

The history of the mild yellow fever which prevailed in the city of Natchez in 1848 : with observations respecting its character and natural mode of cure : to which is appended from various authors descriptions and notices of that disease, of dengue, and of inflammation of the stomach and bowels / by C.H. Stone.

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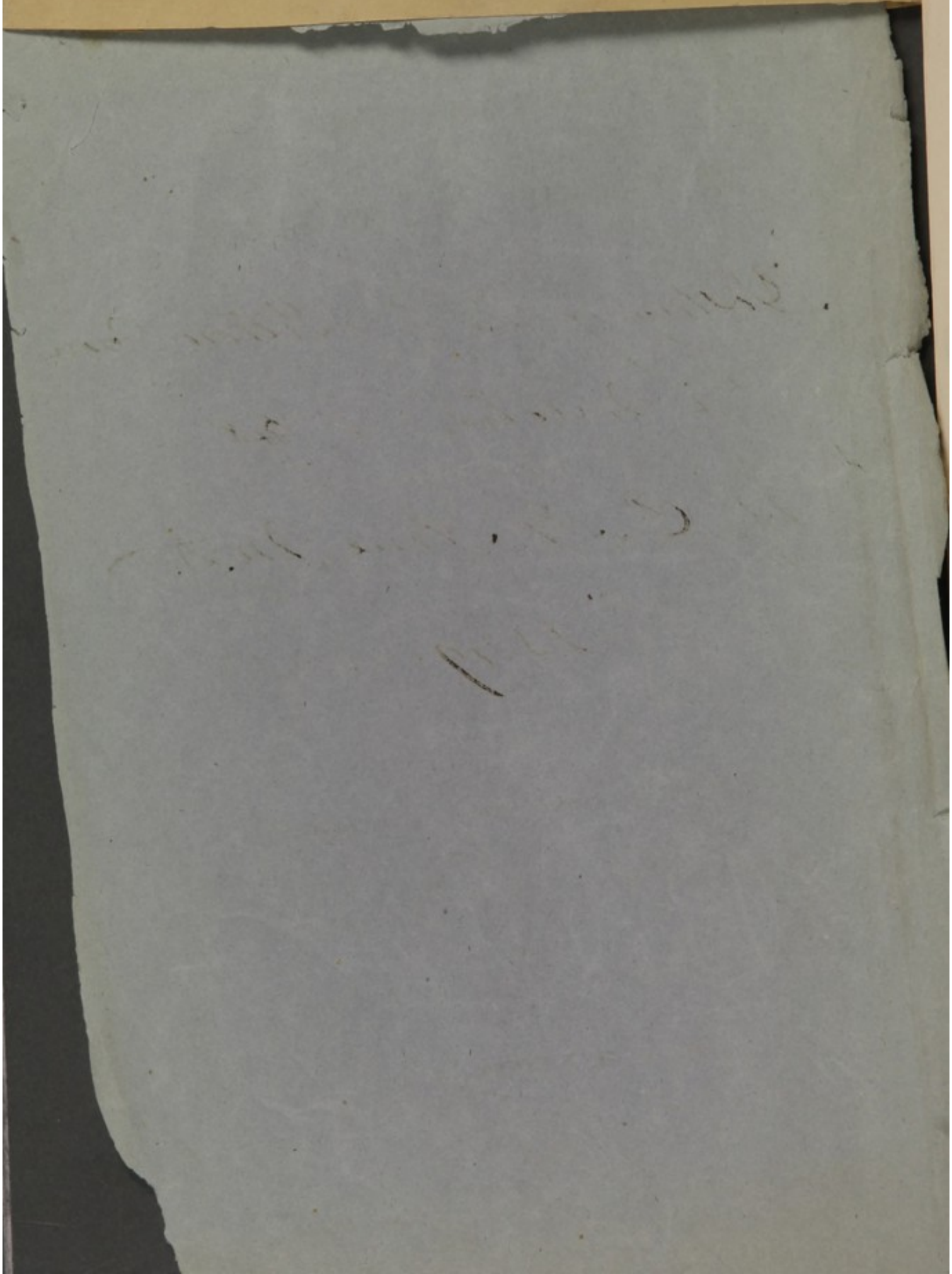
STONE (C. H.)

History of the Red Yellow Fever
in Natchez, in 1848.

By C. H. Stone, M.D.

1849.

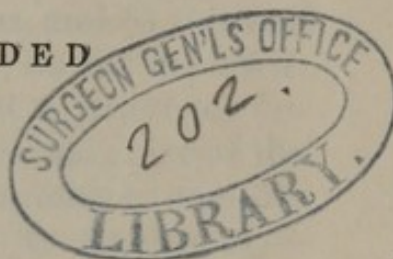
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THE HISTORY
OF THE MILD YELLOW FEVER,
WHICH PREVAILED IN THE CITY OF NATCHEZ
IN 1848,
WITH OBSERVATIONS RESPECTING
ITS CHARACTER AND NATURAL MODE OF CURE;
TO WHICH IS APPENDED
FROM VARIOUS AUTHORS
DESCRIPTIONS AND NOTICES OF THAT DISEASE;
OF DENGUE
AND OF INFLAMMATION OF THE STOMACH AND BOWELS,
By C. H. STONE, M. D.

NATCHEZ.

*Printed at the Concordia Intelligencer Office,
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THE HISTORY

OF THE MILD YELLOW FEVER,

WHICH PREVAILED IN THE CITY OF NATCHES

IN 1842.

WITH OBSERVATIONS ON THE

ITS CHARACTER AND NATURAL HISTORY OF THE

TO WHICH IS APPENDED

THESE VARIOUS AUTHORS

OF DISEASE

ON THE EXPLANATION OF THE STOMACH AND BOWELS

BY G. H. STONE, M. D.

Published at the Georgia Medical Society's Office,
NATCHEZ, MISSISSIPPI, 1842.

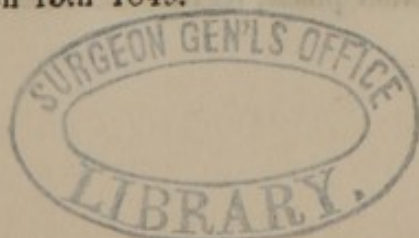
TO THE READER.

In the following pages I present to the public a description of the Epidemic which prevailed in the City of Natchez during part of the Summer and in the Fall of last year, as it was published in the March No. of the N. O. Medical and Surgical Journal. I also present one of the disease called DENGUE, that it may be judged by all whether the former was of the same nature and entitled to the name of the latter:—and to show that the Epidemic was mild Yellow Fever and *not* Dengue, I have appended such accounts of Yellow Fever as will enable a correct opinion to be arrived at.

The subject interests every one to a great extent, even though the time of suffering and danger has passed; and the time has arrived for a dispassionate investigation, so that exact justice may be meted out to all engaged in the, to some of them, far worse than fiery ordeal of that Epidemic. For this all must be desirous, and to this end I offer the means for their advantage, as for my own: for my own as proving I did not commit so grave, so unpardonable an error, as to mistake the character of the disease; and as enabling all, who wish, fully to comprehend Mr. Long's case—its nature and its treatment,—showing to whom is due credit for knowledge, or censure for ignorance of it. This is the true and only mode by which to counteract the false impression made on the minds of some, here and elsewhere, and to establish a correct one—one based on the whole truth. I have confined myself to these objects, and the means of attaining them. But I cannot forbear to allude to the various measures adopted, and so perseveringly employed to my detriment, intentionally by some, unintentionally by others, and more actively, than ever, followed up during the Epidemic and since. These have a different and a deeper basis, than anything connected with the Epidemic, which is certainly to have its fallacy and its injustice exposed,---I hope, in time to arrest, before the accomplishment of the object, or the end, of these unwarrantable influences and measures.

C. H. STONE.

NATCHEZ, March 15th 1849.



ERRATA.

I desire to call attention to the following Errata and corrections :

READ, *few* days for *four* days at p. 552, 24th line from bottom.

" *worst* for *most* at p. 556, 11th line from bottom.

" *lead* for *red* at p. 559, 22d line from top.

" *found* for *formed* at p. 560, 4th line from top.

" *then* for *thin* at p. 562, 2d line from top.

ERASE, *were* and *and* at p. 567, 14th line from top.

READ, *functional* for *fractional* at p. 573, 21st line from bottom.

" *excretion* for *execution* at p. 577, 14th line from bottom.

" *some time* for *sometimes* at p. 578, 3d line from top.

" *then* for *than* at p. 579, 15th line from bottom.

" *quality* for *quantity* at p. 579 last line.

" *quality* for *quantity* at p. 580, 9th line from top.

" *states* for *starts* at p. 580, 9th line from bottom.

" *excretion and elimination* for *secretion* at p. 584, 3d line from bottom.

" *progress* for *process* at p. 585, 8th line from bottom.

" *excitor* for *excited* at p. 586, 14th line from bottom.

" *also seems* for *and which seems* at p. 587, 9th line from top.

" 1741 for 1841 at p. 587, 8th line from bottom.

" *know* for *show* at p. 588, 8th line from bottom and at 11th line *found* for *formed*.

" *stomach and duodenum throughout, in many cases,—those in which, &c.,* for the line as there printed.

" *as for so* at p. 589, 2d line from bottom and at 22d line omit *to*.

" *affording time for act to subdue,—what nature is incompetent to cure, the gústro-duodenal inflammation should thus supervene, as it did in Soher's case, &c.,* for the 12th and 13th line from bottom at p. 589.

" *mere excitants* for *were excitant* at p. 591, 4th line from top.

ERASE, *in that at Woodville,* p. 564, 7th line from bottom.

" *yet* at p. 592, 24th line from bottom.

