, is better able to exercise its petrifying quality on substances at rest in it.

The next day, I went with Mr. Nelson to the edge of the farthest shoot, passing over two, one of which was almost dry, and the other about knee deep. The whole space, between the second and third shoot, was strewed with these appearances, which much resembled what they were supposed to be, as to external form, but various in size. On breaking one of them, there appeared to be a regular arrangement of longitudinal fibres; and, upon my remarking to Mr. Nelson, that although this might be the case in a horn, it was absolutely impossible in excrementitious matter, he noticed its resemblance to a root, and it instantly occurred to me, that if these appearances had been roots, I should, by tracing their origin from the smaller towards the larger ends, as they appeared here and there above the surface, arrive at the tree from which they issued: the search soon brought me to the complete form of a stump, apparently cut off horizontally, and I could trace its annulars and radii, as accurately as I could have done in a sawed log of wood. The surface was as smooth as a hone, and so hard that I could not break off any part with an axe, but fairly beat the head of it into a

shapeless mass, by repeated blows. The utmost I could obtain was a few small pieces, where they happened to be detached and project a little from the mass, which appeared to be one bed of petrification.

On a farther examination, I found many more trees, and could distinguish various kinds; some were of a fine red colour in the centre, diminishing to white at the circumference, and plainly appeared to have been red cedar: others were very compact, and of a light straw colour, like the beech: others of a darker colour, more separated fibres, and more distant annulars, like the oak; some we found in an inclined posture, so that the section being oblique, made the annulars appear elliptical; others were nearly horizontal, like fallen trees, and displayed the appearance of a well planed board, somewhat across the grain. Upon further examination, it appeared evident to us, that the whole mass of rock had been a forest of large trees, and the surface we saw, might be easily conceived, by imagining a number of trees to be very smoothly cut level with the hard ground, and every species of vegetation to be swept away, while the superficial roots protrude about half of their diameter, in many places, and then dip under ground again. Our parade at the cantonment, near the mouth of the Ohio, having been made out of a forest, exhibited precisely the same appearance, except the distinction of wood and earth in one, and a petrified mass in the other. Whoever will give themselves the trouble of examining the superficial and repent roots of our lombardy poplars, will see, in part, an exemplification of what I mean to describe.

After establishing these facts, the next thing should be,

to draw some useful conclusion from them ; and one that occurs to me, is the probability it gives of the facility of making a locked canal, to unite the waters above and below the falls, thereby rendering the navigation more convenient ; for it often happens, that a loaded vessel, ready for sea, arrives at the falls too late to pass them, by which the owner is reduced to the alternative of waiting several months for the waters to rise, or of transporting, at a heavy expense, the whole cargo, three or four miles by land, to say nothing of the advantage of giving passage to loaded boats, ascending as well as descending, without any delay. That it would be easy to make a canal is probable, because there seems to be no reasonable apprehension of meeting with rocks in the way, which would have been very probable, if the mass of obstructions had been original rocks ; and as the whole country, above these falls, to an extent of fifteen hundred miles, is interested in facilitating this passage for its produce, the time may not be far distant, when such a measure will be adopted.

It may appear singular that this discovery was not made before, and that nothing has been said of it by others, since I made it : the reason is plain : a man must be at the spot, in just that time of the year, when the waters being at the lowest, there are very few river navigators. This man must be affected with that agreeable mania, of seeking something new, wherever he goes, and he must be enough of an enthusiast, not to consider his labours a trouble. I do not know, that a single inhabitant of Louisville, ever went so far over the falls as I did, and, even Mr. Nelson, who follows the business of a pilot, was never so far before. Indeed, it is a trite observation, that the very circumstance of having it in one's power, to do a

thing at any time, is the cause of its being perpetually neglected. I should feel myself liable to this reproach, if I had not made a communication of these facts to the American Philosophical Society, at Philadelphia, and deposited in their museum the specimens above mentioned.

The result of these facts and circumstances, seems to be an indication at least, that the river Ohio had formerly another bed, or that this part of its bed has been much widened. Were I to hazard an opinion, I should favour the latter supposition, for it seems to be a natural event, from self-evident causes. Let us suppose a quantity of drift trees, which floods and storms are almost constantly sending down our large rivers, to accumulate in some narrow part, and there form an obstacle to the passage of the water : this passage, once obstructed, in a small degree, would become more and more so as more drift wood came down : the limbs and tops of the trees would be torn off, and float with the current, but the trunk, roots, and masses of earth around them, would remain, and the lower parts, being the heaviest, would preserve generally a vertical position. As the water became damed up, it would spread and find new passages, on either side, overwhelming the adjacent borders, and, in the course of time, the petrifying quality of the water, would change the whole mass into calcareous earth and apparent stone, preserving the form of the original substances. The great width of the Ohio, in this place, the number of channels it has formed, the irregular windings of these channels, and the number of small islands in its course, to a considerable distance, seem to justify this opinion. I do not presume to assert any thing, and shall be glad to be informed, by more experienced naturalists, who might, by analogy, point out

more probable causes for these appearances. In the mean time, as hydraulics make a very important branch of military science, the subject may not be thought unworthy of the consideration of this society.

JON. WILLIAMS.

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## V.

*On the height of the MOUNTAINS in Virginia and New-York, with observations on the formation of RIVERS, by Col. JONATHAN WILLIAMS, President of the United States' Military Philosophical Society, Fellow of the American Philosophical Society, &c.*

(Read Nov. 5th, 1810.)

IN the summer of 1791, having occasion to travel from Richmond, to the back parts of Virginia, I observed the barometrical changes, as I ascended the blue ridge, descended on its western side, and again ascended the Alleghany mountains; these changes being reduced by the rule of calculating heights barometrically, gave a set of results which were afterwards communicated to the American Philosophical Society at Philadelphia, and published in the fourth volume of its transactions. But as these results were in a small degree erroneous, owing to the omission of a due allowance for the expansion of the mercury by heat,\* I now subjoin a more accurate account of the height of the most prominent points from the level of tide water. To these, I have added the heights of the Highlands, in the neighbourhood of West Point, which have

\* The thermometer stood at 80, on the Alleghany Mountains.



been lately very carefully examined by Captain Alden Partridge of the corps of engineers, and professor of mathematics in the military academy. He had the advantage of having one barometer below, while the other was above, and by means of assistants, both observations were made at the same time. As I travelled with my single instrument, and as a long lapse of time intervened between the comparison of the height of the mercury, below and above, the same accuracy was not possible.

The following is a statement of all the results.

Altitude in feet above the level of tide water in Virginia.

- 1. The highest point of the blue ridge, near Rock fish Gap . . . . . 1908
- 2. The foot of the blue ridge on the western side 895
- 3. The summit of the first mountain, near the warm springs . . . . . 2018
- 4. The summit of the second mountain, near the warm springs . . . . . 2380
- 5. The summit of the Alleghany Ridge, about six miles west of the Sweet Springs . . . . . 2988

Altitudes taken by Captain A. Partridge, near West Point, state of New-York, above tide water, also in feet.

- 1. The Plain at West Point . . . . . 176
- 2. Fort Putnam . . . . . 561
- 3. Crows nest, on the west side of the river . . 1330
- 4. Butter Hill . . . . . 1432
- 5. Old Beacon on the east side of the river . . 1379

6. Bull Hill . . . . .	1391
7. New Beacon . . . . .	1486

It will be observed, that the Blue ridge of mountains do not descend on the west side so far as they ascend on the east, the country behind them being generally from 800 to 1000 feet higher than the foot on the east side, while the Highlands on the north river descend again to the level of tide water. This seems peculiar to these highlands, which form, as it were, an insulated ridge, while the great back bone of our country rises by stages to its highest point, and then descends by stages again to the western waters.

In like manner, the Andes, some of which rise to twenty thousand feet above the ocean, have valleys from two to six thousand feet deep, between them, but they altogether form one mass. It is indeed peculiar to Hudson's river to have highlands near the mouth of it. Most of the rivers in the world have low lands to a very great extent, and the larger ones terminate in several branches towards the sea.

In our country, the Delaware, and every river south of it, runs through a comparatively low country, while in Europe, Asia, and Africa, the remark also holds good ; the exceptions to it will, (if any) be probably found in the more northern latitudes ; but I know of no river that in this respect can be compared with the one on which we live, either in its highlands, depth, extent of tide water, or the excellent harbour at the mouth of it.

The precipices on the North river which have their

fronts towards the east southwards, and south, westwards, are in many places perpendicular to the horizon, as the pallisado rocks between New-York and Tappan Bay and in all are very rugged and steep, while all the land that fronts towards the west, northwards, and north, eastwards, presents to our view a gradual slope : this is evident, on the right hand ascending the river, where the beautiful grounds of York Island, of the vicinity of Philip's Town, Tarritown, Mount Pleasant and Peekskill, form a series of contrasts to the opposite side, and after passing the highlands we see the northern side of Butter Hill on the west, and of Beacon Mount on the east, descending in a gradual and beautiful declivity. The only exceptions to this rule are in the narrow passages which are evident eruptions made by the water forcing its way through them, for if we reason by analogy, and from small effects to great ones, we shall be led to the conclusion that the large bays in the North river were formerly lakes, connected by falls, which have by time so worn away the obstructions as to form the narrow passages we now find, with the rude vestiges of the rupture on both sides.

Ponds of a great extent still remain imprisoned in various parts of the highlands, and as their capacity and depth bear no proportion to the resistance around them, they will probably remain ponds for ever : but it might not, to a reflecting mind, be a very great stretch of the imagination to suppose that a time may come, when even the Falls of Niagara will be worn down level with the bottom of Lake Erie, which would discover vast tracts now submerged, and should the rupture be sudden, probably make great changes in the face of the country below it.\*

\* Commodore Grant, one of the oldest and most respectable inhabitants in Upper Canada told me in 1801, when I was in that country,

But to return to the varied and opposite appearance along the banks of the Hudson: it is always pleasing to detect nature in her stupendous operations, and to discover the remote causes of what at first view appears so wonderful. It is well known that ice occupies a larger bulk than water, and of course all fragile vessels full of water, burst on being frozen; hence we may conclude, that water filtering through the fissures of rocks, and contained in the small cavities, must burst these fissures and cavities, when, by being frozen, it must expand to a greater bulk than they can contain. Now, the oftener this alternate liquid and solid state of water takes place, the greater must be the destructive breaches made on the sides of mountains, so exposed to this cause and effect. With these preliminaries let us recur to what takes place on the sides of mountains, one fronting from S. E. to S. W. and the other from N. W. to N. E. during winter.

In the first case it is evident, that the frost of the night will be melted in the course of the day, as the apparent motion of the sun progresses through these points, and

that the Falls of Niagara had receded considerably since he first saw them; and it was evident, as far below the Falls as Queenstown, that the strata on both sides of the river were exactly similar, even springs and small cascades on one side, had corresponding ones on the other, as if they were the effect of rupture: but what seems to confirm the supposition more strongly is, that the ridge of country which appears to have formed the great barrier between the two lakes, is eight or nine miles in advance of the Falls. It is a well known proverbial saying, that constant dropping will wear a stone, and in all rapids we find holes worn into the rocks by whirlpools: if these effects of running water were to be extended to the immense mass that pours over the Falls of Niagara, the wearing away of the obstructions would appear not merely problematical but unquestionable.

the water, which in the day fills the fissures and cavities will be frozen in the course of the night, and thus the work of destruction will be continually going on during the frost, and the spring torrents washing all that was detached down to the foot wear away the surface and form vast gullies and precipices. In the second case, as soon as the frost has fastened all the northern side into one immoveable mass, it will so remain till the gradual thaw of the spring permits the water to escape over the frozen surface, all of which passes off superficially, and leaves the mass undisturbed except by what afterwards happens in the spring and summer rains. The observations applied to our highlands, will apply to all other mountains in the world, and accordingly we find it adopted as a general rule, in what is called by an eminent French writer\* "*the Theory of Mountains,*" that the southern sides are precipices, and the northern, gradual slopes.

Since the facility of transportation on this river has been so much increased, travellers from every part of the union have been drawn towards it, as well to enjoy its magnificent views, as the benefit of the salubrious springs towards its source, and it must have been a matter of general remark, that it affords a greater and more extensive shelter for a navy warlike or mercantile, than any nation in Europe can boast of. But there is one fatal objection to the permanence of this shelter, for during the season of the floating ice, no ship can ride in the North river: these advantages, therefore, which challenge the world for a parallel, are destroyed in a sudden frost, or an unexpected thaw. Let us now cast a view along the west shore, from where Fort Lee stood opposite to Manhattanville,

\* Le Fabre.

to Tappan Bay. Here we see a high and perfect shelter from the north-west winds (the only ones to be dreaded in winter) extending to the length of ten miles, a depth of water close in shore sufficient for all vessels that navigate the North river, and, from three to five hundred yards distance, depth enough for any ship that can pass the bar at Sandy Hook ; and while the shores on New-York island have immense masses of ice crowding one against, and often one upon another, there remains a wide space, either of clear water or quiescent ice, along the west shore. All that is necessary to make this permanent is to secure it from the floating ice at certain times, though comparatively seldom, and this might be effected by piers, at a proper distance from each other, and at right angles with the shore, extending from three to five hundred feet into the river. Twenty of these piers one thousand feet apart would be a safe harbour for four hundred sail of large ships, and twice the number of river craft, in the very worst season, supposing them to be in tiers as deep as the space would allow, and these obstructions to the ice might be multiplied to as great an extent as could be required. To construct one of these piers, we must not make a comparison with the docks of New-York. One fifth, perhaps one tenth of the expense would be all that would be necessary ; for we have only to make stages on a proper slope, and the stones of the palissadoes may be made to go by their own gravity into their proper places by tons at a throw, and of themselves form the requisite obstruction to the ice, which need only be a mass of stones, without any other shape than such as they would naturally take.

This is not all ; the taking away of a mass of stone for

each pier, would open a passage into the country behind this inaccessible precipice, and thus bring to New-York market the produce of a vast extent of territory, which at present can be brought to the distant ferries only by an expensive land carriage. Thus, the whole expense, whatever it might be, would be paid for by the increased value of the soil, and these winter harbours be produced without (in a national point of view) any expense at all.\*

The importance of this subject connected with that of the superb advantages of this harbour in general would draw me into an immoderate length; I must therefore conclude this essay with the ardent wish that I had the power to impress on the minds of the inhabitants of New-York an adequate idea of the commercial and maritime advantages they enjoy from nature, and inspire them with a steady resolution of embracing every means of art for their improvement.

JON. WILLIAMS.

P. S. Since the foregoing was communicated to the Society, the following letter and its annexed statement has been received.

\* The facility and cheapness of making these piers by finding the stones on the spot, and merely throwing them into the water, is the reason for mentioning the Palisado rocks in particular, for if we were to go to the expense of a regular Mole, we might come nearer home. The bluff point of Hoboken, the seat of Col. Stevens, is in view from the city. Let our ship owners remark this place during the ensuing winter, and they will perceive what a fine winter harbour might be made by running a long pier from this point.

West-Point, October 30th, 1810.

SIR,

I HAVE the honor to enclose you the result of our expeditions to the Catskill mountains. The altitude of those mountains is rather greater than I expected to find it. I have attached such specific names to the principal peaks, as I found made use of by the inhabitants. The Round-top (as it is called) is said to be the highest peak in the range, and next is the one called the High-peak. The turnpike-road from Catskill town, toward the Delaware river, passes over a considerably elevated part of the range. There are two considerable ponds (or lakes as they are called by the inhabitants) on the top of the mountains, near where the turnpike passes, the outlet of one of which is precipitated over the falls, called the High-Falls, the altitude of which (according to our calculation) is herein enclosed. By the altitudes of the two mountains, the Round-top and High-peak, above their own bases, is meant their altitudes above that part of the range on which they are situated.

I am, sir, very respectfully,

Your obedient servant,

(Signed)

A. PARTRIDGE.

COL. J. WILLIAMS.

Barometrical calculations of the altitudes of the most elevated parts of the Catskill mountains above Hudson's river, and their bases, lying in the town of Windham, county of Green, state of New-York.

	Feet.
Altitude of the Round-top, above the river, . . . . .	3566
Altitude of the High-peak, above the same, . . . . .	3486 $\frac{1}{2}$
Altitude of the highest part of the Turnpike, above the same, . . . . .	2273 $\frac{1}{2}$



Altitude of the Round-top, above the base of the range of mountains, . . . . .	2911
Altitude of the High-peak, above the same, .	2831
Altitude of the highest part of the Turnpike, above the same, . . . . .	1630
Altitude of the base of the mountains, above the river, . . . . .	655
Altitude of the Round-top, above its own base,	1550
Altitude of the High-peak, above its own base,	1470
Whole altitude of the High falls, . . . . .	310 $\frac{1}{2}$
Altitude of the first falls, . . . . .	190
Altitude of the second falls, . . . . .	120 $\frac{1}{2}$

(Signed)

A. PARTRIDGE.

Captain Partridge was attended by several cadets from the military academy, and barometrical observations were made below, while he made those at the different heights in the above table; there can therefore be no doubt of his correctness.

Before I conclude this communication, I beg leave to make a remark, which appears to me, at least curious, if not otherwise of importance.

By the graduation of the barometers it would appear, that the range, from the most dense to the most rare state of the atmosphere, in Great Britain, is equal to the pressure of four inches of mercury, but in our country, it is rarely found to exceed one inch and a half, and in high situations much less.\* Among the mountains of Virginia,

\* At West-Point, the greatest variation from April to October inclusive, was 1 inch 12-100, and, except in October, i. e. in the course of six months successively, the greatest change was 8-10 of an inch.

I have seen all the changes of the weather usual in the summer months, and a range of 40 degrees of the thermometer without altering the barometer more than 1-20 of an inch. It seems to be a settled fact, that the changes decrease as we ascend, and if a barometer were to be placed on our highest mountain, it would probably be at the same height all the year round. This does not affect the principle of barometrical calculation, (which has nothing to do with changes *in the same place*,) in observing the changes in the pressure of the atmosphere at different altitudes.

I shall leave the cause of this phenomenon to more experienced observers, but hope it will not be neglected; for unimportant as the fact may appear, at first view, it may be accompanied with circumstances of a salubrious nature, well worthy of investigation. Perhaps it may be found, in some degree, proportionate to the more or less moisture of the atmosphere in different countries, or in different parts of the same country. It is known by actual experiment, that the atmosphere of the United States is less moist than that of Great Britain; and, on high mountains, it is reasonable also to suppose, that the atmosphere, being less exposed to terrestrial exhalations, is still more dry. The subject demands a minute and accurate investigation, which can only be made by a succession of simultaneous observations, at various heights, from the level of the sea to the top of our highest mountain.

JONATHAN WILLIAMS.

## VI.

*An Account of an extraordinary case of DIABETES MELLITUS. Communicated in a letter to JOHN COAKLEY LETTSOM, M. & L. L. D. F. R. S. &c. &c. and President of the Medical Society of London, by VALENTINE MOTT, M. D. corresponding member of the Medical Society of London, &c. addressed to the Editors of the Medical and Philosophical Register.*

New-York, 8 mo. 26th, 1810.

I SEND you the following case of Diabetes Mellitus, which was attended with some very extraordinary symptoms, not to be found in any case, as far as I know, upon record. Should you agree with me as to its importance, and think it worthy to be recorded, please to give it a place in the next number of your journal.

With an ardent desire that you will persevere in your laudable undertaking, to promote the cause of general science, I beg leave to subscribe myself, your assured friend,

VALENTINE MOTT, M. D.

R. H. ætat. 9, had been affected with the diabetes mellitus, for some months, without being able to assign any cause for it, except a severe cold, which his mother recollects he caught at school, and from which time she can date the commencement of the complaint. She observed him to make a large quantity of clear, limped urine, and,

upon tasting it, found, as she feared, that it was very sweet, which convinced her it was the diabetes. Medical advice was immediately taken. He was ordered some astringent medicine, and an animal diet was enjoined, and adhered to for a little while, but he soon loathed it, and could not be made, from his untractable age, to obey their injunctions. His urine was now very sweet to the taste, and from four to six pints in quantity daily.

In this way he went on for a considerable time, without any alteration for the better, taking occasionally some astringent medicines. At length he took some of the tinct. of kino, which diminished the quantity, and altered the quality of the urine; but upon increasing the dose, it produced alarming constipation of the bowels, with violent pain in the head and general febrile indisposition, though the urine had nearly become natural, as to quality and quantity. Great hopes were entertained, that by the careful and judicious use of this powerful astringent, the disease would be totally eradicated: these highly flattering prospects soon vanished, as the moment it was increased, so as to produce any effect upon the disease, those alarming symptoms above described, immediately supervened, and made it necessary to omit it entirely. In this way he passed on, without much being done, except now and then taking some of the simple domestic infallibles of the good old mother and others, with the disease gradually on the increase.

The foregoing account was given me by his parents, who had paid more than ordinary attention to the case from the beginning.

When I saw him, which was about nine months after the complaint began, he was making from nine to ten pints of a very clear limpid urine, and very sweet to the taste, on an average daily, though sometimes it would fluctuate from nine to eleven pints, and, I believe, even twelve. He was very much emaciated: appetite, voracious for fruit: thirst, great: the urine, however, exceeded in quantity both the liquid and solid injesta. He complained of weakness in his back, which induced him to set a great deal: he was very peevish and fretful, and had a disposition to seriousness and taciturnity: pulse full, and for the most part more frequent than natural: skin dry, and frequently very hot, so that it would be at first almost painful to the sense of touch: bowels generally pretty regular, with however occasional costiveness; gums foul and spongy.

As all the different modes of treating this disease had heretofore, according to the last authority, proved generally unsuccessful,\* I thought it right to advise the bleeding plan, as recommended by Robert Watt, Esq. surgeon, of Paisley, in Scotland. This I more willingly did in consequence of having been an eye-witness to its beneficial effects in the Royal Infirmary of Edinburgh, in the practice of that very eminent physician, James Hamilton. This practice was, however, thought by the parents and friends, as very inconsistent with his situation, being, as they said, then very weak, and this daily increasing, it would only hasten his dissolution. I endeavoured from

\* Drs. Cullen and Heberden had frequent opportunities of seeing this disease; the former had twenty-one cases under his care, the latter twenty, and they all terminated unfavourably.

time to time to convince them of the propriety of the practice, as the case was a desperate one ; that the authority of its having been of service might be relied on, and that it was their duty, in a disease which had been generally fatal, and considered generally by medical men as incurable, to adopt a practice, which was so well recommended, and promised so happy a result.

Several weeks more elapsed, with very little alteration in the complaint, except an increase of the emaciation and debility, before it was determined to try the depleting plan of treatment. I was now requested to see him again, as his parents concluded, if it was not too late, to try my plan of treatment, as they now saw, that he would inevitably fall a victim to it, if no alteration were effected. Upon seeing him, I did not hesitate to inform them, that it was now too late to attempt it, as his debility was greatly increased, the abdomen ascitic, and the feet and legs anasarcaous. Requesting further advice, my friend Dr. Hosack visited him in consultation, and coincided with me in opinion, that his present situation would not justify Watt's depleting treatment.\*

It was the result of the consultation, that he should be put upon the use of a decoction of columbo, tincture of cardamon, and a small quantity of rheubarb, as a stomachic ; six or eight grains of the exsiccated carbonate of soda, in pills, were to be taken three times a day, to see if the action it induced upon the kidneys, would not only

\* Watt says these hydropic appearances are no objection to venesection ; but in this case, I thought it would not answer to venture upon it, as I was placed in a very critical situation, the practice being quite novel.

alter the quality, but diminish the quantity of urine : he was to go into a bath, as much above 98 deg. as he could bear, with a view to restore the function of the skin, and to render the bath more stimulating, a quantity of the aqua ammonia was to be added.

He wished to make a little excursion into the country to see a relation for a few days, before beginning this treatment. While absent, his parents heard of a person who was cured of this complaint, when about his age, by drinking a pint of strong alum whey, every morning, for about a month, which determined them to try it. He took nearly a pint for eight or ten mornings, when he was seized with a numbness in the extremities of his left fingers. The next day the numbness was increased, with occasional convulsions, or tremulous motions on the muscles of the fore arm, resembling chorea more than any thing else : they occurred at irregular intervals of from five to ten and twenty minutes : before evening the arm, and that side of the face, became frequently affected, so that he had considerable difficulty in expressing himself : this was very much increased the day following, when the muscles, both of deglutition and respiration, became similarly convulsed, so as very much to impede both these functions.\*

Even now he had almost an insatiable desire for food and drink ; the former of which, being altogether fruit, he took by the spoon, though with great difficulty ; and the latter was sucked through a quill. I was convinced

\* For the three first days, it invaded pretty regularly at about 9 o'clock in the morning, and left him about 12 at night.

from a number of observations, that the mere act of deglutition, induced a return of the convulsive affection.

In the course of the ensuing day, it began to affect the left leg, the right side of the face, and, in some degree, the right arm and leg, and was almost without any intervals: whenever it began to abate, he desired to eat or drink, and it would be as immediately renewed. He was well aware of the accession, and would desire to be held the moment it came on. It did not appear that he was in any pain, either during the continuance, or after the cessation of the convulsive motions, as not the least complaint was made.

He continued in this state for about five days, with but little alteration, except on alternate days, it would seem to remit in violence a little. The convulsive motions now were of longer continuance, and appeared to leave the muscles generally, in a more rigid state than heretofore, affecting the muscles of respiration, and those about the glottis, to such a degree, as to threaten almost an entire exclusion of air from the lungs, accompanied with a very unpleasant stertorous noise, and most ghastly visage.

In a day or two the intervals began to be lengthened, and the fits now seemed to affect the whole muscles, with a tetanic or spastic rigidity; but which stiffness and hardness of the muscles, did not prevent the limbs from being flexed, at any time, though they felt as hard as a board. When the stiffness commenced, which it did always in the left arm and side of the face, it now became almost instantaneously general, and so accurately was the action of the flexor and their antagonist muscles balanced, that in whatever position he was seized, so he remained, if not



moved, till it went off : there however was a slight tremulous motion throughout the whole body.

In this way, he continued a few days ; the intervals increasing, till about the twelfth from the first attack, when they had completely left him. Before leaving him they were sudden, and of very short duration, assuming very much the form of spasms. His pulse on the second and third days intermitted irregularly, during the paroxysms, but was synchronous with the tremulous motions of the arm and face. After this the pulse became regular and full, varying from 120 to 140 strokes in a minute. His bowels continued very regular, having from two to four dejections daily, which *a posteriori* will appear not a little remarkable. The urine during this affection was less in quantity, of a more natural colour and smell, but quite sweet to the taste.

The numbness before mentioned, which began in the fingers of the left hand, gradually extended up the arm, as was observed whenever the convulsions were off, and by the time they left him, the whole arm was entirely useless, the mouth drawn to the opposite side, and the leg of the same side paralytic ; in fact, there was complete hemiplegia formed.

*Treatment.*—The day after the numbness commenced in his fingers, a blister was applied to the wrist, and he was ordered to rub the hand and fingers with warm brandy, and apply it as a fomentation. It was not relieved by the next day, when the convulsive motions were frequent in the fore arm : he was ordered to drink freely of a decoction of the root of the valeriana sylvestris, and to take

ten drops of the ol. succini every two hours. I found, on visiting him the next day, that he had not taken the ol. succini, as regularly as was prescribed: the convulsive affection having very much increased, with great difficulty both of respiration and deglution, I ordered him immediately forty drops of tinct. opii, and a tea-spoon full of vit. æther; put him into a warm bath for about ten minutes, with directions to repeat the laudanum and æther, every two or three hours, till the convulsions abated, unless a degree of stupor was produced. In the evening I found the convulsions rather less frequent and violent than in the morning. He had now taken between two and three hundred drops of the tinct. opii, and æther in the same proportion. Ordered the tinct. opii and æther to be continued, and likewise the valerian root tea.

Next morning, at 8 o'clock, he was perfectly quiet and comfortable, and I found he had been so since 12 o'clock. He lay in a quiet sleep, and, upon being waked, did not complain of any uneasiness in his head or stomach. Anticipating its return, about 9 o'clock, he was ordered sixty drops of tinct. opii, and a tea-spoon full of æther, immediately; but, notwithstanding which, it supervened about nine, with all its previous violence. The tinct. opii and æther were continued in large doses, and he took five drops of the arsenical solution every two and three hours. In the evening, there being but little alteration, all were continued as before: he had taken about five hundred drops of the tinct. opii, through the day.

Upon seeing him the next day, I found he had taken the arsenic pretty regularly, as likewise the tinct. opii, æther, and valerian root tea; but there had been no intermission since the last visit. As he had taken in the

course of the last day about seven hundred drops of laudanum, I thought it best to try the effect of some of the other antispasmodics, and accordingly ordered him camphor and castor, each seven grains, every two hours ; to continue the laudanum and æther, but not so often as before. The arsenic was the next day omitted, at the particular request of the parents.

Several days now elapsed, without any particular alteration. All the medicines were continued in larger doses, except the camphor and castor, which he refused to take, after the second day of its exhibition. He now took from ten to twelve hundred drops of the tinct. opii, in the course of the day. Frictions with æther and laudanum, hot brandy, and fomentations of the latter, were frequently made. As the medicines appeared to have very little effect upon him, I prescribed two grains of the oxyd of zinc, every three hours, at the same time to continue the tinct. opii. But little of the oxyd of zinc could be given him, as he refused to take any thing but the tinct. opii, which was now continued in smaller quantities, as the affection seemed on the decline. Before it entirely left him, he only took between two and three hundred drops in the course of the day.

During the whole course of the complaint, his bowels continued very regular, nor was his stomach or pulse affected, notwithstanding the large quantity of tinct. opii which he took.

A state of coma succeeded the subsultus, which was of several days continuance : though frequently he would open his eyes and ask for drink, and continued now to eat

very freely of his berries and milk. It was evident now, that the power of motion of the left side was entirely lost.

About the sixth day, after the convulsive affections ceased, his eyes appeared for the most part fixed, now and then staring about in a very wild manner: his pulse was much sunk: he did not ask for drink, and, for the most part, refused it when offered, as there appeared to be great difficulty in swallowing. By the use of strong wine-whey, and spiced wine, as freely as it could be got down, he was in a day or two considerably revived, so that he ate and drank more freely again. The diabetic symptoms still continued, in proportion to the quantity of injesta. For several days he was unable to turn himself in bed, and as he lay upon his back, kept the well knee drawn up. A day or two after this, he was seized with great oppression in breathing, from an effusion of mucus into the bronchiæ, which he was unable to expectorate, and terminated the scene, about three weeks after the convulsive affection left him.

V. MOTT.

## VII.

*OBSERVATIONS on the beneficial effects of MERCURY in TYPHUS, which occurred on board the frigate Constellation, on her passage from the Mediterranean; in a letter to Dr. W. CURRIE, from Dr. ED. CUTBUSH. Communicated to the Editors, by Dr. CURRIE.*

Philadelphia, April 25th, 1804.

DEAR SIR,

WITH pleasure, I communicate to you, the good effects of mercury in the treatment of typhus, on board

the United States' frigate *Constellation*. I would have performed my promise ere this, but my baggage, which contained my notes, did not arrive in Philadelphia, until a few days since. I shall not intrude on your time and patience, by tracing the origin of the disease; neither do I think it necessary to enter into a minute description of the various symptoms, as they occurred in various constitutions: the outline, I presume, will answer your purpose.

This disease commenced with more or less chill, alternating with heat, accompanied with an inactive, listless disposition; pain in the orbits of the eyes and forehead; giddiness, with great prostration of strength; pains in the back and limbs, particularly the lower extremities: some complained of acute pain in the thorax, with anxiety: the eyes were of a muddy, red, appearance, and suffused with tears; tongue furred and tremulous; pulse small and frequent; in some cases, a fullness was felt on the first and second day. As the disease advanced, the prostration of strength increased; the stomach became extremely irritable, with some pain; the most bland fluids were ejected; the tongue changed to a leaden hue, in some it was black; the teeth were also covered with a dark coloured crust. The skin and eyes became yellow on the third or fourth day: the voice was so low as scarcely to be heard; deafness; subsultus tendinum; hiccup; convulsions; swellings of the parotid glands, with dark coloured blisters in the mouth: petechiæ appeared on several; and there was a hemorrhage from the ear and bowels of one man; in two, the discharge from the stomach resembled coffee-grounds. In many cases, the bowels were obstinately costive: more or less delirium

commenced with the disease. Some, after their recovery, were attacked with violent ophthalmia. In some instances, the pain complained of, in the extremities, continued many days, after a complete recovery from all febrile symptoms.

The mode of cure, which I adopted, I conceive new, having never met with any authority recommending the mercurial treatment in *Typhus, or Ship-fever*. I remembered to have read a passage in Clarke, on long voyages, advising the trial of mercury, in the advanced stage of this disease, "when an *engorgement* of the brain takes place." I therefore determined, instead of waiting for this *generally* fatal state, to commence the cure by administering mercury in the place of the usual remedies, bark, wine, &c. &c. As soon as I was applied to, five, ten, or fifteen grains of calomel were given, combined with a sufficient quantity of tart. emetic, or ipecacuanha, to ensure a copious discharge from the stomach and bowels. The calomel was repeated at night, combined with opium, or pulv. Doveri: during the day, it was given in doses of two or three grains, every two hours, (care being taken to prevent it from running off by stool) until the mouth became touched, which, excepting in three or four cases, never exceeded the fifth or sixth day; in some instances, it was sore on the second. To effect this as soon as possible, I directed the body and extremities to be sponged with *cold* vinegar, or spirit and water, which seldom failed to determine the mercury to the salivary glands: in a few instances, I found it necessary to employ mercurial ointment. Blisters, when any were applied, were also dressed with it.

With singular pleasure, I beheld its powerful effect. No sooner were the gums slightly sore, than every dangerous symptom vanished : it operated like a charm : the irritability of the stomach, which was extremely distressing, and which had defied the power of saline effervescing and alkaliescent mixtures ; camphor, opium, solut. of vit. alba, (as recommended by M'Clean) and blisters to the stomach, yielded to the conquering power of mercury. The dark crust, which covered the tongue, peeled off from the edges first, then from the centre ; the skin, which before the exhibition of mercury, imparted a burning, dry sensation to the fingers, now became soft and gently moist. Thus a disease, which frequently continues for weeks, was cut short by this powerful remedy. Many were free from disease, except debility and sore gums, on the fifth day ; very few exceeded the seventh.