The note by the Editor, at p. 550, ought to have included the discharges of bile by the bowels, as only *some* of the elements of bile are discharged by the bowels, as well as only *some* eliminated by the kidneys—No more was said of the discharge by the kidneys than by the bowels, and it will be seen at p. 572 that, besides what is eliminated by the Kidneys, and discharged by the bowels I urge, that the skin in its *glutinous* perspiration, the lungs in the *odor* of the breath, and "even the mucus surface of the chief portion of the alimentary canal" "*all* eliminate some parts of the acrid bile." I must thank the Editor for enabling me to call more particular attention to this point, and to cite the authority of Dr. Golding Bird, who is so distinguished for his knowledge of such subjects. In speaking of disease of the liver, and of the elimination of bile, he observes, "Let, however, the disease assume another phase, let the excretion of bile by the liver

become arrested, the varying shades of yellow of the surface attesting its presence in the blood: (so exactly the condition in our epidemic and in yellow fever) *then*, not by assuming any new function, but in accordance with the law announced by Wohler, of *removing all soluble noxious matters*, the kidneys *secrete and excrete* (eliminate) the *matter in health proper to the liver*, (the bile) and the contents of the bladder (the urine) become nearly as *bilious as urinous*." In yellow fever whether the urine is as bilious with *all* the elements of bile, or with what elements has never been enquired into. I intend to have an analysis made of some yellow fever urine, preserved from last fall, which in appearance is as bilious as, even *more* bilious than, urinous, that we may at least have one effort made to know what elements, and in what proportions they are eliminated, and what other injurious matter may be eliminated by these emunctories, in yellow fever.

The meaning of the sentence at p. 564 referred to by the Editor will be plain, if read with a comma after *to* and *of* in the line marked by *; if not, then with *or* between *to* and *with*.

It will then indicate that it was considered incompatible with a just view of the disease, and dangerous to cause a revulsion on the bowels, —to purge by remedies which "expend their force on the intestinal canal," because there was a strong *tendency* to inflammation, or engorgement in the mucus tissue, and it was dangerous with the *presence* of that state. This is again referred to in the last paragraph of p. 588, and will not be misunderstood with the correction of *know* for *show*.

I wish I could say as much for the paragraph at p. 571, which if read as follows will, I think, be understood to embrace the distinguishing signs and many of the common attendants of yellow fever and which were found in the Natchez epidemic.

No one can doubt that yellow fever is the name by which to call the disease, —*One*, the most reliable of all single signs of this fever, or rather *disease*, in its severe form, was present, the *slow* pulse, the *calm*; this was found also in cases which were *mild* in their commencement: We have the next, singly the most pathognomonic, the *slow respiration*, present during the most *tumultuous* excitement of the circulation, and in the article of death: then, the *one* febrile paroxysm: the debility excessive and totally disproportional to, the previous fever (giving the early necessity to replenish the liquid, black blood, with liquid, blood-like, nourishment; solid food after "breaking the fever" in other fevers, is generally *health-giving*, but at the same stage of this, was *death-dealing*): the tongue of healthful appearance for a certain period, assuming the characters pointed out, and often not indicating danger to the *uninitiated*, while to others it was a sure sign of death: there was often the same false inferences by the same persons from the state of the skin, the countenance, the feelings, and the conversation of the patient: we had the peculiar (yellow fever) odor of the breath: we had the black and liquid blood in the more severe grades, or advanced stages of the *mildest*, which had been rendered worse from *trivial* causes, or from medicines which would have been true *remedies* in similar stages of other fevers of the climate: then, the yellow skin, never absent after death and seldom in life, indeed, but *once* at a fatal termination; in this case the skin was deadly white and accompanied by black vomit: we

had the black vomit also. (The yellow skin might be omitted as distinguishing yellow fever, but it was connected with black vomit, or with *exudations* of blood from other parts than the stomach, during life or after death; and those exudations depend upon the *same* condition of solids and fluids, as that productive of black vomit, and, *thus connected*, the yellow skin occurs in no other fever, and is, therefore, distinctive of this. The black vomit might also be omitted, but for its connection with the yellow skin, or with the deadly, chalky, white skin becoming yellow after death.

Singly, the color of the skin and black vomit are not to be relied upon, but *connected*, they are unerring as proofs of yellow fever): and a peculiar mode of vomiting was observed, which ought to indicate yellow fever for I believe that mode, aptly compared by Dr. Lewis of Mobile to a *pumping*, never occurs in other fevers: then, also, there were the *pains*,—those of the entire muscular system and of the bones which, though generally present in yellow fever, are not essential to constitute or distinguish it; they are generally absent in intense grades elsewhere, as they were also in the *same* here: and we had the *eruptions*, commonly found in yellow fever, though seen in other diseases, and a mere evidence in this, as in those, that the blood is *vitiated*: and finally, though not least in importance in distinguishing yellow fever, but being, indeed, as I believe, the origin of nearly, if not *all* the preceding, we had in this epidemic those *never* failing conditions of the liver and its secretion in yellow fever, as shewn, either, first, in the evidences of bile in more or less profuse *quantity* and *vitiation*, excreted or not in part and absorbed, and *freely* eliminated in the milder class of cases; or, second in the more severe forms, as shown in the bile *not excreted*, but still secreted and absorbed and *not freely* eliminated; or, third in the intense grades, as shown in the usually recognised signs of the total abolishment of the secretion of bile, or what may rather be, its still greater *vitiation* and *reduction* in quantity, making a more *concentrated* poison and rapidly causing death—and thus, constituting three grades—the *first*, always *self-curing*,—the *second*, requiring well devised aids,—and the *third*, perhaps, beyond human power to relieve.

THE NEW ORLEANS
MEDICAL AND SURGICAL JOURNAL.

MARCH, 1849.

Part First.

ORIGINAL COMMUNICATIONS.

- I.—*History of a mild Yellow Fever which prevailed epidemically in the City of Natchez, during a part of the summer and the fall of 1848, with observations respecting its character and natural mode of cure.*
By C. H. STONE, M. D., of Natchez, Mississippi.

The almost total absence of intermittent, remittent, and other fevers in the City of Natchez, during the summer of 1848, especially for several weeks preceding the second week of August, afforded a rare and valuable opportunity to those conversant with the peculiarities of Yellow Fever, to witness the latter, in its mild form, make its appearance and prevail extensively, uncomplicated with others of a *periodical* and totally opposite character.

In calling the Epidemic *Yellow Fever*, it is proper, at once, to state the rather curious fact, that the physicians differed; *even* the people did not agree respecting it.

The quarantine had been established long enough to satisfy nearly every one of its futility—its false security—and I think it will never find an advocate here again.—But having faith in it, at first, it was ground for belief, with some, that the disease was not Yellow-Fever, which they had been so *easily* taught to believe never had—never *could* have, an origin in Natchez.—Again, with others, the Yellow Fever they had seen and heard of was a dangerous, a fatal disease—they had no idea it could be *mild*—that an elephant had ever been an infant, so little informed were they.

At the commencement of the Epidemic the sick recovered quickly—there was no danger—they got well—the fever was gone before there was time to overdose themselves. It was attended with pains, severe

pains in all parts of the body, sometimes even to the hands and fingers and with various *eruptions* on the skin—the same had been observed in Dengue, and some, *therefore*, suggested that this was Dengue—they were encouraged so to consider it, and altho', those who had had Dengue insisted that this was not that disease, yet Dengue became the popular idea and continued with "this fever", to be the name of what was also called "the prevailing disease" till too many convincing *fatal* facts forced an unwilling conviction of its true character on the minds of *all*, I believe I may say rather than nearly all persons.

The people did not, and could not be expected to know that Rush and Drysdale had described these *pains* and *eruptions* in the Yellow Fevers of Philadelphia and Baltimore in 1793, 94 etc., so exactly that their descriptions answer for this, that Dr. Lewis had said that, in the Yellow Fever of Mobile in 1847, the *entire muscular* system was affected with *pains*.

Yet it was still *called* Dengue, through habit by some, through *determination* by others, and perhaps from conviction by a few—and tho' Dengue in life, it was generally admitted to have been Yellow Fever when death took place—in Dengue to-day—they were *unexpectedly* in the death struggle of Yellow-Fever to-morrow, and thus *sporadic* cases of the latter were made by some of the people.

By the Physicians the Epidemic was called by various names—Dengue, nervous fever, rheumatic fever etc.,—by one it was admitted to have nearly all the symptoms of mild Yellow Fever—one, a certain appearance of the countenance being alone wanting—but he, shrewdly, did not *name* it, he was satisfied to say it was *not* Yellow Fever.—Dr. Jones pronounced that Yellow Fever was Epidemic and that Dengue was also prevalent.—Dr. H. Lyle announced the opinion that it was, solely, Yellow Fever and was the first, so to call it publicly, and the writer of this history, entertaining the same conviction, gave the same opinion. These two, not desiring, never received many thanks for this, but they had not a *few hard* names, the usual reward for telling unpleasant truths, however imperative the duty.—Let a description be given of whatever else prevailed. Will it be done?

It will be seen that the Physicians differed more than the people and some of the latter insisted upon their right to disagree on this very account. Yet there were points upon which there was *unanimity* with Doctors and people.

The unusual quantity of bile passed by the Bowels or Kidneys* and indicated by the *bitter* taste, the *yellow skin* etc., in all cases mild and tending to health, and the total absence of bile by vomiting or purging at the commencement in the worst cases, or later in those threatened with death—and they would not have agreed on these, could they have avoided it—the proof was too palpable.

This difference of opinion so common may be viewed as one of the distinguishing marks of Yellow Fever. Neither physicians or people disagree about other fevers of the climate, but always of this.

The only exceptions to one form of disease, and that of Yellow Fever, that occurred to me were a few cases of mumps, some complicated, others not, with the Epidemic, two of pure intermittent from the River

*The Kidneys eliminate some of the elements of the bile only.—ED.

or swamp—one case of mucous diarrhœa in an infant—one of convulsions in a child from gastro-intestinal irritation, developing the sure signs of the Yellow Fever 18 hours after the attack, and a few other trifling ailments as a common catarrh without fever.—All others were of one and the same disease which by a minute and faithful history I hope to satisfy every one was Yellow Fever and nothing else.