Barley water acidulated with lemon juice, also weak *gentian* or *snake-root* tea, were given as common drink ; very little wine was used until the convalescent state commenced, which I dated from the time the gums became sore, and then, it was given with a decoct. cort. peruv. or with sago, tapioca and gruel : rice, chocolate, barley, and portable soup, composed the chief diet of the sick. In a few instances, I found it necessary to order the head to be shaved, and blisters to be applied, otherwise I did not make that general use of them as recommended by Lind and others.

Of seventy-three men attacked with this disease, three died : their deaths happened on the fifth, seventh, and thirteenth day. The last had a swelling of the parotid glands, which suppurated partially : bloody pus issued from the

ear; gangrenous spots appeared on the ears, cheek, tongue, and fauces. I am sorry to add, that the violent pain in the thorax, with anxiety, together with a fuller pulse than common, induced me to bleed these men, and four others, at the commencement of the disease, before I placed that confidence in the mercurial treatment, which success afterwards established.

I had been in the habit of drawing blood freely on the commencement of fevers, both in the West-Indies and Mediterranean, with success; but, in this disease, it was most assuredly pernicious: perhaps, in other climates, it may prove useful in typhus; indeed, the authorities in its favour, place it beyond a doubt. It was evidently injurious in three cases: violent delirium came on immediately after, which ended in coma, from which the patient could not be roused: it also rendered the cure more tedious in three other cases. Nevertheless, could the systems of these three unfortunate men have been mercurialised, I am very confident that they would now be living monuments of the good effects of mercury.

It is worthy of remark, that there were several suspicious cases on board, in the months of December and January, 1802 and 3, when in Gibraltar bay. The weather had been very boisterous and wet, for some time, but the disease did not spread until the 11th of February, when on our passage to America. Many days previous, we were under the necessity of having the hatchways closed, in consequence of heavy rains and gales. Every precaution was taken to procure a current of fresh air betwixt decks: fires were also lighted, to dissipate moisture. The disease spread so rapidly, that, in a few days,



forty-nine were confined to their hammocks. As we approached the coast of America, in the month of March, our sick list diminished: the weather was very cold; we had several frosty nights, which appeared to have a *very powerful effect* in diminishing the number of sick. When we arrived in the Potomac, there were very few, except convalescents, on the sick list.

Several persons were affected by going into the sick apartment, contrary to orders. One gentleman received the infection by inhaling the air which passed through a scuttle which communicated with the sick birth.

The ophthalmia which followed, in many instances, was very obstinate. *Topical blood-letting* had very little effect; collyria were useless, except for the purpose of cleansing the eyes from a puriform discharge, which was constant. A blister applied to the *forehead*, was the only certain remedy, for this distressing complaint.

Whether mercury cured, by stimulating the system generally, or particularly the glandular system; or, by creating and supporting an action different from the morbid; or, by creating a new disease; I leave to your theoretical genius to determine.

I trust, sir, you will excuse the hasty manner in which these remarks have been thrown together.

With sentiments of sincere respect,

I have the honour to subscribe myself,

Your humble servant,

DR. WM. CURRIE.

ED. CUTBUSH.

## VIII.

CONJECTURES *respecting the* ORIGIN *of* ENDEMIC  
FEVERS. *Addressed to the Editors of the American  
Medical and Philosophical Register, by a* SERIOUS  
ENQUIRER.

Philadelphia, October, 1810.

THE question of foreign or domestic origin of the pestilential fevers, which have so frequently desolated several of our cities, within eighteen years past, seems to have been put to rest, for some time, by the bold assertions, without proof, of those, who, having hastily formed and published their opinions, are unwilling to have the subject further investigated.

The following thoughts were committed to writing seven or eight years ago, and have been occasionally shown to many friends, who will recognize them, although they are somewhat enlarged from the first copy. They would, probably, have remained in the writer's port-folio, had he not casually met with the prospectus of this work, of which a prominent object is to establish the line of distinction, between those diseases which are of a foreign source, and such as are engendered at home. With a view to promote serious enquiry, the writer submits them to the public, hoping that *his* diffidence will not be considered a sufficient cause to condemn them unconsidered.

Fevers which are endemic, in countries where stagnant waters are exposed to the summer heats, have, generally, from the most ancient medical records to the present time,

been attributed to miasmata exhaled from marshes or other putrescent waters.

I have searched, in vain, every lexicographical work, that is accessible to a man in the ordinary walks of life, for a description of miasm. The first I looked into was Johnson's dictionary, where I found that it was derived from the Greek verb *Μιαίνω*, signifying to infect. Hedericus, in his lexicon, renders the word *Μιασμα*, "inquinamentum contagium," &c.\* The Encyclopædia Britannica has "Miasma, among physicians, a particular kind of effluvia, by which certain fevers, particularly intermittents, are produced." This definition throws little light on the subject, and all that can be collected is, that miasm is infectious, and that it is an effluvium from something.

Here a question naturally occurs, is it a gaseous exhalation, raised by the warmth of the atmosphere from some colder body? or, by effervescence from terraqueous matter, in a state of fermentation?

I am not sufficiently versed in the science of chemistry to resolve this question, *secundum artem*, or even to my own satisfaction; but, from the little I know, by reading, by attending a few lectures, and by my own observations and reflections, I incline to the opinion, that the miasmata in question, are not gaseous. Fixed air, collected in mines, deep vaults, large brewers' working vessels, or in close chambers, by means of burning charcoal, will destroy animal life instantly by inspiration; and inflammable airs,

\* In Constantine's lexicon, I find *Μιαίνω*, *fido*, *polluo*, *contamino*, *Μιασμα*, *impuritas*, *piaculum*, *scelus*.

confined in mines, when they take fire, will somehow have the like effect; but, I have never found an instance on record, of either fixed, or fœtid, or inflammable airs, in the open atmosphere,\* producing disease. If this were the case, one would suppose, that the slaughter-houses of butchers, would, in the summer season, in this climate, be as destructive to their owners, as their knives are to their cattle: for no one can approach a slaughter-house from the leeward, without feeling an effluvium of such strength, as to render respiration almost intolerable to nostrils and lungs not accustomed to it.† Yet, however offensive the vicinity of slaughter-houses may be, I have never heard of their being the sources of infection, otherwise than, as their sites are usually chosen for the benefit of a drain into some water-course, they may partake of miasmata from other causes than their own fœtor.

Before I proceed farther, I will candidly confess, that my knowledge in pneumatics and physics, is very limited; and that, if gentlemen, whose profession has led them to consider the subject in this point of view, are prepared to answer my objections, I am willing to stand corrected, withdraw my theory, and yield to the more expert.

Having thus, like a cautious general, secured a retreat,

\* I suppose that all the airs, lighter than the atmosphere, have such a tendency to dissipate, that if noxious in themselves, they would soon be so attenuated, by mixture with the atmosphere, as to become harmless.

† I have always considered it as one of the inscrutable wonders in the formation of man, that the lungs, inhaling the most fœtid and polluted airs, are qualified to extract *only* what is wholesome out of them, and to eject the rest.

in case my ignorance of the ground I am exploring, should render it necessary, I proceed to enquire, what are these miasmata which have been in the mouths of physicians, from the time of Hippocrates to the present, without a definition that I can discover in any book that has fallen in my way.

The effluvia from musk, from camphor, and from assa-fœtida, are generally supposed to be particles of the matter composing these substances : the impregnation of wine, by glass of antimony, is accounted for in like manner ; and they are all adduced by one writer or another, as illustrations of the infinite divisibility of matter : but, of what matter are *these miasmata*, infinitely small portions ? of the stagnant waters ? or, of the vegetable substances, purified in the water ? or, what else are they ?

I am aware of the importance of these questions, and will endeavour to treat them with becoming seriousness.

The whole christian world professes to believe in the infinity of the supreme being ; and, when we turn our eyes to the heavens, we are lost in admiration and astonishment, at the immensity of *his* works, wherein our own solar system is but as a point, compared to even what *we* can see of the stupendous whole : but *his* infinity is equally unfathomable in the descending climax ; and there are, perhaps, among *his* wonders, as many which are concealed from the organs of our sight, by their infinite\* minuteness, as by their infinite\* distance from us.

\* I use the word infinite, in these two places, not in its absolute sense, as when applied to the Creator, but in a mathematical sense.

Some ages have elapsed, since telescopes and microscopes have enabled our weak vision to penetrate the heavens, in search of distant worlds, and the mosses on which we tread, for the inhabitants which live in their shade, and feed on their fruits : but the concluding portion of the last century, was favoured with the invention of instruments, which render us familiar with suns beyond the galaxy, and with myriads of animated beings, inhabiting the chrystal streams which water the earth ! In the earlier moiety of a life, now in its grand climacteric, my profession led me to travel often through the peninsula, bounded by the Delaware and the Chesapeak. Frequently passing through a flat country, in the summer months, when the ground, wet with a copious rain, not yet drained from the surface, the woods creating a partial shade, and the sun approaching the western horizon, I have seen the atmosphere shining with innumerable gilded motes, almost filling the visibly illuminated space before me, as a partly shaded chamber, through which an open window admits his rays, exhibits the fragments of down otherwise invisible. The question, *what are these ?* has been suggested to my mind, and intuitively answered, they are the hosts of *him*, who, in the beginning, said, “ Let the waters produce moving creatures having life, and winged creatures flying above the earth in the open firmament of heaven, and it was so.”\* I had then no idea of the microscopic animalcules, but of the mosquitoes, the gnats, and other insects which, though very minute, were, under some circumstances, visible to our organs, or felt on our skins.

When the dreadful pestilence had several times infect-

\* Thompson's translation of the LXX. Genesis i. 20.

ed our own and other cities on this continent, a participation, not small, in the common calamity, induced deep thoughtfulness on the subject. After much research, and little light from books, the idea of animalcular miasmata was suggested to my mind. The longer I pondered it, the more deeply was I impressed with the probability of the theory. I mentioned my suspicions, on this subject, to Dr. Samuel Cooper, of Philadelphia, just before he entered upon the perilous duty of physician to the public hospital, which so speedily terminated his valuable life. His concurrence, in the idea of its probability, strengthened my opinion, and caused further and deeper consideration of it.

Looking into the *Encyclopædia*, and some other books, to assist me in my ruminations, I found that the idea of animalcular origin of the plague, and some other diseases, was broached long ago, and had fallen into discredit. This did not discourage me, for I knew that the Marquis of Worcester's invention of the steam-engine, had fallen into discredit, for nearly half a century, when it was revived by captain Savery, and, being since improved by Bolton and Watt, has become almost an universal agent in British manufactures; and here, the most powerful momentum for travelling.

My theory then is, that water (however pure, or even if frequently distilled, in order to kill all animal life that might previously have existed in it) in which any animal or vegetable substance is placed, and subjected to a heat of seventy to ninety degrees of Fahrenheit, will, at the end of two or three days, contain innumerable tadpoles, of different forms and species, invisible to the naked eye :

that these tadpoles, in their appointed time, burst their skins, and arise into the air in innumerable, repeated broods of invisible winged insects, possessing a quantity of virus, proportioned to the degree of heat contained in the vegetable, which was the nidus of their egg,\* and of the atmosphere, which was their incubent force: that the poison may vary according to the variations of the climates, and the different modifications of the atmosphere, in the same climate, thereby producing different degrees of the infecting quality, and, of course, different grades of disease.

In the temperate zones, where there is an alternation of heat and coolness, by day and night, and winter and summer, it would not be expected that vegetables or animals, of the same genus or species, should be of the same temperament, as in the tropical regions, where the climate is under the permanent dominion of heat throughout the year. Thus we find, that almost all the vegetables called tropical, have more pungent tastes, than those of tempe-

\* William T. Smith, a gentleman of unquestionable credit, who owned a coffee-plantation in St. Eustatia, informed the writer, that wet coffee was so destructive to the negroes, that if they had the slightest scratch on their skins, when they were handling it, they were sure to lose their fingers or hands, the coffee-water corroding the flesh into the bones: many of his slaves became useless or died by these means. May not this have been effected by insects generated in the wet coffee? And is it not probable, that the festering of green wounds may be caused by these animalcules in the air? And may not the sediment found in distilled waters, kept close, be composed of these animal tadpoles, which have perished, by not having an opportunity of escaping into the air, at the due time of bursting their skins? Or, the skins of them, if the winged insects have escaped?



rate climates, witness their peppers, spices, melons, ananas, and many other fruits : most of their flowers, and birds, are coloured with brighter tints, of green, gold, and scarlet ; as their flamingoes, parrots, parroquets, and others. Their vegetable and animal poisons, are much more deleterious than those of temperate climates, as their manchineel, and other plants ; centipes, lizzard, viper, cantharis, spider, and many other animals, and insects.

The varieties of fever, observed by physicians, in the peninsula of Delaware and Chesapeak, according to the variations of heat and moisture, are,

1st. A *wet, cool* summer and autumn, produces the slightest degree of intermitting fever, commonly called the fever and ague ; against which the poor take little precaution or remedy, but suffer it to take its course, until the cool weather braces them, and restores their puny health.

2d. A *wet, hot* season, produces an intermittent more difficult of cure, the quotidian, tertian, or double tertian.

3d. A *dry, warm* season, produces the bilious remitting fever of these climates ; a long, painful, and dangerous disease : and

4th. The putrid bilious fever, is generated late in the autumn, and continues into the winter, after a season uncommonly hot.

These varieties are known, under the varying circum-

stances of the seasons, to the physicians of the peninsula, with many of whom I have often conversed.

It is well observed in the *Encyclopædia*, that while these animalcules are in the water, they are fixed, and by putting a drop on the stage of the microscope, they can be carefully examined, and their forms observed and delineated ; but when they rise into the air, they are no longer subject to our inspection. Having, however, ocular demonstration of their actual existence in the water, I presume, it is not unfair to trace their progress and effects, when they escape into the air, by analogy. Mosquitoes and gnats are visible in their tadpole and winged states : the natural history of the former, is well known to every man of moderate observation, throughout the country : the female of the species is seen, in the months of May or June, according to the warmth of the season, depositing its eggs on the surface of our cisterns, and on all sheltered, stagnant waters : in a few days, innumerable tadpoles are seen in the water, at or near the surface : upon the slightest disturbance, by touching the vessel, they, by a semi-circular motion, sink themselves to the bottom : if the weather continues very warm, a few days more suffice them to burst their skins, and they come out, in innumerable, incalculable swarms, a winged, poisonous insect ; when first come into their new element, they are extremely light and semipellucid, and, perhaps, a thousand of them would not weigh a grain ; yet, each of them, is furnished with so subtile a poison, that where his proboscis penetrates a human pore, a venomous swelling, attended with considerable pain, ensues ; and, it is a well known fact,

that sheep, newly shorn, are frequently killed by numerous bites of them.\*

Now, if this insect were invisible, might not numbers of them be drawn, by the inspiring breath, into the mouth; many of them adhere to the saliva in the fauces; be carried with that into the stomach; there, adhering to its coats, operate, by their poison, to excoriation, and create the inflammation † which has been found in the stomachs of all the subjects of yellow-fever, which have been dissected after death, and whose cases have been published.

The mosquito is visible, extremely shy, and makes a disagreeable noise; its sound, grating to the ear, warns us of the danger, and, when we are involved in a cloud of them, we cover our mouths to prevent our swallowing them; so that they have never been suspected of creating internal disease. Now, knowing, as we certainly do, that in the tepid waters of our pools, ditches, gutters, and cisterns, there exist other innumerable species of tadpoles, so infinitely small, that myriads of them, in a drop, do not prevent, or sully, its transparency, is it straining analogy too far, to suppose, that they also, like the larger mosquito, burst their skins, and come forth in infinite swarms, thickening the air without our perception: that they par-

\* The writer was a witness to this, in the county of Sussex, Delaware, and, expressing his surprise, was informed, that it was not an uncommon case.

† From the accounts published, of the state of the stomach, in all the cases of dissection of the yellow-fever, I have been led to think the disease may be denominated a true gastritis, or inflammation of the stomach, by means of acrid matter taken in; and poisonous, invisible insects, seem a cause adequate to the effect.

take, like the mosquito, of poisons of various grades, according to their nature, and the degree of heat that has hatched them : that these filling the atmosphere, above all fenny places, are the miasmata of Hippocrates, and of all the physicians, ancient and modern ; and produce every grade of fever, of the kinds sought after, from the mildest intermittent to the most virulent tropical fever, or even the plague, corresponding with the climate of their birth ?

Under the impression of these ideas, I would thus trace the introduction of the yellow-fever, of 1793, into the city of Philadelphia. I will, with Dr. Chisholm, suppose, that under peculiar circumstances of concentrated heat and animal filth, on board the slave-ship *Hankey*, on the coast of Africa, the insects forming the miasmata of that climate, produced a brood unusually venomous : that in the ship, or its atmosphere, a considerable number of them were transported to the island of Grenada, the southernmost of the Charibs, or Antilles, where, finding a congenial climate, they soon propagated their species, in infinite numbers, and spread themselves, either by their own flight, by the course of the trade wind, or by transportation, in vessels, from island to island, in that vast polynesian semicircle, till they reached Cuba and Jamaica, the Floridas and Louisiana ; from most of the ports of which, vessels were continually trading to the port of Philadelphia : that one, at least, of these vessels arrived at Philadelphia, in July, 1793, having, in her hold, a great quantity of coffee ; that she had also, under her hatches, a considerable volume of the warm atmosphere of that climate, replete with these invisible animalcules, of the most poisonous grade ; that the bilge-water, in which damaged coffee was plentifully infused, was continually breeding innumerable and

successive swarms ; that upon the arrival of the vessel at a wharf, near Sassafras-street, and opening the hatches, these swarms flew out ; infected the persons who first came within their reach\* ; proceeded immediately to deposit their eggs, in every puddle or gutter of the neighbourhood ; and spread themselves, from wharf to wharf and street to street, until, in the short space of three or four weeks, the whole atmosphere of the city and districts was polluted by living miasmata, which reigned till about the 28th of October, when a sharp frost put an end to the foreigners, incapable of bearing the rigours of a climate not their own.†

————— Si quid novisti rectius istis  
Candidus imperti : si non his utere mecum.

M. F.

\* It is remarkable, that those few, who first are taken, by coming within the sphere of the imported miasmata, all die. Twelve or fourteen days intervene, before the swarms generated here give a second infection : of these, some are known to recover ; and, the further the season advances, the less virulent is the disease ; the new broods, in every generation, partaking more and more of the coolness of autumn, become gradually less poisonous, infect fewer patients, and those more slightly.

† The whole of this paragraph, has been added, since I read the criticism on Dr. Chisholm's letter to Dr. Haygarth, in the Register, No. I.

## IX.

OBSERVATIONS *on the Means of Preserving the COMMERCE of NEW-YORK.* Addressed to the Editors of the *American Medical and Philosophical Register*, by MERCATOR.

YOU have published some remarks, signed *An Observer*, shewing the great advantage of transporting produce, by canals, instead of the present mode of transporting it, by waggons. The calculations, on this head, seem to be conclusive and satisfactory ; but the writer has, incidentally, touched on a subject that seems to require more attention than he has given it. It is a subject, as I think, that demands the serious attention of the legislature. The *Observer* alleges, that it would be imprudent to bring produce, by means of a canal, from lake Erie to lake Ontario, lest that produce, being once afloat upon lake Ontario, should find its way to Montreal, by means of the river St. Lawrence.

Considering the subject, as I have done, since I read those remarks, I am fully persuaded, that one half of the produce, and one half the commerce of the state of New-York, must go into Canada, unless it be prevented by an extensive western canal, and by another canal from the northern wood-creek into the navigable waters of Hudson river.

If the reader will be pleased to cast his eyes upon a map of this state, and to draw a line, from the vicinity of Glen's falls, on Hudson river, to lake Oswego, he will

discover, that the lands which lie to the northward of that line, and to the westward of lake Oswego, constitute a good deal more than half the continental part of this state. He will also discover, if he makes a careful examination, that the produce, from all the lands thus described, may be carried, at a less expense, to the navigable waters of the river St. Lawrence, than to the navigable waters of Hudson river.

I deem it certain that, according to the present state of our navigation, all the produce that is carried to lake Champlain, must, infallibly, be shipped at Montreal. The navigation of lake Champlain is perfectly safe, for large vessels, as far as the town of St. John. The outlet of the lake, called the river Chamblee, from St. John's to the river St. Lawrence, abounds in rapids; but the distance from St. John's to the river St. Lawrence, at Montreal, is not above thirteen miles, in a straight line. The present crooked road is somewhat longer; but a turnpike road, or a canal, is to be made. The expense will not be much, for that neck of land is a perfect plain. The reader is not to be informed, that such a portage will not be a tax of any consequence upon produce, viz. upon the produce that is carried in barrels or bags: for lumber may pass, in rafts, down the river Chamblee, and thus go directly to Quebec. Nor is the reader to be informed, that though the tides in the river St. Lawrence do not come within less than ninety miles of Montreal, yet ships of three hundred tons burden come to that city, so deep is the natural stream of that river. The reader, as I take for granted, knows that the distance from lake Champlain to Waterford, on the highest navigable water of Hudson river, is about sixty miles.

It is not worth while to use a single argument to prove, that produce, once afloat on lake Champlain, will never be carried sixty miles, by land, for the sake of shipping it at New-York, when it may be shipped at Montreal, after a land carriage of thirteen miles. Nor is it worth while to use many arguments to prove, that most of the farmers, to the northward of the line above described, will carry their produce to some part of lake Champlain, as the nearest market. It needs hardly be remarked, that the whole produce of the state of Vermont, or that part of it which lies to the northward and westward of the mountain, must go to lake Champlain, and proceed in the course that has been described, unless effectual means are taken to bring it into Hudson river.

I am now to consider, what will be the probable fate of produce that is once afloat on lake Ontario. The distance from Kingston, on lake Ontario, to Montreal, by water, is about two hundred miles. There are sundry rapids in the river St. Lawrence, but they are not dangerous ; for there has not been, as I think, more than one boat lost, in descending that river, during the last seven years. That boat, loaded with pot-ash, was lost by striking a noted rock, called " Le Cheval Rouge ;" and she was lost, because the owner obstinately refused to take a pilot, above the rapids. A circumstance, that caused some passengers, very prudently, to leave the boat above the rapids. It is known, that those several rapids may be shunned, by making a short canal, and a single lock. One canal is already made for the benefit of boats going up the river.

A pretty good estimate may be formed of the navigation of the river St. Lawrence, above Montreal, as it is



found at present, without any material improvements, from the following facts. The constant freight of a barrel from Kingston, on lake Ontario, to Montreal, is two dollars: the freight from Montreal to Kingston, is three dollars; such is the difficulty of ascending the river. A large boat or scow, that carries from five hundred to seven hundred barrels, may be purchased at Kingston, where they are built, for one hundred and seventy dollars. Those boats are sold at Montreal for the value of the timber of which they are made. Dry-goods and West-India produce are taken up the river, in boats of a different construction. I have said, that freight from Kingston to Montreal comes at two dollars the barrel, but a barrel cannot be estimated at less than two hundred weight, whence it follows, that freight from Kingston to Montreal, comes at one dollar the hundred weight. But many of our fellow citizens know, to their grief, that portage of produce, by waggons, from Geneva to Albany, costs two dollars the hundred; and, it happens a little unfortunately, that freight, by the canal, and other waters, from Geneva to Schenectady, costs a little more. Is it necessary to consider, whether people who live near Geneva, or in any of the northern or western parts of this state, will not, in all probability, send their produce to Montreal in preference to the Albany market?

Perhaps the reader may be surprised when he is told, that a company is lately formed, who undertake to convey produce, from the border of the state of Ohio, or the upper end of lake Erie, to Montreal, for one dollar and three quarters the hundred weight: that is to say, the farmer, who lives at the upper end of lake Erie, will send his wheat to a shipping port, at a less expense, than it

can be sent, at present, from the town of Geneva to Albany.

Perhaps I shall be asked, whether this be a new discovery; or whether the danger of losing the commerce of our own citizens is greater now than it formerly was? to this question I answer, decidedly, in the affirmative. The danger is much greater than it was a few years ago. There was a time, not five years ago, when our fellow citizens had no intercourse with the inhabitants of Montreal. They were not acquainted with these people, and had not formed any connections with them. All their pot-ash, wheat, flour, and salted provisions, were sent to the borders of Hudson river to be exported. There was a wealthy company of British merchants in Montreal, but their speculations were entirely confined to a trade with the Indians, from whom they obtained peltries and furs. The native Canadians had little to do with commerce: they are bad farmers and worse merchants.

The spirit of adventure, that is so common among our fellow citizens, and the desire of gain, that in all countries is too apt to induce men to violate municipal laws, when the prospects are very flattering, has made a complete revolution in the former state of our northern and western commerce. Pot-ash became dear in England, during our embargo, and the price of that article and of flour, salted provisions, and lumber, was considerably depressed in the United States. Our fellow citizens, in that case, discovered a new vent for their produce. Those articles brought a good price in Montreal, and they found little difficulty in smuggling a considerable quantity of produce to that city. When a man is once engaged in a prohibited

commerce, he seldom discovers a barrier at which he should stop, except it be a barrier that cuts off his profits. We know that the price of dry-goods was greatly increased in the United States during the embargo, but the price in Canada was moderate : hence the practice of smuggling dry-goods from Canada became very frequent. In that case, traders, on the opposite sides of the line, became acquainted with one another, and mercantile connexions were formed. Every farmer was taught that there was another channel, beside Hudson river, through which his produce could be exported. In the common expectation, that the revolution above mentioned, will be complete and permanent, many citizens of the United States have lately settled in Montreal, and others are preparing to follow them. Those people have their friends and connexions in Vermont, and in the northern parts of this state. They know how to promote that commerce, and they look with confidence to a time, not far distant, when Montreal will become a great commercial city.

Hitherto I have been speaking, as the reader observes, concerning the loss that must be suffered by the city of New-York, and by the trading part of this community, from the circumstance of the produce of our state, or a great part of the same, passing into a new channel, whereby the whole profits of commerce will pass into the hands of foreigners. The merchants, ship-builders, smiths, and numerous other mechanics, of another nation, will be enriched at our expense. But there is a further point of view, and that a very interesting one, in which this subject is to be considered. The revenues of the United States will be materially affected by this new course of trade. When the produce of our farms is sent to Mon-

trear by some of our country traders or merchants, it is not to be expected, that they will bring back the proceeds from Canada, to buy goods in New-York, that are burdened with a duty of somewhat more than seventeen per cent. ; that would be a stretch of patriotism that we are not to look for. It is well known, that during the embargo, the value of dry-goods smuggled into this state from Montreal, greatly exceeded the value of all the produce that our citizens smuggled, across the lake, to that city. We paid the balance in gold or silver. We have not any materials, from which a correct estimate can be formed of the annual loss that is likely to be sustained by the smuggling of goods from Canada ; but there are materials from which we may form a pretty good conjecture.

The duties upon goods imported into the city of New-York, in the year 1807, were seven millions, six hundred and thirteen thousand, six hundred and ninety-nine dollars. The drawback upon goods exported amounted to two millions six hundred and sixty-eight thousand four hundred and fifty-six dollars. It follows, that the goods consumed in the country, paid a duty of four millions nine hundred and forty-five thousand two hundred and forty-three dollars. It is believed, that the duty of one million of dollars may have been paid on the West-India produce imported that year, and not exported. Such articles are not smuggled. There remains three millions nine hundred and forty-five thousand two hundred and forty-three dollars that seem to have been paid for dry-goods imported. I presume that two thirds of these goods may have been sold into some of the other states, and that one third of them was consumed in this state. The duty on one third, came to one million three hundred and fifteen

thousand and eighty-one dollars. I presume that at least one third of the dry-goods consumed in this state, is used in the upper counties ; the duty on that proportion was four hundred and thirty-eight thousand three hundred and sixty dollars : but as the same quantity is to be smuggled in future, it will follow, that the national treasury may lose, about four hundred and thirty-eight thousand three hundred and sixty dollars, per annum, by the new course of commerce. Perhaps I shall be told, that smuggling, such as I have alleged, may be prevented by a custom-house on lake Champlain, and at ten or twelve other places : the person who advances this opinion must have little acquaintance with human nature, or with the country to which I refer. Smuggling on the sea coast is easily prevented, because goods are imported in large vessels, that may be seen at a great distance, and cannot land but in particular places ; and the smuggling of a single bale, besides its being attended with perjury, may endanger the whole vessel and cargo. None of these circumstances can take place on the northern frontier. There is an imaginary line, upon dry land, at least one hundred and fifty miles long, in the forty-fifth degree of latitude, that divides the states of Vermont and New-York from Lower Canada. Goods may be passed, with the utmost facility, across every part of that line, except the very spot where the custom-house officer is stationed. No man swears on the occasion, and no vessel is endangered by the project. The goods are safe when they are across the line, for there is no distinguishing mark upon a piece of smuggled goods. After that imaginary line has reached the river St. Lawrence, there is an additional line, some hundreds of miles long, passing up rivers and lakes to lake Superior, by which the states of New-York, Pennsylvania, Ohio, and

the upper territory, are divided from Canada. Does any man say, or pretend to think, that the national government can prevent goods, to the utmost amount, from being smuggled across that extensive line? They might as well prevent the migration of squirrels, wolves, and bears. Perhaps it may be objected, that men will not take the trouble of carrying goods through the woods, or along private roads, or landing them in boats along the shores of rivers or lakes, for the small profit that is to be made by that business. I have only to enquire of such objectors, whether they are acquainted with any branch of business that is much more profitable? whether a clear profit of seventeen per cent. is not rather more than the honest trader commonly makes? whether he has not heard of the destructive heights to which smuggling, not more profitable, has arrived in other countries? I ventured a conjecture, that the revenue of the United States is like to suffer a loss, or a reduction, of four hundred and thirty-eight thousand three hundred and sixty dollars, per annum, in consequence of the goods that, in the new course of trade, may be smuggled into this state; but the goods that may be smuggled into Vermont, Pennsylvania, Ohio, &c. may be estimated at a similar sum, making in the whole, at least, eight hundred and seventy-six thousand seven hundred and twenty dollars per annum. How is this heavy loss of revenue and grievous depravation of morals to be prevented? I conceive that the only possible remedy will be found in the two canals mentioned, and that they would prove an effectual remedy.

When we consider that a ship can readily make two voyages in the year, from New-York to the West-Indies, or Europe; but that she cannot make more than one voyage

in the year from Montreal, owing to the difficulty of stemming the constant stream of the river St. Lawrence, and the length of the obstruction by ice; we must discover, that the merchant, in Albany or New-York, can afford to give more for bulky articles, such as wheat, flour, or pot-ash, than the merchant in Montreal. Hence it will follow, that if canals were made by which our fellow citizens might be enabled to bring their produce to Albany, for the same price that it can be taken to Montreal, every bushel or barrel of it would come to Albany. The farmer does not enquire where the cheapest dry-goods are to be purchased, but how or where he can get the best price for his produce; because, in all cases, some part of that produce is to be converted into cash, which is to be employed in paying for his lands, his taxes, or other purposes. If the certainty of a better price, though it were but six per cent. the charges being the same, shall bring the produce to Albany, we may be assured that no part of the proceeds will ever be sent to Montreal for the purpose of smuggling goods. I am not to learn that another and a very different expedient has been proposed. Whoever attends to the debates in Congress, must have observed, that some warm and active members have proposed an expedition into Canada, for the sake of taking that province. This measure, as the parties allege, would be an effectual remedy against the loss of trade in that quarter. They also conceive, that we should strengthen the union, by the addition of two or three states, composed chiefly of Frenchmen. The fathers of this project may conceive, that by taking Canada, all the commerce of the river St. Lawrence would be carried on by citizens of the United States: but I deem it certain, that no prudent man, who lives in New-York, could wish that all the commerce of

the northern and western part of this state, should pass into the river St. Lawrence, even though the inhabitants of Canada were called citizens.

This, however, is not the most interesting view in which the capture of Canada is to be considered. It is clear, that an expedition for that purpose, whether more or less successful, would be destructive of commerce, productive of an oppressive land-tax, and that, in its consequences, it would, at least, endanger our political freedom. The project of taking Canada implies, that we have become the allies of France, for the purpose of subjugating England. In this case, the two first allegations are inevitable. Every ship that we have afloat, must be taken by the British navy, our ports blockaded, and our commerce ruined. In the stead of a revenue from imports, we must have a land-tax: the facility of paying that tax, when the farmer cannot sell his produce, may be readily calculated,

Let us now suppose, that we have gained every thing we contended for; that we have distressed England, by cutting off her supplies from Canada, by taking none of her manufactures, and by sending her no provisions nor raw materials; that she has sunk under a long struggle; has been compelled to make peace with France, and has given up the command of the ocean; is there a man living, who thinks that our situation would then be desirable? It is a known axiom in France, that no part of the empire can be alienated. Necessity may occasion a treaty by which a province or colony shall be ceded, but the claim of the empire, to that province or colony, remains unimpaired. And it may be recovered by stratagem or by war. It follows, that before peace is concluded twelve



months, between France and England, we shall hear that France sets up her claim to Canada, a claim that will not be disputed. It cannot be forgotten, that on a late occasion, France and Spain claimed all the western country beyond the Ohio, and a good part of the state of Kentucky. Bonaparte claims all Spanish America, by the late grant of Charles the fourth, and his son Ferdinand. Both the Floridas are included in that grant. When we are enclosed by a line of French garrisons, from Quebec to St. Augustine, our situation will not be enviable. When England has submitted to the yoke, and there is not a civilized nation on the face of the earth, except the United States, that has any pretences to freedom, it is not very probable, that we shall long be suffered to remain an exception to the general rule. If we experience any marks of gratitude, for having assisted in the conquest of England, we shall be more fortunate than the king of Prussia and other auxiliaries of France. But the mind sickens at the prospect. Every feature of this project is so strongly marked by passion, or a departure from the common dictates of prudence and sound policy, that the reader claims an apology for the mention that has been made of the subject.

I was speaking of canals, intended for the general benefit of our fellow citizens ; canals that, without any dispute, would contribute greatly to the prosperity of this city, to the prosperity of this state, and to the revenue of the United States. Few measures have so urgent a claim on the attention of government.

MERCATOR.

## X.

ADDITIONAL OBSERVATIONS *on* NAVIGABLE CANALS.  
*Addressed to the Editors of the Register, by AN OB-*  
SERVER.

SOME months ago, I submitted to the consideration of our fellow citizens, some observations on the subject of navigable canals. I took the liberty, on that occasion, to recommend a canal, that should extend from lake Erie to the navigable waters of Hudson river. I knew that the route I then proposed was different from that which had been deemed the proper one, but I stated my reasons for preferring a canal of greater length than had hitherto been mentioned. I was not aware that the commissioners of the general assembly had, at that very time, gone over the ground that I had been recommending, and that they had ordered a survey and level of the whole to be made. I have lately been favoured with a sight of that survey, by which it is fully established, that the proposed canal is not only practicable, but that it may be executed at a very moderate expense, considering its length. It is well known that a communication has already been made between Schenectady and the Seneca lake, by canals or natural water courses. That communication, at present, is neither cheap nor convenient. But the fact is well established, that the communication may be made in a proper manner. For this reason, I shall only describe the ground, or the levels of the ground, from lake Erie to Seneca lake. The distance between those lakes is one hundred miles.

Tanawanda swamp, to the eastward of lake Erie, is

the highest ground through which the proposed canal is to pass. Its greatest elevation, at the distance of twenty-seven miles from lake Erie, is only ten feet above the level of the lake. There is a constant descent from the head of Tanawanda creek to Seneca lake, as follows, viz.

From Tanawanda to Genesee creek, above the upper falls, thirty-two miles: the descent ninety-one feet. From Genesee river to Seneca lake, thirty-eight miles: the descent is seventy feet. The whole distance from lake Erie to Hudson river, below the Cohoes, is two hundred and eighty miles.

From this survey it appears, that no difficulty can arise in making a navigable canal, through the whole space that has been mentioned. It is only to be determined, whether the state of New-York, or rather the United States, will enter with spirit upon the business. I have said, the United States rather than the state of New-York, because the United States have, by far, the greatest interest in that business. The Holland land-company owned a great tract of land in the western part of this state. Part of that land is sold, but not paid for. The heirs of Sir William Pulteney are in the same predicament. The proposed canal would enable them to sell the remainder of their land, and to collect their debts. They would doubtless contribute liberally towards the expense of that canal. But the United States, as I hinted on a former occasion, have a capital stake in such a canal. It would be worth many a million to them. In a word, that canal would be a chain, if the expression can be admitted, by which the western country would be firmly attached to the Atlantic states. The immense wilderness that lies to the northward of the

river Ohio, will be settled in a short time. If the United States do not give adventurers a title to the lands they pitch upon, they will settle on them without a title. The United States have sold, within the last ten years, somewhat more than three million acres of land, at a little more than six millions and a half of dollars; but one fourth part of the whole price is yet to be paid; and it is, at least, probable, that many families have settled in the western country, who, having no cash in hand, have not obtained titles. The arrears due for lands sold, and the number of settlers without titles, may be expected to increase daily. The amount will be great before fifty millions of acres are disposed of, and that is not half the land that is to be sold. If the settlers were enabled to pay for the lands, by the fruits of their industry, the lands would soon be disposed of, and honestly paid for. The reader will not forget, that one million of dollars received for lands sold this year, is better than two millions that may be got for lands sold twelve years hence; for any sum, at six per cent., doubles itself in less time. Beside the benefit that government would derive from the circumstance of being enabled, by the help of a canal, to sell those lands expeditiously, they would also be enabled to avert a danger that might be fatal to the union. A vast body of people, settled in the western country, many of them unable to pay their debts, and many more of them settled on wild lands, without a title, might be tempted to settle their accounts and titles by separating from the union, and declaring themselves independent. The temptation would be great, and, if they should adopt that measure, I do not see what could be done with them. An army sent among them, would find no money there, and they would neither propose to kill nor remove the inhabitants. We know

how much trouble a handful of illegal settlers, on the Susquehannah, caused the state of Pennsylvania. And we know, that a few people, in the district of Maine, who have settled on fifteen or twenty thousand acres of land, without a title, are, at this time, giving much trouble to the state of Massachusetts : bidding defiance to legal process, by killing or wounding civil officers. If such difficulties occur, in bringing people to order, who are surrounded by orderly citizens, what is to be done with a vast body of people, who have an interest in the opposition? I contend that the expense of a million or two millions of dollars, in making a canal, by which we should preserve the affections of our western brethren, and enable them to pay their debts, would be a measure of perfect frugality and prudence.

AN OBSERVER.

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R E V I E W.

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ART. I. *FACTS and OBSERVATIONS relative to the Nature and Origin of the PESTILENTIAL FEVER, which prevailed in this city, in 1793, 1797, and 1798. By the College of Physicians of Philadelphia.* Philadelphia, Dobson, 8vo. pp. 52. 1798.

ADDITIONAL *FACTS and OBSERVATIONS relative to the Nature and Origin of the PESTILENTIAL FEVER. By the College of Physicians of Philadelphia.* Philadelphia, Dobson, 8vo. pp. 99. 1806.

WHEN the malignant pestilential fever first re-appeared in the United States, in 1793, after a period of thirty-one years, the College of Physicians of Philadelphia, in common with other physicians, soon found that it was a disease unusual and unknown to most of them. They observed that it differed essentially from every kind of fever they were acquainted with ; that it began from a point, from which it gradually progressed, and that it was communicated to such as were within the sphere of its action ; that the violence of the feverish symptoms generally ceased on the third day of the attack ; that it was very frequently followed by a yellowness of the skin, and, in fatal cases, by a vomiting of black matter, resembling coffee-grounds ; and that it generally terminated within seven days : also, that the usual treatment of autumnal

remittents, by the Peruvian bark, &c. would not apply to this fever. These peculiarities marked it as a new fever, and the first appearance of it, near the river, led to the supposition, that its origin, as well as symptoms, were foreign to our country. Subsequent observations have, in the opinion of the college, fully confirmed these sentiments. They have, therefore, acted on this ground, and the publication before us is made with a design of substantiating these opinions. It will be found, on perusing the work, that the college have merely given such opinions and facts as they believed were suited to justify their conclusions, and that they have, in no one instance, entered into controversy. They profess to be actuated by a desire to seek after and disseminate truth, not to obtain a victory over any who may differ from them.

In page 4, of *Facts and Observations* relative to the Nature and Origin of the Pestilential Fever, which prevailed in Philadelphia in 1793, 1797, and 1798, they say,

“About the latter end of July and beginning of August, 1793, a fever of a new and very alarming nature prevailed in this city. It first appeared in Water-street, between Mulberry and Sassafras-streets; and all the cases of this fever, were, for two or three weeks, evidently traced to this particular spot. A considerable part of the city, Northern Liberties, and district of Southwark, became gradually infected, and it was not until the coming of the frost, that the disease subsided, after having proved fatal to nearly five thousand persons.

“The peculiarity of the symptoms, the remarkable inefficacy of remedies generally used for diseases which commonly occur in the same season of the year, with somewhat similar symptoms, its great mortality, and contagious nature, sufficiently evinced, that a very unusual disease existed amongst us.”

About the latter end of July, 1797, the malignant pestilential fever again appeared in Philadelphia ; where it appeared a third time, with increased violence, about the same period, in 1798. In support of their former opinions, of the nature and origin of the fever, the college now say, (pages 24, 25, 26, of Facts and Observations,)

“When we reflect, that Philadelphia is one of the cleanest, best aired cities in the union ; that Kensington, Chester, and Wilmington, enjoy all the advantages of country air ; that no possible improvement with respect to water or ventilation, can make our situation more eligible than that of these places ; and particularly when we consider, that the situation of Wilmington precludes all idea of a defect of ventilation, and that New-York, being furnished with water brought from a distance, the bad quality of our water cannot be the cause. When we observe that our city has become more healthy, by the salutary improvements made in it ; that the number of our common native diseases, such as autumnal remittents and dysenteries, is greatly diminished : when we also observe, that it is only in sea-ports that this fatal pestilential fever prevails ; why should we refuse, in this particular instance, candidly to deduce effects from causes, and to admit, that although local circumstances may favour the spreading of such diseases, yet, as they can always be traced to the shipping or its neighbourhood, or to persons or materials connected with shipping, that there are the strongest reasons to conclude that they are introduced from thence ?

“From the preceding facts and observations we think the following conclusions may be justly drawn.

“That the contagious malignant fever which appeared in this city in the years 1793, 1797, and 1798, is essentially different from the bilious remittent fever of this climate.

“That the contagious malignant fever of those years is essentially the same, with the disease called the *yellow-fever* in the British, and the *maladie de Siam*, in the French West-India islands.



“That the *yellow-fever* or *maladie de Siam* prevailed in a very great degree in the different ports of Hispaniola, during the last year, and more particularly in Port-au-Prince, Jeremie, and Cape-Nichola-Mole.

“That a very great number of vessels arrived at this city from those ports, during the months of June and July 1798.

“That this disease has been several times introduced into North-America, by contagion retained in the wearing apparel of persons who had died in the West-Indies, although no person was sick on board at the time the vessel arrived in this country; and that we have demonstrated, as fully as it is possible in a matter which is not obvious to our senses, that the contagion of the fever of 1798 was imported from Jeremie, Cape-Nichola-Mole, or Port-au-Prince, in one or more vessels, which arrived here in June and July last.”

In an appendix to the Facts and Observations, a number of documents are given, in support of the doctrines laid down. The discussion of the doctrines, assumed by the college, had, it is well known, been freely and generally made. Many of their positions had been called in question, and, deeming it interesting to what they believed to be essential to the public welfare, they published, in 1806, a number of “Additional Facts and Observations relative to the Nature and Origin of the Pestilential Fever.” The consideration of these, for want of room, we must necessarily postpone to our next.

ART. II. *An Inaugural Dissertation on STONE IN THE BLADDER, submitted to the public examination of the Faculty of physic, under the authority of the Trustees of Columbia College, in the state of New-York, the right Rev. Benjamin Moore, D. D. president : for the degree of Doctor in medicine, on the 13th day of November 1810. By HENRY U. ONDERDONK, A. M. member of the Royal College of Surgeons, London. New-York. 8vo. pp. 44. T. & J. Swords. 1810.*

*An Inaugural Dissertation on the Medical virtues of the WHITE OXYDE OF BISMUTH, with some preliminary observations on the chemical properties of that metal. Submitted, &c. on the 13th day of November 1810. By SAMUEL W. MOORE, A. B. New-York. 8vo. pp. 39. T. & J. Swords. 1810.*

WHEN an author voluntarily offers himself to the public, it becomes us to inquire with a rigid impartiality into the utility of his labours, and the manner in which they are executed. But with respect to another class of writers, who may be considered as performing no more than an indispensable duty, and whose compositions are published in compliance with a collegiate statute, it is sufficient barely to mention the subject of their exercises, and to notice such facts or circumstances as may appear of special moment.

We shall not on the present occasion enter upon the consideration of a long agitated question, what particular advantages or disadvantages result to medical science from our seminaries of learning, permitting those exercises

to be published in the English language, which are to furnish evidence of their author's classical learning, as well as professional attainments. Believing as we do, that collegiate distinctions are honourable, so far only, as they are purchased by solid and extensive acquirements, we hope the day is not far distant, when a tolerable acquaintance with the learned languages, will be considered as essentially necessary to every candidate, for the degree of doctor in medicine. Such acquirements will be best evinced by a certain number of examinations, being conducted in the Latin language, and by the publication of a Latin thesis.

MR. ONDERDONK while in London, having had frequent opportunities of observing the use of the Bistoury, in the operation of removing the stone from the bladder, was induced, from a conviction of its superiority over other instruments, to make choice of Lithotomy, as the subject of his inaugural dissertation; especially, as it afforded him a full opportunity of making known the peculiar advantages which that instrument possesses. Introductory to the more immediate objects of his dissertation, Mr. Onderdonk has given a general history of the disease, the recent arrangements which have been made of urinary calculi, according to their chemical analysis, and an account of the most approved methods of operating for the stone. He then concludes with some remarks on instruments, in which he confines himself chiefly to a comparison between the bistoury and the gorget. The thanks of the profession are due to Dr. Onderdonk, for his endeavours to make known and extend the advantages resulting from the use of that instrument; an invention which cer-

tainly adds to the reputation of its author, Mr. Thomas Blizard, one of the surgeons of the London Hospital.

Dr. Onderdonk's observations on this part of the subject we subjoin, accompanied with an engraving of the bistoury.

#### “INSTRUMENTS.

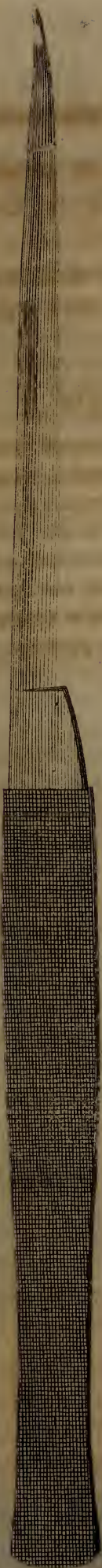
“ Certain accidents not unfrequently occur during the operation, which should make the surgeon very careful in his choice of instruments. Some of these untoward occurrences may be the effect of a want of anatomical knowledge, or of proper caution. But it is evident, that some must be occasioned by using a faulty instrument. My remarks on this head shall be entirely confined to a comparison between the gorget and bistoury. These are the instruments which chiefly divide the opinions of surgeons at present.

“ The accident most generally feared, is the thrusting the gorget between the bladder and rectum, in making the second incision. This, it may be said, cannot take place if the instrument be passed in the direction of the axis of the bladder. As I have not witnessed the occurrence, I cannot say whether this point has been attended to. But it has happened in the hands of surgeons who had a large share of public confidence, and whom we cannot reasonably suspect of deficiency. The accident is not so unfrequent as has been imagined. Mr. C. Bell relates that he has known it in two cases ;\* Mr. A. Cooper in his lectures, states, that ‘near a dozen’ instances have come within his knowledge ; and I have myself been informed of others,

“ This occurrence has been explained by Mr. C. Bell, from some appearances observed on the dead body. ‘The gorget had not gone off the groove : it had only not cut the neck of the bladder, it had pushed the prostrate gland onwards upon the staff, and had not pierced the neck of the bladder nor the prostate gland.’† Mr. J. Bell probably has this explanation in view, when he speaks of forcing ‘off the neck of the bladder and prostrate from the urethra ;’ but he also thinks it

\* *Operat. Surg.* vol. 1. page 344.

† *Ibid.*



*Bistouri Ter  
Lithotom.*



*Bistouri curv.*



‘unquestionable that the gorget is often plunged among the viscera.’\* The probability is, that all these varieties of the accident may occur.

“The explanation of the Bells would place the fault of such an accident rather in the instrument than in the operator. And indeed, whatever explanation we adopt, it must be evident, that the gorget is very liable to cause such an occurrence; not to say that it appears calculated for it. A kind of curve is described in thrusting it in, which must make it act with obvious disadvantage; its edge, striking obliquely, will probably lacerate as many fibres as it cuts. In the use of the bistoury, however, no such occurrences take place. It is so small that it passes with the readiness of a sound, and as the incision is made in withdrawing the instrument, it is impossible that the prostrate can yield before its edge. Not to mention that the edge of a knife can be made and kept keen with far greater ease than that of a gorget, and will of course be better calculated to make a real *incision*. We cannot suppose it possible, but by the grossest ignorance or inattention, that the *bistoury* can be literally pushed between the bladder and rectum.

“Cases have occurred, in which the staff has been bent by an over-attention to keep the beak of the gorget in its groove. In the use of the bistoury, this is scarcely possible; it enters with such facility, that no *force* is requisite to keep its beak in contact with the staff.

“The gorget being an instrument of no inconsiderable bulk, must be wedged with some firmness in the wound it makes. This will prevent the operator from feeling with accuracy when it has entered the bladder; or rather, (as the flow of urine will ascertain this) he will not be able to command the force with which he thrusts it onward. This accident is admitted by ‘those who prefer the gorget, and regard it as the ultimate improvement of this operation.’ It has occurred to surgeons whose caution or knowledge we have no reason to doubt, and it must therefore be, at least in part, attributed to the instrument. I need hardly add, that the bistoury is free from such an imperfection; it passes like a probe, and is as easily regulated by the surgeon; and even were it *thrust in*, it would be scarcely more liable to pierce the bladder than a sound.

\* Smith's Abridgment, pages 186, 187.

“The above accident may perhaps be attributed to the bladder’s contracting upon the edge of the gorget. This edge, in every form of that instrument and those analogous to it, projects; which projection, if the stone be not between it and the coats of the bladder, may very readily cut through the latter. It is evident that the bistoury is not liable to this accident, as its edge does not project.

“It may perhaps be objected to the bistoury, that it gives no limit to the incision. It truly does not; and to a surgeon even moderately expert, this would be a recommendation rather than an objection. I am not indeed certain that any will cavil; if they should, they must be referred to the *dead* subject, till they can acquire steadiness sufficient to handle a knife.

The gorget, it will be urged, unites a director with a cutting instrument. It was before stated, that the advantage of such a director was very questionable. If the wound be sufficiently free, and the patient’s struggles not unusually violent, the finger upon the staff, and the forceps upon the finger, will fully suffice. If the patient be very fat, his bladder may be too far from the external perineum, to be reached by the finger. Or the surgeon, however expert, may possibly lose the direction of the incision. In this case, a blunt gorget will be an useful instrument. But the occasion for a director will be very rare, and the bistoury in all other cases will amply suffice.

“I am sensible, that although the knife is preferred by surgeons of great eminence, the gorget has advocates equally great. With so even a defence on both sides, it might be deemed presumption to offer an unreserved decision. So far, however, as I am acquainted with the opinions of each, I am disposed to think that the bistoury is liable to fewer objections than any other instrument with whose use I am acquainted.

“Thus far the knives both of Mr. Blizard and Mr. Cooper have been equally advocated; and from the similarity of principle, it would be difficult to choose between them. There are, however, some *minutiæ* in that of the former, which will make it, on the whole, preferable; or perhaps I may think so, from being accustomed to its use on the dead body. As its beak projects a little from the upper part



of its point, it may be introduced more nearly parallel with the staff. As it is rounded for near an inch from the beak, it will follow with greater certainty the canal of the urethra, and will 'make assurance doubly sure,' that the parietes of the bladder will not be cut. As also it is straight, it is better calculated to make a ready incision.

" These instruments have both been repeatedly used with success ; so that no circumstance, either in theory or in experiment, is wanting to embolden a surgeon in adopting them. Of operators, however, who have long used the gorget, and who are satisfied with their practice, it would be unreasonable to ask a change. A younger surgeon will balance in his own mind the comparative merits of the two ; and as he has 'proved' neither, will adopt that in which he places the greatest confidence. The first duty of every practitioner is to render operations unnecessary. When these efforts are unavailing, he is to free them from danger as much as possible. Anatomical knowledge, and well established theory, are undoubtedly the most important means of effecting the latter ; but it must be evident that there is a preference among instruments—in what operation more than in lithotomy ? It has been advanced, that the gorget is a knife ; if so, it is a very clumsy one. The use of such an argument is a tacit consent to the superiority of the latter instrument. And I know not what higher praise could be bestowed upon the bistoury, than retorting, that it is not a gorget." p. 39—44.

We unwillingly postpone the notice of Dr. Moore's Dissertation to our next number, for want of room.

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## DOMESTIC INTELLIGENCE.

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LETTER *from* CADWALLADER D. COLDEN, *Esq. to Dr.*  
DAVID HOSACK, *concerning an Original Paper of Sir*  
ISAAC NEWTON.

New-York, December 3d, 1810.

DEAR SIR,

I BELIEVE I mentioned to you, as I have done to several other gentlemen, that there were among the papers of my grand-father some original letters of Sir Isaac Newton. I have taken a leisure moment to examine a large box, which has lately come to my hands, which I was informed contained them. I have found a manuscript, which has all the appearance of being an original, from the hands of the great philosopher ; but, from an attentive consideration of this manuscript, I am induced to believe, that it can only be a copy, which has been made by some one, for the use of my grandfather.

I now send you the manuscript above referred to. It appears upon the out-side to have been addressed to my grand-father, in the form of a letter, but the superscription is evidently in a different hand writing from the inside. Its date, more than any other circumstance, leads me to believe, that it cannot be an original. My grand-father did not come to this country till 1710. He was then very young, and was not known to the learned men

of Europe till long after the date of his manuscript; so that it is extremely improbable, that he should have had a correspondence with Sir Isaac Newton, upon philosophical subjects, at so early a period.

Whether the letter be an original or not, it may be a matter of sufficient curiosity to deserve a place in the Medical Register. If you should think so, it is much at your service, for the purpose of inserting in that work. You will oblige me by returning to me the manuscript which I now enclose.

I am, Sir, with great regard and respect,

Your obedient humble servant,

CADWALLADER D. COLDEN.

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*Original Letter from Sir Isaac Newton.—Dated Cambridge,  
February 28th, 1678-9.*

SIR,

IT being only an explication of qualities, which you desire of me, I shall set down my apprehensions in the form of suppositions, as follows. And first, I suppose, that there is diffused through all places, an ætherial substance, capable of contraction and dilatation, strongly elastic, and, in a word, much like air in all respects, but far more subtile.

2dly. I suppose this æther pervades all gross bodies, but yet so as to stand rarer in their pores than in free spaces, and so much the rarer as their pores are less.

I shall set down one conjecture more, which came into my mind now as I was writing this letter. It is about the cause of gravity. For this end, I will suppose æther to

consist of parts, differing from one another in subtilty, by indefinite degrees: that in the pores of bodies there is less of the grosser æther, in proportion to the finer, than in open spaces; and, consequently, that in the great body of the earth, there is much less of the grosser æther, in proportion to the finer, than in the regions of the air: and that yet the grosser æther, in the air, affects the upper regions of the earth, and the finer æther, in the earth, the lower regions of the air, in such a manner, that from the top of the air to the surface of the earth, and again from the surface of the earth to the centre thereof, the æther is insensibly finer and finer. Imagine now, any body suspended in the air, or lying on the earth; and the æther being, by the hypothesis, grosser in the pores which are in the upper parts of the body, than in those which are in its lower parts, and that grosser æther being less apt to be lodged in those pores, than the finer æther below, it will endeavour to get out and give way to the finer æther below, which cannot be, without the bodies descending to make room above for it to go out into.

From this supposed gradual subtilty of the parts of æther, some things above might be farther illustrated, and made more intelligible; but, by what has been said, you will easily discern, whether in these conjectures there be any degree of probability, which is all I aim at. For my own part, I have so little fancy to things of this nature, that had not your encouragement moved me to it, I should never, I think, have thus far set pen to paper about them. What is amiss, therefore, I hope, you will the more easily pardon, in

Your most humble servant and honourer,

ISAAC NEWTON.

*Dr. Currie's intended work.*

We learn with great pleasure, that Messrs. J. and A. Y. Humphreys have in the press, and will shortly publish, a new medical work, from the pen of Dr. William Currie, of Philadelphia, entitled "A Description of the Diseases most prevalent in the United States of America, during the different seasons of the year; with a circumstantial account of the remedies, and method of treatment, which have been found most efficacious: being the result not only of the author's own experience, but of the experience of several physicians of established character and distinguished abilities, residing in the different states: including the substance of all the latest, and most important improvements which have been made in the treatment of similar diseases in other countries."

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We are informed by WILLIAM LEE, Esq. the American consul at Bordeaux, that the analysis of the Ballston water, which was given in the first number of the Register, page 41, and which is believed to be the most correct of any that has been published, was made by Mons. CAZALET, a celebrated teacher of chemistry at Bordeaux, and particularly distinguished for his skill in practical analysis.

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*Griscom's Lectures on Natural Philosophy and Chemistry.*

We think it proper to state, for the information of our readers, that Mr. J. Griscom is actively pursuing the plan of instruction noticed in our last number. His classes both on Natural Philosophy and Chemistry, are numerous and respectable. His apparatus is of the latest and most approved construction, and finished in the best manner.

It is the object of Mr. G. we understand, to render his Lectures, if possible, subservient to the increase of a more general taste in this city, for the rational and instructive entertainment, which those sciences afford. It is accordingly his intention to supply himself, from time to time, with every suitable addition to his apparatus, and to avail himself of such means, as will enable him, to describe in his Lectures, the latest improvements and discoveries in chemistry, and the subordinate arts.

That view of nature, which is presented to the attention of an audience, by a proper illustration of the general doctrines of mechani-

cal and chemical philosophy, is certainly of the most interesting kind, and the best suited for a popular course; and we are pleased to find that Mr. G. is attended by a respectable number of ladies as well as gentlemen. Lectures of this kind, in public institutions, are frequented by ladies of the first respectability, in the most polished cities of Europe, and we know of no solid argument, that can be opposed to the practice. The progress of chemistry has of late years been rapid beyond example, and the *experiments* it affords, are exceedingly beautiful, and we think well calculated to *amuse*, as well as *instruct*, a fashionable audience. We observe it is Mr. G's practice to suggest to his hearers, such proofs of a natural theology, as many of the subjects of which he treats so strikingly present.

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By the polite attention of DAVID BAILIE WARDEEN, Esq. Consul General of the United States, at Paris, we have been favoured with a number of the latest productions of the French press, besides several papers on medical and philosophical subjects. We have been long acquainted with the talents and literary acquirements of Mr. Warden, and gladly avail ourselves of this opportunity of remarking, that besides many original papers which have been presented to the public, from the pen of Mr. Warden himself, that gentleman, while in the performance of the duties which his official station required, has also zealously embraced every opportunity which occurred, of conveying to his literary correspondents in the United States, the earliest intelligence of every thing he considered new or interesting to the country from which he received his consular appointment. We hope his example will be followed by all those whose public stations afford them similar opportunities of serving their country.

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*Observations on the Weather of the City of New-York, for the months of October, November, and December, 1810.*

#### OCTOBER.

THE weather during the first six days of October, was clear, and unusually warm for the season; wind chiefly from the s. w. On the seventh it became overcast, and

some rain fell accompanied with a high wind, from the southward. It now became much cooler, and on the 12th the mercury in the thermometer stood as low as 38 at 7 A. M. From the 8th to the 13th, it was clear and pleasant; though considerably cooler. On the 13th and 14th, a great quantity of rain fell, with a heavy wind from the N. E. The remaining days of this month were for the most part, fair and agreeable: wind chiefly from the N. W. and S. W. On the 31st, however, some rain fell, and the thermometer stood at 7 A. M. at 33, at 3 P. M. at 35, and at 7 P. M. at 32. This was the coldest day experienced in this month.

## NOVEMBER.

The weather at the commencement of November, exhibited all the appearances of winter. On the 2d day there was a violent storm, accompanied with a N. E. wind, and there fell about seven inches of snow. On the 3d, the thermometer stood at 7 A. M. at 23, at 3 P. M. at 31, and at 7 P. M. at 29. The weather again became overcast on the 9th, on which day, and on the two succeeding, there fell a great quantity of rain accompanied with a violent wind chiefly from the E. The rain continued on the 12th, 13th, 14th, 15th, and 16th, though more moderate, excepting on the night of the 14th, when it fell in torrents. On the 17th and 18th it was quite pleasant, with a gentle wind from the N. W. after which we experienced another heavy rain, with wind from N. E. On the 23d we had a fall of snow of about two inches and a half. The weather for the remaining days of the month was either overcast, cloudy, or rainy: seldom fell a greater quantity of rain in any month than during the present. The damage done to the city was immense; several buildings

were undermined and fell down. We experienced a consequent increase in the current of our rivers ; and remarkably high tides. Considerable damage was also sustained by the shipping in the harbour, and off the coast.

DECEMBER.

The 1st and 2d days of this month were clear and pleasant. On the 3d a small quantity of snow fell, accompanied with a N. E. wind, at which time the thermometer stood at 32. On the 4th it became clear and agreeable, and continued so till the 11th, on the morning of which day we again had more snow : the five succeeding days were clear, accompanied with wind from the westward, during which time the mercury in the thermometer was generally 8 degrees below the freezing point. On the 16th the wind changed to the N. W. and increased in violence attended some rain ; the weather for the seven following days was extremely disagreeable, being either overcast, foggy, or rainy. On the 23d and 24th days it became pleasant and quite mild for the season. The thermometer stood at 7 A. M. at 31, at 3 P. M. at 38, and at 7 P. M. at 36. The weather for the remaining days of this month was for the most part mild, though often either overcast or cloudy. On the night of the 30th, however, it commenced snowing, and continued until the afternoon of the 31st, when a considerable change in the temperature of the weather was experienced. Wind from the N. W.

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*Observations on the Diseases of New-York, for the months of October, November, December, 1810.*

The diseases we have already recorded as more especially belonging to the summer season, viz. *diarrhœa*, *cholera*, *dysentery*, *intermitting*, *remitting*, and *typhus*



*fevers*, continued to prevail throughout the greater part of the month of October ; but as the season advanced, diseases of an inflammatory nature appeared, and owing to the sudden and frequent changes of weather, and the great quantity of rain with which both city and country have been deluged, they have been more than usually prevalent during the last two months. Accordingly, *catarrh*, *pleurisy*, *peripneumony*, and *rheumatism* make up the greater part of the catalogue of our diseases during the period mentioned.

But in the weekly obituary, we continue to observe *consumption* at the head of the list. Notwithstanding the boasted ptisans of lichen islandicus, alcornoque, and other remedies industriously recommended as specifics in consumption, this disease in most cases still obstinately resists the best efforts of our art.

We have also had occasion during the last three months to record many cases of *apoplexy* and *palsy*. For the most part they occurred in advanced life ; but in some few instances these diseases also attacked persons between thirty and forty years of age. In the latter cases they were manifestly induced by general plethora of the sanguiferous system, the effect of free living and want of exercise. Bloodletting, purging, blisters, and abstinence have been the remedies most successfully employed. We cannot however but remark, that we have witnessed much injury from the very copious and repeated bleedings that are prescribed by many of our practitioners, in these diseases : even in the most athletic habits, such sudden evacuations and consequent prostration of the powers of life, cannot be justified either by reasoning or practice. The timid conduct of others, who object altogether to evacuations

by the lancet in those diseases when they occur at an advanced period of life, is equally to be reprobated. Although the system may be debilitated by age, it should be recollected that the secretions are also impaired from the diminished exercise at that period of life, and that an accumulation takes place in the larger vessels especially in the venous system. Where this plethora manifests itself in the brain by producing a general disinclination to motion and propensity to sleep, inability to articulate distinctly, or a sense of numbness in the extremities, which symptoms not unfrequently precede a fit of apoplexy or palsy, the lancet should be employed, followed with moderate evacuations by the bowels. But in such cases we have had reason to observe that they are too frequently neglected.

*Convulsions*, according to our public records, have also been attended with more than usual mortality during the last three months. In our private practice we have had occasion to witness many cases of this disease; but in those cases the convulsions readily yielded to the use of laudanum and the warm bath, administered during the paroxysm. These were succeeded by the use of such other remedies as the probable nature of the cause producing the disease appeared to point out: viz. the free division of the gums when inflamed and distended by teething; the evacuation of the stomach and bowels when the irritation appeared to originate in the intestinal canal; and in cases of worms, by the use of elixir proprietatis, occasionally administered as a laxative, followed by a course of chalybeates.

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*To Correspondents.* Communications have been received from Col. Williams, Dr. H. U. Onderdonk, Dr. Arnell, Mr. Spafford, Dr. W. Currie, Mons. Magendie, and Dr. Delile but are necessarily postponed

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*Erratum.* In Dr. Hosack's paper on *Cnicus Arvensis*, in second number, page 212, line 7, for Professor Willdenow, read Persoon.

THE  
A M E R I C A N  
M E D I C A L A N D P H I L O S O P H I C A L  
R E G I S T E R .

APRIL, 1811.

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ORIGINAL COMMUNICATIONS.

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I.

AN ESSAY *on the Nature and Cause of the* MALIGNANT PLEURISY, *which proved so remarkably fatal to the inhabitants of Huntington, and some other places on Long Island, in the winter of the year 1749. Drawn up at the request of a weekly society of gentlemen in New-York, and addressed to them at one of their meetings, January, 1749. By the late Dr. JOHN BARD.\**

GENTLEMEN,

OF all the objects of physical knowledge, there are none more amazing, or that afford a more useful speculation, than the history of epidemical diseases; a right

\* Believing a copy of this essay of Dr. J. Bard to be in the possession of some of his friends, we, in a former number of the Register, expressed a wish to obtain the manuscript of it for publication. Through the polite attention of Dr. David Craig, a pupil of the author, and now a practitioner of medicine in Rahway, New-Jersey, we lately received an entire copy of the essay; besides two other original letters on philosophical subjects, by Dr. J. Bard and Lieutenant Governor Cadwallader Colden.

EDITORS.

knowledge of these is of the utmost importance to the improvement of the medical art, and, consequently, to the benefit of mankind.

By epidemical diseases are meant general or spreading disorders, attacking great numbers within the circle of its appearance, at or near the same time, proceeding from a contagious affection of the air, and sometimes propagated by contagion received from one by another person unaffected; of this kind is the disorder now prevailing on Long-Island, the subject of our present examination.

That we may proceed on this inquiry in a regular and intelligible manner, I shall beg leave to premise a few maxims relating to the nature of epidemical diseases in general, first discovered, or at least received in Europe by the incomparable Sydenham, and since established by the authority of the learned and industrious Boerhaave, and clearly evident to every diligent observer engaged in the practice.

First, then, the remote causes of these disorders are entirely inscrutable by us, and the attempting to account for all their phenomena from the sensible qualities of the air, or particular systems of philosophy, is altogether vain and fruitless: their sensible appearances, however, are reducible to fixed and certain laws, considered either with regard to the relation they bear to one another, the regular rise, progress, height and declension of a whole epidemical constitution, of one particular season, a year or years; or the rise, progress, height and declension of the symptoms which make up the history of any particular disease; their tendency at the vernal or autumnal equinoxes,

(at which seasons they are generally most prevalent,) and many other particulars which experience and observation have established as unquestionable maxims.

These inquiries, formed upon a just knowledge of the animal economy and the history of diseases, the assistance of Dr. Harvey's discovery of the circulation of the blood, unknown to the ancients, together with other improvements which had at that time been made in physical learning, engaged the indefatigable application of this great and sagacious man, particularly for the last fifteen years of his life ; in which time he compiled a most accurate and complete history of the acute and epidemical diseases, which prevailed in his time and country, and has communicated his observations to the world with the utmost faithfulness and candour.