To decide what the disease was, is a consideration too local and unimportant for the pages of a Medical Journal, except that as a similar disease has and will again prevail elsewhere and here, it assumes a consequence to describe it. And this is enhanced by the fact that, if it was Yellow Fever, it has *in its very mildness*, spoken *loudly* to the profession, though gently not dangerously to the sufferers, what functional derangements *mainly* constitute that disease and, more than all, in importance, by what processes it *cures itself*, which, at its beginning, I assured the people it would do, *if* it remained in its then mild form, and which I was enabled to say with confidence, from having seen it thus mild and *self-curing* in many instances, when *allowed*, at Woodville in 1844.

Quarantine was ordered about the 2d September. The disease began under the Hill some weeks before that time and while many citizens were calling for the Quarantine to keep *out* the Yellow Fever, it was already *in*, by means of a local cause, of domestic origin, as always before and hence. It was *rife* about the 10th to the 20th August, tho' many cases had occurred at an earlier period, as I can well prove.

It continued till some two weeks after two frosts and a freeze occurring between the 2d and 5th Nov., the number of cases had become very few for several days previously, but they increased at this time for a few days, in consequence of the sudden cold exciting the disease. As the season advanced, the poison impressed the system more profoundly, which was shown more by the greater debility and the greater danger from imprudencies of any kind, during and succeeding an attack, than by any very apparent *violence* of the symptoms. It was mild from beginning to end, with more, though still few, exceptions as the season proceeded,—and mild, it remained a self-curing disease with still few exceptions.—These exceptions included those recently from the North, Scotland and Ireland and others from conditions, the result of chronic diseases, of habits etc. This is intended to apply to original attacks, and such as was not interfered with, had a fair opportunity by those means, included under the head of *good nursing*, as foot baths, warm beds, recumbent posture, suitable drinks and avoidance of solid food, and even some without these aids—these *remedies*.

The disease attacked all ages, colors, sexes, conditions, even those old Yellow Fever subjects, who perhaps thought themselves safe, though generally sparing this class till a later period, affecting about half or two thirds as I suppose, and uniformly with less severity, which remark is applicable to those of long residence here, or in the South.

Some few genuine *second* attacks no doubt occurred and they have been invariably represented as *alike*. Some persons of a family were said to have Dengue, while the others were admitted to have Yellow Fever, and while whole families having had Dengue were (thus?) exempt from, and did not have Yellow Fever, those having had the latter, were

exempt from the former, though the former cases again were said to *run into* the latter, by what process will be seen. Is Dengue a preventive of Yellow-Fever, or are they the same disease? How certainly not—and how conclusive these facts are that one and the same disease was prevalent and constituted the Epidemic.

The deaths were reported as of various diseases, or *effects* of disease, as specimens—of “debility”, “mental affliction”, “exhaustion resulting from fever”, “inflammation of the stomach and bowels”, “epilepsy” shown by yellow and livid skin and black liquid blood, running from the bowels after death, “disease of the heart” with yellow skin after death etc.—and these are only a few, the most striking peculiarities of form, that Yellow Fever *will* sometimes assume.

The number of cases has been, I believe, within bounds computed at 3000, and the population at 4000 to 4500; the number of deaths were forty-two; and surely it is correct and more modest to call that a *self-curing* disease, which shows this mortality, and considering the variety of modes of treatment required for the variety of diseases, if *names* indicate such, and the fact that very many recovered without medicine and under varieties of domestic remedies.

Two children, perhaps others, were born before they were *due*, while the mothers were under attacks and were found *yellow* from the moment they were seen by daylight, (two or three hours.) I saw one on the sixth day, as yellow as gold and prostrate almost to death, but quickly restored by beef tea and the recumbent posture. (At Woodville in 1844, I was present at a birth; the child was born with the disease, and went through an attack of great severity, with red tongue, convulsions, &c., to recovery. Mr. P. H. Zoor is cognisant of the fact.) Several persons were so slightly affected as to attend to their business, suffering pains, and their skin and eyes being more or less yellow or thickened; others were confined for a day or two with slight fevers and pains, &c. A few were affected with *the* pains every four days for weeks, and in one instance, J. Stetheimer, the system labored most severely for the greater part of two months without regular development of fever, but with severe and indubitable marks of the influence of the poison.

The cases ranged from the simplest and the mildest character of the old fashioned “bilious state of the system,” to a mere indisposition, yielding perfectly to a mild remedy,—a mercurial or subsiding *naturally*, though *generally* not perfectly; they ranged through all grades to a few attacks of great, of mortal severity.

Not the least curious part of the disease was the reason that *each* thought himself attacked, as well as of what the disease was. They often forgot the danger; they supposed it was a cold in the nose, a sore throat; an old pain in the back suddenly becomes worse, and he would *call* again in a few days and *sending* in an hour. And some had neuralgia or rheumatism, &c., while few would have been sick *at all* if one had not gone in the country where it was so dusty—the dust in the city not being quite half-knee deep—if another had not had his hair cut two days before, and if others had not done this or that trifle.

As it was believed by too many that yellow fever or other dangerous disease could not have an origin in the place of *their* residence, so, few

individuals had "this fever;" they had something else. Perhaps a *local* patriotism had its counterpart in a self-love not more blind and more dangerous in its consequences. When the fever and pains moderated or subsided, the sick often could not be persuaded that they were still sick—they felt as well as ever, only a little weak; and, to get strong, they must eat (without appetite), and they must walk about, sometimes without ability to raise the head. When could they get up and eat, was the almost universal inquiry; and they would get up and eat unless prevented, and often died from so doing; and indeed every variety of conceit entered the minds of some at dangerous periods, showing a deranged state of the mind, while to a careless observer they might be considered quite sane. By some these may be considered trifles, but not so of anything which tends to mark and distinguish this disease from others, and these very points are almost peculiar to yellow fever.

Catarrhal symptoms, more frequent and marked towards the middle and end of the epidemic, were very common—as a rough voice, pain in the throat, without swelling or much redness, a hawking of great quantities of mucous, a free secretion from the nostrils and eyes, and a cough without expectoration, but sometimes shrill, as in croup—even with a boy twelve years old. I know a child to have been treated for croup, so similar was this symptom, and this had happened to me in 1844, has occurred to many, and will again to many more.

The mucous surfaces in all parts of the body become implicated, as will be noticed of some portions again; that of the uterus showed it by its secretion coming on almost invariably.

A few were able to sleep throughout the attack as in health, but generally they were sleepless, even after the fever and pains had subsided. Dreams were a constant source of great disturbance, and in one case of severity, so affrighted was the patient by their horrid nature that he told me he was afraid to sleep. An abundant extrication of gas in the stomach and bowels was not only almost universal, but distressing.

Sighing was observed in cases of severity, or at the termination in death, of those which had been dengue at their onset, and hiccough was seldom absent at the same stages.

An odor which I cannot describe, but which was *the* odor that had been indelibly impressed on me in 1844, was strongly perceptible in many of the simplest cases towards the latter part of the epidemic, but which I did not notice for a month after its commencement.

In the severer cases vomiting was repeated with violence; in others the stomach was chiefly affected with nausea, or sense of oppression, or fullness after a day or two's continuance of the fever; and if vomiting occurred in these, the mild cases, it was of bile in profusion and afforded relief; but if, in the others, the more severe ones, it was of mucous or the fluid drank and gave no relief; and again, if it occurred in this class towards the conclusion, or if in the milder ones, become worse, it was mucous, or *brown*, then *black vomit*.

Some cases terminated in death without this vomit, but if so, they bled from various parts before or after death. It attended the death of a child ten years old and was *gulped up*. The gums bled and the lips became incrustated with black scabs; incisions in the skin and blistered

surfaces bled as the case was becoming more serious; the stools were of green mucous or became glutinous, foetid or inodorous, and variously colored or black from dissolved blood, which in numerous instances ran from the bowels, nose and mouth, after death.

As one of its characteristics, the disease had *one* febrile paroxysm, generally with sweating, though sometimes with dry skin, and of from a few hours to two or three, in some *few* extending to four or five days duration, during which no true remission was ever noticed. Where a temporary abatement occurred, it was invariably the effect of means employed, and in this way it was often seen, the fever alternately moderating and increasing, but not subsiding fully until its term, *the period natural to each case*, had expired; as the case was tending to health, the fever gradually subsided, with a continuance of the perspiration for many days, though with abatement in offensiveness and generally also in quantity, and the pulse gradually came to the *beat of health*, though always more slowly than in similar stages of other fevers; but if the tendency was to death, the fever subsided less gradually, the skin continued dry, or was in partial liquid sweat, then it became yellow or this color increased; the pulse more suddenly became slow, fell to fifty-five, sixty, or sixty-five, round, distinct and regular, but *not* with a healthful beat—the patient was in the calm. After the regular febrile stage had passed, a fever sometimes supervened, but this second, or it might be, third fever, *never* occurred except from *imprudences*, as taking medicine or food at a wrong time or kind, muscular or mental effort, or exposure of a perspiring skin to the air; one or any of these taking place, the effect was a renewal of the fever, and often gastro-duodenal inflammation, which, until subdued, prevented the termination of the fever, causing it to last many days. But this effect, this return of fever, was confined, so far as my observation extended, or I could learn, to the *milder* class of attacks; in those more severe, the effect of the more gross errors was the more fatal signs, vomiting, red tongue, slow pulse, &c., and *not* fever.

If such errors were committed during the regular febrile period in the milder or in the more grave, the effects were the same, to increase the fever in the former and not to increase it in the latter, but to hasten the precursors of death.

One febrile period, therefore, alone belonged to the disease, and while it could be *moderated* with unerring certainty, I never saw it *lessened in time*, and some mild attacks had as long a period for the fever as others of much greater severity. Some complained of a burning at the stomach just before or at the decline of the fever.

After the period indicated for the fever, nearly all distress vanished; yet in some milder cases the pains, though less, still remained, first here, then there; generally the pulse, tongue and skin being natural or nearly so, and the patient, feeling well, could not be induced to remain in bed, waiting patiently for a *true* restoration of health and strength. In the early part of the season they could indulge this wayward humor, but in the latter part, however sure the recovery seemed and really was, a slight imprudence seldom failed to cause a sad reverse and too often death; this really was the period of true danger—*when the fever subsided*.

The debility induced by the attack, however slight, was not merely muscular or dependant simply upon nervous impairment; the blood had undergone a great alteration, great loss of proper constitution, so excessive was the debility.

It was apparently greater than usual in more severe forms of yellow fever, great as that was in the Woodville epidemic and as it is represented generally to be. And while with *debility* and approaching *faintness* from bleeding in all other fevers, the pulse is *frequent*, in this disease, under these circumstances, it was *slow*, and in other fevers, this condition present, the respiration is quick, frequent and hurried, while in this disease, it was calm—*slow, during the fever—slow up to, and in the article of death.*

These two grand characteristics of yellow fever were present in this disease.

The stomach was enfeebled and could digest none but well prepared liquid food in small quantity, at the very time that the blood required still further depuration of *morbid*, and simultaneously a replenishing with *healthful*, materials.

But this was not all; there was a great *tendency* at every period to gastro-duodenal inflammation, which once setting in suspended these processes of *depuration* and *replenishment*, and which must soon end in death if not quickly arrested by ice, mucilages, local bleedings, or by the power of the constitution; the latter for *this* condition so little to be relied upon, and so *entirely failing*, as did all means, other than those named.

When a case was about to terminate in death, which happened to some so unexpectedly, besides the slow pulse and "natural" looking tongue, giving so much satisfaction to the uninitiated, and filling the minds of others with *horror and affright*, there was return of vomiting, the tongue became red and moist, red and dry, or cracked and bleeding, and vomitings were of mucous and of *brown*, sometimes preceding the *black vomit*. Generally with calm minds unconscious of danger, there was in one case said to be stupor, in another wild delirium, falsely and slanderously, though not ignorantly suggested to be delirium tremens, and several died in convulsions.

After death the skin became more yellow than in life; from lemon to orange; livid spots of various dimensions soon appeared on face, neck, &c.; sometimes so black and extensive as almost to obscure the yellow color, and they bled from leech bites, blistered surfaces, from the mouth, the nose and anus profusely in many instances.

Thus ended in death cases even of *mild* character at their beginning, and in life admitted to be of "the epidemic," "this fever," whether called dengue or by other name. Not all showed the whole of the preceding symptoms or effects, but none was devoid of the yellow color, or failed to have sanguineous discharges, or ecchymoses, one or both, *after death*, and but one had a chalk white skin in life and attended with black vomit.

This might suffice, but desiring to exhibit the disease, more practically useful, I shall proceed to a more minute account of the symptoms and conditions, and while showing what were *curative* and what *morbid*, I hope to be allowed the endeavor to trace them to their source without

being charged with presumption; but whether so or not, I shall still make the effort to throw a ray of light upon a disease, about which there is so little unanimity; about which nearly every thing written is discrepant, contradictory, uncertain.

An attack usually began with sudden pains, and generally without previous indisposition, though with some there were marked indications of the system suffering from the poison for days, even weeks, as bitter taste, pains, yellow eyes, &c. Many, especially children, vomited; one had a sudden and extreme weakness with very slight pain to usher in an attack; another a whirling sensation in the head, with profuse perspiration on the face; a chilly sensation was common, and one had an *extreme* sensation of coolness which lasted many hours.

Pains.—The pains in various parts of the body, chiefly in head, back and knees, soon attracted all the patient's attention; they were not always fixed, often leaving or lessening in the head or back or other parts to return or increase again. If in the head it was chiefly in the forepart, often on the top; in the center alone in one case, and in which there was no other pain; and in the occiput; almost invariably in the balls of the eyes, deep in the orbits, and in one fatal case intense between the eyes, and sometimes the whole head was one mass of suffering.

When the back suffered, the pains often extended from the dorsal region to the stomach, and from the lumbar across the hips to the lower part of the abdomen, down the thighs and legs to the feet, more fixed in the calves and in the knees; a pain or soreness or aching in the lower part of the abdomen was often complained of, and was the last pain to subside; while in one it was very severe and the first symptom of the attack, and lasted forty hours.

Many had a feeling of oppression or pain at the epigastrium, and in each side, as if bound by a cord.

In a few cases the pain in the stomach and duodenum only appeared *after* the fever, and it disappeared to return again several times. In another again it presented the aspect of *bilious colic*, but soon the peculiar characters of the epidemic were present.

In some, the pains assumed or changed into the form of cramps in the extremities, to the fingers and toes, and with others in the neck, and in one case in the diaphragm; but generally these succeeded the more common forms of pain.

A general soreness of the muscles or parts which had been in actual pain, often, almost invariably succeeded; but sometimes only a sense of weariness, at others in the most cases an extreme sensitiveness of the skin; an itching over the whole body was an attendant on many at the beginning and for days.

In one case, a difficulty of deglutition was so great that fluids passed the nostrils, and a dreadful sense of constriction, impeding respiration, and giving a sense of impending death, occurred in another; and several cases of this description were observed, though to less extent, and in those the muscles of the neck were also generally implicated in pain or cramp.

A soreness of the throat, *unattended* with swelling, and with very slight redness was sometimes much complained of. There was with some a

sense of oppression within the chest, towards the latter part of the epidemic, and more distressing at the conclusion of the febrile stage, being then often the only uneasiness complained of. It differed from the pain or soreness in the muscles of the thorax. It was seated in the *lungs*, and was very distressing to some persons.

All the joints, large and small, suffered, and sometimes the bones exquisitely, also the teeth; in one case, *one* tooth of a sound sett and *not* chargeable to *calomel*.

As the case was more severe, the pains were confined to the head, back and knees, were less complained of, and sooner, finally, disappeared than when more general; an intolerable restlessness with little pain was an index of more severity. General pains, however severe, never indicated danger, and these latter varied from a mere uneasiness to intense suffering. They always moderated, sometimes disappeared entirely at, or even before, the end of the fever; the relief being in proportion to the discharges of bile from the bowels or by the kidneys. They were clearly dependant upon the absorption of bile, (*morbid* bile,) and the delay of its elimination, as they invariably lessened at a time, corresponding with the proper commencement or increase of this. In two cases pain began only after there was evidence of secretion and absorption of bile. Their return also depended upon this absorption, the person suffering from continued exposure to the poison, or the liver not *fully* relieved. These returns of pain were very common, even to a very late period in the season. With one a sense of strangling came on several times as late as six weeks after an attack, and a purge of calomel invariably relieved it.

Yet in the calm, they ceased finally while the absorption of a still more acrid bile, if any at all, though in smaller quantity, was going on; but at this period the pain was shown in a still more dangerous form and tissue—an exquisite sensitiveness in the skin, especially over the epigastrium, corresponding to that of the gastro-duodenal mucous tissue and the medium of aggravating the latter as shown by friction, baths, etc., instantly causing vomiting or efforts to vomit, as I witnessed twice. During the calm, the nervous system is so obtunded—the various parts so little sympathise, as the heart with the gastric irritations—that it is only surprising this sensitiveness was formed, and the similarity between the skin and mucous tissue may explain this exception.

Color of Skin.—With a general bright redness in many persons, the skin had this color only on the face, neck, chest and hands in a great number, varying in intensity; it was a bright suffusion, and on the cheeks often a deep red, almost purple in some, and the face bloated as in drunkenness. If the skin was generally pale or of a dirty yellow, the cheeks were nevertheless red and face swollen with few exceptions, and these might be very simple cases. Although a yellow tinge was seldom absent, at some period, deep with some, slight it might be with others, there were some whose skin, were devoid of this color during the disease and showing a tinge after recovery. In one fatal case the skin was chalky, deadly white, during black-vomit.

When the yellow color appeared or increased towards, or after the period of calm, a dark yellow was not an index of as much danger, as a light lemon; indeed, the latter never appeared before this time, and

only in the severer cases, whereas a deep, dirty yellow was sometimes present from the commencement, and was of no material consequence as, in these cases, the skin was in free *glutinous* sweat, the kidneys in full secretion of *yellow* urine and large discharges of bile were readily induced from the bowels.

Eruptions.—With some, a rash extended over the body, in others it was confined to face and neck; others had red blotches and pimples on these parts and on the hands, and again the skin presented the appearance of measles.

I saw none of these eruptions after a few days continuance of the disease, though I heard of their continuing longer and have seen many who, after the *disease* was considered cured, had biles and pimples in great numbers. In one instance, the red having been succeeded by a pale yellow skin, on 4th day, the fore-head became covered with red spots like mosquito bites and they extended to the face and chest.

Cellular Tissue.—During the early part of the febrile period, besides the fullness of face, swollen even when not much reddened, the hands and fingers were seldom not distended with fluids, indeed, the whole body was puffed in a great many, and in very manageable cases. In one case, a finger, after a severe pain on the second day, gradually became *dark red*, swollen and still more painful; and in an other, the same kind of swelling (an exudation of blood into this tissue) almost purple and beginning with pain on 3d day, occurred around an ear, extended to both eyes, entirely closing them for several days, and threatened to involve the scalp; they ended after many days of intense suffering, without suppuration, but with extensive desquamation, which also took place after the eruptions and other affections of the skin.