The epidemical fevers which prevailed in the city of London, during his observation and practice, he distinguishes into what he calls stationary and intercurrent, the intercurrents he again divides into essential and symptomatical. By a stationary fever he means a regular, simple, stated epidemical fever, arising not from any of the sensible qualities of the air, or an error in the non-naturals, (he having observed that years perfectly agreeing as to the manifest temperature of the air, have nevertheless produced very different tribes of diseases, and vice versa,)\*

\* The variety of symptoms observable in epidemical distempers are so obscure, that physicians have not been able to deduce them from any abuse of the non-naturals, and yet there are many circumstances which make it highly probable that their causes reside in the air, but depend more upon the inexplicable variety of exhalations contained therein, which by their mixture with the fluids of the hu-

but from a general constitution of years, which owes its origin to a certain secret inexplicable alteration in the bowels of the earth, whence the air becomes impregnated with such kind of effluvia as subjects the human body to particular distempers, so long as that kind of constitution prevails, and which, after a certain course of years, (for it often continues several years,) declines and gives way to another.

Each of these general constitutions is attended with its own proper and peculiar kind of fever, which never appears in any other ; and during each of these general constitutions,\* this primary or stationary fever presides over the rest, or all the other species of epidemics are in a peculiar manner affected thereby. The other species are called intercurrents, and seem to depend much upon the sensible qualities of the air, and other particular accidents. These fevers take place indifferently in all years, and in particular seasons of the same year ; of this kind are the scarlet fever, quinsy, pleurisy, and the like.

There are (besides these two species of epidemics, viz. stationary and essential intercurrents) a third species, man body, or their stimulus, injure the human machine more than any change in the sensible qualities thereof.

*Boerhaave's Aphorisms, 1412-13-14. No.*

\* Of this opinion seems the divine Hippocrates, who in his admirable treatise of air, water, and situations, after giving a catalogue of distempers, which those cities are chiefly liable to which are obliged to make use of stagnant and marshy waters, and which have a southern situation with respect to the sun and winds, says, these are the distempers to which a southern situation is principally subject, unless some epidemical disease, from the change of the seasons, prevails, of which the ordinary distempers participate.

which is called symptomatic intercurrents: these last are it fact of the same species of the then prevailing stationary fever, but its apparent symptoms are changed into the likeness of some one essential intercurrent fever, such as the particular seasons of the year, or the manifest qualities of the air are used to produce: these three are all the species to which the whole tribe of epidemical diseases are reducible; an accurate knowledge of them, and a particular regard to their distinctions, are of the utmost consequence towards finding out the nature of any prevailing epidemic fever, and curing it successfully.

By this time, gentlemen, you perceive that all epidemic diseases are reducible to these three species, viz. stationary, essential intercurrents, and symptomatic intercurrents. Now, so long as the general constitution, which gives rise to the stationary fever, continues, (which is sometimes three or four years together,) the fever itself exists, sometimes in its own simple shape and appearance, and at other times puts on symptoms common to the essential intercurrents, such as pleurisy, quinsy, &c. according to the particular season of the year that favours the production of these essential intercurrents: these appearances or symptoms may deceive the unwary or injudicious, so far as to make them imagine them to be the very disorders their external symptoms seem to imitate.\* But to a discerning physician, who is capable of examin-

\* Though every particular disease of the fluids, in various epidemical constitutions, appears to inattentive observers the same, with regard to their names, signs, and their consequences in some measure, yet the same diseases appearing in one epidemic constitution differ exceedingly from those produced in another, with respect to their obscure natures, their appearances not observable except by the judicious, the various times of their increase, state, coction, crisis,

ing all the characters of the disease, they will be found to retain the essential (though latent) characters of the stationary fever : the morbid matter being determined either on the pleura or throat by the particular season of the year, or manifest qualities of the air favouring the epidemical production of an essential pleurisy or quinsy.

And such is the difference between these two disorders, viz. a real essential intercurrent pleurisy, and a symptomatic pleurisy, that the intention of cure is as different as the diseases really are ; the one requiring a method peculiar to itself, the other requiring special regard to the latent stationary fever of which it is only a symptom. It sometimes happens too, that the symptoms of two essential intercurrents are blended with each other, and form a complicated fever.

To illustrate this doctrine of epidemic fevers I shall transcribe a passage from the excellent author I mentioned above : speaking of intercurrent fevers, he says, “ But  
 “ here it must be carefully noted, that though the diseases  
 “ I am to treat under the title of intercurrents, are most,  
 “ if not all of them essential diseases, yet, frequently,  
 “ certain disorders happen in stationary fevers, resembling these intercurrents as to the phenomena, and likewise characterized by the same name ; *which, however,*  
 “ *are manifest symptoms of those fevers.* Now in this  
 “ case, they are not to be treated by the method which is to  
 “ be used when they are essential diseases, *but rather by*

effect, event, and method to be pursued in the cure : hence it is evident that they require a different administration of the non-naturals, different treatment and medicines.



“ that which the fever requires, whereof they are now  
“ symptoms, which is to be slightly adapted to their par-  
“ ticular cures ; and great attention is to be had to the  
“ fever of the year, and to find out the method by which  
“ it may be easiest conquered, whether by bleeding,  
“ sweating, or any other procedure ; for if this be dis-  
“ regarded, we shall frequently mistake, to the great detri-  
“ ment of our patients.” This method of exploring the  
nature of diseases, and adapting their cure, (contrary to  
the humour that had long prevailed, of endeavouring to  
reduce all the phenomena of diseases to particular systems  
of philosophy,) was a work reserved for Dr. Sydenham,  
in which he has succeeded so well, as to be justly stiled  
the British Hippocrates. We are told by the late cele-  
brated Boerhaave, in his method of studying the art of  
physic, that none of the moderns engaged him longer, or  
improved him more, than Sydenham ; of whom he has  
made this honourable mention, that he frequently perused  
him, and always with greater eagerness ; and assured his  
pupils that no physician since the venerable Hippocrates,  
had wrote of diseases with so much exactness. In an ora-  
tion he spoke, recommending the study of Hippocrates  
to his pupils, he laments that few (if any) of the modern  
writers on physic, have attained to the perfection of the  
ancients. I can only, says he, mention one great man,  
Thomas Sydenham, the ornament of England, and the  
Apollo of the art ; whom I never consider, but my  
mind presents me with the genuine picture of an Hippo-  
cratic physician : and to whom physic is so much indebt-  
ed, that all I can say falls short of his merit.

From what has been said, I believe, gentlemen, you  
will perceive that it is absolutely necessary, in order to

form a right judgment of any new species of intercurrent fever, that may at any time appear, (such as the fever we are now examining,) if we would proceed upon the plan recommended by the great authorities before mentioned, and which is unquestionably right from observation and experience, we must, I say, first consider the stationary fever then existing, and examine whether its essential characters in any degree appear in this new fever; the next inquiry that appears necessary, is the manifest qualities of the air, the season of the year, and what species of essential intercurrents generally belong to it, whether pleurisy, quinsy or others, and weigh well with ourselves, whether this new fever puts on any new symptoms common to it; carefully observing the method nature takes in digesting the disease; and in what manner it is expelled, uninterrupted by the preposterous use of medicines.\* To apply these reasonings to the present purpose, it seems clearly evident, that the reigning stationary fever of the present general constitution of this

\* Upon the invasion of any unknown epidemical distemper, the physician will receive some information with respect to the cure; first, by reducing the distemper to some more known species which it most resembles; secondly, by observing its tendency at the vernal and autumnal equinoxes, at which times it is generally most prevalent; thirdly, by attending to the spontaneous phenomena which precede, accompany, or follow the death or recovery of the patients, or the better or worse state of the disorder; fourthly, by diligently remarking any benefit or injury received from whatever the patients are unavoidably obliged to do, whatever is taken into or discharged out of the body; fifthly, by comparing the cases of a great many patients labouring under the distemper at the same time; sixthly, by abstaining from all remedies which are dubious, which exagitate and induce a considerable change in the humours, and thereby obscure the genius of the disease.

*Boerhaave's Aphorism, No. 1418.*

place, and which has now existed several years, is what is generally called the *yellow fever*, which has actually changed the nature of all the intercurrents, ever since it first appeared amongst us. This general constitution of the air has disposed most of the regular intermittent fevers into irregular remittents; and in some seasons of the year into a long continued fever, attended with the worst train of nervous and putrid symptoms. Neither has it failed in every year since its first appearance, to shew itself towards the autumnal equinox in its own simple form, attended with its principal deadly characteristic symptom, the black vomit. It was this fever, disguised by the prevailing intercurrent of the season, that appeared last summer, and proved fatal to some young gentlemen and others in this city: and not losing sight of this clue, I conceive that the present mortal disease in the country, owes its cause to this original, primary fever, disguised by the now prevailing constitution of the air and season favouring the production of an intercurrent pleurisy. I am confirmed in this opinion, from examining the symptoms attending the disorder, and comparing them with those of the stationary fever, of which the following is a general description.

The patient in this malignant pleurisy, is first seized with a shivering or rigor, which is soon succeeded by a pain in his back and head, an early disposition to vomit, with great oppression and anxiety. Soon after the fever is formed, these appearances are followed with an acute pain in the breast and side, resembling peripneumonic symptoms, attended with a laboured and painful respiration, a frequent cough, by which a crude, glazy, frothy spittle, lightly tinged with blood, is discharged; light de-

liriums, through the whole progress of the disease, not constant, but frequently returning; the tongue for the most part parched and dry; but the skin inclined to be moist and sweaty, which, if encouraged, the skin and coats of the eyes become extremely yellow; the blood appears rather dissolved and thin, than viscid; the pulse in most cases soft and frequent. This disease generally ends in the death or safety of the patient on the fifth day, sometimes on the third and fourth from the invasion of the distemper. In those that have died, it has been observable, that some hours before their death, they have recovered their senses, and appeared easy, but soon after have unexpectedly and suddenly expired. Most of these symptoms, together with the time it takes in going through its stages, are similar to the stationary fever,\*

\* The symptoms attending the yellow fever in the cities of New-York and Philadelphia were these: first, a sudden prostration of strength and spirits, great anxiety, a burning pain in the stomach, frequently extending to the bowels; in some, acute pains in the head and back, attended with an ardent fever and extreme thirst, accompanied frequently with light delirium; a vomiting almost from the beginning of the disease, which, if not timely suppressed, was irrestrainable through the whole progress of it, and after continuing some time, appeared of the colour and consistence of coffee grounds; the tongue dry, but the skin inclining to be moist; from the dissolution and caustic acrimony of the blood and juices, violent hemorrhages from the nose, mouth, and sometimes from the corners of the eyes; the skin and whites of the eyes on the second day turned yellow; the disorder ended in the death or recovery of the patient on the third, fourth, or fifth day; sometimes before the patient's death there was frequently a sudden remission from pain, without any apparent cause; a weak intermitting pulse, and soon after a calm and gentle death. This fever has been frequent, not only in the English West-Indies, but in the Spanish and French American islands. From Barbadoes it is supposed to have been conveyed to the continent, where it has raged at Carolina, Virginia, Pennsylvania, and New-

excepting the pain in the side, which appears to me to arise from the acrimony of the disease, which (in its simple state used to be thrown upon the stomach and bowels, producing violent pains, inflammation, and sometimes mortification of the parts) is by the present disposition of the air and season of the year, favouring the production of an epidemic pleurisy, determined upon the pleura and lungs, and produces its tragical effects upon these organs. It is further observable, that the disease is aggravated by the common method of treating an *essential pleurisy*, and is found to be relieved by sweating and diluting methods, which is a prevailing argument to consider it in this light, as that method was always found to be the most successful in curing the original fever ; of which kind I suppose this to be, and the pain in the side and breast only accidental symptoms.

I cannot dismiss this subject without communicating a remarkable instance of two essential intercurrent fevers being blended together, so as to form a compound of both. This I formerly communicated to Dr. Kearsley and Mr. Franklin of Philadelphia, and was in my opinion the only reason why the practice of inoculation proved so unsuccessful when the small-pox last appeared in this city. This distemper was brought into this city when an eruptive fever was epidemical, and very general ; and immediately the small-pox was propagated by inoculation in a great many different parts of the town, while the constitution of the air which favoured the erup-

York. Dr. Warren, who has written a very exact history of its appearance in Barbadoes, has very elegantly described its symptoms, and with great judgment directed a proper method of cure. Dr. Mitchell has done the same from its appearance in Virginia.



great advantages to society ; yet, these arts, in the hands of the rash and unskilful, too often occasion the most fatal mischiefs ; as errors of this kind are errors of the most dangerous consequence.

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## II.

AN INVESTIGATION of the Principles of STEAM CARRIAGES. Communicated to the Editors by the late JAMES SHARPLES, Esq. of this city.

THERE is no mechanical project, except the perpetual motion, that has been so often and so unsuccessfully attempted, as the self-moving carriage, or carriage to go by means of some internal power borne along with it ; and I believe there is no engine of this kind in use, except the Bath chair, by which gouty persons can move themselves about from place to place, upon level ground, with a slow motion. Some attempts have been made to give motion to carriages by means of steam ; but none ever promised more than the one made by Mr. Trivithick, who invented an engine to act with steam of so high a temperature, as to preclude the necessity of using the condensing apparatus and air-pump. Having got rid of these incumbrances, he was confident of success. A carriage was constructed for the purpose, every thing was well contrived, and as the inventor was a man of acknowledged abilities and ingenuity, it was generally believed he would succeed ; but as I had been led into much reflection on this subject by some projects of my own, I made no hesitation to predict its failure to some mechanical philosophers of high repute in England, who strenuously combated the reasonings and theorems which oc-

casioned me to pronounce so decidedly ; hence I am inclined to believe, that a strict investigation of this subject has not appeared in any book of natural philosophy, and if I should be fortunate enough to throw any new light upon it, I shall please myself with the reflection that I may be the means of preventing ingenious men of ardent minds from squandering their property, or ruining themselves by so wild a project.

I have here given an outline of Mr. Trivithick's carriage and engine.

A and B are the fore and hind wheels ; on the axle B a ratchet wheel is fixed for the piston rod of the cylinder E to act against, and if roads were perfectly hard, smooth, and level, such an engine would probably have the advantage over common carriages, because a small power continually exerted would give a degree of velocity that could not be supported by horses ; but in estimating the powers necessary to impel carriages on roads in general, we must take into consideration the impediments that are usually met with, all of which may be considered as so many short inclined planes. Thus a force to drive the wheels A B over the obstacles D C, would, the first moment of exertion, be the same as a continued force to carry them up D L, provided the inclined plane was perfectly hard and smooth ; now  $g$  D M may be considered as a bended lever,  $g$  D being the long arm, and M D the short one, and the power drawing out of the carriage in the direction  $o v$  would be to the whole weight of the carriage and load, pressing perpendicularly in the points I and M, as M D is to  $g$  D, the points of the obstacles being the fulcrum or centre of motion. These proportions



being as four to seven, and as four horses can, by a sudden exertion, raise 2000 lbs. perpendicularly by a rope over a pulley, (*Desagueliers, vol. 1. p. 260.*) four horses would raise a weight in the carriage and load over the obstacles C D equal to 3500 lbs. but no force in the engine acting against the ratchet wheel at H would effect the same. We must keep in view, that whilst the action within a carriage is exerted in any line of direction against the ratchet wheel, its reaction is against some part of the carriage in a contra-direction, and that the intensity of its action is the same, whether its direction be horizontal, oblique, or perpendicular. Now let the direction of the force be changed from the direction E H to *e g*, and nothing, in my opinion, can be more self-evident, than the impossibility of forcing the wheels over the obstacles by a power exerted perpendicularly upon the centre of motion ; for it would be absurd to attempt to raise a weight suspended on either of the ends of a scale-beam, by the application of a perpendicular force upon the fulcrum.

A scientific friend of mine near Brunswick, who at first opposed the foregoing proposition, afterwards not only convinced himself, but had formed a demonstration of the truth of it. As I am not acquainted with the mode of his solution, I shall endeavour to supply it.

Let it be required to draw the carriage wheel up the inclined plane P L, by means of any power or weight W suspended by a chain coiled round the ratchet wheel. If the power W will descend by rolling the carriage wheel up the ascent, the descending line of its power must hang beyond the centre of motion on that side which would

have a tendency to raise the carriage wheel, and it would consequently have some mechanical force. But to demonstrate that the wheel will not descend, let  $P L$  be drawn perpendicular to the radius  $B D$ , and let the length  $B D$  be set off from  $D$  to  $L$ , it is evident that the wheel, in rolling from  $D$  to  $L$ , will apply as much of its circumference on the inclined plane as is equal to  $D L$  or  $D B$ ; and it is also evident that the weight  $W$  will draw as much in length of chain from the ratchet wheel, as is equal to the line  $B g$ , which is the radius of the lesser circle; for the greater circumference is to the lesser one, as the greater radius is to the lesser radius; then set off  $L K = B g$ , in the angle  $D L K$ , equal to the angle  $D B g$ ; draw  $K D$  and  $g D$ ; then the triangles  $D L K D$  and  $D B g D$  will be every way equal and similar; consequently, the line  $L K$  will be equal in length to the line  $B g$ , which has been shown to be the length of chain drawn off from the ratchet wheel; but as the line  $L K$  lies all above the horizontal line  $D K$ , the length  $D W$  will have received no addition, and the weight  $W$  must have been carried along in a line parallel to  $D K$ , and consequently cannot have descended or ascended, which proves that the power is exerted perpendicularly over the centre of motion.

Let us now consider such impediments and inclined planes as present themselves in almost every road. If there were obstacles  $T$  under each wheel, any power out of the carriage, drawing in the direction  $o v$ , would be to the weight of the carriage and load, as  $A S$  to the line extending from  $S$  to the point of the obstacle, which being nearly as 1 is to 4, four horses would draw  $4 \times 2000 = 8000$  pounds in the carriage and load over such

obstacles from a state of rest. But an engine equal to the power of four horses, acting within the carriage, would only be adequate to forcing a weight of 2000 pounds over the obstacles, for the power is to the weight as the line  $A S$  is to the line  $S n$ ; by reference to the previous definitions we shall find the point of contact of the wheel and obstacle  $T$  to be the fulcrum  $A I$ , the centre of gravity of the weight to be raised, and  $n C$  the line of direction of the power, and as  $A S$  and  $S n$  are equal to each other, a force of 8000 would be required to raise 8000 over the obstacles  $T$ , (which would be about an inch and a quarter in height, if the wheels were 5 feet in diameter) or up an inclined plane of 7 or 8 degrees, the roads being perfectly hard and smooth, or up an ascent of 4 or 5 degrees in such roads as are generally found, for occurring hollows would be frequently more than 3 or 4 degrees. But I am of opinion the weight of an engine, carriage, and apparatus to sustain 8000 would weigh considerably more than 8000, so that all its force would be exerted in vain to overcome obstacles of a size so diminutive, or to impel its own weight up eminences of five degrees of general elevation.

To conclude: in whatever point of view we place this subject, we shall be more and more convinced of its futility.

## III.

*A Memoir upon the ORGANS OF ABSORPTION in Mam-miferous Animals, read at the Institute, on the 7th of August, 1809, by M. MAGENDIE, Doctor of Medicine of the Faculty of Paris, Professor of Physiology, &c. The experiments conducted by Doctors MAGENDIE and DELILE. Communicated to Dr. DAVID HOSACK, by A. R. DELILE, M. D. of the Institute of Egypt, &c.\**

AMONG the facts which I had the honour to report to the class, in a memoir upon the upas tieuté, the nux vomica, and the bean of St. Ignace, there is one which appeared to me worthy of more particular attention ; I mean the readiness with which those poisonous matters are absorbed and introduced into the sanguiferous system. It must be recollected, that it scarcely requires twenty seconds to convey these poisons from the peritoneal cavity to the spinal marrow.

The generally received ideas relative to the organs of absorption, do not admit of a doubt that the lymphatic vessels are the agents for conveying these poisons into the sanguiferous system. Thus, in the experiment where the poison was introduced into the middle of the thigh of an animal, there was but one way of explaining its absorption ; it must necessarily be admitted that it was ta-

\* For this, as well as other translations from some recent Spanish and French publications, which will appear in the future numbers of the Register, we are indebted to William A. Hosack, Esq. of this city.

ken from the wound by the lymphatic vessels of the parts with which it was in contact ; that after being absorbed it was carried by these vessels towards the glands of the groin ; that after traversing these bodies, it was conveyed, still by the lymphatic vessels, to the thoracic duct ; finally, that it was introduced into the sanguiferous system by the communications which the thoracic duct preserves with the subclavian veins, and principally with those of the left side.

Such ought to have been, and such, in fact, was our opinion, at the time of the publication of the memoir upon the strychnos. Nor were the experiments, of which I am about to give an account, undertaken with a view to discover new facts, but rather to add a degree of certainty to an explanation already admitted ; and our labours did not take a particular direction until a great number of facts obliged us to modify our view of this subject. But so rapid an absorption by vessels, whose principal characteristics are weakness and slowness of action ; a poisonous substance that so quickly pervades the difficult and winding route of the lymphatic glands, without any alteration therein, were two circumstances that ought, perhaps, to have made us entertain some doubts of the correctness of the received explanation. This explanation, however, is given by so many respectable persons, and is supported by experiments so positive, that even now, when we have many facts to oppose it, we dare not say that it wants exactness, but only, that it is not admissible under every circumstance.

Previous to any detail of our experiments, it will not be useless to relate, in a few words, an opinion which

for some time balanced the present prevailing belief relative to the organs of absorption.

This opinion, professed by Boerhaave, Haller, Méckel, Ruysch, Swammerdam, and others, was, that the sanguiferous veins, in common with the lymphatic vessels, possessed an absorbing power,

It is supported by different circumstances of structure, and by some physiological and pathological facts. A series of interesting experiments, undertaken and executed a few years since, at the veterinary school of Alfort, has also strengthened the probability of such absorbent property of the veins, but without producing entire conviction. It is well understood that an opinion established upon the physical structure of the organs, deduced from a sufficient and conclusive number of experiments, and supported by the names of Boerhaave, Haller, and Ruysch, ought not to be easily abandoned. Nor was less required than the anatomical discoveries of the last century, the correct experiments of Hunter and his brother, those of Cruikshank, Mascagni, Desgenettes, and others, to establish the belief that the lymphatic vessels only possess the absorbent faculty.

I will further cite, in support of the general opinion, some very curious experiments lately made by M. Dupuyren. This physiologist, who has kindly permitted me to report the principal results of his labours, tied the thoracic duct in several horses; some of them died in five or six days, others preserved every appearance of health. We know already by an experiment of Duver-

ney, by some observations on the thoracic duct when obstructed, and above all, by the experiments of Landrin, that the thoracic duct may cease to convey the chyle into the subclavian vein without being followed by the death of the animal ; it is true, we also know, that some animals died in consequence of a ligature round the duct ; but we are entirely ignorant of the cause of this diversity in the results. M. Dupuytren, by his experiments, has found one very satisfactory. In the animals that died in five or six days, from the ligature round the thoracic duct, he always found it impossible to pass any injection from the inferior part of the duct into the subclavian vein ; consequently, it is very probable, that the chyle ceased to be conveyed into the venous system immediately after the application of the ligature. On the contrary, in all the animals who have survived the application of the ligature, it has always been easy to make every kind of liquid pass from the inferior part of the duct to the subclavian veins, by means of the very numerous communications between these two points by the lymphatic vessels, placed alike in the posterior as in the anterior mediastinum.

I have personally assisted M. Dupuytren in opening a horse, the thoracic duct of which he had tied more than six weeks before, and I easily satisfied myself that there existed evident communications between the inferior portion of the duct and the subclavian veins, although this canal was entirely destroyed at the place of the ligature.

I now proceed to the experiments, which I made, for the most part, in concert with M. Delile, to determine, whether the lymphatic vessels are really the only ones

by which foreign substances enter into the venous system.

A circumstance that has always thrown some obscurity over the experiments upon absorption, is, the difficulty of demonstrating, with certainty, the passage and presence of absorbed matters, either in the lymphatic or sanguiferous vessels. We have not these inconveniences to fear in employing the *upas*, or the *nux vomica*; for it is known that two centigrammes of these substances produce effects too remarkable to be mistaken.

Would the ligature round the thoracic duct stop the passage of the poison in the sanguiferous system, and consequently, its effects upon the spinal marrow? This was the first question that we proposed to resolve.

I have applied in a dog a ligature to the thoracic duct, a little before its opening into the left subclavian vein; I afterwards introduced a solution of the *upas* into the cavity of the peritoneum. The effects of the poison were as prompt and marked as if the thoracic canal had not been tied. I have tried the same ligature in other animals; but instead of introducing the poison into the cavity of the peritoneum, I introduced it either into the pleura, or into the stomach, the intestines, or muscles of the thighs, &c. The effects have always been equally rapid and intense, as if the thoracic canal had been free.

Decisive conclusions cannot be drawn from these first essays, for we know that the thoracic canal is not the only point of communication between the lymphatic



and venous systems. There is ordinarily on the right side, a second thoracic duct, almost as considerable as that on the left; the large lymphatic vessels often open themselves solitarily into the subclavian veins; and more frequently still the thoracic duct has several mouths into the vein where it terminates.

One of these circumstances was found to occur in the animals subjected to our experiments; and we must have recourse to other trials, from which other results, less equivocal, may be deduced.

Upon a dog who had eaten a large quantity of meat seven hours before, in order that his abdominal lymphatic vessels might be easily perceived, we made an incision through the parietes of the abdomen, and took from thence a coil of the small intestines, upon which we applied two ligatures about five inches apart from each other. The lymphatics, which had their origin in this turn of the intestine, were very white and very apparent from the chyle which they contained. Two ligatures were placed at the distance of one centimetre upon each of these lymphatics; we cut these vessels between the two ligatures; we took great care in this part of our experiment, and assured ourselves, by every possible means, that the curvature of the intestine, taken from the abdomen, had no further communication with the body by the lymphatic vessels. Five arteries and five mesenteric veins ended in the portion of the intestine comprised between the two ligatures; four of these arteries and four of the veins were tied and cut in the same manner as the lymphatics; the two extremities of the curvature of the intestine were cut and entirely separated from the rest of

the small intestine. Thus we had a portion of the intestine about five inches in length, not communicating with the rest of the body but by one artery and one mesenteric vein ; these two vessels were separated at the distance of four fingers breadth. We even raised the cellular substance, least some lymphatic vessels might lie there concealed. We had nothing further, by which to obtain a positive result, than to inject a small quantity of the *upas tieuté* into the cavity of the intestinal curvature. This was also done with proper precautions to prevent the escape of the injected liquor. The curvature of the intestine, enveloped in fine linen, was replaced in the abdomen ; it was then precisely one o'clock. To our great astonishment, about six minutes after, the general effects of the poison diffused themselves with their usual intensity, and in such a manner that every thing proceeded as if the curvature of the intestine had been in its natural state.

The animal being dead, we examined the parts ; no ligature was displaced, nothing could make us suppose that the poison had passed into the abdominal cavity.

This experiment, repeated several times without any modification in the result, appeared to us most conclusive ; it proves, at least, as far as can be proved in physiology, that the lacteal vessels are not the exclusive organs of intestinal absorption.

This kind of absorption, different from that of the lymphatic, may be peculiar to the intestines ; it would be important to know if it could be discovered to exist in the other parts.

We separated from its body, the thigh of a dog, previously rendered comatose by opium, (in order to spare it the pain of a difficult experiment;) this separation was so made, that the thigh still communicated with the trunk by the *crural* artery and vein. We took, with regard to these two vessels, the same precautions as for the mesenteric vein and artery in the preceding experiments; that is, we isolated them on an extent of four centimetres, and raised their cellular *coat*, least it should conceal some lymphatic vessels; we then inserted two grains of the poison in the foot, and waited the effects. They manifested themselves with as much promptitude and energy, as if the thigh had not been separated from the body; insomuch, that the first signs of the action of the upas appeared before the fourth minute, and the animal died before the tenth.

It may be objected, that notwithstanding all the precautions taken, the arterial and venous parietes still contained some lymphatics, and that these vessels were sufficient to give passage to the poison. It were easy to refute this objection.

I repeated, upon another dog, the preceding experiments, with this modification, that I introduced into the crural artery a small quill, upon which I fixed this vessel by two ligatures; the artery was afterwards cut circularly between these two bands. I did the same to the crural vein; so that there was no longer any communication between the thigh and rest of the body, unless by the arterial blood which comes to the thigh, and by the venous blood which returns to the trunk. The poison introduced into the foot produced its general ef-

fects in the ordinary time, that is, in about four minutes. It may be deduced, I believe, from these different experiments, that the lymphatic system is not, at least in certain cases, the exclusive route that foreign substances take to arrive at the venous system.

This new mode of absorption, much more direct than that by the lymphatics, presents the means of easily conceiving the rapidity with which the different deleterious and other matters are absorbed, as well as the rapidity with which they produce their effects upon the system.

But what are the organs that first absorb the poison from the parts where it has been introduced? Are they the radicles of the veins, or are they rather the capillary lymphatics, which, having immediate anastomosis with the sanguiferous capillaries or exhalents, would immediately diffuse the poison through the venous system?

The experiments which I have just related, joined to those which have been made on the same subject, appear to me totally insufficient to decide either of these questions; only, it ought to be remarked, that our experiments are strongly in favour of a direct absorption by the veins.

But it is a fact, rendered evident by the preceding experiments, and upon which it is necessary to pause a moment, that the venous blood becomes charged with the poison, and that by the intervention or means of this blood, the poison produces its deleterious action upon the system. In fact, if in the experiments where I had se-

parated the thigh from the trunk, we suspend the course of the venous blood, by compressing between two fingers the crural vein, we lessen, and even totally suspend, the production of the effects. The blood of an animal, in which the signs of action of the *upas* is developed, contains then, some portion of poisonous matter; indeed, it may be said to be really poisoned. It were curious and interesting to know, if this blood carried into the circulatory system of a healthy animal, would produce effects similar to those it had upon the animal itself. At first sight, we are led to believe that this is extremely probable, even that it is certain. The following experiments will shew with what care we ought, in physiology, to distinguish that which is probable, from that which is proved by experiment.

We passed the arterial blood of an animal, in which the tetanus caused by the *upas* was manifest, into the jugular vein of a healthy animal; the transfusion lasted near twenty minutes, so that the healthy animal received a very considerable quantity of poisoned blood, which at the first moment of the experiment, was of a red and vermilion colour, and which afterwards became violet and black, when the *upas* had produced asphyxia. There did not, however, appear any irritation of the spinal marrow, and the animal only experienced what happens in common transfusions, made with care. I mean, that it had, for some hours, a very marked acceleration of the inspiratory and expiratory motions, as well as a very abundant pulmonary exhalation. Frequently repeated, this experiment has always produced the same results.

We were now certain, that the arterial blood of

animals, poisoned by the *upas tieuté*, the *nux vomica*, or the *bean* of *St. Ignace*, was not susceptible of producing similar effects on other animals; it would not be, perhaps, the same with the venous blood. It may be presumed, that the respiratory action changed the nature of the poisonous substance; and this alteration might, to a certain degree, give the reason, why the transfusion of the arterial blood of animals poisoned by the strychnos, is not followed with bad effects.

This circumstance did not take place with the venous blood, which returns from the part where the poison has been introduced. After the experiments reported in the memoir upon the *upas*, and in this, it is impossible to doubt, that this blood does not transport the poison to the lungs. It is very probable, that introduced into the circulatory system of another animal, it would produce effects similar to those which it caused upon the animal on which the inoculation of the poison was made.

A small piece of wood covered with two grains of *upas tieuté*, was stuck into the thick part of the left side of the snout of a dog. Three minutes after this introduction, we passed into the venous system of another dog, the blood of the jugular vein of the side where the introduction of the poison had been made. The transfusion commenced about one minute before the first signs of the *upas*; it did not cease until the death of the animal who experienced it. No appearance of irritation of the spinal marrow was perceived in the animal who received so great a quantity of poisoned blood.

Although these experiments were repeated several times,

with variations in the mode of introducing the poison, we never could perceive in the healthy animals, who had suffered the transfusions of poisoned blood, any thing which resembled the effects of the strychnos.

Results so positive, appear to us of a nature to warrant the conclusion, that the venous blood of animals poisoned by the *upas*, the *nux vomica*, and the *bean of St. Ignace*, is no more capable than the arterial blood, of producing upon another animal the effects which it will cause upon the animal from which it was taken.

If there still remained any doubts, they would be removed by the following experiment, which was repeated several times.

As in the experiments above related, we separated from the body the thigh of an animal, isolating as before the crural artery and vein ; we introduced the poison into the separated foot, and transfused the blood of the crural vein into the jugular vein of a sound animal. The passage of the blood from one animal to the other, lasted more than ten minutes, a time more than sufficient for the production of the effects of the *upas*. But no sign of the action of this poison was perceived, either in the one or in the other animal. The one preserved perfect health, the other died in a few days, in consequence of the amputation of the thigh, and from the loss of blood which was transfused.

It must not, however, be thought, that in this experiment the transfused blood, by some particular cause, had

no deleterious properties, for the following experiment proves the contrary.

As in the preceding experiment, I separated the thigh from the body ; three minutes after introducing the poison into the foot, I passed the blood of the crural vein into the jugular vein of another animal ; the transfusion was prolonged five minutes without producing any effects. I then stopped it, and disposed things in such a manner, that the blood of the crural vein should return to the animal to which it belonged. Almost instantly this animal exhibited evident signs of the action of strychnos on the spinal marrow.

From the different experiments reported in this memoir, we must, I think, conclude,

1st. That the lymphatic vessels are not always the route followed by foreign matters, to arrive at the sanguiferous system.

2d. That the blood of animals, upon which the bitter strychnos have produced their deleterious effect, cannot produce any fatal effects upon other animals.

As to the explanation of this singular phenomenon, it would be, I think, premature to give it at present. In physiological science, we ought to be sparing of conjectures, and prodigal of facts.

MAGENDIE, D. M. P.

*Note.*—This memoir has received the approbation of the Institute.



#### IV.

*An original paper of the late Lieut. Gov. COLDEN, on a new method of PRINTING discovered by him ; together with an original letter from the late Dr. FRANKLIN, on the same subject ; and some account of STEREOTYPING, as now practised in Europe, &c. by the Editors of the Register.*

WE are gratified in being able to lay before our readers the following paper, entitled "New method of Printing," found among the papers of the late lieut. gov. Colden, and addressed to Dr. Franklin, together with a letter in reply from Dr. Franklin, lately presented to us for publication by C. D. Colden, Esq. of this city. ED.

##### " NEW METHOD OF PRINTING.

" As the art of printing has, without question, been of very great use in advancing learning and knowledge, the abuse of it, as of all other good things, has likewise produced many inconveniences. The number of books printed on the same subject, most of which are nothing but unskilful and erroneous copies of good works, written only for ostentation of learning, or for sordid profit, renders the path to knowledge very intricate and tedious. The reader, who has no guide, and the greatest number have none, is lost in the wilderness of numberless books. He is most commonly led astray by the glaring appearances of title pages, and other artifices of the mystery of bookselling.

" It is likewise a common complaint, that a poor author

makes nothing near the profit that the bookseller does of his labour ; and probably, the more pains the author has taken, the more difficult the performance, and the more masterly it is done, the less profit to him ; for the good books, like jewels, never loose their intrinsic value ; yet, they have fewer purchasers than Bristol stones, and the sale of them is slow.

“ As the lessening or removing of some of these inconveniences, may be of use to the republic of letters, I hope to be excused in making the following attempt for that purpose, by proposing *a new method of printing*.

“ Let there be made of some hard metal, such as copper or brass, a number of types, or rather matrices, on the face of each of which, one letter of the alphabet is to be imprinted *en creuse*, by a stamp, or such other method by which the matrices for founding of types are commonly made. They must be all of the same dimension, as to breadth and thickness, with that of types, but half their length seems sufficient. Their sides must be so equal and smooth as to leave no vacuity between them when joined. There must likewise be a sufficient number of each letter or character, to compose at least one page in octavo, of any book.

“ These matrices, I suppose, may be cast in a mould, or a plate of copper may be divided exactly into squares, and the letter or character be stamped into the middle of each square, and the squares afterwards cut asunder by a proper saw. The best method of making these will be easily discovered by those whose business it is to make founts for printing types.

“ When a sufficient number of each letter and character is obtained, they are to be placed in the same manner that types are, when composed for printing, only that they must all stand directly as they are read, and as they will appear afterwards on the paper.

“ The composure of one page, after it is carefully corrected, is to be placed in a case or mould, fitted to it, of the length and breadth of the page, and of such depth as to cast a plate a quarter of an inch thick, which will perfectly represent a page composed in the common manner for printing.

“ As to the art of casting the plate perfect, founders and type makers must be consulted ; for the composition of the metal, and for the flux for running it clean and clear, so that no vacuities be left ; for which purpose, I am told, that the funnel, by which the melted metal is poured in, being made large, and the filling it with the melted metal after the mould is full, is of use to make the letter every where full and complete. For, by the weight of the metal in the funnel, the liquid metal in the mould is pressed into every crevice. The funnel’s extending the whole length of one of the sides, gives, likewise, free vent to the air.

“ Or, after a page shall be composed, as before mentioned, and the types and matrices well secured in a frame upon a strong plate, they may, by a screw, be pressed upon a sheet of melted lead, and thereby a plate of lead be procured, representing as the former a page composed of types for printing. Which of the methods are most practicable artists can best determine.

“After the page shall be thus formed the matrices may be loosened and dispersed into their proper boxes, and may serve for as many other pages as types in common printing do.

“When a number of pages, sufficient for a sheet, are thus made, they may be carried to any printing press, and such a number of sheets as shall be thought proper be cast off, and then be laid by till more copies be wanted.

“I choose an octavo page, because, if the page title and page number be left out, as likewise the directions and signatures at the foot of the page, by joining two pages together, it may be made a quarto, or by joining four, a folio. Thus several editions in octavo, quarto, and folio, may at once be made, to suit every buyer’s humour.

“The page titles, number, and bottom signatures may be cast in small moulds apart, and joined, as may be proper.

“The most convenient size of a page is that of small paper, so as to fill it up, and to leave very little margin ; then by adding the page titles, or marginal notes, or notes at the bottom, all cast in frames separately, the large paper may be sufficiently filled.

“I believe that this method of printing, every thing considered, will not be more chargeable than the common method. A thousand, or some thousands sometimes, of copies, are cast off at once in the common method, and the paper and pressman’s labour of what is not speedily sold may, or must lie dead for some years, whereas in this

method, no more need be cast off at a time than may well be supposed to sell speedily. If I be not mistaken, the metal necessary for one sheet will not exceed the value of four hundred sheets of paper, and in the common method several hundred sheets lie useless for, sometimes, many years. If the book should not answer, there is a great loss in the paper, whereas the metal used in this method retains its intrinsic value.

“ I shall instance some of the advantages in this method which induce me to communicate my thoughts to others.

“ 1. An author by this means can secure the property of his own labour.

“ 2. A correct edition is at all times secured, and therefore may be useful in the classics, trigonometrical tables, &c.

“ 3. A weak and ignorant attempt on the same subject will be discouraged, for as a new edition of a valuable book is continually secured, without any new expense, booksellers will not readily hazard the publishing of books of the same nature.

“ 4. But what I chiefly value this method of printing for, is, from the advantages it gives an author in making his work perfect, and in freeing it from mistakes ; for, by printing off a few copies of any sheet, and sending them among his friends, and by suffering them to fall into the hands of a malevolent critic, he may have an opportunity of correcting his mistakes, before they appear to the world. By the same means he may make his work more com-

plete than otherwise he could, by the assistance which his friends may give him in several parts of it. It is for these reasons chiefly, that I propose the plates not to exceed an octavo page, and to have no signatures ; for in case of a mistake, the loss of one page may correct the error, and where improvements or additions are necessary, as many pages may be intermixed as shall be necessary, without any inconvenience, and small explications may be made by the marginal notes.

“ Lastly. The greatest advantage I conceive will be in the learned sciences ; for they often require a long time to bring these to perfection, and require the assistance of others in many particulars. Many a valuable piece has been lost to the world by the author dying before he could bring his work to the perfection he designed. Now, by the assistance which he may have by this method from others, this time may be much shortened, and the progress he has made may be preserved for others to continue in case of his death. An author may publish his work in parts, and shall continue, in many cases, to complete and make them more perfect, without any loss of what was done before. By this method likewise, a man of learning, when poor, may leave some part of his estate in his own way for a child, as mechanics often do for their’s.

“ Whether the method I propose will answer the end designed, or whether it be practicable, I cannot with sufficient assurance say ; because we have no artists in this country who can make the experiment, neither can they have encouragement sufficient to tempt them to make the trial. However, I hope to be excused, by the use of the

design, and as it may chance to give some hint to a skilful person to perform effectually what I only aim at in vain.

“If the charge of lead or metal plates be thought too great, I know not but that the impression may be made on thin planes of some kinds of wood, such as lime tree or poplar, which have a soft smooth grain when green, and are hard and smooth when dry.

“Ever since I had the pleasure of a conversation with you, though very short, by our accidental meeting on the road, I have been very desirous to engage you in a correspondence. You was pleased to take some notice of a method of printing which I mentioned to you at that time, and to think it practicable. I have no further concern for it than as it may be useful to the public ; my reasons for thinking so, you will find in the inclosed copy of a paper which I last year sent to Mr. Collinson in London. Perhaps my fondness for my own conceptions may make me think more of it than it deserves, and may make me jealous that the common printers are willing to discourage, out of private interest, any discovery of this sort. But as you have given me reason to think you zealous in promoting every useful attempt, you will be able absolutely to determine my opinion of it. I long very much to hear what you have done in your scheme of erecting a society at Philadelphia for promoting of useful arts and sciences in America. If you think of any thing in my power whereby I can promote so useful an undertaking, I will with much pleasure receive your instructions for that end. As my son Cadwallader bears this, I thereby think myself secured of the pleasure of a line from you by him.”

Philadelphia, November 4, 1743.

SIR,

I received the favour of yours, with the proposal for a new method of printing, which I am much pleased with ; and since you express some confidence in my opinion, I shall consider it very attentively and particularly, and in a post or two, send you some observations on every article.

My long absence from home in the summer, put my business so much behind hand, that I have been in a continual hurry ever since my return, and had no leisure to forward the scheme of the society. But that hurry being now near over, I purpose to proceed in the affair very soon, your approbation being no small encouragement to me.

I cannot but be fond of engaging in a correspondence so advantageous to me as yours must be. I shall always receive your favours as such, and with great pleasure.

I wish I could by any means, have made your son's longer stay here as agreeable to him, as it would have been to those who began to be acquainted with him.

I am, Sir, with much respect,

Your most humble servant,

Dr. COLDEN.

B. FRANKLIN.

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The mode of printing above described is now known by the term *Stereotype*; and it is a curious fact that the stereotype process, said to have been invented by M. Herhan in Paris, and now practised by him in that city,



under letters patent of Napoleon, is precisely the same as that spoken of by Dr. Colden, more than sixty years ago.

It is more than probable that when Dr. Franklin went to France, he communicated Dr. Colden's "new method of printing" to some artists there, and that it lay dormant until about sixteen years since; when Herhan, a German, who had been an assistant to M. Didot, the printer and type founder of Paris, but then separated from him, took it up in opposition to M. Didot. We have conversed with gentlemen who have seen M. Herhan's method of stereotyping, and they describe it to be exactly what governor Colden invented. This fact established, there can be no doubt that M. Herhan is indebted to America for the celebrity he has obtained in France.

Since the above papers fell into our hands, we have endeavoured to obtain information respecting the different methods of stereotyping now in use. The following is the result of our enquiries.

By a book published in Paris about ten years since, by M. Camus, of the French national Institute, we find that a Bible was printed in Strasburgh, by one Gillet, more than a hundred years ago, with plates similar to those now used by Didot and Herhan, but not by any means so perfect. Gillet's moulds were made of a fine clay and a particular kind of sand found only in the neighbourhood of Paris. It is also stated that a number of other ingenious men had at various times produced plates tolerably perfect, by different processes, but we may safely infer, from the art having made no great progress until the time of Didot the elder, that their endeavours had not been crowned with much success.

At the beginning of the French revolution great quantities of paper money becoming necessary to supply the deficiency of specie either concealed or sent out of the kingdom by the rich, Didot was applied to by the national assembly to invent some kind of *assignat* or bank-bill, which should not easily be imitated ; and at this period it was that M. Didot first directed his attention to the means of producing, *in relief*, a set of plates, to print on a common printing-press, which were exactly *fac-similes*, and could not without much difficulty be falsified. This process was termed Polytyping ;\* as the mould in which the plates were cast was durable, and would produce any number of copies ; the usual mode of stereotyping being, as the French term it, *à moule perdu* ; it being necessary to make a new mould for every plate.

But as M. Didot's views were by degrees extended to the casting of pages for book printing, he found it unnecessary to use durable moulds, and therefore, after a year's experiment, invented a composition, which, like the sand used by brass-founders, might be wrought over again for different casts. The elegant editions produced by M. Didot and sons, are the best proofs of his success.

When the fame of M. Didot's invention reached England, lord Stanhope, an ingenious and wealthy nobleman, whose time and fortune are principally devoted to the advancement of the arts, made propositions to Mr. Andrew Wilson, of Wild court, Lincoln's Inn Fields, proprietor of the Oriental press, to assist him in such experiments as

\* We have seen some beautiful specimens of this art, produced by Mr. John Watts, of this city ; of whose undertakings we shall hereafter speak more at large.

might bring to perfection a new mode of stereotyping, of which his lordship had obtained some ideas. Mr. Wilson embraced the proposal; and after four or five years of incessant labour, they attained nearly all the advantages they had contemplated. Mr. Wilson, in the year 1802, built his foundry in Duke-street, Lincoln's Inn Fields, and in the following year disposed of the secret for six thousand pounds sterling, and some future advantages to Mr. Richard Watts, for the use of the university of Cambridge. In the year following he disposed of it on similar terms to the university of Oxford.\*

About two years ago, a brother of Mr. Watts of Cambridge, began a course of experiments in this city for a more cheap and easy manner of stereotyping, than any hitherto discovered; and, in spite of innumerable disadvantages, has succeeded beyond his utmost expectation. We have seen plates of his casting of the greatest perfection and beauty. The chief difficulty he has experienced arose from the jealousy and illiberality of the common type-founders, who refused to lend the little aid he required of them. It is agreeable to us, however, from our own observation, to be able to state that, by uncommon perseverance through accumulated obstacles, Mr. Watts has invented a method of casting the common types much more perfect than those made in the usual way; and now will proceed with his plates without the assistance of other artists.

\* The two Universities of England, have the exclusive right of printing Bibles and Prayer Books. Twenty or thirty presses are generally employed in that business alone; the classic departments requiring many others.

The principal defects in M. Didot and lord Stanhope's processes, arise from the softness of the moulds they employ, which are composed of plaster of Paris and some other ingredients. In taking them from the page, of which they are intended to cast a perfect copy, some part of the composition will always remain in the type, and leave the mould imperfect. After the plates are cast, there is consequently much work for an engraver, to make them fit for use. Mr. Watts' mould, being of solid materials, no such inconvenience can arise.

We have obtained some further important information on this subject, which we shall probably give in our next number.

## V.

OBSERVATIONS *on ARSENIC and the MURIATE of LIME, in the treatment of SCROPHULA ; in a letter to DAVID HOSACK, M. D. of New-York, from COLIN CHISHOLM, M. D. F. R. S. &c. &c.*

Clifton, November 5th, 1810.

DEAR SIR,

Your observations on the use of the Ballston mineral waters, in various diseases, more especially those which relate to their impregnation with the muriate of lime, have brought to my recollection a very singular case of scrophula ; a statement of which may be useful : the principal remedy is, I believe, new, as far as relates to its application to this disease ; and I have much reason to hope, that its utility in the instance I mean to relate to you, may point out a more appropriate treatment than

has hitherto been adopted. The case I propose to detail to you, is one of that form of scrophula which Sauvages calls *scrophula periodica*. He very justly considers it, "maladie singulière," for I believe it is by no means common. This complaint assumes very much of the appearance of *essera*, and like it, too, it is periodical.

Mr. B. of Clifton, has from his infancy been afflicted with decided symptoms of scrophula, which, strange to say, having been more than once mistaken for those of syphilis, had been much aggravated by mercurials. Some months prior to the month of April, 1810, when I was requested to give my advice, the disease had taken the periodical type. Generally, at 5 P. M. his thighs began to swell, with excessive pain from the groin to the knee, and more especially, with acute feeling in the joint of the knee, and with a deep red flush. About 8 P. M. the whole of this surface struck out in large tumours or lumps, each of the size of a small bean. The limbs became motionless from pain and tension; and he now found himself obliged to go to bed. As he became warm in bed, these symptoms abated; and at length towards morning, a sweat breaking out, they yielded altogether. Pain, tension, redness, swelling, and eruption disappeared, and left him apparently free from disease. The paroxysm was always preceded by shivering. An eminent surgeon of Bristol had attended the patient after the commencement of the periodical type of the disease, and had very judiciously ordered muriate of lime in a decoction of the bark. I was called to consult with this gentleman, and seeing the propriety of the remedy, recommended the continuance of it. No change, however, took place; on the contrary, the paroxysms became more violent, in so much as completely to disable the patient

from attending to his business, that of music teaching. I was again sent for ; and now seeing clearly the intermittent form the disease had taken, I determined on putting him on a course of the arsenical solution. He began with doses of 12 drops thrice in the day. Before the expiration of a week the disease was removed. But the medicine affecting his stomach and bowels, I made him desist from it, and directed a smart purge to carry off the arsenic that might have accumulated. In a few days the disease again returned with the same symptoms and form ; and now I directed the solution to be taken in doses of eight and ten drops thrice in the day. This agreed and produced the effect permanently, for now (November) he is in perfect health, having had no return of the disease since May, and following his business assiduously, thanking God for the wonderful relief he has vouchsafed him. The constitutional symptoms of scrophula in this patient, were swellings of the submaxillary glands, inflammation of the tarsi, &c.

You will remark the circumstances in which this case differs from the description given by Sauvages. Here the disease was confined to the thighs exclusively ; with him, *tumores carnosí dolextes, quandoque rubri, plurimi, in diversis partibus, facie, v. g. pudendis, a pisi magnitudine ad magnitudinem nucis intra aliquot dies excrescunt : omnino resolvuntur, suo tempore redituri sine ullo alio incommodo.* The periodical type had commenced only a few months before I saw him, although scrophula had been a constitutional disease from infancy ; with Sauvages, *hoc autem malum plures annos perseverat.* In this patient, mercury had aggravated the disease ; muriate of lime and bark were of no use ; and at length arsenic

had completely cured it. On the authority of Dr. Petit, Sauvages says, *sine suspicione syphilidis sanatum fuit ope hydrargyrosos frustra tentatis antea diversis remediis*. He calls it a species of farcy peculiar to men; and perhaps it is. How far arsenic may be an applicable remedy to scrophula, in its more usual forms, I shall not take upon me to say. Viewed in its true quality, as a most powerful and the most *diffusible* tonic we are possessed of, its applicability seems, at least, reasonable.

This opinion I have not as yet put to the test of experience, but it is my intention. That it is an effectual remedy when scrophula assumes an intermittent form, is evinced by fact and by analogy. It strikes me that the glandular disease, as it has been called by Dr. Hendy, of Barbadoes, Antigua, and other tropical countries, is so far of a scrophulous nature, as to have for its basis, weak glandular action, and for its type, a series of symptoms nearly similar to that of *scrophula periodica*. When I had opportunity to treat this disease, I had not this view of it, but were it ever to come under my notice again, I think I should be induced to make use of arsenic in it. When I say that I have not employed arsenic in the more usual form of scrophula, I should have added, only in a very few instances; one indeed has been cured, the child of Mr. B., the subject of the foregoing case: in this many parts of the surface were covered with large scrophulous ulcers, and in others there were untractable tumours; a course of the arsenical solution, from three to six drops, thrice in the day, produced a most complete change of ideosyncrasy; the ulcers healed, and the tumours were discussed. This case, at least, holds out encouragement, although the arsenic often, very unplea-

santly, affects the stomach, bowels, and head ; yet this effect is only momentary, and should not discourage, for it is removed by a short interruption of the cause, and one or two saline purgatives. I dwell the more on this probability of successful result, because in no case have I experienced beneficial action, often total inertness indeed, from the remedies usually resorted to in scrophula. Will any man tell me, that the muriate of lime is permanently curative ? I can safely aver I have not had that good fortune. Much the same may be said of the carbonate of iron and peruvian bark : all these are prescribed, because the physician must do something, and unfortunately knows none better. The muriate of lime, although productive of little or no advantage in the disease to which Dr. Beddoes thought it peculiarly applicable, yet is certainly very useful as a preventive in that most perverse and unmanageable of diseases, gout. I have, for the sake of convenience to the patient, more especially, and partly for the sake of an eligible combination, given the muriate in the crystalized state, united with soap and crumb of bread, the last as a medium of agglutination, without which the two former will not remain in union. Six or ten grains of the muriate thus combined, daily, for several months, have certainly kept off the gout ; whether by producing new habits in the system ; whether by preventing deposition of the residuum of arthritic matter after the subsidence of an attack, and throwing it off by the kidneys or the skin, or whether by having a stronger affinity to some one of the principles of arthritic matter, producing a decomposition, and consequently inactivity, or annihilation of that matter, I leave to the decision of speculative, and chymical physicians. I satisfy myself with the fact ; *in a very limited experience, however.*



A gentleman now in Clifton is a remarkable instance of the preventive power of this medicine, for a year has elapsed since his last attack, and during that time he has assiduously used pills formed of the ingredients I have specified. If we admit the identity of arthritic and uric acid, or to avoid misconception, of arthritic matter and urinary calculus, and we have powerful reasons to do so, from analogy in the effect of alkalies in both, and from chemical analysis, I say, if we admit this identity, then we shall have solid ground to hope that muriate of lime and soap combined, will furnish a pretty certain means of preventing the disposition to the formation of arthritic matter in gouty people, or of removing the disease, providing the mode of life is such as to give additional efficacy to medicine. But holding in view this identity of principle in arthritic and uric matter, I think, from some late trials I have made, that we possess a still more powerful means of preventing their formation, in magnesia. You have, doubtless, read Mr. Brande's very valuable paper "on the effects of magnesia, in preventing an increased formation of uric acid." *Phil. Trans.* 1810. p. 1. The reason which induced Mr. Brande to adopt this substance in preference to any other, was its insolubility in water, and the probability thence furnished of its remaining in the stomach until it should combine with any acid, or be carried along with the food towards the pylorus. The muriate of lime, you will perceive from this just cause of preference, is objectionable, for it is extremely soluble, even exposed to the moisture of the atmosphere. The report of the united experience of Mr. Home and Mr. Brande, contained in the paper adverted to, is so very favourable, and offers so many proofs of complete efficacy, as to have induced me, within the last month, to prescribe magnesia in cases of nephritis, where-

in, until then, I had always been in the habit of giving exsiccated soda and soap in pills, generally, indeed, with very good success; but then that success was the result of long and large exhibition. In one case, a gentleman at Bath, who came over here to consult me for chronic hepatitis, joined to profuse deposition of uric acid in his urine, attended with the usual symptoms of diseased action in the kidneys; together with the appropriate means for the removal of the former, I directed draughts of gentian infusion, and twelve grains of magnesia, thrice in the day, for the latter. In a week, the uric acid completely vanished.—In another case of pure nephritis, the quantity of uric acid deposited was astonishing. He used for some time, the subcarb. sodæ exsiccata and soap, by my direction, even to the extent of nine pills in the day, and apparently with good effect; the uric acid ceased. The pills were discontinued for a very few days, and it appeared as abundant as ever. A second trial had not the same effect: towards the end of February, he reluctantly took the magnesia ten grains, three times a day, in water. In less than a week the uric acid disappeared, and he is now pursuing the course to render the effect permanent. All the nephritic pains, &c. have gone.

Are we furnished with any prospect of the utility of this medicine in diabetes? Probably the disease depends on a morbid state of the gastric glands, i. e. the glands whose office it is to secrete the gastric liquor, and of the kidneys, singly or jointly. Do those states of these organs give rise to the formation of uric acid? Probably they do, of a peculiar species of it. If they do, magnesia will remove the disease. Little benefit has resulted from the use of the usual remedies, and although my recommendation of this is merely perspective, and bordering on the confines of spe-

ulation, yet it is, I imagine, far from being unreasonable ; for good may arise, without the possible production of evil.

## VI.

OBSERVATIONS on CANINE MADNESS, *originally addressed to a friend in Boston, by* JAMES THACHER, M. D. *of Plymouth. Communicated to* Dr. DAVID HOSACK, *by* Dr. B. LYNDE OLIVER, *of Salem.*

Plymouth, December 10, 1810.

DEAR SIR,

THE prevalence of canine madness has justly excited uncommon interest and alarm in this vicinity, the present season. The human system cannot be affected with a malady more truly deplorable in its nature, and dreadful in its consequences, nor can the virtues of humanity and benevolence be more honourably displayed, than in contributing to the relief or prevention of such afflicting calamity. Two melancholy cases of hydrophobia have recently fallen under my observation in the town of Duxbury. A son of Mr. Silvanus Weston, aged three years and eight months, and Mr. Ezra Silvester, aged seventy-three years, were both bitten by the same dog on the 16th August last. The unfortunate child was so furiously attacked, that he received thirty-one wounds in various parts of his body, before his mother could rescue him from the jaws of the animal. By the direction of a physician, a mercurial course was immediately commenced, and persisted in to the point of ptyalism, for thirty or forty days, and one of the wounds intentionally kept in a state

of ulceration about three weeks. Notwithstanding this procedure, however, on the 28th of October, seventy-three days from the injury, the child was seized with the symptoms of fever, with severe pain, particularly in those parts where the wounds had been inflicted, and these precursory symptoms were soon succeeded by hydrophobia, with wild delirium. When water, or other liquids were presented to him, he eagerly grasped the cup with both his hands, and with great agitation carried it to his mouth, by which a convulsive suffocating sensation was instantly excited. Terrified at every object, the most distressful apprehensions and anxiety were depicted on his countenance, and manifested by his unnatural actions and gestures, throwing his body about in every direction, and making the most hideous efforts to fight, and to bite his mother, and all within his reach. Imagining the dog in every part of the room, he darted his eyes continually around, and intreated to have the animal driven from his presence. When I was first called to visit him, 3d November, the 6th day of the disease, his skin was remarkably livid, and his extremities cold; the pulse imperceptible at the wrist, but strongly marked at the carotid arteries. In less than three hours after my arrival his countenance assumed the image of death, and I could only witness the painful scene, and the fatal termination which ensued. This may be enumerated among the instances on record, of the inefficacy of a mercurial course as a preventive remedy.

The fate of Silvester, who had received only a single bite on one of his fingers, was protracted to a later period. His health was not interrupted until the 14th of November, and in two days after symptoms characteristic of hydrophobia supervened. Unconscious, however, of his

hazardous situation, and unaccountably solicitous to conceal every appearance of indisposition, my attendance was not requested until six days had elapsed. On my arrival, the most unequivocal marks of the hydrophobia were recognized; a spasmodic affection when water was presented to his view, and a painful suffocating sensation attended every attempt to swallow liquids. The lungs and muscles pertaining to respiration were singularly affected: as if combining their powers to obviate the approach of the obnoxious fluid, they exhibited alternate emotions similar to those induced by immersing the body suddenly into cold water. His eyes were inflamed, his strength greatly prostrated, his extremities cold and livid, his pulse reduced to fifty-two in a minute, and extremely irregular. These palpable indications of approaching death were realized at eleven o'clock, A. M. on the 21st November.

The Rev. Dr. M. Cutler, of Hamilton, prompted by the most benevolent views, procured and communicated to me, a well authenticated statement of a remarkable case of hydrophobia, in which a radical cure was effected by the use of *lobelia inflata*. Encouraged by this instance of success, and apprised of the inadequate powers of every other remedy, I was prepared to give a trial to its virtues whenever opportunity should occur. Although the debilitated and desperate condition of Silvester precluded the possibility of a decisive experiment, I was induced during my attendance of twenty-six hours, to administer several doses of the saturated tincture of *lobelia* at proper intervals. The second dose excited nausea and puking, and evinced the palliative tendency of the medicine. A diminution of the severity of the hydrophobic symptoms was clearly demonstrated in the pre-

sence of numerous spectators; nor did their violence again recur. He slept quietly the whole of the ensuing night, and in the morning an increase of vigor in the system was observable, and his pulse was 73 in a minute. Liquids now produced little or no abhorrence, and he could afterwards swallow with facility. The active and stimulating properties of lobelia are well ascertained, but its specific efficacy as a remedy in hydrophobia is yet to be determined by the test of experiments, under the observation of prudent and intelligent physicians.

The *scutellaria galericulata*, or scull-cap, another native production, is reputed to have effected numerous cures both among the human species and brute creation. The character and description of this plant, with all the authority in its favour which could be procured, has been introduced to the public by the suggestion of the respectable clergyman above mentioned, through the medium of the American New Dispensatory. One instance, however, has recently occurred in this vicinity, confirmatory at least of its probable utility. A cow, severely bitten, has been preserved by its use, while other animals poisoned by the same dog, became mad and died. The plant is, I believe, produced plentifully in our low meadows, particularly on the banks of rivers and ponds. It flowers in July or August, when it should be carefully preserved, and our farmers may with a fair prospect of success, have recourse to it as a remedy among their cattle when unfortunately bitten. As no deleterious properties have been ascribed to this article, medical skill is not requisite in its administration, and no one should hesitate to employ it with all the confidence which its high character thus far is calculated to inspire.

It is extremely important that the medical virtues of this domestic remedy should be brought to the test, and the result of every experiment ought to be promptly promulgated, that its real merit may be actually decided.

That the fatal consequences of the ravaging evil in question, may, as far as possible, be obviated, it is incumbent upon professional men, to direct their attention to the most eligible means of prevention on such alarming occasions. The first in point of importance or security, unquestionably is, the operation of cutting out or burning the parts in which the bite has been effected ; but whether this be dispensed with or not, a careful and assiduous ablu- tion cannot be too strongly inculcated. If the wounded part be properly scarified within a few hours, or even days, after the accident, and water be poured on forcibly, and the washing persevered in for a length of time, there is almost an infallible certainty, that in general the destructive poison may be completely eradicated before it can be absorbed into the system. The above process, however, should, for greater security, be followed by the application of the nitrate of silver, or some other caustic in solution, or if not speedily attainable, a valuable substitute may probably be found in the properties of strong unslacked lime. I subscribe myself, with great respect, Sir, your obedient humble servant,

JAMES THACHER.

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## VII.

*Observations on various Remedies in the Treatment of HYDROPHOBIA: extracted from a Letter addressed to Dr. B. LYNDE OLIVER, of Massachusetts, by DAVID HOSACK, M. D. Professor of Botany, &c.*

New-York, February 10th, 1811.

DEAR SIR,

Your several letters of December, January, and of the 5th of February, have been duly received. I have delayed answering them, for the purpose of obtaining and communicating to you a paper on the use of the *anagallis arvensis* in hydrophobia, which I have at length procured. This plant is a native of your state, as I know, having myself met with it when passing through Massachusetts and Connecticut, some years since. But this can be of little importance, at this time, to those who may now be the subjects of that terrible and fatal disease, as that plant is the product of the summer season.

I received the observations of Dr. Thacher, and intend to print them as a valuable document, in the next number of the Register. But as to the *lobelia inflata*, the *anagallis arvensis*, or the *scutellaria*, I confess I have seen no evidence sufficient to give confidence in either of them as antidotes to that most deadly disease. Mr. Coleman, however, tells me that in the neighbourhood of Mamaroneck, he has certainly witnessed the good effects of the *scutellaria*: the information he possesses, has been already made public through the medium of the Evening Post.



The scutellaria of our country, is not the species *galericulata*, but the *lateriflora*; see Willdenow or Persoon. I mention this not from an examination of the living plant, but from a reference to the plates of Curtis, Smith, and Vahl, who represent the *galericulata* to have axillary flowers and large corollæ; whereas the *lateriflora*, and which corresponds with our plant, has small flowers, and those in a racemus, intermixed with small leaves. I shall in future attend to these particulars in the living plant. I also receive the same information from my nephew, Dr. Eddy, a young but accurate botanist.

The remedy, which of all others I should be inclined to try upon any patient of mine, is that of Crous, purchased sometime since by the state of New-York. You know that excepting the calomel, its chief ingredient is copper: all the other accompaniments I consider as so much quackery. But in the use of copper I confide, because it is among the most active articles of the materia medica, as we see in epilepsy, and many other diseases of the nervous system, in which it has been successfully administered: add to this, that the evidence upon which Crous' remedy was purchased was very respectable, as I have been informed personally, by governor Lewis. Analogy also sanctions the principle, that nothing short of an active medicine, or poison if you please, can prove the antidote to that of hydrophobia. In a case of *tetanus*, (see the Annals of Medicine and Medical Repository,) I gave three gallons of Madeira wine, in a short space of time, without producing any apparent excitement while the irritations of the disease continued: but the moment the latter ceased the wine began to produce exhilarating effects. I then ceased to give it; she had no returns of the complaint. A

little patient of mine, some years since, was bitten by a mad dog in the arm ; hydrophobia came on in a few days with all its characteristic symptoms. I resolved to try opium ; she was about five years of age. I gave it in every possible form : as much as two grains of solid opium were given every two hours. I also directed laudanum, in glyster, and applied a plaster of opium to the throat ; but all to no purpose in counteracting the irritation of the disease. Nor had she a moment of sleep in three days and as many nights, the time she lived after hydrophobia first appeared, but sat up in bed until the moment of her dissolution. As the stimulus of wine has counteracted lock jaw, and as the sedative effects of opium, (as far as it has been tried in this case,) will not controul the irritation of hydrophobia, let us try what the powerful stimulus of the oxyd of copper will do. Was I, myself, the subject of the disease, Mr. Crous' remedy should be tried as far as the copper is concerned.

We surely could not take into our system so much of this metal, and in the manner administered, without evil consequences when in health. I therefore conclude that the one irritation is expended in counteracting the other. Let us then not despair of administering some stimulus calculated to arrest that of hydrophobia ; the volatile alkali certainly allays the irritations produced by the bite of the viper. As a preventive, I confide most in washing the part, as recommended by Dr. Thacher, and continuing the process a considerable length of time. The little girl, before mentioned, was bitten on the arm about 7 o'clock in the morning ; in less than fifteen minutes after the accident, I removed not only all the parts bitten, but to a considerable distance beyond them, so as to em-

brace every possible point to which the teeth of the animal could have extended. In a very few days the disease appeared.

About an hour after, a man, who had been bitten by the same dog, and in a few minutes after the little girl met with the accident, called upon me. He was bitten on the outside of the leg, a few inches below the knee ; so long time having elapsed, I concluded to make use of washing. I took him into the yard, where my pupils, in turn, continued to pump fresh well water upon the bitten part, at least for the space of an hour : he escaped the disease.

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## VIII.

BIOGRAPHICAL MEMOIR *of the late Dr. JOHN COCHRAN* :  
*Communicated for the American Medical and Philo-*  
*sophical Register.*

With an Engraving, from an Original Painting.

THIS gentleman was born on the first of September, 1730, in Chester county, in the state of Pennsylvania. His father, James Cochran, was a respectable farmer, who had come from the north of Ireland, and the lands which he first purchased still continue in the possession of his descendants. Discovering in his son John the desire of a learned profession, he sent him to a grammar school in the vicinity, that was taught by the late Dr. Francis Allison, who was confessedly one of the most correct and faithful grammarians that ever taught in this country. Having finished his preliminary education, Mr. Cochran betook

himself to the study of physic and surgery under the late Dr. Thompson, in Lancaster. Under this gentleman he improved greatly, by his diligence and attention, in the knowledge of his profession. About the time at which he finished his medical studies, the war of 1755 commenced in America between England and France. The army then presented to the mind of Dr. Cochran a scene of usefulness and further improvement. As there were not any great hospitals at that time in the provinces, he readily perceived that the army would be an excellent school for his improvment, especially in surgery, as well as in the treatment of many diseases. He soon obtained the appointment of surgeon's mate in the hospital department; and continuing with the northern army during the whole of that war, enjoying, as he did, the friendship and advice of Dr. Monro, and other eminent surgeons and physicians, he quitted the service with the character of an able and experienced practitioner.

At the close of the war, he settled in Albany, where he married Mrs. Gertrude Schuyler, the only sister of the late general Schuyler. From that city he removed in a short time to New-Brunswick, in the state of New-Jersey, where he continued to practise physic and surgery with great reputation. In discharging the duties of his profession, he bestowed that attention, and exercised that tenderness and humanity, which never fail to solace the feelings of the afflicted.