Perspiration.—The skin was never very hot and its least variable condition was moisture—the perspiration always offensive, often *fœtid*, was at the beginning of the attack generally free or easily rendered so by a foot bath, and gradually becoming less copious and equally free from all parts of the body; it was more *sticky*, glutinous and disagreeable, or having this character from the commencement, it retained it, till the system was evidently fully relieved, or as death approached, it became liquid and then often partial. The skin moist with this glutinous perspiration, the recovery was more easy, and if dry, as it was sometimes through the fever, the difficulties of the case and the distress of the patient were greater.

In one case, fatal in three days, I was told, the skin was cool and bathed in a liquid sweat (a mere exudation), and the tongue flabby; in another, rendered dangerous by an error of food on the second day, and also with flabby pale tongue, it was cool and dry.

If after the peculiarities of the disease as indicated by the pulse etc. had been removed, a fever supervened, periodical, as happened in two instances, or irregular (from imprudences), the perspiration no longer had this offensive, glutinous character and evidently aided to terminate the fever.

The action of the skin producing this glutinous sweat was clearly an important, a restorative process, eliminating some morbid material and affording relief to the patient, yet *not* causing the termination of the febrile period, as in other fevers, or rather I should say, in fevers,—but

often beginning with it, continuing afterwards, and dangerous to be checked, persisting longer if any aggravation of the disease occurred, and returning in cases of a *true* relapse, always the same *glutinous* secretion, till the system was relieved—a curative sign, next only to copious secretion of dark yellow urine, and a continued discharge of bile, yellow bile, by the bowels.

The Eyes.—With a hot burning sensation in the lids, the eyes were red and yellow and suffused with tears at the onset—the red predominating as the fever was more intense and the skin clear and dry—the yellow more perceptible as the skin was more yellowish, and the former yielding to the latter in a day or two.

I observed them brilliant and *fiery* red in only one case, sometimes they were neither much red and not yellow, and this was the case in some *very* mild cases and in a few of great intensity. If absent in the original attack, the yellow was sure to be developed at subsequent indisposition. The yellowness of eyes was less uniformly perceived at the beginning, and more seldom absent as the epidemic advanced and the same was true of the skin.

The Tongue.—Was of natural appearance for the first 6 to 24 hours, but soon became pasty, on its base, sometimes much more, at others much less, red than natural; when pale it was generally much coated with a thick slimy fur and very moist—or it was a light red color with little or much fur. The margins often became red, though sometimes an unnatural paleness extended over the whole organ—sometimes it was dangerously pale and flabby without fur—then unduly red, dry or moist and not furred, and a slight coat appearing as the case improved—the most trivial causes quickly changed its appearance—sitting up, or improper food caused a tongue of proper color to become very red. It was sometimes red and disposed to dryness on the second or third day,—in one at the tip, within 4 hours—in four others over the whole surface, generally a redness and dryness, diffused or confined to the tip, or extending a broad, dry streak through the centre. As the case became worse, it was deep red, cracked, dry and bleeding or “natural” and then of fearful portent—if often trembled in cases of severity which was also observed to continue with some after convalescence.

It was of interest and of *practical* importance to observe how the condition of the skin corresponded with that of the gastro-duodenal mucous tissue in the different states of *action* and *inaction*. The tendency to gastro-duodenal irritations in the latter, as indicated by the tongue, was greater in those with florid skins, and its occurrence more to be guarded against at the time the greater redness existed in the skin, whether that was early or late in the febrile stage, or when, afterwards, the skin was still red, or, as witnessed often, for the first time became so. It was common, almost invariable, even after the fever, to find a beautiful florid skin with persons, previously and soon again to assume their natural pale or sallow complexion; and how sure, during this cutaneous excitation to witness the injurious, the too often fatal, effects of *solid* food, or of irritating medicines, more certainly than during the febrile stage, and, this danger was owing also, no doubt, to the impairment of tone in the *muscular* coat, greater at this period of the disease, whether proceeding to recovery or death. Yet this was a

healthful excitement of the capillaries of the skin and mucous tissue—the tongue had lost its fur or undue redness, was like a coin just from the mint. But in reverse circumstances, the case not improving, what was formed? Torpor, or lessened vitality or action and stagnation of fluids in the capillaries of the skin, and correspondingly the same in those of the mucous surface—shown in the former by the skin being dry, cool and rough or bathed in a liquid—an exudation—or giving out blood or becoming yellow; and proven in the mucous tissue by the tongue becoming *deep* red, black or “natural”, and by the exudations of blood from the tongue, stomach and bowels—all proportioned to the diminished action or vitality of the solids and to the blackness and fluidity of the blood. A glance at or feel of the skin, told of the condition of the gastric surface with an unerring certainty.

Secretions of the Mouth.—In catarrhal cases these were free, and with a hawking of mucous from the throat, were always favorable, and whether liquid or pasty, were always most disagreeable to the patient and continued so for many days after recovery. The sense of taste and of smell were impaired and with many remained so for many days after recovery, yet it was seldom, that the *bitter* taste was not distinguished and seldom was it absent—a mouth without much secretion, and the tongue not furred, had still the bitter taste, with two exceptions,—one person informed me it preceded the attack 5 days—and many declared that even ice and water were bitter—few drinks could please them, so vitiated were the secretions. The thin, white pellicle to which Dr. de Valetti refers, was formed on the gums in all instances, where the secretions were free in the mouth, but in those with decided deficiency, the gums were dry, pale, hard and totally free from it. Thirst was often absent on the first day, and with some continued throughout the attack, though it seldom failed to become excessive on the second day and continued during the fever, and into the calm,—they called often for drink yet were satisfied with moderate quantities. A *true* desire or relish for food was slow to return, but in two *chronic* cases it continued voracious, while the system was under great disturbance, and only subsided with an improvement of the health.

The Breath—was generally quite offensive, and in one instance the patient expressed the disgust it gave him, and in this, a fatal one, the skin was dry, the urine like brandy and small in quantity. It was far more so with dry than moist skin, and with deficient than copious yellow urine and not observed at all during the first month of the prevalence of the disease, and it became, after that time, seldom absent in the mildest cases.

This was the odor, the yellow fever odor which had so forcibly impressed me four years before. The lungs, the source of this odor, evidently eliminated in this form some portion of a morbid material.

The Pulse—Generally during the early part of the fever not more than twenty to thirty beats above the natural standard; was expanded and firm without hardness; in a few cases vigorous, thrilling, and in many *tumultuous*, and in only very few, tense. But as the first violence of the fever moderated, and the calm not coming on, the pulse with diminished volume and frequency exhibited a peculiar beat, which had been only obscured by the *tumult* in the system; *obscured*, because a

local epigastric bleeding, if only temporarily, developed it; developed a firm, steady, measured beat; quick, not frequent; neither hard nor soft; with distinct outline and still expanded volume. It was an approach to, without the slowness or weakness of, the pulse in the calm; ten or fifteen beats above the natural number; it gradually came even below it when the disease had fully yielded. And thus it often continued until the strength had been somewhat regained. It was not always observed at the onset; it was more than once nearly the only sign of disease, except sallow skin. It was present with the skin, either dry or moist with the glutinous sweat; it was absent when the perspiration became liquid on the case tending to death, or the peculiarity of the disease being gone, exacerbations of fever occurred from extraneous causes, returning in true relapse. It was absent in two cases of pressing danger in which the skin was dry, cool, and husky, and free from yellow tinge; the eyes not tinged, urine clear and free, no bitter taste, flabby tongue in one, and in neither any evidence of biliary secretion and absorption for many days. In one of these cases it was small, frequent, and soft; in the other small and sharp. I have never failed to find such a pulse as I have endeavored to describe during the febrile stage of yellow fever cases presenting evidence of full secretion and *absorption* of bile; nor have I ever found it in other fevers, except once in 1846 in a case of *jaundice with fever*. It was evidently the pulse of the disease in its milder and more curable form. I found the same pulse at Woodville after the bleedings, general or local, had subdued the extreme violence of the fever, and I believe it depends upon *absorption* of *morbid bile*. The pulse of the calm appears to be the same in a more extreme condition; slower, with less volume and strength, though still not weak, until towards death. In the calm, it came to fifty in one case, and in another, a negro, down to fifty-five without any other ill symptom, and in this was followed by quick recovery on copious bilious stools occurring.

Urine.—We now come to note the secretion of the most important emunctory—that of the kidneys. If the attack was sharp, the urine soon became deep reddish yellow; more red and scanty as the case was severe, and with dry skin; more orange or gamboge-yellow and free as the fever declined, and the case also improved, and often again red and scanty if it became aggravated; and the yellow color was more deep in cases attended from the commencement, with yellow suffusion of skin and eyes.

It was seldom indeed that the urine did not exhibit a yellow color, increasing at the period of improvement, or only taking place at this time. Some cases were so slight that it did not deviate from the healthy appearance except at this period; and in others again, of great intensity, it was not only not yellow until this period, but almost colorless; and in a few cases this was most marked. In one, the most dangerous I attended, the urine in full quantity was for many days very pale, and at times colorless, while the skin was clear red on the face, dry and cool all over the body; the pulse frequent and weak; tongue clean, pale and flabby, frequent vomiting of mucous; and all evidence of biliary secretion and absorption absent; these threatening symptoms began to decline, but were preceded, *first*, by a bitter taste, then the urine gradually became

loaded with yellow matter, irritated the urethra and deposited as the improvement proceeded, a thick, gray, thin, yellow substance, $\frac{1}{2}$ oz. to the pint. In this case, as in another, an oily fluid floated on the surface during two days; a full discharge of yellow urine so surely promised favorably that in the two cases of Long and N. Newman, I formed an expectation of recovery upon it alone under the most discouraging circumstances. At the approach of death the urine was suppressed or became scanty and like porter; though, thus represented, in one patient, it became pure yellow and in *very* small quantity, ($\frac{1}{2}$ oz.) simultaneously with a full *glutinous* sweat, six hours *after* black vomit, which was arrested during thirty-six hours, by ice, &c., and by the efforts of the system. This was the case of Mr. Vanhoosen, in which the kidneys made an effort, but failed to relive, by failing in quantity. This yellow urine was discharged for days after convalescence began, and was clearly the chief mode by which the natural cure was effected, and the last remnant of bile was eliminated; for this continued while the skin was still dry and the breath had lost its odor. The urine was only sufficiently acrid to irritate the urethra in a small proportion of the cases, and its acrimony was clearly dependent upon its containing morbid biliary matter.