When the war became serious between Great-Britain and the United States, Dr. Cochran was too zealous a whig, and too much attached to the interests of his native country, to remain an idle spectator. Towards the

last of the year 1776, he offered his service as a volunteer in the hospital department. General Washington was too good a judge not to discover the value of a physician who joined great experience to diligence, fidelity, and a sound judgment, and accordingly, in the winter of 1777, he recommended him to congress in the following words : “ I would take the liberty of mentioning a gentleman who I think highly deserving of notice, not only on account of his abilities, but for the very great assistance which he has afforded in the course of this winter, merely in the nature of a volunteer. This gentleman is Dr. John Cochran, well known to all the faculty. The place for which he is well fitted, and which would be most agreeable to him, is surgeon general of the middle department ; in this line he served all the last war in the British service, and has distinguished himself this winter, particularly in his attention to the small pox patients and the wounded.” He was accordingly appointed on the 10th of April, 1777, physician and surgeon general in the middle department. In the month of October, 1781, congress was pleased to give him the appointment of director general of the hospitals of the United States, an appointment that was the more honourable, because it was not solicited by him. It is hardly necessary to observe, that the doctor was much indebted to his observation and experience while he was in the British service, for the great improvements he made in the hospital department, from the time it was put under his care. Nor is it necessary to observe, that while other gentlemen, high in the medical staff, were disgusting the public with mutual charges and criminations, Dr. Cochran always preserved the character of an able physician and an honest man.

A short time after the peace, Dr. Cochran removed with his family to New-York, where he attended to the duties of his profession until the adoption of the new constitution, when his friend, president Washington, retaining, to use in his own words, “a cheerful recollection of his past services,” nominated him to the office of commissioner of loans for the state of New-York. This office he held until a paralytic stroke disabled him in some measure from the discharge of its duties, upon which he gave in his resignation, and retired to Palatine, in the county of Montgomery, where he terminated a long and useful life, on the 6th of April, 1807, in the 77th year of his age.

In reviewing the character of this respectable physician, we have only to remark, that without the flights of imagination which tempt some gentlemen to theorise and speculate at the risk of their patients, he united a vigorous mind and correct judgment, with information derived and improved from long experience and faithful habits of attention to the duties of his profession.

He had in early life received impressions, under the care of a religious father, which he never lost; for though he served long in the army, in which men are too apt to become infidels or deists, he never cherished a single doubt concerning the truths of revelation.

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## R E V I E W .

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**ART. I.** TRAVELS *on an inland Voyage through the states of New-York, Pennsylvania, Virginia, Ohio, Kentucky, and Tennessee, and through the territories of Indiana, Louisiana, Mississippi, and New-Orleans ; performed in the years 1807 and 1808 ; including a tour of nearly six thousand miles. With maps and plates.* By CHRISTIAN SCHULTZ, jun. Esq. New-York. I. Riley. 1810. 8vo. vol. 1. pp. 207. vol. 2. pp. 224.

THIS book of travels differs very much from the numerous effusions that we have read of travellers through the United States. It does not contain, that we have discovered, a single sentence that is marked by abuse of the soil, climate, or inhabitants. Hitherto we have been accustomed, when we opened a volume of travels in the United States, not to expect information concerning the inhabitants, their laws and customs, their arts and manufactures, nor any thing that would make us acquainted with the people ; but we read those travels, when we have the patience to read, merely to discover the talents of the several writers in drawing caricatures, or to observe the various shapes into which hatred, envy, or the hope of reward, can distort the truth.

While the United States retained the humble name of provinces, North America was deemed to be a country in which the human race might not only subsist and vegetate, but might progress and prosper. In this persuasion,

people came over in crowds from England, Ireland, Scotland, and Germany ; nor was it said or intimated by any philanthropic writer, so far as we can recollect, that those people were in danger of perishing by the want of food, or the diseases of the climate. It was then thought to be a country in which the industrious man could make a comfortable provision for his family, though he had been oppressed by heavy rents, taxes, and poverty in his native land. No sooner, however, had those states drawn the attention of Europe by a vigorous war, in which they secured their independence, than they were assailed by a herd of scribbler. Every mercenary pen was pointed against us, and the nation, that had not been conquered by the sword, was then to be prostrated by the quill. It is a curious circumstance, that the business of writing pasquinades against the United States, should be adopted, as a profitable employment, by subjects of France as well as of Great Britain. The duke de Liancourt's travels, which contain nearly as many deviations from truth, as they do sheets of paper, are said to have brought him about one thousand guineas. But the proverb may plead his excuse, "*il faut manger.*"

The unfortunate farmer Parkinson, who found that a man cannot support himself upon a farm in Virginia ; and the other unfortunate adventurer, Jansen, who, like the bookseller's bookmaker of London, calls himself *a stranger* in the country of which he writes, and several other "*dii minorum gentium,*" are equally beneath contempt and criticism. The Irish traveller, Weld, has written the *best book*, as we understand ; for it procured him an office under the government. His book was considered so valuable, that a pamphlet, containing extracts



from the most abusive parts of it, was distributed gratis through the seaport towns in Ireland. This fortunate, writer, but very unfortunate traveller, gives us to understand, that he seldom entered a farmer's house in the United States where the people had any thing to eat. He does not, indeed, seem to think that the farmers of the United States live, like cameleons, upon air; but if he was asked, how it happens that Britain, Ireland, Spain, and Portugal, are occasionally supplied, from this country, with provisions, he would account for it, we suppose, by saying that our farmers live upon nothing.

The true object of Weld's book is, to prevent emigration from his native country. Would it not be more honourable in Great Britain to prevent emigration by an act of parliament, than by hiring people to publish libels? By the way, we conceive that a law to prevent emigration would be perfectly correct, at a period when that nation is contending for her very existence with all the continent of Europe. Certain it is, that the wishes of the British government, and of every real friend of this country, are perfectly alike on the subject of emigration. Mr. Jefferson, in his Notes on Virginia, speaking on this subject, expressed his purest political sentiments. Stating his objections to the importation of foreigners, he mentions the purity of our political principles, and says, "to these nothing can be more opposed than the maxims of absolute monarchies, yet from such we are to expect the greatest number of emigrants. They will bring with them the principles of the governments they have imbibed in early youth, or if able to throw them off, it will be in exchange for *an unbounded licentiousness*, passing, as is usual, from one extreme to another." Most of us know whether this prediction has been verified.

Mr. Schultz has been at a considerable expense in giving maps of the interior of the United States, and the man, who is not well versed in American geography, may acquire considerable information on that subject, by consulting them. He is a sprightly writer, and does not seem to have travelled in a bad temper. He has been more correct than most of his predecessors, in describing the falls of Niagara; but when he was on that ground, we heartily wish that he had relinquished the expectation of destroying the Mosaic history of man, and with it, divine revelation. Although many pop-guns in the United States have lately been fired against that fortress, we deem it certain that the period has not arrived when the avowed contempt of revelation can be accounted the criterion by which political opinions are to be tested. That the reader may understand the argument to which we refer, he is to recollect that there must have been a time, in which lake Erie and lake Ontario were nearly on a level, but by some convulsion of nature, a perpendicular fissure was made in the earth, and lake Ontario, with the adjacent country, was sunk between three and four hundred feet.

The fissure was a little above where Queen's town now stands. In that case, the falls of the river Niagara began at the edge of the fissure, but they have, by the constant operation of the water, been wearing away the bank, and have advanced up the river about seven miles and a half. How many years would it require, (Mr. Schultz puts the question,) how many years would it require, for the river Niagara to wear its way through a solid rock, seven miles and a half? He observes, that the river has been known by civilized men about 140 years, in which

time, it is not believed that the falls have advanced at the rate of eighteen inches in the year. At which rate they would have required at least twenty-seven thousand years to have advanced from the edge of the chasm: a proof that Moses was mistaken. Now, the whole of this argument is founded upon the supposition that all the great rocks, that now exist in the earth, had their existence above four thousand years ago; a supposition that is absolutely unfounded and false. Every man who is versed in natural history, knows that many vast rocks are not coeval with the earth. Animal and vegetable substances are frequently found in the midst of great and solid rocks, a proof that such rocks are of modern formation. But a man may be an observant traveller, without being well versed in theology, or natural history. Mr. Schultz does not, like many travellers, speak of improbable things,

“Of cannibals that each other eat.”

But in sundry places he seems to have suffered under

“Moving accidents by flood and field.”

It is not, indeed, to be presumed that every reader will find himself so much interested in the fate of the traveller, as to be distressed on his account whenever he chances to stumble into a slough; but when he sees him rise, like Smedley, “in majesty of mud,” he cannot help feeling for him. Speaking of a ride from Presque Isle to Fort le Bœuf, vol. I. p. 110, he says, “what think you of starting at sun rise at this season of the year, when the days are longest, and making it dark night, before you could whip and spur through fourteen miles of mud and mire? a great part of which is up to your knees while sitting on the saddle. No doubt you have seen people treading clay for making bricks. Had you seen me at the time of my arrival at this place, you would

have sworn that man and horse were both brick makers, for both were literally covered at least one half inch thick, with mud from head to foot." This was confessedly a very grievous beluting, but the perils of this ride were trifles, when compared to what he suffered on a subsequent excursion. Riding in a dark night about the last of September, near the river Ohio, and having wandered from road and path, his horse slipped down a steep bank into a small river. He could not climb the bank, but there he sat, up to his horse's knees in water near an hour, listening to the tremendous howlings of a pack of wolves, who doubtless had some thoughts of eating him. What was to be done? He was not a pilot for that river, but he fairly concluded that drowning was less terrible than being devoured by wild beasts, therefore he advanced up the river, but before he had gone one hundred yards, his horse plunged over head and ears into a fathomless pool. How they got out, neither of them has told us very circumstantially. Vol. I. p. 162.

Mr. Schultz has been sufficiently minute in detailing the expenses of travelling the whole distance, from New-York to New-Orleans, by way of Albany and the great lakes; but as we do not conceive that many of our readers have thoughts of travelling by the same route, we shall not transcribe his account of them. It appears nevertheless, from his journal, that merchandise can be carried from New-York, by the way of Albany and the lakes, to the waters of the river Ohio, cheaper than they can be carried by land from Philadelphia; a circumstance that deserves public attention. If we accompany Mr. Schultz on his voyage down the Ohio, to the river Mississippi, up the Mississippi to the mouth of the Missouri, and thence to the city of New Orleans; if we attend to the

various accidents and disasters that await the traveller on the Mississippi, from sawyers, sleeping sawyers, planters, falling banks, wooden islands, floating islands, snags, &c. we shall admit that the navigation of that great river must ever be attended by great loss or delay. We shall also admit that no time should be lost in finishing the great canal, that has lately been projected between lake Erie and Hudson river. By the means of which canal peltry and furs may be brought to this city cheaper than they can be carried by the channel of the Mississippi. If the reader wishes to have more information on the subject of that canal, he is referred to an essay in our second number, signed an Observer, and to another in our third number, signed Mercator.

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**ART. II.** *ADDITIONAL FACTS and OBSERVATIONS relative to the Nature and Origin of the PESTILENTIAL FEVER.* *By the College of Physicians of Philadelphia.* Philadelphia. Dobson. 1806. 8vo. pp. 99.

WE have already taken notice of the opinions of the College of Physicians relative to the peculiar nature of the yellow fever, and presented an abstract of some of the more important facts contained in their first publication on this subject. It will be sufficient, therefore, at the present time to state, that the observations and experience of the college, subsequent to the publication of the former part of this work, have afforded still farther evidence of the correctness of the opinions originally declared by them, and that this evidence is now given to the public in a plain and highly perspicuous manner, unincumbered with conjecture or hypothesis; and, for our own part, we

do not hesitate to add, is grounded on such respectable testimony, and is of such a nature, as to challenge refutation. As the introduction affords a satisfactory explanation of the nature of the work, and of the motives for publication, we shall insert it entire, and afterwards briefly notice the several articles which constitute the volume.

“ On the re-appearance of the pestilential fever in this city in 1793, after an interval of more than thirty years, we were struck with its mortality and contagious nature, as well as with the train of symptoms, so widely different from any thing we had been accustomed to. These considerations naturally produced a supposition of its foreign origin; and in the course of our inquiries on the subject, we were led to make the following conclusion, in reply to the requisition of the governor of the commonwealth on the origin of the disease.

“ No instance has ever occurred, of the disease called the yellow fever being generated in this city, or in any other part of this state, as far as we know; but there have been frequent instances of its having been imported, not only into this, but into other parts of North America, and prevailing there for a certain period of time; and from the rise, progress and nature of the malignant fever, which began to prevail here about the beginning of last August, and extended itself gradually over a great part of the city, we are of opinion, that this disease was imported into Philadelphia by some of the vessels which arrived in the port after the middle of July. This opinion we are further confirmed in by the various accounts we have received from the best authorities we could procure on the subject.”

“ Subsequent events and researches have confirmed these opinions; and in 1798, when the facility of producing sufficient proofs was abundant, we published an account of the nature and origin of the pestilential fever, accompanied with such facts to prove its introduction into this city from the West Indies as to us appeared incontrovertible. The mode of introduction and of the spreading of this disease, beginning as from a point, and gradually extending itself more or less throughout the city, as well as the daily instances of its

communication which occurred, had also, as we supposed, afforded evidence, sufficiently convictive, of its contagious nature.

“In order, however, to throw more light on the subject, we conceive it may be useful to publish the opinions and observations of several respectable characters, physicians and others, concerning the sentiments long since prevalent in this country, as well as some interesting facts, which had come to their knowledge respecting the foreign origin of the disease.

“The importation and contagious nature of this fever appear to be so closely connected, that in addition to what has been repeatedly published on this head, we have selected a few cases, which we suppose must very clearly prove the contagion of the pestilential fever, more particularly during the months of July, August, September and October.

“A desire to be useful to our country, by calling the public attention to these important points, so as to prevent any relaxation in quarantine laws, as well as to disseminate truth generally for the good of others, has been our motive for making a further publication at this time; for we think there is too much reason to fear that the partial exemption from these diseases of later years, may have a tendency to produce a dangerous security amongst us.”

The first article is a letter from James Pemberton, Esq. an old and respectable inhabitant of Philadelphia, which contains many interesting facts relative to the introduction of the yellow fever into this country above a century ago, and at several subsequent periods. It appears from this letter, that the yellow fever was imported into Philadelphia in 1699, in a ship from the island of Barbadoes, and that it spread through the city, and was attended “with great mortality, fully equal to or exceeding any that has occurred in the same space of time, comparing the then infant state of the city with its population in 1793, or since that period.” This fever was not again experienced in Philadelphia until 1740, at which time it

was also received from abroad. For the military expedition of 1739, which was promoted by Great Britain, against some of the Spanish West-India possessions, particularly Carthagena, troops were raised in Pennsylvania, and upon the return of the ships and people employed on this occasion, a new species of fever was introduced. It was not, however, so prevalent, nor did it occasion as much alarm as the fever of 1744, which proved mortal to a number of the inhabitants, and which "was distinguished," says Mr. P. "by the name of yellow fever, and known to be imported from some of the West-India islands." A malignant fever again appeared in 1747, 1760 and in 1762; at this last mentioned time it was attended with such symptoms as baffled the skill of the most experienced physicians.

"Having had the opportunities (says Mr. P.) of knowing the state of our city in respect to the prevailing diseases, from the year 1740, I am confirmed in my opinion, that the malignant and infectious fevers afflicting the inhabitants at various times, have been introduced from foreign parts, and that this was the invariable judgment of my fellow citizens, physicians and others, which I never heard called in question until since the year 1793, when a contrary doctrine was advanced, which I think is as difficult to support by facts, as that the plague which distressed the citizens of London in the year 1665, was a native of the British climate." p. 7, 8.

The second article is a letter to Dr. S. P. Griffitts, from Thomas Willing, Esq. late president of the bank of the United States. It minutely relates the manner in which the yellow fever was brought into Philadelphia, in the year 1747 and 1762. The third letter is from Benjamin Chew, Esq. formerly chief justice of Pennsylvania, and still further corroborates the opinion of the importa-



tion of the disease in 1747. The next communication is a letter to Dr. D. Hosack, from the late Dr. Charlton, a distinguished practitioner of this city. The facts which Dr. C. states tend to establish the distinction between the yellow fever, as a specific disease, and the bilious intermitting and remitting fevers of our country. We shall make a quotation from the doctor's letter.

“ I have always considered the yellow fever as a species of disease not indigenous to our climate, but of imported origin with us ; and here it may be necessary to remark, that in the year 1795, in consequence of an application from the mayor of the city to the medical society of the state of New-York, of which I had the honour of being president, a committee of that body were directed to consider of and report upon the nature and origin of that fever, which prevailed at the time. The report of the committee was in favour of its domestic origin, and was adopted by the society ; and in my official capacity, I affixed my signature to it, though contrary to my own opinion.

“ Among the distinguishing characteristics of this disease, I consider the total absence of remission for the first two or three days ; after which it frequently happens that there will be a regular, slow pulse, apparently free from febrile action, insomuch that the inexperienced are flattered with a prospect of the favourable termination of the disease, while the insidious foe is secretly undermining the fabric, as a few hours fatally evince, by an aggravation of all the symptoms. Another mark of distinction is the dusky hue the surface acquires, instead of the bright orange colour it has in the bilious remittent : the appearance of the tongue and fauces, which are frequently (comparatively) clean to the last, is a peculiarity of this species of fever. I also think that delirium does not supervene so early, as in the jail, hospital, or ship-fever.\* I never met with a case of yellow fever in the country, but which could be clearly traced to have been derived by infection from the city.” p. 13, 14.

\* I also consider the black vomit as a symptom peculiar to this disease, having never met with it in any other.

We are next presented with a very interesting letter from Dr. Samuel Bard, President of the College of Physicians and Surgeons in this city, in answer to certain queries proposed to him by Dr. D. Hosack. From the learning and talents which Dr. B. possesses, and from the ample opportunities of observation which a long and extensive practice has afforded him, we are persuaded that his remarks will be read with great interest by all who prefer the decisions of experience, to the suggestions of the imagination.

“In answer to your inquiries: I began to practice medicine in New-York, in the year 1766.—Remitting fevers have since that time prevailed more or less every fall. They frequently were attended with bilious discharges, and yellow skin, and in proportion as these symptoms prevailed, were termed bilious remittents; in some instances these symptoms have run very high, and the accompanying fever in such cases has generally been more ardent and constant; but nevertheless, sensible remissions so generally accompanied them, that they were always looked for; and it is now thought the duty of the physician to watch for them, and by emetics, other evacuations, and blisters to promote them, so as to procure an opportunity to administer the Peruvian bark, by which the cure was generally completed.—Now and then, and particularly during the war, when the city was much crowded, and little attention was paid to cleanliness, fevers of a more malignant nature have prevailed, in which a foul mouth, hæmorrhages, petechial eruptions, and other marks of dissolution have either characterised the disease from its commencement, or been superadded to the bilious symptoms in the latter stages; and then the disease has been termed malignant, putrid, petechial, jail or hospital fever. In such cases I have now and then seen profuse bloody discharges, and black, or as it is now more generally named, coffee-ground vomiting;\* but a more frequent symptom in these fevers, and one I do not remember to have seen in yellow fever, is the aphthous crust with which the mouth and throat is often lined.—In these fevers, death seldom occurs, nor is a crisis often to be expected before the

\* Is this of the same nature with the black vomiting of Yellow Fever? I suspect not.

seventh day, and both are frequently protracted to the fourteenth, or even to the twentieth—such were the cases of my sister during the war, and of my son about six years ago, which you have frequently heard me mention. Just before, and what gave occasion to the appointment of the health-officer of New-York, about the year 1758 or '59, a ship crowded with Germans arrived here in a very sickly state, and were put under my father's care. He procured accommodations for the sick at a little distance from town; and I have heard him say, that out of five or six pupils and attendants, he was the only person who escaped the disease. This disease he always called ship or jail fever, but never yellow fever, and it is worthy of observation, that he had seen the yellow fever which prevailed in New-York about the year 1744. Another instance of the same nature occurred whilst I was health-officer, I mean the ship in which Mrs. M'Lean came from Scotland; in which, out of I think about three hundred passengers, upwards of seventy died; but of those I saw no one case in the least resembled yellow fever.

“ The first case of fever I ever saw with that assemblage of symptoms we have since denominated yellow fever, was the case of Mr. Jenkins.\* To this I was called in consultation with my father. I found Mr. Jenkins perfectly in his senses, walking about in his chamber, and alternately sitting on his bed, with a handkerchief in his hand, continually wiping the blood which oozed from his mouth and gums, and with a very yellow skin. But what struck me most forcibly was the slowness and regularity of his pulse, insomuch, that upon retiring to another room, I remarked, that notwithstanding the other threatening symptoms, I could not help entertaining the most confident expectation of his recovery: my father, however, immediately checked my hopes by informing me, that this was a case of *yellow fever of the West-Indies*, that he considered the patient in the most imminent danger, and indeed had little or no hopes of his recovery. You know the event, and how soon we were convinced of the correctness of his judgment, both as to the fate of poor Jenkins, and the nature of his complaint,

“ Since this we have too frequently had to lament the occurrence of yellow fever, which all the experience I have had has still tended

\* In the year 1795.

to convince me is a disease I never saw before that case of Mr. Jenkins.

“The rapid course of this fever, terminating in death sometimes so early as the second, frequently on the third and fourth, and seldom protracted to the seventh day; the violence and unremitting nature of the symptoms; the discoloration of the skin, which is frequently livid rather than yellow; the hæmorrhages, black vomiting, and above all, the cessation of fever, with the regularly slow pulse, which generally precede death, do in my opinion distinguish it from all others.

“You will perceive that I consider this fever as a distinct idiopathic disease, and not a variety or grade of any other.—I likewise believe it to be a stranger and not a native of our country, and from the best information I have been able to obtain, in every instance of accession imported from abroad.” p. 15—19.

Some extracts from a letter of Dr. Redman to the college of physicians, dated in September, 1790, constitute the next article. They relate to the fever of 1762, and furnish additional circumstances as respects its origin and extension. The seventh article is from Dr. Joseph Bayley, physician at the quarantine establishment of this city, and is in reply to a number of queries proposed to him by Dr. Hosack. In this paper, which is well worthy of an attentive perusal, and which contains many of the leading distinctions between the symptoms of yellow fever and those of the bilious remittent, and also of the peculiar mode of treatment, &c. the following observations occur :

“1st. *Quere.* Do you consider it (the yellow fever,) as differing from typhus fever, and bilious remittent fever, and in what does it differ from those fevers ?

“*A.* It differs from typhus in the rapidity of its progress through its different stages, and the irritability of the stomach. Bilious re-

mitting fever is a milder disease of longer duration; the yellowness of the body is an invariable attendant, and comes on at the beginning; but that discoloration of the skin which frequently accompanies yellow fever comes on later, and is of a dusky yellow or orange colour, readily distinguished from the yellowness of bilious fever; the matter vomited in bilious fever is always bilious, from a bright yellow to a dark green." p. 23.

"2d Q. Have you ever seen the yellow fever on board of vessels arriving from our southern states, or what are the symptoms which are usually met with in the fevers on board those vessels ?

"A. When the yellow fever rages in any of those states, persons ill with this disease arrive in vessels. But this is not the case when the yellow fever is not epidemic; but bilious remitting fever and intermitting fever are the usual diseases received at the marine hospital from coasting vessels, in the months of July, August, September and October.

"3d Q. Have you ever seen a fever with black vomit, orange-coloured skin, and terminating fatally within seven days, on board of the Irish ships crowded with passengers? Is a fever of this sort frequently met with? Or does it usually assume the characters of the typhus fever, i. e. jail or hospital fever arising from confined human effluvia?

"A. Among the greater number of sick Irish emigrants that arrived here in the year 1801, I have seen four cases of yellow fever, that have terminated in black vomit (of the colour of very weak coffee, with black mucous particles floating in it) on the seventh or eighth day of the disease. Their eyes were inflamed and protruded; the skin began to change after the third or fourth day, and before death, was universally of an orange colour; but there was not that nausea and vomiting at the beginning as in yellow fever." p. 23, 24.

"6th Q. If you have ever seen a vomiting of black matter in the passengers of Irish ships, did it occur on ship board, or after their removal to the hospital on shore? Did the matter vomited resemble coffee grounds, or did it appear in the form of flakes, or was it merely of a dirty brown colour?

“*A.* The hospital being crowded by an unusual number of sick, temporary sheds were put up, and tents pitched for their reception. The four cases of black vomit (as described under the third answer) that occurred among the Irish emigrants were under the sheds or tents.” p. 25.

“13th Q. Have you not frequently remarked that the crew of a vessel became unhealthy immediately upon breaking bulk, whereas at sea they had been in good health; has this frequently been the case when they came from a healthy port, or was it invariably found, where they thus became seized with fevers upon opening the vessel, that they had come from an unhealthy port?”

“*A.* Several vessels have arrived at this port, that have lost part of their crews in the West-Indies; and some sick at the time of their sailing, who either recovered or died before the arrival of the vessel in this port, at which time the remaining seamen were healthy, and no sickness on board for ten or twenty days; but when those same seamen were engaged in discharging the cargo, some of them sickened and died of yellow fever. This pent-up air of the hold was no doubt similar to that in the unhealthy port from which they came, and to which their shipmates fell a sacrifice in the West-Indies. The ship *General Wayne*, which arrived here in the year 1799, is a memorable, as well as a fatal case to illustrate this fact: on her arrival one of her seamen was sick with yellow fever, who died a few days after his admission into the marine hospital; the remaining crew, about twenty-two in number, were healthy, and continued so until eight days after, when a passenger sickened with the same disease. The ship was detained eighteen days at quarantine, from the time that the last sick man was removed to the hospital; all the crew continuing healthy, she was permitted to proceed to the city (no stores being built at Staten-Island at that time to receive the cargoes of infected vessels, no part of the *General Wayne's* was removed while she remained at quarantine) where, in a few days after she came to a wharf, and when they began to unload, several inhabitants in the neighbourhood sickened and died of yellow fever.” p. 28, 29.

“15th Q. What was Dr. Ledyard's opinion of the origin of yellow fever, that it was imported from the West-Indies, or generated at home?”

“*A. Dr. Ledyard* believed in the exclusive importation of the yellow fever, and his reasons for it were, that during his residence in this city, before and after the American revolution, when it was in a very filthy condition, he never saw the disease; and while practising on Long-Island, he frequently had patients with malignant and infectious fevers arising from animal and vegetable putrefaction, but never attended with such symptoms as occur in yellow fever; which disease he attended on Long-Island, in 1798, brought from this city.” p. 30, 31.

The eighth paper is from *Dr. D. Hosack*, and furnishes, among others, the following facts :

“*Dr. Ledyard*, when he first entered upon the duties of the health-office, as he himself informed me, went to Staten Island with the belief that the yellow fever was not an imported disease, but generated at home. A few weeks before his death he informed me that he had been compelled to change his belief, and that all his observations at the health-office satisfied him that the yellow fever was exclusively derived from the West-Indies. That he had seen the bilious remittent from our southern states, and the ship fever in the crowded ships from Ireland, but that he had never seen the black vomit and the orange-coloured skin attending either the fever of the Irish vessels, or the bilious remittent from Georgia or the Carolinas. The records of the New York hospital will also testify, if necessary, that in no one instance where the ship fever of the Irish vessels proved fatal, it was terminated either by the yellow skin or black vomit. Three or four years since many of the sick were conveyed to our City Hospital, and were attended by *Dr. Hamersly* and myself; and, generally where they proved fatal, it was not in less than from fifteen to twenty-five days: not so certainly with yellow fever.” p. 32, 33.

The ninth article is from *Dr. Thomas Parke*, one of the physicians of the Pennsylvania hospital, and relates to the mode adopted by the managers of that institution, during the prevalence of the fever in Philadelphia in 1798. A statement of facts tending to prove the contagious nature of the yellow fever at Germantown in the year 1798, from the pen of *Dr. Wistar*, the present pro-

fessor of anatomy in the university of Pennsylvania, constitutes the tenth article, and is peculiarly interesting, inasmuch as it gives the most satisfactory proof of the contagious nature of the yellow fever. We are under the necessity, however, of referring the reader to the volume itself, as our limits will not permit us to give the particulars of the many cases which Dr. Wistar has detailed. The article next in order is a letter from Dr. George Bensall, of Germantown, addressed to the author of the preceding paper, and is directly in proof of the facts and opinions advanced by Dr. Wistar. The twelfth and thirteenth articles consist of two letters from Dr. Charles Meredith, of the Philadelphia dispensary, and the fourteenth from Dr. John Wilson; these three articles are also in proof of the contagious nature of the yellow fever. A short notice of the origin of the fever which prevailed in New-Haven in 1794, from Dr. Elias Munson, and a still farther account of its progress, together with an extract of a letter from Dr. Munson, sen. next follow. The greater part of these papers have already been extensively circulated, and contain undeniable evidence of the exclusive importation of the yellow fever into that city. We are next presented with an able refutation, by Dr. Munson, sen. of Mr. Noah Webster's account of the introduction of the disease into New-Haven. Next follows a letter from Dr. James Stratton to Dr. Griffiths, giving an account of the introduction of this disorder into New-Jersey from Pennsylvania. The eighteenth paper is addressed to Dr. D. Hosack, by the learned Dr. John Stewart, of Grenada, and contains, besides many other valuable facts, an account of the first appearance of the yellow fever into Grenada, by the ship Hankey, in 1793. We shall not, at present, make any quotation from it, but



probably at some future day offer it entire, with the method of treatment Dr. Stewart pursued, which portion of the letter has not yet been made public. We shall only remark, that Dr. S. believes the disease to have originated from contagion imported in the ship Hankey, an opinion maintained with great ability by the celebrated Chisholm, in his "*Essay on the Malignant Pestilential Fever*," and still further supported in his late letter to Dr. Haygarth, which has already been noticed at some length.\* Here we cannot avoid expressing our surprise, that the editors of the *Medical Repository*, after making the yellow fever the principal subject of their work for years, have studiously omitted to take the least notice of this valuable and highly interesting letter; a mode of procedure which we can hardly reconcile with that strict impartiality and love for truth which those gentlemen have never been backward in professing. The concluding article is from the pen of Dr. Wm. Currie, and gives a clear detail of the origin and progress of the yellow fever of Philadelphia in 1805.

We have bestowed a more than ordinary share of attention on the work before us, both on account of the highly respectable and unanswerable testimony by which the "*Facts and Observations*" are supported, and because we consider the subject to which they relate as one of primary importance to our country, and deeply interesting to every member of the community.

\* See the Register for July, p. 68-87.

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ART. III. *An Inaugural Dissertation on the Medical Virtues of the WHITE OXIDE OF BISMUTH, with some preliminary Observations on the Chemical Properties of that Metal.* By SAMUEL W. MOORE, A. B. New-York. T. & J. Swords. 8vo. 1810. pp. 39.

The object of Dr. Moore, in the present dissertation, is to make known the medical virtues of the white oxide of bismuth, and to recommend its use in gastrodynia, pyrosis, cardialgia, and other affections of the stomach connected with dyspepsia. For this purpose he has given a short account of the recent introduction of this medicine into practice, followed by an abstract of cases in which it has been successfully employed by several eminent practitioners in Europe in the diseases just mentioned, with a relation of several cases in which he himself had an opportunity of witnessing its effects.

It is well known that Dr. Odier of Geneva first introduced this medicine into practice in the year 1786. In 1800, Dr. Marcet, of London, published an account of its successful employment in affections of the stomach. Dr. Bardsley, of the Manchester infirmary, induced by the representations of its efficacy, published by Dr. Marcet, made trial of the same remedy in similar affections; and in 1807 gave to the public, in his Medical Reports, a detail of several cases in which he had prescribed it. The result of his experience was in confirmation of what had before been made known by doctors Odier and Marcet. In addition to this evidence, in support of the medical properties of the white oxide of bismuth, we are in-

formed by Dr. Moore, that it has been employed with great advantage in a number of cases of debility and spasmodic affection of the stomach by doctors Post, Osborn, and Stringham, of this city.

We insert the third case related by Dr. Moore, and shall only remark, that upon the whole we consider the evidence of the medical virtues of this new remedy to be such as to entitle it to the particular notice of physicians in the treatment of dyspepsia and other affections of the stomach in which Dr. Moore has recommended its use.

*New-York, Sept. 24, 1810.*

“Case 3d. Mr. B. the subject of the following case, has been for three or four years dyspeptic; during which time he has almost continually suffered from cardialgia and pyrosis, and very frequently severe colic pains. The fluid which he threw up from his stomach was at times, he said, so extremely acid, that it felt as if it were cutting his throat while passing through it. He has been long in the habit of using alkaline solutions, absorbents, &c. but without effect.

“Mr. B. has, at my request, very obligingly drawn up a statement of his own case, the substance of which I shall give nearly in his own words.

“I have been for several years troubled with acidity on my stomach, a watery fluid running from my mouth, and an unpleasant sensation, or dull pain at my breast, frequent colic pains; sometimes a cough, which was always accompanied by an unpleasant taste: a great heaviness and inclination to sleep, with an aversion to motion. My appetite has always been good, and sometimes, indeed, voracious; but even at those times my stomach would be often disgusted by the first mouthful of food I swallowed. When the heaviness came over me, I felt a sensible diminution of my strength and spirits. I have taken soda, magnesia, chalk, and rhubarb, but have found no relief from them. On the 16th of September I called on Dr. Moore, and obtain-

ed from him a few powders, of which I have taken three a-day, and have not for the last five days felt any symptoms of the complaint

*September 24, 1810."*

Mr. B. took fourteen doses of those powders, containing altogether, one drachm and ten grains of the oxide. He assures me that he has never felt better than he does at present, and says, that if the powders produce a permanent cure, it will be one of the most happy events of his life.

Sept. 29th. I saw our patient this day, when he informed me of his having continued thus far perfectly free from all indisposition.

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## DOMESTIC INTELLIGENCE.

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### *On Canal Navigation.*

WHOEVER takes the trouble of turning to the first number of this volume, page 110, the second number, page 145, and the third number, pages 376 and 384, will discover that we have been solicitous to prevail upon our fellow citizens to attend to the subject of canal navigation. We attempted to show, in No. 2, page 145, by a moderate calculation, the immense advantage our citizens would obtain by transporting their produce in canals instead of using wagons as they do at present. Those papers were written before the ground, from lake Erie to Seneca lake, had been surveyed, and before the commissioners had drawn up their report on the subject. They were written by a correspondent, who had been a careful observer of the means by which cities had acquired splendour, and nations had become affluent and prosperous. By the following report of the commissioners, the reader will discover that the measures we recommended for promoting the wealth and dignity of the state, are nearly the same that the commissioners, after mature deliberation, have submitted to public consideration.

#### REPORT.

*The Commissioners appointed by joint resolutions of the honourable the Senate and Assembly of the state of New-York, of the 13th and 15th March, 1810, to explore the route of an inland navigation from Hudson's river to lake Ontario and lake Erie, beg leave to Report,*

THAT they have examined the country as critically as time and circumstances would permit, and caused surveys to be made for their better information.

They beg leave to observe, on the present navigation of the Mohawk river, Wood creek, Oneida lake, and the Oswego river, which extend from Schenectady to lake Ontario, (saving only a portage at the falls within twelve miles of Oswego) that experience has long since exploded in Europe the idea of using the beds of rivers for internal navigation, where canals are practicable. The reasoning on that subject applies with greater force in America. For in the navigation of rivers, reliance must be had principally on the labour of men; whereas, along canals, the force employed is generally that of horses. But the labour of men is dearer, and the subsistence of horses cheaper in America than in Europe. Experience, moreover has, in this country, declared against following the course of rivers more decidedly than in the old world; for there, notwithstanding the excellence of the highways, transportation is performed (between Rouen and Paris, for instance) in boats drawn up the river: but along the Mohawk, though the road from Schenectady to Utica is far from being good, it is frequently preferred to the river.

By the aid of canals, a good navigation (for boats) can unquestionably be made from Schenectady to the falls in the Oswego river, twelve miles south of lake Ontario. From Schenectady to the Hudson, and from the falls just mentioned to lake Ontario, a boat navigation is also practicable; but whether it be advisable, may deserve consideration.

A preliminary point to decide, is, whether by this route, vessels can be taken across, of size and form, to navigate with advantage, lake Ontario and Hudson's river; such, for instance, as sloops and schooners of fifty or sixty tons.

The commissioners believe this to be impracticable, for want of water at the summit level. Whether a sufficient supply even for boats can be obtained in a dry season, should the whole trade of the great lakes be turned that way, is a matter worthy of consideration.

Admitting, however, that the boat navigation were completed to the falls, in Oswego river, and a sufficient supply of water secured, it remains to inquire whether it would be prudent to expend what may be needful on the navigation between those falls and the lake.

It will be seen by the report of the surveyor hereunto annexed, that in this distance there is a descent of little less than one hundred feet, and that the circumstances are peculiarly unfavourable; so much so, that an intelligent practical man, (Mr. Weston) formerly pronounced it impossible. That word, however, when used on occasions of this sort, must be understood as standing in relation to the means which can prudently be applied to the end.

In examining the amount of expenditure which prudence may justify, it is to be noted, that if the same boat which arrives at the upper end of the Falls, could, after reaching Oswego, proceed on her voyage, it might be worth while to calculate whether the saving of time and expense in lading and unlading, would bear any rational proportion to the cost of completing that navigation; but that is not the case, and therefore it would be more advisable, if the communication be deemed of sufficient importance, to construct a railway.

This, according to the estimate of an intelligent and experienced man, (Mr. Latrobe) annexed to Mr. Secretary Gallatin's report on canals and roads, would cost about 10,000 dollars per mile; and by the aid of it, one horse could transport eight tons, supposing the angle of ascent not to exceed one degree.

But an angle of one degree will ascend in a mile upwards of ninety-two feet, or nearly as much as the difference of level in the whole twelve miles. If, then, two dollars be allowed for a horse, waggon, and driver's wages, (with such return load as he can procure for his profit) and ten cents be allowed for the use of the railway, and if it be supposed that only five tons be taken instead of eight, the cost will be for each ton, the twelve miles, forty-two cents, or three and a half cents per mile: at which rate, one hundred and forty miles, (a greater distance than between Oswego and Lewiston, along lake Ontario) would come to four dollars ninety cents, being thirty-five cents less than the freight now paid.

A question, however, of more importance, presents itself. Admitting that it were easy to complete a boat navigation from Rome to lake Ontario, and more difficult and expensive (in comparison) to effect a canal navigation to lake Erie, would it not be advisable to descend into lake Ontario, rather than encounter the difficulty and expense of the other course?

The commissioners believe it would not; and without relying, as they might, for support of their opinion, on the comparative expense of transportation, (a topic which will find a better place elsewhere) it is sufficient to say, here, that articles for exportation, when once afloat on lake Ontario, will, generally speaking, go to Montreal, unless our British neighbours are blind to their own interest; a charge which ought not lightly to be made against a commercial nation.

Freight from Niagara to Oswego will, from the difficult and dangerous access to that harbour, be as high as to the head of the rapids

in the river St. Lawrence. The descent from thence to Montreal is less than the ascent from Oswego to Rome. It is true that the lake Ontario is estimated at one hundred and ninety-six feet above tide water, and the Rome level, only one hundred and eighty-four feet above the lake; but there is a considerable descent in the river St. Lawrence, in a distance of about seventy miles, to the lower end of the present sloop navigation, through which the current is sometimes strong. There is also a considerable descent from Montreal, in a distance of about thirty miles to tide water in the lake St. Peter's. Perhaps it will be found that an average allowance of three inches per mile, (in the whole, upwards of twenty feet) is not too much, and that the river at Montreal is not one hundred and seventy feet below the upper surface of the gallow's rapids. In the distance of one hundred miles between these places, there are forty of still water, viz. about thirty in lake St. Francis, between the foot of Long Saut and the head of the Coteau du Lac rapid, and upwards of ten in the lake of the Two Mountains, between the foot of the cascade at the cedars, and the La Chine rapid.

Thus there will remain but sixty miles of canal, with an average fall of thirty-four inches per mile. The land descends proportionately to the water, so that there can be but little deep cutting: the soil is easy to dig; there are no streams or ravines of any consequence to cross; and there is an inexhaustible supply of pure water, which never varies much in its height, for any canal whatever.

Under circumstances so propitious, it is probable that a good sloop navigation from above the gallow's, to Montreal, would cost less than a good boat navigation from Oswego to Rome. The extent of this last, deducting the Oneida lake, is fifty-six miles the fall is on an average near forty inches per mile; the supply of water is doubtful, and in twelve miles of the distance, obstacles almost insurmountable present themselves.

These are facts, to which it would be in vain for the citizens of the United States to shut their eyes. The eyes of a rich, enterprising commercial rival are open; and when it is considered that (if the means of easy export be supplied to the inhabitants who may settle near the great lakes) that country will, in no distant period, furnish a more abundant stock of commodities for foreign trade, than is now sent from all the Atlantic ports of the union—it would be absurd to doubt, whether, in the competition for that commerce, our neighbours will employ the means in their power. Nor must it be for



gotten, that the revenue which under present circumstances is raised from commerce, and which no probable change will reduce below an ad valorem duty of ten per cent. cannot but operate in favour of our rivals. True it is, that as far as regards the pecuniary benefit of those who may settle along the lakes, the route by which their products are sent abroad, and their supplies of foreign articles introduced, must be to them a matter of little consequence. But the political connexion which would probably result from a commercial connection, certainly deserve the consideration of intelligent men.

The commissioners have no doubt, that obstructions at the mouth of Oneida lake may be removed, so as to lower the surface of that lake from eighteen inches to two feet, at no great expense, and with little, if any injury to the navigation. But they have not been able to satisfy themselves that the lands contemplated in the petitions which the joint resolutions refer to, would be in any wise affected by operations at the mouth of Oneida lake. According to the information they have obtained, these lands are inundated by the waters of Butternut, Limestone, Chitenengo and Canaserago creeks, obstructed before their entrance into the lake.

In respect to an inland navigation direct from lake Erie to Hudson's river, the commissioners beg leave to refer for information to the annexed reports and maps of Mr. James Geddes, employed at their request by the surveyor-general. From these it is evident that such navigation is practicable. Whether the route he sketched out will hereafter be pursued; whether a better may not be found, and other questions subordinate to these, can only be resolved at a future time, when an intelligent man, regularly bred to this business, shall, under the direction of those on whom the public may think proper to devolve the superintendance, have made a more extensive and careful scrutiny than the time and means of the commissioners would permit. They conceive, however, that it may not be improper to say a few words on the topography of the country, which may be divided into three parts, nearly equal.

The Mohawk river, as is well known, runs in a deep ravine, and there is, generally speaking, along its banks, a vale of rich soil. In different places, however, spurs from the neighbouring hills project themselves to the edge of the river. On the north side fall in sundry small streams, and two (the east and west Canada creeks) which are large and copious, especially the latter. They are both rapid, and run in deep ravines. On the right side, also, there are several tribu-

tary streams. The most considerable of these is the Schoharie, which, rising among the Catskill mountains, has scooped out, with its impetuous waters, a wide and deep ravine.

The stream next in importance, coming in from the south, is the Oriskany, which is especially valuable, because it enters the river not far from the summit level at Rome, and may, perhaps, become useful as a feeder. This forms the first, eastern, or river division, in which navigation, though defective, already exists. In this division, with proper management, there will be no defect of water for a boat canal, unless, perhaps, in very dry seasons, at the summit level.

The second, middle, or lake division, extends from the summit level westward to the outlet of the Canandarque lake. In it, lie four lakes, the Otisco, Skeneateles, Owasco and Canandarque, higher than any canal which may be extended from lake Erie to the Hudson, and furnishing a copious supply of water. Of the two largest lakes, the Seneca, increased by a stream from Crooked lake, lies nearly on the same level with Rome, but the Cayuga much lower.

In this division, the turnpike road crosses high hills, but they all terminate not far north of it, leaving a large deep valley, upwards of eighty miles long, from east to west, and about twenty wide from north west to south east. If, indeed, the Cayuga lake, embosomed in a ravine which opens to the north on the valley, be considered as part of it, the breadth will be fifty miles. In this valley lie the Onondaga, Cross, and Oneida lakes. It is bounded on the north, by a dividing ridge of land, which stretches from near the Gerundegat bay, eastwardly, to the neighbourhood of Rome, where it joins the dividing ridge north of the Mohawk, between the waters of the St. Lawrence and those of the Hudson.

The third, western, or dry division, extends from the western boundary of the lake division to lake Erie. In this, although the Genesee river runs through it, a want of water is already felt, and will daily become more sensible, as the country is cleared. The Genesee river itself, is a torrent, which, however copious, or even superabundant it may be in the spring, is in the autumn almost dry. This tract of country, especially after passing the Flats of the Genesee, may, with little violence to the propriety of language, be called a plain : and here it may be proper to notice a peculiarity in the shape of the northern, and much of the western part of the state, which distinguishes it widely from the country lying south east of the mountains.

The descent from the dividing ridge, northward, is generally by a gradation of plains,\* nearly horizontal. These, and the streams by which they are watered, have a similar, and, as it were, a simultaneous descent. Thus the rivers are but a kind of lakes, lying in plains, and communicating by falls and rapids with each other. These gradations have sometimes a small rise, immediately before descent; at other times, in ascending from one, we come immediately to the other. In no case is the peculiarity of shape more worthy of remark, than at the cataract of Niagara. In coming from lake Erie, where the sight cannot reach over the expanded surface, proceeding along the level bank of the Niagara river, to the head of the rapids immediately above the falls, and thence pursuing a northern course, the traveller ascends but thirty-eight feet before he descends three hundred and forty-five to the plain in which lake Ontario is stretched out from east to west upward of one hundred and sixty miles. The surface of lake Erie is three hundred and twenty-nine feet above that of lake Ontario, which being taken from the whole descent just mentioned, leaves for the rise of land between those two great reservoirs, but sixteen feet.

This rise, and others similar to it, are called by the inhabitants, the ridge, the ledge, the slope, and the hill. A more proper general appellation, perhaps, is, the steep, though occasionally by the elevation each way, it becomes truly a ridge, or from the horizontal strata of stone as truly a ledge. In some places the descent is by a gentle slope, in others, more precipitous, and in some, almost perpendicular. Two of these extend eastward from the shore of Niagara river nearly parallel to, and distant from each other about fourteen miles. The higher, or southern steep, commences at Black Rock, where the river issues from lake Erie. The northern commences at the falls, and after an eastern course of fifty or sixty miles, bends towards, and approaches the southern, after which they both take a southern direction for thirty miles, but return again on the east side of the Genesee: or to speak more correctly, that river, after breaking through them by successive falls, of sixty and ninety feet, thirty miles south of the high road, in the township of Leicester, runs in a ravine to the northern part of that township; when the steeps again diverge, the southern stretching eastwardly to the west side of Seneca lake, and then south-

\* The word *plains* might lead into error. It is therefore proper to state that hills are scattered about, which vary the surface to the eye. But on examination it will be found that, generally speaking, their bases are all on the same extended plain.

erly to the high grounds from whence flow the waters of the Tioga; while the other keeps an eastern direction to the hills from whose southern declivities flow the Chenango and Unadilla. There is another steep still more north, which branches out from that last mentioned, near the eighteen miles run, (a stream whose mouth is at that distance from that of the Niagara river) and diverging northward is for some distance in its eastern progress indistinct. It extends, however to the lower falls of the Genesee, and is there crossed by that river, as also beyond it by streams, which fall into the Gerundegut bay; after which it becomes properly a ridge, and extends beyond the falls of Oswego river, as has been already mentioned. Of these three steeps, ledges, or ridges, the most southern is distinguished by limestone mixed with flint. The middle, by the same stone mixed with shells, and the most northern, by freestone and slate. Over the southern steep, west of the Genesee, fall Ellicot's brook and the Tanewanta, (which enter Niagara river by the same mouth opposite to Grand Island) also, Allen's brook, which makes at its passage the Buttermilk falls, and runs to the Genesee. Over the middle steep, in the same division, falls the Oak-orchard brook, which enters lake Ontario, about thirty miles east of Niagara river. The lower falls of this brook, as well as those of the Genesee, are over the northern steep.

The Canesus, the Hemlock, the Honeyoyo, the Canandarque and the Crooked lakes, lie south of the southern steep. The Seneca, the Owasco, the Skeneateles and Otisco lakes, lie south of the middle steep; north of which lie the Cayuga, Onondaga, Oneida and Cross lakes.

The Tanewanta falls over the southern steep twenty-five feet, and passing the village of the same name, runs in a level valley of brown clay upwards of twenty miles to its mouth in Niagara river.

From the Tanawanta village, north eastward, in less than five miles, (chiefly through a swamp) the Oak-orchard brook receives the waters of the swamp, and falls, as has been already mentioned, into lake Ontario. The Tanewanta brook, three feet higher than the swamp, is separated from it by ground, whose elevation is not more than five feet, the distance is short of a mile, and the soil being clay, it will be easy (by turning its waters into Oak-orchard brook) to convert the Tanewanta from its mouth, upwards, into a canal. It has above eleven miles from its mouth, a depth of twelve feet, interrupted, nevertheless, by five bars, or shallows, composed of round stones, buried in clay. During this space, the breadth is in general forty yards, though in the narrowest part not more than thirty. The first shallow, about three miles from the mouth, is called Miller's Ford, and is not above

twelve yards wide; the next, about a mile beyond it, called Houses Shallow, extends east and west nearly one hundred and twenty yards, the depth of water from two and a half to three feet. Two miles further up is Christman's Rapid. This extends from east to west near two hundred and fifty yards, with a depth of from fifteen to eighteen inches; at this rapid, the fall is three inches, except when a westerly wind brings up the water of lake Erie. The breadth of the Tanewanta is here forty-eight yards, and no where below it less than forty.

The next bar, about a mile from the last, is called Van Slyke's Shallow; it extends forty-two yards, the depth in the shortest place twenty-inches, but in general from two to three feet. The fifth and last bar, at eleven miles from the mouth of the creek, extends near one hundred and eighty yards, and has from one to two and a half feet of water.

To convert this water course into a canal twelve feet deep, during the whole distance of eleven miles, will require, at most, an excavation of eighty thousand cubic yards. The surface here is four inches higher than at the mouth, which is five feet lower than the surface of lake Erie. At about five miles and a quarter north from this place, in the middle steep, is the source of one branch of the eighteen mile brook, at a distance of about ten miles from lake Ontario, and about three hundred feet above its surface; consequently, near thirty feet below the surface of lake Erie. The greatest elevation of ground between them is twenty-one feet above that surface; it is, however, on an average, for the space of three miles, twenty feet, and the remaining two miles and a quarter, about seven feet.

For a more particular knowledge of the ground, reference must be had to the profile made by Mr. Geddes, and which is hereunto annexed. It is self-evident, that the cost of excavation per cubic yard, must depend on the substance in which the excavation is made; it must depend, also, on some other circumstances. In deep cutting, for instance, not only must there be wide cutting to prevent the earth from falling in, but there will be, generally speaking, more labour, and consequently more expense in moving the earth after it is dug. It may become, therefore, in many cases, more advisable to pierce the earth by a tunnel, than to take down the top of a hill.

In the present instance, by means of wooden railways, which may be constructed from the surrounding forests for temporary purposes at a trifling expense, the materials may, when dug, be made, as it were, to transport themselves along by gentle declivities, to fill that part of the ravine through which the canal is to pass.

In the construction of canals when recourse is had (as must generally be the case) to rivers for a supply of water, it is found necessary to guard with scrupulous care, and, not unfrequently, at enormous expense, against those floods which, pouring a torrent into a canal, and tearing down its banks, might at once destroy the navigation and inundate the country.

Moreover, it is found, that canals depending on rivers, frequently, like the rivers themselves, want water in the season when it is most necessary. Indeed, to suppose the quantity of water in a river, when turned into a canal, will remain the same, would lead to serious disappointment. Much must be allowed for evaporation, and, notwithstanding the utmost care, more will filter through the sides and bottom of a canal, than those of a river, which are generally saturated.

Thus, then, two prominent evils present themselves in feeding from rivers, viz. In spring they pour in too much water, and can afford none in autumn, when it is most wanted. There is still another evil, which, though not so eminent, becomes eventually of serious moment. When the country shall be cultivated, streams swoln by showers will bring down, mixed with the waters, a proportion of mud, and that, in the stillness of a level canal, will subside, and choak it up. It is also to be noted, by those who shall construct canals in this country, that the true character of a river cannot now be known. Large tracts, (for instance west of the Genesee) which appear as swamps, and through which causeways of logs are laid for roads, will become dry fields, when no longer shaded (as at present) by forests impervious to the sun.

In the progress of industry, swamps (the present reservoirs of permanent springs that burst out on a lower surface) will be drained, whereby many of those springs will be dried. Of such as remain, a part will be used to irrigate inclined plains.

Moreover, in every place tolerably convenient ponds will be collected for mills and other machinery, from whose surface, as well as from that of the soil, the sun will exhale an ample tribute of vapor.

Thus the summer supply of rivers will be in part destroyed, and in part consumed, whereby their present autumnal penury must be still farther enhanced. But in the spring, the careful husbandman and miller will open every ditch and sluice to get rid of that water, which, though at other times a kind friend and faithful servant, is then a dangerous enemy and imperious master. Of course, much of what

is now withheld for many days, will then be suddenly poured out. The torrents must, therefore, rage with greater fury hereafter than they do in the present day.

Considerations like these, while they cast a shade over many contemplated enterprises, give, by contrast, a glowing hue to that which we have now to consider. The canal from lake Erie to the Hudson may be fed by pure water from lakes, provided mounds and aqueducts be made over intervening vallies, or the canal be carried round them. In every case the attending circumstances must decide.

In general, also, it is only after a more accurate examination of the ground by a skilful engineer, well practised in such business, that the best mode can be adopted for the species of navigation which may be ultimately determined on, viz. whether for vessels which navigate Hudson's river and lake Erie, or for barges of from twenty to sixty tons.

If the passage were only of a few miles, the propriety of bringing vessels of eight feet draught of water across (if practicable) would be readily admitted. But it may well be questioned, whether, to save the expense of lading and unlading at each end of a canal three hundred miles long, the expense of cutting two yards deeper than would otherwise be necessary, ought to be encountered.

It has generally been assumed, and perhaps too lightly admitted, that canals should be made on a perfect level. This axiom would not be questioned, if the transportation each way, were of equal burden, if the distance or the frequency of good feeding streams were such as easily and constantly to supply, without danger of excess, the incessant waste of water by absorption, leakage and evaporation, and if the waters to be connected, were on the same level. But in a case like the present, rational doubts may be entertained. The difference of level being upwards of five hundred feet, all the descent which can prudently be obtained by an inclined plain, is so much saved in the expense of lockage; and in all human probability, the transportation, for centuries to come, will be of so much greater burden from the interior country, than back from the sea, that a current from the lake is more to be desired than avoided, more especially as it will in some degree counteract the effect of frost. That inexhaustible stream of limpid water which flows out of lake Erie, with little variation of height to endanger the canal, is a strong temptation to use it exclusively, until auxiliary supplies can be drawn from other reservoirs equally pure. Nor is it improper in this case to

remârk, that it is impossible there should ever be a considerable variation in the surface of Niagara river, at the mouth of the Tanewanta. No supposable fall of rain or melting of snow, even if both were to take place at the same time, in the country which surrounds the great lakes, could raise in any considerable degree their extended surface. Indeed, we know from experience, that a greater difference of elevation at the mouth of lake Erie is occasioned by a change of wind than by any variation of the seasons. Admitting, however, a considerable rise of water, no matter from what cause, at the source of Niagara river, it cannot suddenly, from the narrowness and shoalness of the channel, produce a correspondent rise at the foot of the Black Rock rapid; and the elevation there must, in the nature of things, exceed that which is occasioned by it fifteen miles lower down; more especially as the river, including the two channels round Grand Island, has for the greater part of the way nearly three times the breadth which it has above. If, however, it were only a deep bay, the water pressed forward by the wind, would be piled up to a considerable height, but instead of that, the river here, with a breadth fully double to what it has at Black-Rock, precipitates itself over the first ledge in its headlong course to the cataract: so that an increase of height is instantly counteracted by the increased rapidity with which it rolls over the Rock.

In all events, it would be advisable to use this water exclusively for a great part of the way, even if the country afforded other resources; and to this effect, there must be some descent in the canal. What the precise amount of that should be, in every mile, the commissioners presume not to say. They do not pretend to sufficient knowledge on the subject, and with all proper deference, refer it to a practical engineer.

Nevertheless, like other men possessed of common discernment, they perceive not only that the quantity of water which runs in a given time, must be proportionate to the rapidity with which, and the aperture through which it passes; but also that the rapidity itself will depend not merely on the declivity, but also on the mass; because, in a deep and wide channel, the friction must be less than in one that is narrow and shoal. It will depend also on another circumstance, whose effect (that single cause remaining the same) will vary, according to such of the preceding circumstances as may be connected with it. Admitting, for instance, a stream to be deep and wide in descending an inclined plain its velocity will be accelerated. But if



the inclination be not great, and the channel, shoal and narrow, the friction may so counteract the descent as to retard the velocity.

From these considerations it is evident that the sum of descent must depend primarily on the quantity of water required. This, in navigation ascending and descending by locks, must be greater than when carried along a plain. It must also be greater in a loose, than in a stiff soil. Moreover, the quantum of descent required must, after the needful supply of water is ascertained, depend on the length, the width, the depth, and finally on the course of the canal, whether direct or serpentine. And here the same common sense presents another important consideration. The amount of rapidity which may with safety be hazarded will depend on the texture of the substance through which the current passes. No navigable velocity can injure a rock of granite; but a gentle current will sweep off the substance of bog meadow. In like manner, banks which resist when the course is direct, may be eaten away, and the current itself be retarded, if propelled along a tortuous course.

The commissioners cannot, therefore, too often repeat that their report must be accepted as suggestions proceeding from a superficial view, and not as conclusions founded on sufficient and scientific investigation.

After this preliminary caution, they assume hypothetically that a canal were run in such manner, as that the average descent were six inches in every mile. Whence, taking the surface of lake Erie as the standard level, they have in gross the following results :

From lake Erie to

	Miles.	Descent.	Total descent.	Actual descent.
The mouth of Tanewanta,	10	5 feet	5 feet	5 feet
Genesee river, about	68	34	39	65
Seneca lake,	46	23	62	145
Cayuga lake,	6	3	65	195
Rome summit,	66	33	98	145
Little Falls of Mohawk,	38	19	117	{ 203 1-2 245 1-2
Schoharie,	38	19	136	293 1-2
Height of land between Schenectady and Albany, }	24	12	148	220
Hudson's river,	14	7	155	525

Casting an eye on the map, it will be seen, that the first difficulty in the above course will be, to cross the Genesee at an elevation of twenty-six feet above its surface. But unless the canal be lowered down to that river, the expense of an aqueduct cannot be avoided; because from the upper falls, which are too high, there is little descent to the lower falls; and if, from any cause, it be advisable to cross it by an aqueduct, the addition of a foot in the height will not much increase the expense; indeed, considering the swell of the river in freshes, an elevation short of twenty feet would scarcely leave sufficient space under the arch.

The next difficulty will be in crossing the mouth of Seneca lake by an aqueduct eighty-three feet high. But this also, if a convenient place can be found, will not be important, because a moderate aperture will suffice to void the equable stream from that lake.

The third difficulty is at the mouth of Cayuga, where the elevation is one hundred and thirty feet. Even this might be encountered without any unusual hardihood, if the hills approached each other. But the valley to be crossed is not much, if any thing, short of a mile; and to erect a mound of that length, and of the sufficient height and breadth, is an herculean labour. Whether it will be performed, must depend on the arm that undertakes this task, respecting which, a few words may find their proper place hereafter.

Supposing, however, that difficulty to be surmounted, it is believed that none will remain which cannot be, in a considerable degree avoided by bending occasionally to the southward, and returning round the northern points of the hills, till the canal is brought opposite to Rome. Its elevation there above the Mohawk will be forty-seven feet or less, by one foot for every two miles that it may be lengthened. The general face of the country here, leaves no room to doubt, that convenient ground can be discovered south of Rome, at an elevation of forty feet above the Mohawk. How far it may be practicable, between that place and the hills east of the Schoharie, must be decided by actual survey.

The elevation, if not in other respects injurious, will be useful in passes that might, otherwise, necessitate a descent to the Mohawk. Thus, at the Little Falls at that river, the canal, at an elevation of eighty feet above its upper surface, may, it is believed, be brought through or round the hill at no enormous expense. The still greater elevation of one hundred and fifty feet at the Schoharie, will permit of a considerable bend to find some narrow gorge, and finally, an

elevation of seventy feet above the height of ground between Schenectady and Albany, will enable the engineer to choose for the course of his canal and the position of his locks, the most suitable soil and convenient situations. In a word, if, on due examination, any thing of this sort should be found practicable, instead of depriving the country of water, every drop of which is needed by its inhabitants, they will gain a great addition from the canal; and as to the navigation, singly considered, there can be no doubt but it must in that way be superior to a waving course ascending and descending by locks. For, not to mention the expense of constructing and keeping them in repair, the time spent and tolls paid in passing them, must considerably enhance the freight of goods. But if there be no lockage, and the toll be no more than is needful to keep the canal in repair, it will amount to so little as not to merit notice in a calculation of freight. Rejecting it, therefore, and allowing two horses and three men to take a boat of fifty tons burden, twenty miles a day, which is certainly within bounds, and putting the whole expense at five dollars on the lading, downward, (leaving the return load as profit) or which is equivalent, reducing the distance one half, we have fifty tons transported ten miles for five dollars, being one cent per ton per mile. To speak, then, in round numbers, it will cost three dollars to bring a ton from lake Erie to Hudson's river, being little more than one half of what is now paid for freight on lake Ontario, between Oswego and Lewiston. Without entering into calculations (which every person can easily make for himself) to enumerate the bulky articles which will derive value from such facility of transportation, it may be proper in this place to recur again to the commercial competition with our British neighbours.

A tolerably good navigation up and down the St. Lawrence, already exists; but the cheapest rate at which transportation has been performed within the last ten years between Kingston and Montreal, according to the best information the commissioners have been able to obtain, is one dollar per hundred ascending, and half as much descending the river. But admitting the freight could be so reduced as to be on a level with that between Albany and New-York; admitting, also, that the transportation across lake Ontario could be performed as cheaply as through the proposed canal, and even admitting that the risk on that lake, and of course the premium of insurance, were nothing, still it would follow, that transportation from the head of lake Ontario to Montreal, would cost as much as from the mouth of

Tanewanta to New-York, leaving a preference to the latter of the cost and land carriage from Chippeway to Queenstown. Moreover, nature has given (other things being equal) a decided preference to the port of New-York. There are, generally speaking, six weeks of navigation from Albany, in the spring, before vessels can, with safety, leave Montreal to descend the river St. Lawrence, and as many more in the autumn, after the mouth of that river is closed.

The navigation from New-York, is seldom obstructed ; so that produce deposited there, can be sent to market during five months, in which, at Montreal, it lies a dead weight on the hands of the owner. This circumstance is of especial importance in regard to wheat and flour, which can be sent from New-York, so as to be sold in the south of Europe before those articles can be brought from the Baltic, or gathered in the country ; whereas, if shipped from Montreal in the month of May, they cannot reach Spain or Portugal until after supplies are received from Dantzic, and but a short time before the harvest, which is early in July.

Thus, it is evident that the canal will, if properly effected, turn to the United States the commerce of the upper lakes. Moreover, a side cut, of five or six miles, would, by means of locks, connect it with lake Ontario, in the harbour of the Genesee ; and in like manner a connection would be established with the Seneca and Cayuga lakes, from the heads of which, the short portage by good roads to Newtown and Oswego, opens a communication through the Susquehannah to the Chesapeake. Nor is it improbable, that by running up on the west side of the Cayuga, means may be found to establish water communication with the Susquehannah ; from the great bend of which, a good and short road may be made to the Delaware.

Thus a variety of markets may be opened to stimulate and reward the industry of those who are now, or may be hereafter settled along the great lakes, whose shores, exclusive of lake Superior, are upwards of two thousand miles, surrounded at convenient distances by more than fifty millions of acres of land.

To the question what will the proposed canal cost ? it is not possible to answer with any thing like precision. Indeed, preliminary points are to be adjusted ; and of these, the first is, whether it is to be made for sloops or barges. The expense of the former will be, it is believed, at least double that of the latter. Another question, whether it is to be carried along an inclined plane, or by a line ascending and descending, must be decided by a comparison of the expense and

of the utility each way. In general, however, it may be satisfactory to the honourable the senate and assembly, to receive the information which the commissioners feel no hesitation in giving, that, as far as they have been able to extend their enquiry, there is no part of the civilized world, in which an object of such great magnitude can be compassed at so small an expense. Generally speaking, the course is through a tract of country, the excavation whereof will be easy, and there is at certain convenient distances from the spots where it may be wanted, a sufficiency of free stone as well as of lime stone, with a superabundance of fuel. The subsistence of men, also, and of cattle, will be abundant, and cheap. The wages of the former are, as is well known, high; but measures may certainly be devised to obtain the labour for so great a public work more cheaply than is practicable in private operations on a small scale. But the commissioners beg leave to observe, that no supposable expense can bear an undue proportion to the value of the work. Thus, were it (by giving a loose to fancy) extended to fifty millions of dollars, even that enormous sum does not exceed half the value of what, in all human probability and at no distant period will annually be carried along the canal. The more proper question, perhaps, is, in what time can it be effected: for if an annual sum be appropriated, and secured on a solid fund, it will be effected in time, and the greater sum, the shorter will be the period.

The commissioners have no doubt but that good bargains for the public may be made with those through whose land the canal shall pass; and they have great pleasure in stating that generous offers have already been made by many proprietors, the acceptance of which must necessarily be deferred to the moment when the business, assuming a more substantial form, shall be committed to superintendants duly authorised to treat. Enough has been said to shew that no accurate estimate of the expense can as yet be made. To give some general notion, however, it may be assumed that in common cases, labourers ought to dig and remove to a reasonable distance, eight cubic yards per day. The excavation may therefore be set at the eighth of a dollar per cubic yard. An average breadth of fifteen yards, and depth of one yard, which by means of the mound on each side will be sufficient for four and a half to five feet of water, giving for each yard in length fifteen cubic yards, may therefore be taken at two dollars, and the mile at 3520 dollars: but allowing for the obstruction of trees and roots, not less than 4000 dollars. This gives

for 300 miles, one million, two hundred thousand dollars. The excavation needful to bring a column of water fifteen yards wide, and two yards deep, with sufficient descent from the Tanewanta, through the middle steep, will at the same rate cost two hundred and fifty thousand dollars. Thus to speak in round numbers, the canal, alone, might cost a million and a half, drawn through a favourable soil, lying conveniently without the opposition of rocks or other impediments. Many of these, however, must be expected, and will, perhaps double that sum. Another great expense is that of locks and aqueducts. It is said that the former will cost, at the rate of one thousand dollars per foot of ascent for a vessel of fifty tons. This is believed to be a low estimate. At any rate, in a canal like the present, there must be a double set; one for the ascending and one for the descending navigation. Even then it is to be feared, that there will be much of embarrassment and delay. Thus the lockage being taken at two thousand dollars per foot, for three hundred and forty feet of descent and ascent, between lake Erie and Rome, will cost six hundred and eighty thousand dollars, should that waving course be deemed advisable. From Rome to Hudson's river, a descent of three hundred and eighty feet, will call for an addition of seven hundred and sixty thousand dollars.

If, then, the locks be put at a million and a half, it is the lowest rate which can prudently be supposed. It would, indeed, be safer to set them at two millions. There will still remain for aqueducts, embankments and mounds, a considerable expenditure, which cannot at present be ascertained. To estimate the expense of aqueducts, it may be advisable to put the cubic yard of masonry at two dollars, and consider the aqueduct as solid mass. It is true, that not more, perhaps than one third of the materials required for a solid mass will be used. But the workmanship on those materials will be much more costly. Many of the stones must be hewn, and many clamped together with iron. Moreover, the expense, when such buildings are raised to a great height, is proportionately greater than when near the earth. An aqueduct over the Genesee may perhaps be one hundred and fifty yards long. But to avoid mistakes it will be more advisable to suppose two hundred. The height above mentioned is twenty-six feet. But as well to obviate mistakes, as for convenience of calculation, it may be taken at ten yards, and in order to preserve the full breadth of the canal, the aqueduct may be considered as twenty yards wide. Thus we have a result of forty thousand cubic yards of mason-

ry, which at two dollars, will require an expenditure of eighty thousand dollars. A remark which will not escape the most cursory observer, is, that a single set of locks to ascend and descend five and twenty feet, will cost fifty thousand dollars, at the lowest estimation; and on the system of level canals, the descent in this case is sixty-five feet. Excepting the Genesee, no considerable aqueduct will be needful; because the streams from the lakes being equable, small arches may be turned over them, and the canal be carried along a mound of earth. The expense of such mound must depend on the convenience of obtaining materials. Where hills of sufficient elevation in the neighbourhood give the advantage of running along wooden rail-ways, or where the transportation may be by boats, along the canal itself, a mound will cost but little compared to that which is raised solely by the labour of men and cattle. All estimates therefore which are not founded on exact local knowledge, must be vague and uncertain. Assuming however as a basis, the price of one dollar for eight cubic yards; to estimate the expense of a mound over the Cayuga lake, one hundred and thirty feet high, and sixty feet wide, on the top, with an inclination of five and forty degrees, in the descent of the side, we have at the base one hundred and ninety feet, giving a mean width of one hundred and twenty five; which, multiplied by the height one hundred and thirty, is sixteen thousand two hundred and fifty feet, or in round numbers, one thousand eight hundred square yards. These, at the eighth of a dollar each cubic yard, will cost for every yard of the mound in length, two hundred and twenty five dollars. Allowing, therefore, two thousand yards instead of a mile, so as to compensate for the expense of an arch two hundred feet long, with a span of fifty feet over the stream, and for other contingencies, the whole cost might be four hundred and fifty thousand dollars, perhaps half a million.