Bile.—The most important of all the secretions was that of the liver. By bile, I mean a yellow secretion, varying from a pale straw to a deep orange hue; not intestinal secretions, black or green mucous *called* black or green bile; nor others with which bile may or may not be mingled. The yellow color can be developed in these by dilution or division on a white surface, and if not developed, I venture to say, it is safer to presume there is no bile present. Bile was generally secreted copiously, and either absorbed in whole or in part; removed from the blood by the kidneys and other emunctories, or excreted in part and removed by vomiting, or passed through the bowels by the aid of enemata or of medicines, and but twice that I heard of, by their natural action,—by a diarrhœa. In the simplest cases its secretion and absorption in quantity was far greater than is usual in any other fever of this climate, and was most evident in the color of the skin, eyes, urine, by the natural channels, or by the *bitter* taste; not by all in every case, yet by some one of these at some period generally, a *deep* yellow, as vomited or passed by the bowels, it was sometimes more pale than natural; in one case a pale straw color from the beginning of the attack to the period of calm when it suddenly ceased to be excreted; in others it also varied in color during the different periods of the attack, dark, then pale, to be again dark-yellow. If the color was *pale* the case was not proceeding as well as if *dark*-yellow, when indeed it was invariably in rapid improvement, and a deep yellow urine also gave more relief to the disease than a pale, a gamboge yellow, and each in greater proportion to their copiousness.

Yet there were a few cases which at their commencement and for some days showed a total failure of this secretion, as indicated by the signs referred to and generally admitted to be evidences of it, and these were dangerous ones invariably; the first evidence of its secretion gave a well-founded ground for a favorable opinion, and, as remarked before, a *bitter* taste for three days absent, was the first that the secre-

tion and absorption had taken place, and unimportant as it may seem to others, upon this alone I based and expressed an opinion that an improvement would soon take place, and the next proof was the urine described under that head; and again in another case in which, like the preceding, the vomitings were of mucous, the first evidence was a few deep yellow specks thrown up.

So important was this secretion and its free elimination, that even without an excretion, I felt that I had grounds in the severest cases to look for a favorable issue, and with excretion after the first few days, they could not die of the disease, for *at this period* the danger from the gastric inflammation was gone; death could then only occur from errors, the blood was improving, not deteriorating from the moment the bilious secretion had its proper outlet. As death approached, bile was deficient in the urine and totally absent in the matters vomited or purged. These facts are not found in any other fever, and they are unquestionably witnessed in this.

The bowels were almost uniformly constipated; they were nevertheless made to act readily by medicines, and continued to respond to an enema of tepid water, once daily in all cases where, at the onset, a proper sedative impression had been made on the liver, and the gall-ducts opened, their *occlusion* overcome by calomel. This done, large quantities of dark yellow matters were discharged; the first, after a mercurial and sometimes other medicines, were dark, blackish, intestinal secretion, with deep yellow bile. This intestinal secretion, if induced by calomel soon ceased, leaving the evacuations pure yellow, bilious matter; and to secure the continuance of this excretion, thus induced, it was only necessary to guard against, to anticipate, or subdue the gastro-duodenal inflammation by local bleeding, ice, &c., and, being successful in this, the case went on to cure with unerring certainty; *and in this is comprised the whole treatment.* A general bleeding was practised but once, and then on the second day, for a pulse of excessive vigor and tumult, by which the life was surely saved. Local bleeding sufficed to subdue the gastric inflammation in the others, the more severe cases. It was conceived that loss of blood could have no power over the disease, other than to save the organs from being overwhelmed by the violence of the febrile action, and to relieve those sanguineous gastro-duodenal irritations, which, endangering life directly, more surely led to death by impeding and arresting the excretory and the eliminating processes, upon whose continuance or restoration the recovery essentially depended. To return.

If an excretion of bile failed to take place, the bowels did not act after the first unloading, or the evacuations were thin and vitiated, muddy or watery, with or without flakes of mucous, and the case further advanced, they were of green, bileless, mucous or like thick dirty gum-water, grayish or transparent, foetid or inodorous, and finally of dissolved blood, or the excretion ceasing, after being established, the stools assumed the characters above specified, if the case terminated fatally.

In a few cases occurring towards the close of the epidemic and early in each, blood was freely discharged from the bowels, either without or with very little medicine having been taken, and was no doubt serviceable; as far as I can learn where medicines were not given, the

bowels remained constipated through the disease, though I am assured of two cases, where on the second and third days, copious stools of dark, black and yellow matter were discharged to the great relief of the patients,—sufferers from accumulations of foetid secretions in the bowels, disposed to constipation as a morbid symptom or condition of the disease.

If the first purgative was such as to expend its force on the intestinal canal, and not to make a proper impression on the liver, an inflammatory irritation was thereby often induced, and if a repetition was made at later periods of the case or the epidemic, it often sealed the fate of the patient, and never failed to aggravate the case, though some were so mild at an early period as with difficulty to be harmed. To such cases the physicians were often called, and they had to combat these irritations often without the hope of success, but with the certainty of a *count* if they failed. Intestinal secretion had but little concern in affording relief to the disease, at late periods none, and a revulsive action on the bowels was incompatible with a just view of the disease and with the fact of the strong tendency to*—with the presence of inflammation or engorgement in the mucous tissue, and of course, with the safety of the patient; therefore, the object was merely to procure a discharge of biliary secretion as it might accumulate in the bowels by the mildest measures, by enemata. But these often failed for days and days, even while the accumulation was evident, and in the absence of the signs of gastric inflammations, it was often proper and safe to evacuate the bowels by a *sure* purgative; a mercurial often the best, but others proper and safe, by which large masses of feculencies were brought away, to the great relief of the patient.

An inflammatory irritation positively forbid a purge; mere torpor of the bowels did not.

The bowels were generally very easily acted upon by medicines at any period of the case, and this very facility, this excitability of the mucous tissue, was the source of nearly all the danger, and great indeed was the damage from medicines of this class, other than mercurial, especially after the season had advanced, and if administered at late periods of the case. But calomel, by making or continuing the proper impression on the liver and on the gall-ducts, causing them to *emulge*, (that is the old and expressive word;) Calomel, by doing this, *never* irritated the mucous surface to a harmful extent; it was often a sedative to its excited condition and did not purge, as in other fevers. There is no disease in which the inflammation can be so readily overcome as in this, *if* the liver is in full secretion *and* excretion. Calomel given at an early period, and proportioned to the case, never failed to effect this, and when given later, even after the inflammation had set in, but not intense, or when temporarily allayed by local bleeding and ice, it was still the remedy—the *divine* remedy in this yellow fever. In that at Woodville I usually gave 10grs., too often less, and sometimes 5 to 10grs. blue mass instead, and always to regret it; at others I gave 20 and to very few 30 grs. In two cases in which I gave 10 and 15 grs., I deeply regretted they had not been 30 and 60 respectively. One proper dose at the onset always rendered repetitions unnecessary, but with so many mild attacks, the proper time for the full sedative dose, required

* This sentence is, to us, unintelligible.—ED.

in the intense ones passed, as will always happen in mild epidemics before its necessity was indicated.

Calomel may do harm; it may—it will kill; so may, and *does*, quinine in *periodical* fevers more often than people have been aware of. What then? Let us learn when it aids, when it prevents recovery; use it then, avoid it now; and let us not fail to do the same with calomel. The vast majority of the cases were such as were able to go through the cure *naturally* by the processes referred to; that is without *medicines*; though few failed to have the aids of ice, mustard pediluvia, &c., and a *little* medicine taken by themselves to start on; but with these only they dragged heavily, but still struggled on to a relief, often imperfect, and through much more suffering and risk than when properly aided, and yet better when the curative processes were *interfered* with. These curative processes could be easily induced and easily checked.

The bearings of the following case of Mr. Soher, which occurred during the more inflammatory form of yellow fever at Woodville in 1844, and was published in the New Orleans Journal for September, 1845, will be apparent to those who read it, and compare it with the preceding history and with the two cases which succeed—

Mr. Soher, aged 27, was attacked September 14, 1844, and was treated during the first few days by Dr. Brown, his preceptor, by bleeding, cupping, two doses of calomel of 25 grs. each, blue pills, &c. On the sixth day, he had a pulse, full, firm and about 120; no pain, flushed face, skin slightly tinged, tongue red and dry at the point, with dark, thick fur at the root; his stools had ceased for twenty-four hours, having been only slightly tinged yellow from the beginning. He was taking 5 gr. doses of calomel; I advised the discontinuance of all medicine, to depend upon local bleedings freely from the spine and epigastrium, which was adopted and continued for twenty-four hours, when he refused to lose more blood. During the next twenty-four hours, I declined to advise; he took three doses of charcoal and magnesia, had a blister to the epigastrium, vomited, had hiccough, the tongue more dry and less furred, and pulse still strong. In this aggravated condition I again urged leeching to the epigastrium, full and frequently repeated, and no medicine. During four days he was leeches two or three times every twenty-four hours; the first night with seventy-five American leeches at three leechings. His stomach would retain only a tea-spoonful of gum-water, solution of bicarb. soda, &c. Mild injections were frequently used and came away untinged.