Under the impression resulting from these observations, it is believed that one million of dollars would provide for every thing of this sort, so as to bring the canal to a reservoir near Hndson's river without locks, for four millions of dollars: a descent there, of from three to four hundred feet by locks, would cost, perhaps another million; or if it should be deemed more advisable to transport by rail-ways, the water used for machinery would probably yield a rent sufficient to keep the canal in repair.

But hitherto, this navigation has been contemplated no further than to the mouth of the Tanewanta, in Niagara river. From thence to

lake Erie, is ten miles, and the last mile, at the Black Rock rapid, is said to have, through part of a fall which is, on the whole, four feet, a rapidity of near seven miles an hour; so that vessels descending below it, may wait a whole season for wind sufficiently strong to get up.

This obstacle, though great, does not appear insurmountable. Perhaps two wharves, similar to those which surround our cities, made impervious to the water, and sunk parallel to each other during the distance of one mile, with two pair of gates similar to those of dry docks, placed so as that the upper one being shut, there shall be still water from below; and that the lower one shut, will make still water above, may fully answer the end. The cost, where wood and stone are so abundant, cannot be great; and as wood is not liable to rot under water, nor exposed in fresh water to the ravages of worms, the work may be sufficiently durable. On the whole, it is conceived that the expense of this national work may be five millions of dollars; a sum which does not, it is presumed, exceed five per cent of the value of the commodities, which, in less than a century, it will annually transport, should it be now commenced, so as duly to encourage population around the upper lakes.

The commissioners hope they shall be excused if, in this place, they advert to a question more important, perhaps, than any other. By whom shall the needful expense be supported?

They take the liberty of entering their feeble protest against a grant to private persons or companies. Too great a national interest is at stake. It must not become the subject of a job, or a fund for speculation. Among many other objections there is one insuperable: that it would defeat the contemplated cheapness of transportation. It should always on occasions of this sort be recollected, that the reasons adduced for grants to individuals in Europe apply inversely here. Few of our fellow citizens have more money than they want, and of the many who want, few find facility in obtaining it. But the public can readily, at a fair interest, command any reasonable sum. Moreover such large expenditures can be more economically made under public authority, than by the care and vigilance of any company.

It remains therefore to determine whether this canal should be at the cost of this state or of the Union. If the state were not bound by the federal band with her sister states, she might fairly ask compensation from those who own the soil along the great lakes for the



permission to cut this canal at their expense ; or her statesmen might deem it still more advisable to make the canal at her own expense, and take for the use of it, a transit duty ; raising or lowering the impost as circumstances might direct for her own advantage. This might be the better course if the state stood alone. But fortunately for the peace and happiness of all, this is not the case ; we are connected by a bond which, if the prayers of good men are favourably heard, will be indissoluble. It becomes proper, therefore, to resort for the solution of the present question, to principles of distributive justice. That which presents itself is the trite adage, that those who participate in the benefit, should contribute to the expense.

The commissioners presume not to go one step farther. The offers of individuals, already alluded to, shew their conviction of that equity by which the state is called on for her share. The wisdom as well as justice of the national legislature, will, no doubt, lead to the exercise on their part of prudent munificence ; but the proportion, the conditions, the compact in short, must be the result of treaty. Whether the honourable the senate and assembly will take steps towards a negociation, and what these steps may be, it is in their wisdom to determine.

All which is respectfully submitted,

GOUV. MORRIS,  
S. V. RENSSELAER,  
W. NORTH,  
DE WITT CLINTON,  
THOMAS EDDY.  
PETER B. PORTER,  
SIMEON DE WITT.

*February, 1811.*

THE preceding report having been made to the legislature at their last session, the following act was passed, relative to that important object, and the commissioners, named in the same, were appointed, for the consideration of all matters relating to the internal navigation of the state.

*An Act to provide for the improvement of the Internal Navigation of the State, passed April 8th, 1811.*

Whereas a communication by means of a canal navigation, between the great lakes and Hudson's river, will encourage agriculture, promote commerce and manufactures, facilitate a free and general intercourse between the different parts of the United States, tend to the aggrandizement and prosperity of the country, and consolidate and strengthen the union: Therefore,

1. *Be it enacted by the People of the State of New-York, represented in Senate and Assembly,* that Gouverneur Morris, Stephen Van Rensselaer, De Witt Clinton, Simeon De Witt, William North, Thomas Eddy, Peter B. Porter, Robert R. Livingston, and Robert Fulton, shall be, and are hereby appointed commissioners, for the consideration of all matters relating to the said inland navigation, and in case of the resignation or death of any of the said commissioners, the vacancy shall be supplied by the person administering the government of this state.

2. *And be it further enacted,* That the said commissioners, or a majority of them, shall be and are hereby empowered to make application in behalf of this state, to the congress of the United States, or to the legislature of any state or territory, to co-operate and aid in this undertaking, and also to the proprietors of the land through which such navigation may be carried, for cessions or grants to the people of this state, to be received by the said commissioners in their discretion, and also, to ascertain whether loans can be procured on advantageous terms on the credit of this state, for the purpose aforesaid, and the terms on which the Western Inland Lock Navigation Company will surrender their rights and interests to the people of this state.

3. *And be it further enacted,* That the said commissioners shall be and hereby are empowered to employ engineers, surveyors and such other persons as in their opinion may be necessary, in order to enable

them to fulfil the duties imposed on them by this act, and to pay them for their respective services, such sums as may be reasonable.

4. *And be it further enacted*, That the said commissioners shall be and they are hereby required to report to the legislature, at their next session, an account of the whole of their proceedings.

5. *And be it further enacted*, That the treasurer shall pay to the order of a majority of the said commissioners, out of any monies in the treasury not otherwise appropriated, any sum or sums not exceeding fifteen thousand dollars, and for which the said commissioners shall account to the comptroller of this state.

ANTHONY LAMB, Dep. Secretary.

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*Observations on the Quarantine Establishment at New-York, by Joseph Bayley, M. D. Health Officer.*

The following observations, by Doctor Bayley, are here inserted as meriting the serious attention of the American public. And it deserves to be mentioned, as an evidence of the high estimation in which they have been held by our legislature, that a revision of the quarantine laws has taken place at the past session, and most of the amendments proposed in the letter, have been actually adopted, in compliance with the observations and suggestions of the writer.

ED.

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BOARD OF HEALTH.

At a meeting of the Board of Health, on the 20th of December last, the following report was received from Dr. Joseph Bayley, Health Officer.

*To the Honourable the Board of Health.*

New-York, Dec. 20, 1810.

GENTLEMEN,

It has been the practice of my predecessors, to address the board of health, when any facts relative to qua-

quarantine can be offered, whereby that important system can be rendered more efficient in securing the health of the inhabitants, less oppressive to the merchant, and therefore conducive to the general prosperity of the city; the health of which is deservedly an object of the first importance to the citizens—for upon it depends not only their lives, but their business, from which they derive the means of rendering themselves comfortable; consequently this interesting subject is often recurring to them during the pestilential season; and they have generally formed an opinion, that yellow fever is either imported or of domestic origin. Therefore, our quarantine laws have very properly been made to meet public sentiment, as no injury can result from using the requisite means pointed out by the partisans of both opinions, without it should arise from too great a dependance on one set of measures, to the neglect of the other; for both admit that the cause of this disease becoming epidemic, is an impure atmosphere. The importer contends, that this state of air, which produces the usual prevailing fevers of the season, by the introduction of the infection of yellow fever, receives an additional virulence, which causes this dreadful scourge of our sea ports; while the believer in domestic origin, asserts this disease is produced here without the aid of any foreign ferment. It is not my intention to discuss this important subject, but to detail facts, whereby some data will be afforded for the revision of our health laws, which were passed in the year 1799, revised in 1801, and to which supplements were added in 1804, 5, and 6. That they are susceptible of amendment, is admitted by all who have examined them. They have this season been the cause of just complaint from many

merchants, and we have frequently been at a loss to know their true import.

From the reports which have been made to you every week since the first of October, respecting the marine hospital, and vessels liable to the examination of the health officer, a few important facts can be adduced, which will point out some of the advantages, as well as imperfections of the present laws, and shew whence we are to apprehend the danger of importing the yellow fever.

Having been employed in the health department at Staten Island for twelve years, conformable to my observations during that period, I believe that the comparative statement of this year, (for no list has heretofore been made,) is as favourable to the health of the West-Indies, as any of the preceding eleven, and more so than some of them.

To elucidate this subject, I have designated all vessels liable to quarantine from the first of June to the first of October, under four classes.

The first are those from the West-Indies, amounting to one hundred and eighty-nine vessels, navigated by one thousand seven hundred and eighty-three seamen, thirty-five of whom died there, or on their passage thence to this port, most of them after a very few days' illness, and from ports where yellow fever prevailed. On board these vessels were six hundred and twenty-seven passengers, nine of whom died on the passage. All vessels of this class were detained at least four days, for the purpose of

ventilation, and cleansing, and were not permitted to approach the city nearer than three hundred yards until the 1st of October. Fifty-one of the above mentioned vessels coming from sickly ports, or having deaths from malignant fever occurring on board, were, by law, prevented from approaching the city nearer than the quarantine ground.

In the second class are those vessels from the Mediterranean, Asia, Africa, and South America, which are not detained four days at quarantine, but in all other respects under the same restrictions as those from the West-Indies, (except vessels from Canton and Calcutta,) which are permitted to come to the wharves, and are classed with those from Europe. Forty-two vessels from these places, navigated by four hundred and eighty-nine seamen, and having on board forty-six passengers, have arrived, and not one death has occurred on board any of them during the voyage.

The third class contains one hundred and ninety vessels from Europe, navigated by two thousand one hundred and fifty-seven seamen, six of whom died on the voyage, four of them with consumption, one with small pox, and the sixth from personal injury; of this small number, four were from Canton and Calcutta. There were also on board these vessels one thousand three hundred and eleven passengers, seven of whom died, six were children with measles, and one, an adult, with consumption.

The last class are southern coasters, amounting to five hundred and fifty-two, and navigated by two thousand

eight hundred and eighty-five seamen, one of whom died on the passage with fever, several were sick on their arrival with bilious malignant fever, six of whom died at the marine hospital. There were likewise one thousand three hundred and ninety-four passengers on board these vessels, one of whom died with fever. The passages of these vessels are usually performed in so few days, that the seamen frequently do not complain, when coming from a sickly port, before their arrival here. This is a reason why so few deaths happen on board coasting vessels.

Our quarantine laws are very oppressive to the merchants engaged in this trade ; for should a person be sick or die with bilious malignant fever on board a coasting vessel, or should this disease prevail at the place from which she came, the vessel is prohibited coming to the city, even if she has been purified and cleansed, until the 1st of October, although the same disease frequently occurs every season in our city and neighbouring country. *This fever I believe to be essentially different from yellow fever*, a case of which I have never seen from a coasting vessel, without it was prevailing at the port from which she sailed. Further, I have never known a case of yellow fever from Savannah, (Georgia) although many more sick are received into the marine hospital from that place, than from all the other parts of the United States south of Sandy Hook ; and more than twice the number of deaths, as appears from the records of this institution for twelve years, beginning at 1799 and ending 1810. During that period two hundred and fifty-seven patients were admitted into the establishment from Savannah, the most of them with bilious malignant fever. Of these sixty-seven died ; whereas, from all the other

southern ports of the Union, except New-Orleans, only one hundred and sixty-one patients with various complaints were received, twenty-seven of whom died, and eleven of that number with yellow fever.

From the foregoing facts, the following are some of the brief inferences that may be drawn for the improvement of our quarantine laws. First, that the second class of vessels were as healthy this year as those coming from Europe, and, therefore, a discretionary power ought to be given to the board of health to permit them to come to the wharves, when, from the report of the health officer, they are convinced that no danger can arise therefrom. Such as vessels from the south of Europe, within the straits of Gibraltar, with clean bills of health : from Madeira and the Canaries, with wines ; from the Cape de Verd Islands, with salt ; from some parts of South America and India ; for these places are generally healthy, and when they are not, the climate has its full effect upon the crew before their arrival ; so that the evil to be apprehended from these vessels would be immediately observed ; whereas, if the passage could be performed in ten or fifteen days, as frequently takes place with vessels from the West Indies, the danger from them might not appear until some time after their arrival.

Secondly, That there is no risk from vessels coming from Europe, except pestilence prevails at the ports whence they sailed, or they are crowded with passengers, who are liable to ship fever, as happened in the year 1801, when near eight hundred patients, with this disease were sent to the marine hospital, 155 of whom died, and only two persons engaged in the health department escaped the



contagion, although great care was taken to prevent it by ventilation, cleanliness, &c.

Thirdly, The *southern coasters do not bring here yellow fever without it prevails at the port of departure*, but intermittent and bilious malignant fever.

Fourthly, From *West India vessels we are to look for the introduction of yellow fever*, and the utmost vigilance is requisite to examine, cleanse and purify them, before they can with safety be permitted to come to the city at the season when pestilence has usually prevailed; but our health laws are more oppressive, as it regards them, than any quarantine system I am acquainted with, inasmuch as they do not admit, that a vessel coming from a sickly port, or having a person who died on board with malignant fever, arriving after the first of June, (although death might have occurred twelve months preceding) can be purified until the first of October; after which, experience has taught us, that no yellow fever has ever commenced its ravages here. Therefore, a vessel may be detained one hundred and twenty days at quarantine, and the last season afforded an instance of one kept there one hundred and fifteen days, which vessel could have been properly cleaned and rendered safe in one quarter of the time. This part of our quarantine system ought to be more discriminating, and not subject a vessel from Turks Island, or any of the neighboring islands, with a cargo of salt only, to the same restrictions which are imposed on vessels coming from those islands where yellow fever frequently prevails.

Many alterations are also required to make the true

import of the law understood, and to render it more effectual in securing the public health and commercial prosperity of this city; which can be better pointed out by a revision of those laws, than in this report.

I have the honour to be, gentlemen, your most obedient humble servant,

JOSEPH BAYLEY, *Health Officer.*

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Extract of a Letter from J. BOSTOCK, M. D. &c. addressed to Doctor DAVID HOSACK, of New-York. Dated Knotshole Bank, near Liverpool, February 4th, 1811.

“ Two important papers have been read lately before the Liverpool medical society, which are not yet published: one on chorea, by Dr. M'Cartray, who has been uniformly successful in treating this often obstinate disease, by blisters, applied as near as possible to the part affected, or to the part whence the nerves originate. The other paper is by an intelligent member of our society, Mr. Perry, who has removed, in two well marked and acute cases, the tic doloieux simply by the affusion of cold water. The attention, not only of the medical, but of the unmedical world has of late been strongly excited by the proposal to cure asthma by smoking stramonium; the practice has been very extensively tried, and there appears no reason to doubt that it has an effect in relieving the paroxysm; but it does not seem to diminish their frequency. However, it is no inconsiderable object to procure even temporary ease. Has the hop been tried as a narcotic with you, the extract of rhatany as a tonic, or the oxide of bismuth for pains of the

stomach ? These are articles of the *materia medica* that have been recommended upon very respectable authority. But the most extraordinary novelty in practice is that of copious and repeated bleeding for the cure of diabetes. The practice has been, to a certain extent, confirmed in the Manchester infirmary, under Dr. Bardsley and Dr. Henry. It is now pretty generally admitted, that animal diet will cause the saccharine matter to disappear from the urine, and will diminish its quantity, but that it will not eradicate the disease.”

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*The American Philosophical Society of Philadelphia.*

The American Philosophical Society, held at Philadelphia, for promoting useful knowledge, has elected, during the year 1810, the following gentlemen, members of that institution ;

DOMESTIC.

GEORGE GIBBS, Esq. Boston.

WILLIAM JOHNSON, Charleston, (S. C.) one of the Judges of the Supreme Court of the United States.

J. H. BRINTON, Philadelphia.

REV. WILLIAM BENTLY, Salem.

JOHN DAVIS, Secretary of the American Academy of Arts and Sciences, Boston.

CHARLES I. WISTAR, Philadelphia.

DAVID HOSACK, M. D. Professor of Botany and *Materia Medica*, Columbia College, New-York.

FOREIGN.

HUMPHREY DAVY, Esq. F. R. S. Secretary of the Royal Institution, &c. &c. London.

JOHN HAIGHTON, M. D. &c. London.

JOHN MASON GOOD, Esq. London.

A. VAUQUELIN, Paris.

*Report of the Physician of the Kine Pock Institution of New-York.*

Since the last communication presented the Board, by the former physician of this department, one hundred and sixty-nine persons have gratuitously received the benefit of vaccination at this institution. Reference to the "Kine Pock Register" will give all the particulars relative to the age of each individual, the place of residence, period of vaccination, and every other circumstance connected with the ultimate result of each case. It may be proper, however, to state, that this disease has, as usual, in no instance proved fatal; neither has it been accompanied with or succeeded by those eruptive complaints, which popular opinion has connected with, or seems to have considered as necessarily attendant on even the mildest form of this disease. Notwithstanding this favourable result, and the benefits arising from vaccination, it is a matter of regret, that comparatively few (more especially during the last four months) have availed themselves of the opportunities which this institution presents. It is presumed that an equal degree of attention has been bestowed upon this department of the Dispensary as heretofore; and that public confidence in the benefits of vaccination had not been lessened. It is, therefore, probable that this neglect on the part of parents, especially among the lower class of the community, has chiefly arisen from the almost total disappearance of the small pox; for with regard to this last disease, it is a subject of great satisfaction to observe, that since the last reports there have occurred but few sporadic cases; and that it has in only two or three instances proved fatal. But as we have no security against the

reappearance of the small pox in the city, but in vaccination, the subscriber takes the liberty of suggesting to the trustees the propriety of republishing by hand-bills in the out wards of the city, as well as in the public papers, the invitation to the poor to profit by the opportunities they possess of vaccinating their children, as the only preventive against the danger of the small pox. Published by order of the trustees,

GERARDUS A. COOPER.

*New-York Dispensary, Jan. 14, 1810.*

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*Proposed Union of the Medical Schools in New-York.*

The Regents of the University of the state, at their meeting held in Albany on the 1st of April, 1811, having taken into consideration the present state of the medical schools of this city and the unfortunate misunderstandings which have occurred in the college of physicians and surgeons, with the laudable view of uniting the respective talents of the two schools, and thereby to establish on a permanent basis a liberal and well organized medical institution in the city of New-York, have thought it expedient to make certain alterations and amendments in the Charter of the College of Physicians and Surgeons, and to create a new list of officers and professors, by introducing several of the professors of the medical school in Columbia College, as well as other eminent and distinguished individuals whose services were considered important to the success of the new establishment. They have accordingly made the following appointments, which we copy from the official report made by the regents.

- SAMUEL BARD, M. D. President.  
 BENJAMIN DE WITT, M. D. Vice-President.  
 WRIGHT POST and JOHN AUGUSTINE SMITH, Joint Professors of Anatomy, Surgery, and Physiology.  
 DAVID HOSAUCK, M. D. Professor of the Theory and Practice of Physic and Clinical Medicine.  
 WILLIAM JAMES MAC NEVEN, M. D. Professor of Chemistry.  
 JOHN R. B. RODGERS, M. D. Professor of Obstetrics, and the Diseases of Women and Children.  
 EDWARD MILLER, M. D. Professor of Therapeutics, and Clinical Medicine.  
 WILLIAM HAMERSLEY, M. D. Professor of the Institutes of Medicine.  
 SAMUEL L. MITCHILL, M. D. Professor of Natural History.  
 JAMES S. STRINGHAM, M. D. Professor of Medical Jurisprudence.  
 ARCHIBALD BRUCE, M. D. Professor of Mineralogy and Pharmacy.  
 JOHN D. JAQUES, Treasurer.  
 JOHN W. FRANCIS, Register.

The Elgin botanic garden, in the vicinity of this city, having been purchased by the state of New-York, for the purpose of promoting medical science, and being placed at the disposal of the Regents of the University, that board has accordingly directed the trustees of the College of Physicians and Surgeons to take charge of the institution, to preserve and improve the same; and that it be by them devoted to the purposes contemplated by the legislature. By this arrangement the botanic garden now constitutes an important appendix to the medical school of this city, and will be a valuable source of instruction to the pupils who may resort to New-York for the purposes of medical education.

*Abernethy's Surgical Writings.*

It is with pleasure we announce the republication of the first and second parts of the new and augmented edition of "Surgical Observations," by John Abernethy, Esq. F. R. S. of London. We have long wished to see the productions of this distinguished anatomist and surgeon, in the possession of every medical reader, as we consider them deserving of the greatest commendation, both on account of the many original and interesting facts which they contain, and the important practical conclusions which the author has deduced from them. We trust, that when the other parts of the work (which the author is now publishing in London,) shall have reached this country, they will be speedily added to the present American copy.

*Officers of the Medical Society of the State of New-York.*

WILLIAM WILSON, of Columbia, President.

WESTEL WILLOUGHBY, of Herkimer, Vice President.

BENJAMIN R. BEVIER, of Ulster, Secretary.

ASA B. SIZER, of Madison, Treasurer.

JOHN R. B. RODGERS, of New-York,

WILLIAM M'CLELLAND, of Albany,

ELI BURRITT, of Rensselaer,

JESSE SHEPHARD, of Schoharie,

WILLIAM PATRICK, jun. of Saratoga,

} Censors.

*Committee of Correspondence.*

WILLIAM WILSON,

ASA B. SIZER,

JOHN R. B. RODGERS,

ELI BURRITT,

JOHN ELY,

HENRY SHERWOOD,

JESSE SHEPHARD.

At the late anniversary meeting of the Medical Society of the state of New-York, a prize medal of the value of fifty dollars was adjudged to the dissertation of Doctor JOHN STEARNS, of Albany, on the geology, mineralogy, and medical history of the county of Saratoga.

*Observations on the Weather of the City of New-York, for the months of January, February, and March, 1811.*

#### JANUARY.

The weather for the first two days of January, was remarkably clear and agreeable, and the thermometer stood at 3 P. M. at 26 degrees. On the evening of the third it commenced snowing, which continued through the fourth, when a small quantity of rain fell. From the 5th to the 16th, the weather was for the most part foggy in the morning, and either overcast or cloudy during the remainder of the day. On the 16th, a small quantity of snow fell, which was succeeded by rain; thermometer stood at 7 A. M. at 26, at 3 P. M. at 38, and at 7 P. M. at 35. On the night of the 18th, the mercury stood at 14 degrees. The remaining days of the month were generally clear and cold; wind chiefly from the N. W.

#### FEBRUARY.

On the 1st of February, there fell about 4 inches of snow; and on the 4th, about 6 inches more, which was followed by rain and a strong wind from N. W. On the 7th and 8th, we again had more snow, and also on the 12th, during which day, the mercury stood at or about the freezing point. On the 17th and 18th days, we had another fall of snow; this was succeeded by much colder weather, which gradually increased, and became considerably more severe than any we had experienced during the winter. On the 20th, the thermometer stood at 7 A. M. at 8, at 3 P. M. at 23, and at 7 P. M. at 21. On the 23d, at sunrise, it stood at 6 degrees. The weather for the remaining days of the month, became more temperate and agreeable. On the 26th, however, we again had some rain, accompanied with a wind from the S. W.



## MARCH.

The weather for the first five days of the month was clear, pleasant, and of a moderate temperature ; wind chiefly from the westward. On the 6th, we had some snow, after which it became still milder ; and on the 12th day, the thermometer stood at 7 A. M. at 39, at 3 P. M. at 55, and at 7 P. M. at 50, wind generally from the s. w. During the eight following days, there was very little variation in the temperature of the weather, it being for the most part clear and very mild, with the wind southerly. On the 21st and 22d, the thermometer stood as high as 67 at 3 o'clock in the shade. On the 24th fell a small quantity of rain ; it again became pleasant, and continued so until the 30th, on which day, and on the 31st, we had more rain. The weather during the whole of this month, was extremely pleasant, and of an unusually uniform and mild temperature.

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*Observations on the Diseases of the City of New-York, during the months of January, February and March, 1811.*

Although we do not usually meet with intermittent and bilious remittent fevers during the winter season, some cases of those diseases have fallen under our notice during the last three months. Those who advocate the domestic origin of yellow fever, and consider it to be the same disease with the bilious remittent of this country, and that the latter is but a milder grade of the former, must find themselves at a loss to reconcile the continuance of the bilious remittent throughout the winter months, with the sudden extinction of yellow fever upon the first appearance of frost ; a fact uniformly remarked whenever this last disease has prevailed in our cities.

These contradictions cannot be reconciled but by considering them as two totally distinct forms of disease.

The most prevalent complaints of the months of January, February and March, have been of an inflammatory sort, the effects of cold. Of these the most conspicuous have been *catarrh*, *croup*, *pneumonia*, and *rheumatism*. The approach of spring also brought with it those complaints which arise from, or are connected with, a plethoric state of the system, viz. *apoplexy*, *palsy*, *hæmorrhoids* and *erysipelas*. The *influenza*, *whooping-cough*, and a few cases of *scarlatina* have also been occasionally met with. Owing, too, to the neglect of the poor, in not availing themselves of the benefits of vaccination, the *natural small pox* has also become prevalent in our city; but happily, in no case has it appeared where the patient had been vaccinated. *Croup* we observe very rarely to be fatal where the physician is called early, and active means are employed to restore the suppressed excretions. The early exhibition of emetics in this disease cannot be too earnestly enjoined both upon the parent and practitioner. We have also had occasion to treat two cases of *apoplexy* in the manner pointed out in the last number of this work, viz. by *moderate* bloodletting, instead of the profuse evacuations usually prescribed in cases of this nature. Both cases terminated happily. Upon this subject, too, the editors take occasion to remark, that although they are opposed to the practice of copious bloodletting when the disease has actually taken place, they earnestly reprobate the neglect of this remedy in those premonitory symptoms of *apoplexy* which proceed from a plethoric state of the blood vessels. Where such plethora manifests itself in females after the natural cessa-

tion of the menses, by producing erisipelatous eruptions, vertigo, numbness of the extremities, or an oppressed state of the lungs indicating asthma, bloodletting in a moderate degree, has been found of great service. To the neglect of this remedy doubtless many cases of apoplexy and palsy are to be ascribed, as well as hydrothorax, the effect of effusion from an over-loaded state of the blood vessels.

In the treatment of *dropsy*, the editors have also had occasion to remark the bad consequences of the present fashionable treatment of that disease by fox-glove and mercury. In the *forming state* of dropsy, before great debility has been induced, and in those cases where the disease has been the effect of a full habit of body and inflammatory action, those remedies are indicated, and frequently prescribed with benefit. But in the second stage, in which the practitioner is apt to continue the use of those medicines that had been found serviceable in the commencement of the disease, they are manifestly injurious, by the debility they occasion. In those cases, iron, and the vegetable tonics, have been directed with the most salutary effects. The use of mercury in *hydrocephalus* has also, in the opinion of the editors, been too indiscriminately employed, to the neglect of the lancet, blisters, and other remedies calculated to divert from the brain the excessive action of the blood-vessels, which, for the most part, constitutes that formidable disease. Some recent cases of the salutary effects of the last mentioned remedies in hydrocephalus, and frequent observation of the abuse of mercury in the same disease, have led to these remarks.

## RECENT AMERICAN PUBLICATIONS.

Statutes of Columbia College, as adopted by the board of trustees, November 6th, 1810 8vo. New-York. T. & J. Swords

Supplementary Charter of the College of Physicians and Surgeons, with other ordinances relative to that institution. By the Regents of the University. 8vo. New-York. C. S. Van Winkle.

An Account of Expeditions to the sources of the Mississippi, and the western parts of Louisiana, to the sources of the Arkansaw, Kans, La Platte and Pierre Juan; performed by order of the government of the United States, during the years 1805, 1806 and 1807. And a Tour through the Interior Parts of New Spain, when conducted through these provinces by order of the Captain General, 1807. By Major Z. M. Pike. Illustrated with maps and charts. 8vo. Philadelphia. Conrad & Co.

Hortus Elginensis: or a Catalogue of Plants, Indigenous and Exotic, cultivated in the Elgin Botanic Garden, in the vicinity of New-York Established in 1801, by David Hosack, M. D. F. L. S. Professor of Botany and Materia Medica in Columbia College, member of the American Philosophical Society, &c. Second edition, enlarged. 8vo. New-York. T. & J. Swords.

A Statement of Facts, relative to the establishment and progress of the Elgin Botanic Garden, and the subsequent disposal of the same to the state of New-York. By David Hosack, M. D. Professor of Botany and Materia Medica in Columbia College. 8vo. New-York. C. S. Van Winkle.

An Epitome of Experimental Chemistry, &c. By William Henry, M. D. &c. With Notes on Various Subjects. By B. Silliman, Esq. Professor of Chemistry. 8vo. New-Haven. Cooke.

Annual Discourse delivered before the Pennsylvania Academy of the Fine Arts, on the 13th of November, 1810. By Joseph Hopkinson, Esq. 8vo. Philadelphia. Inskeep and Bradford.

Eclectic Repertory and Analytical Review, Medical and Philosophical, Nos. 1 and 2. Philadelphia. E. Earle.

Observations on the Diseases of the Army, by Sir John Pringle; with Notes, by B. Rush, M. D. F. A. P. S. &c. 8vo. Philadelphia.

Torpedo War and Submarine Explosions. By R. Fulton, Esq. Fellow of the American Philosophical Society, and of the United States Military Philosophical Society. 4to. New-York. Wm. Elliott.

A Letter on Chimney Fire Places, addressed to R. R. Livingston, L. L. D. President of the Society for the promotion of Useful Arts. By Benjamin De Witt, M. D. Professor of Chemistry in the University of the State of New-York. 8vo. Albany. S. Southwick.

Observations on Combustion and Acidification; with a new theory of those processes, founded on the conjunction of the phlogistic and antiphlogistic doctrines. By John Redman Coxe, M. D. Professor of Chemistry in the University of Pennsylvania. 8vo. Philadelphia.

The Modern Practice of Physic, exhibiting the character, causes, symptoms, prognosis, morbid appearances, and improved method of treating the diseases of all climates. By R. Thomas, M. D. with an Appendix by Edward Miller, M. D. Professor of the Practice of

Physic and Clinical Medicine in the University of New-York. 8vo. New-York. Collins and Perkins.

A New Universal and Pronouncing Dictionary of the French and English Languages, containing above fifty thousand terms and names not to be found in the Dictionaries of Boyer, Perry, Nugent, Focquet, or any other lexicographer. To which is added, a vast fund of other information, equally beneficial and instructive, never before published in any work of this kind. For the benefit of all who may consider a knowledge of either language an acquisition in their respective situations in life. By N. G. Dufief, author of *Nature Displayed* in her mode of teaching language to man, applied to the French language. Large octavo, 3 vols. Philadelphia, by Palmer, for the booksellers.

Memoirs of the Philadelphia Society, for promoting Agriculture, containing communications on various subjects, in husbandry and rural affairs; to which is added, at the request of the society, Inquiries on Plaster of Paris. 8vo. vol. II. Philadelphia. Johnson and Warner.

*Nature Displayed* in her mode of Teaching Language to Man; or a new and infallible method of acquiring a language in the shorest time possible, deduced from the Analysis of the Human Mind, and consequently suited to every capacity, adapted to the French. By N. G. Dufief, third edition highly improved and much enlarged. 8vo. 2 vols. Philadelphia, for the booksellers.

Professor Rush's Syllabus; together with sixteen introductory Lectures to courses of Lectures upon the Institutes and Practice of Medicine. To which are added, two Lectures upon the Pleasures of the Senses and of the Mind, with an inquiry into their proximate cause. 8vo. Philadelphia. Bradford and Inskeep.

Collections for an Essay towards the *Materia Medica* of the United States. By Benjamin Smith Barton, M. D. & P. &c. 8vo. Philadelphia. E. Earle and Co.

The American Medical and Philosophical Register, or Annals of Medicine, Natural History, Agriculture, and the Arts. January, 1811. No 3. Conducted by a Society of Gentlemen. 8vo. New-York. Ezra Sargeant.

Inchiquin: the Jesuits Letters during a late residence in the United States of America. 8vo. New-York M'Dermut.

American Ornithology, or Natural History of the Birds of the United States: illustrated with plates engraved and coloured from original drawings taken from nature. By Alexander Wilson. Imperial 4to. vol. 3d. Philadelphia. Bradford and Inskeep.

#### PROPOSED AMERICAN PUBLICATIONS.

By B. and T. Kite, Philadelphia. An Introduction to the Theory and Practice of Midwifery, by Thomas Denman, M. D. licentiate in Midwifery of the College of Physicians, and honorary member of the Royal Medical Society at Edinburgh. Taken from the last London edition, with the author's latest improvements. To which will be added, his Treatise on the Rupture of the Uterus, Mania Lactea, &c. the whole accompanied with Notes, by Thomas C. James, M. D. Professor of Midwifery in the University of Pennsylvania.

*By W. Duane, Philadelphia.* An Essay on the Diseases incident to Europeans in Hot Climates. By James Lind, M. D., with Notes.

*By T. Dobson, Philadelphia.* A System of Anatomy. By Casper Wistar, M. D. Professor of Anatomy in the University of Pennsylvania, Fellow of the American Philosophical Society, &c.

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*Botanical Lectures.*

Dr. D. HOSACK will commence his annual summer course of LECTURES ON BOTANY on the second Monday in May next.

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TO CORRESPONDENTS.

An Analytical Review of the valuable productions of Monsieur Dufief, of Philadelphia, the 3d edition of Nature Displayed, and the New French and English Dictionary, just published, are necessarily postponed

Some Observations on Croup, and an interesting communication on the same subject, by Professor Mitchill, are also unavoidably deferred to our next number.

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Future Communications for the American Medical and Philosophical Register, are requested to be addressed, post paid, to DR. DAVID HOSACK, New-York.

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