His skin became deep orange, reddish brown at some parts. His urine was copiously secreted, two gallons were once reported to me in twenty-four hours; he could at almost any visit pass nearly a pint for my inspection, of a dark reddish yellow color, leaving a thick coat of yellow on the vessel in which it remained six hours. The perspiration was slightly yellow.

At the end of four days his tongue had become pale and moist, pulse still of good strength and much slower. I advised calomel at this moment; he took 5 gr. doses every two or three hours and one 10 gr. dose, until he had 25 grs.; he was leeches once during this time; a tepid water injection now repassed, tinged yellow, with old faecal matter, four or five small evacuations, becoming a brighter yellow, followed in twelve

hours, making his recovery certain. He continued to improve; he began of his own will and without my knowledge, to drink strong coffee, when the tongue reddened and became dry, and the evacuations ceased. He was leeches repeatedly and without benefit, when Dr. B. told me that he had been drinking coffee for three days. He was placed under my exclusive care, had no more coffee, and the leeching now removed the redness and dryness of the tongue; he took 10 grs. calomel; yellow stools recommenced, and his convalescence again began, and went on without intermission slowly to health.

During seven days he had no discharge from the bowels; no bile was thrown into them, but it is not so clear that it was not secreted in great quantities, absorbed into the blood, taken up and expelled by the kidneys. It is more probable that these organs will take from the blood bile ready formed, than that they can combine its constituents.

I think his case could not have been brought to a happy issue but for the performance of this office by the kidneys. The action of the kidneys, so truly vicarious, must be regarded as of the same conservative character as a similar action of the skin preserving the brain from a fatal coma in suppression of urine.

Mr. J. H. Long, aged about 26 years, and the first summer in the South, was seized at 2 o'clock, 24th September, 1848, with a whirling sensation of the brain, and profuse perspiration on the face; pulse frequent and the mind under great excitement. A mustard pediluvium, 15 grs. calomel, and in eight hours $\frac{1}{2}$ oz. oil were directed; the oil was rejected and no alvine discharge until on the 25th, an enema produced a copious one, a mere unloading of the bowels.

Early on this day, the 25th, the tongue became red and dry at the tip and a little furred; the eyes fiery red, face flushed and cheeks deep red; pain in forehead and back intense and absent elsewhere, and subsequently, during the fever, the epigastric distress and restlessness was excessive; occasional vomiting of mucus or the drinks; skin hot and dry; pulse hard, sharp, but little expanded, and from 90 to 110 during the febrile period, which lasted about 72 hours.

The skin retained its clear red color until near the end of this stage, when the redness of the eyes, having previously yielded to a yellow, and the redness of hands and chest declined, that of the face and forehead became tinged yellow, and extending gradually to the chest, it involved the whole body in the same light color, and subsequently the forehead, neck and chest were covered with spots like those of the bites of mosquitoes; his dreams became so horrid that he assured me he was *afraid* to sleep.

During the febrile stage I gave no medicine except 10 grs. blue mass, which was rejected. I relied upon three full cuppings at the epigastrium, ice, bathing the skin and upon water enemata, which always failed to produce a discharge, as in fact the intestinal secretions and biliary excretion were entirely arrested.

The local bleedings invariably softened and reduced the vigor of the pulse, rendered the tongue moist and pale, and by subduing the excessive throbbing, gave great relief.

The period of calm approached, and a blister was applied to the

stomach and right side, in hopes to subdue the irritation and insure the excretion of bile at the critical moment near at hand.

The pulse came down to sixty; the skin was cool and exquisitely sensitive over the abdomen and thighs, and the pains gone, while the general distress was greatly lessened; the calm was fully present; an enema was returned colorless as before, and with thin flakes of *green mucus*, and my fears were confirmed—I had failed.

I now joined Dr. Lyle in the treatment of the case. He found the tongue moist, pale and still furred,—proofs that he had gone into the calm in as good condition as was possible for any one. His organs had been saved from being overwhelmed by the violence of the febrile action, but the excretion of bile had not been effected. The time within which to attain this important end, or to produce an action on the liver, were conducive to healthful secretion and being limited, we gave 15 grs. calomel at the intervals of four and eight hours, because we knew in the continuance of these *foundations* of the disease, that the tongue would soon become dry and red, or fatally “natural;” that the gastro-duodenal inflammations would supervene. On the next day, the 5th of the disease, this redness and dryness of the tongue with pulse slightly excited, was present in slight, though alarming degree—it was evidence that we had failed.

The time for medicines was passed, and ten Swedish leeches were applied to the gastro-duodenal regions; before they had fully drawn, he expressed relief from a painful sense of constriction over that region, and after the leeching was completed, he said all distress was gone—he could expand his chest with ease.

The tongue became fully moist, lost the redness and, with pulse improved, remained so during the night with great amelioration of his condition.

During the early part of the fever, the urine had been red and scanty, and as this period declined, it gradually became less red and more yellow and frequent, though not full, until now, it was full and deposited a yellow pellicle on the vessel, and thus continued, until Monday, the 8th day.

The leech-bites discharged a red blood; moderately, during Friday night and on Saturday until Sunday, becoming gradually more free, more liquid and black.

On Saturday night he had camphor water; on Sunday his strength was failing; the actual cautery was applied to each bite, the bleeding instantly ceased and never returned.

Champaigne with pounded ice was given freely, ($\frac{1}{2}$ pint in two hours,) with prompt good effect, and being continued through the night, though in much less quantity, the *secretions* of the mouth and throat became free to such an extent that he hawked and spat; at that stage and in this disease an important proof of an improvement.

During forty-eight hours preceding this, there had been only two small alvine discharges of thick green, though bileless mucus; but during this night, at 2 o'clock, there was one of a dark, thin, gruelly substance, surely from the *upper* portion of the bowels; the secretions of important parts had begun.

Yet he had passed a restless night, and on the next morning it was evident that the wine had not been sufficiently *permanent* in its effect.

He was under great mental excitement, an idea of approaching death was impressed upon his mind, and he seemed a wreck more from this than from physical prostration, and the event proved that it was partly from the evanescent nature of the stimulant, though more from disappointment that *he* was not yet well, while a certain person, he had been informed, had been taken sick and was already recovered under homeopathy.

To decide upon a change of his medical attendants, and upon so radical a change of treatment was to decide the question of his life or his death and might well create the great nervous agitation under which he labored. Without knowing he had this idea of change we gave hot brandy and water in a stiff dose at 7 o'clock and directed it repeated, which being done, he was found at 10 o'clock with moist tongue, skin uniformly soft and warm and pulse 120, necessarily frequent from the mental effort of the preceding 3 or 4 hours, and his wishes not yet effected—and far better in this disease to be frequent than slow—and more important than all, a *bright yellow* discharge had taken place from his bowels—small and thin—it was yet *bile*, and the object of all our solicitude had been attained—he was *safe*. At my invitation, Dr. Jones had, fortunately, seen him the day before, and I sent for him to witness his condition which he pronounced to be *decidedly* better, and Mr. T. Henderson who had been with him all the night before, also said he was better—and under these circumstances he was placed under Dr. F. A. W. Davis and Homœopathy.

To decide the question of wine and brandy had been to pronounce upon his life or death—the wine, guarded in its first exciting effect on the stomach by ice, had pervaded his system—thrilled every fibre—had given new life to the blood and the secretion and excretion of bile was the consequence. It was the appropriate remedy, to be followed by brandy when it proved, as we knew, and as was suggested, it might prove, too evanescent.

They were adapted to his condition, they gave him the *certainty* of life and yet he died.—Why?

The brandy was reduced to a *tea-spoonful* in a saucer of arrow root, and on this he was kept during the subsequent treatment—at one time he asked for something to eat, saying he was *hungry* and he was told, he might have as much arrow-root, *thus seasoned*, as he wished—on this and Homœopathic *nothings* was his life staked—on arrow root—on nothing—was his blood left to be replenished, blood which required what is almost its equivalent—strong essence of beef—could *not* be replenished by arrow root, the least nutritious of all farinaceous articles.

At Mr. Long's request I visited him on Thursday; his tongue was then of an anæmic paleness, and dry and furred; pulse feeble and 108, and skin cool. Again I visited him at his request, on Friday; the pulse was still at 108 and more feeble; tongue moist at edges and pale; his mind much enfeebled. He had just before had a large pultaceous *bright yellow* discharge from the bowels which I saw and which I called upon Dr. Jones to witness; he had another on Sunday, while the urine, I was informed, continued full and yellow through the whole time, and he

died on Monday of *utter prostration*, of inanition—literally of *inanition*, for his stomach was found empty at the post mortem examination, a portion of yellow mucus-looking substance, about two inches long, was all that it contained.

Immediately after witnessing the post mortem examination, I made note of the appearances as follows.

External appearance of skin light yellow, bowels on serous surface dark red, on internal surface dark red in the large intestines and lighter red as the openings were made higher up, and in the stomach clear red, and as rubbed with the sponge losing much of the redness—no ulcerations seen or pointed out in bowels; contents of bowels, a pultaceous matter of dirty yellow appearance tinging the operator's hand yellow, and tinging the water yellow in which the sponge was washed; gall-bladder full and of greenish yellow appearance externally and not opened; the liver firmer than natural, not having the clear dark red of health, but a dirty light greenish yellow mixed with the red—no cause for death seen in this organ.

This is a meagre post mortem it is true, but with the history of the case, the treatment under Dr. Lyle and myself and the treatment by *tea* spoonful of *brandy* by Dr. Davis, is amply sufficient to show the utter impossibility of his disease being, or of his dying of "Inflammation of the stomach and bowels" as Dr. Davis reported to the sexton—but had the report been, died from "Exhaustion resulting from fever" or of "Debility" and this not remedied by stimulants and nourishment as were two others, then indeed, would it have been truthful.

The *redness*, so *diffused* over the whole mucous surface from stomach to the lowest part opened was *no* evidence of inflammation, was proof of the contrary, was produced after death by the impoverished blood, in vessels previously debilitated, and liable to this engorgement from these causes.

In speaking of the condition called inflammation, produced by the liquidity of the blood, Magendie says at page 169, London Lancet, Vol. 1, 38, 39 "*They* limited its action to living organs; *I* have extended it to the tissues when they have ceased to *live*. Many and many a time have I proved by experiment, that its most terrible *symptoms* develop themselves in parts *wholly inanimate*"—that is, such symptoms as the redness, externally and internally, of the bowels found in Long's case, which will more fully appear as we proceed, in further observations from Magendie.

And then the character of the discharges on Friday and Sunday, and the contents of the bowels after death, totally disprove the *inflammation*; but it is painful to prove the cause of this noble young man's death, of him who said to me "I am the last prop of my father; if you cure me I will consider you as my father; and to whom I replied, *when* I cure you we will be as brothers"—Yet a duty to myself and to humanity imperiously demands it.

Nelson Newman, a delicate boy 12 years old, was attacked Oct. 15th, with violent pain in the head, back and duodenal region; the skin was hot, dry and bright red, face swollen and deep red; vomiting during two days of mucus or the fluids drank; so distressed and delirious as to be uncontrolable during four days, and sleepless for six days and nights—

the least doze being broken by frightful dreams—on the second day he had a hoarse, croupy cough, lasting 4 days and subsiding without expectoration.

The tongue, previously bright red, and frequently dry, became *dark* red, though very moist with a watery fluid, twelve hours before the calm, and the thirst excessive for many days afterwards.

The alvine evacuations, small, frequent and painful, were, from the commencement, a pale straw colored fluid of thin arrow-root consistence; they lost the yellow color at the access of the calm, which took place after a febrile stage of three days.

The treatment of this period was by 10 grs. calomel, $\frac{1}{2}$ oz. castor oil, foot baths, ice, two cuppings, one leeching to the abdominal region, and a blister to the liver and duodenum at its termination.

In the calm, the skin was dry, husky and cool, and having lost the red color became more yellow; occupied with various fancies, he frequently started from a momentary quiet to get up, or tossed from side to side, with much strength; and the peculiar odor of the breath, present before, increased to a most offensive degree.

The stools small and perfectly inodorous, had the appearance of a thick gummy substance, at first transparent, then greyish, and were passed every 4 or 5 hours; during 4 days they continued thus, becoming less frequent, and the two last at long intervals, and darker colored and odorous.

The urine slightly colored for several days, on the fourth, became more yellow, and finally deep orange, and in full quantity, coating the vessel with a deep yellow deposit, more and more, as the case proceeded.

In 12 hours after the calm, the tongue lost the deep red color and then three portions of calomel of 6 grs each were given at intervals of 6 and 12 hours and applied hot salt water frictions to the skin repeatedly. For two days and a half the tongue threatened to become "natural", the pulse became feeble, and not frequent, the skin remained steadily dry and husky with yellowness increasing—blood oozed from and formed black crusts on the lips, the blistered surface oozed a black blood, the teeth were covered with a dark sordes, and on the 6th day the tongue was covered with a sticky foetid dark substance, evidently, in part, blood, and which *perhaps* came from the lips; or was it exuded from the tongue? His gums were sound.

Under these unfavorable circumstances, gradually forming, the only encouraging symptom was the *deep yellow urine*, in good quantity, and I constantly relied upon it, gave encouragement, and waited for the time when it would be proper to stimulate. This had perhaps, though I believe not, more than arrived on the morning of the 6th day, and he was placed on the full use of champagne with ice freely.

In a few hours the tongue was free of the foetid substance, was moist, but became dry in the evening when the wine was discontinued, and resumed in 6 hours.

The pulse quickly filled out, was firmer; the skin gradually softened on the forehead and neck with the *glutinous* sweat, the urine became even more free and yellow, the odor of the breath gradually lessened; he began to sleep by half hours and hours, continuing to discharge

deep orange colored urine, taking wine, ice and gruel,—he improved steadily, and on Monday, the 8th day, had an alvine discharge, of a *dirty, yellow, consistent mass*—thens trrong chicken water and beef tea were given with less wine.

The odor was gone, the skin was, in a few days, in full perspiration, no longer glutinous, the bowels acted daily more and more naturally, and the urine becoming, by degrees, less yellow, was of healthy appearance soon after a week's time.

His convalescence perhaps began with the use of the wine, but could only be depended upon when it was certain the biliary secretion had its *natural* exit from the liver; and until then, the kidneys acting, may I say *vicariously*, but if not, *certainly*, as in the cases of Soher and Long, *saving* the system, saving the blood from destruction, until the disease *ran its course* aided or not,—impeded or not by the means employed, as each person may believe according to his knowledge, his fancies or his wishes.

What *name* for this long array of symptoms and conditions of body and mind, found in a disease of such general prevalence, occurring during the summer and fall in a City subject to Yellow Fever? What were *essential*, what *incidental*? what *curative* and to be aided, what *morbid* and to be repressed? and finally what derangements of the system do they announce?

No one can doubt that *Yellow Fever* is the name by which to call the disease—one, the most reliable of all single signs of this fever, or rather *disease*, in its severe form, was present—the *slow* pulse, the *calm*, and found in cases *mild* in their commencement; we have the next, singly, the most pathognomonic, the *slow respiration*, present *during* the most *tumultuous* excitement of the circulation, and in the article of death; then the *one* febrile paroxysm; the debility excessive and totally disproportionate, giving the early necessity to replenish the liquid, black blood with liquid-blood-like-nourishment, *solid* food, after “breaking the fever,” in other fevers, being generally *health* giving, and at the same stage of this, *death-dealing*; the tongue of healthful appearance for a certain period, assuming the characters pointed out, not indicating danger to the *uninitiated*, when to others a sure sign of death; often the same false inferences by the same persons, from the state of the skin, the countenance, the feelings, and the conversation of the patient; the peculiar odor of the breath; the black and liquid blood in the more severe grades or advanced stages of the *very mildest*, rendered worse from *trivial* causes, or from medicines, true *remedies* in similar stages of other fevers;—the yellow skin, so seldom absent—but *once* here at the fatal termination and then deadly white during black vomit, and *never* absent after death;—this skin might be omitted, except that being *combined* with black vomit, or with exudations of blood from other parts during life or after death, proving the *same* condition of solids and fluids as that productive of black vomit, *thus connected*. The yellow skin occurs in no other fever, and is therefore distinctive of this; the black vomit might also be omitted, but for the same connection with the yellow or with the *deadly*, chalky white skin becoming yellow after death. *Singly*, the color of the skin and black vomit are not to be relied upon—*combined*, they are unerring; yet the *peculiar* mode of vomiting, *some*.

times seen, ought to indicate Yellow Fever, for I believe, that mode, aptly compared by Lewis, of Mobile, to a *pumping*—never occurs in any other disease, and it was present, here, with some;—and then we had the pains—the unimportant pains—those of the head, back, knees and calves of the legs, generally present in Yellow Fever though not essential—absent in intense grades elsewhere, as also here, in the *same*. The general pains, often present in *mild* Yellow Fever, are certainly, and in the same manner, found in another disease, and quite unimportant in this; and the *eruptions*, equally a mere nothing, and seen in other diseases—a mere evidence in this, as in those, that the blood is *vitiated*;—and finally, though not least in importance, indeed, being, as I believe, the origin—the *fountain* of nearly, if not, *all* the preceding, we have those *never-failing* conditions of the liver, and its secretion in Yellow Fever, shown; either, first, in the evidences of bile, in more or less profuse *quantity* and *vitiation*, excreted or not, and absorbed, and freely eliminated in the milder, and not excreted, and not freely eliminated, but still *secreted* and absorbed in more severe forms; or second, in the usually recognized signs of the total abolishment of the secretion, or what may rather be, its still greater *vitiation* and *reduction* in quantity—a more *concentrated poison*—rapidly causing death in the intense grades. The *first* always *self-curing*—the *second* requiring well devised aids, and the *latter*, perhaps beyond human power to relieve.*

I had seen Yellow Fever *mild* for thirty or forty days of its prevalence at Woodville in 1844. I had the necessity and fortunately, the frequent opportunity of studying it from its very foundation. I saw, as I thought, the corner stone laid before the superstructure was erected to obscure this important point. I had a sad experience, for, besides the loss of many patients, I saw one of my own children die with *white, bileless* stools, and black *arterial* blood, and another recover without medicine through three or four daily discharges of dark yellow bile and mucus,—at first I was more attracted by this mode of natural cure; but I soon became aware of others—of that by the kidneys, which was so well exhibited in the case of Soher. And I am now assured that the skin in its *glutinous*, not liquid perspiration, and the lungs in the *odor* of the breath, even the mucous surfaces of the chief portion of the alimentary canal—all eliminate some parts of the acrid bile, or other material, if others there be, in the blood. And that the discharge of bile by the bowels, only now and then occurring naturally, can justly be likened to a “grand cut off,” a veritable “Bon Dieu,” diverting a *flood* of morbid bile from the blood, avoiding the impediments it may meet—the dangers it may *cause*, while winding its devious way through a long channel full of danger, perhaps without an outlet in the emunctories, and *then*, with the certainty of the liver becoming brittle—indurated, yellow, dry, and impervious to blood; saving the system from these dangers, and rendering the arrival to health sure and more speedy and with less suffering.

When in the Fall of '44, I spoke to Dr. W. Stone, of New Orleans, of the attack and natural mode of cure of my child, he replied “such must be the manner in which many children are sick and get well in New Orleans, and who, sallow and feverish for some days, recover

* The author's meaning in this paragraph is a little obscure.—Ed.

without much, if any medicine"—and true enough, no doubt many children thus have yellow fever and acquire that immunity which is attributed to their being *Creoles—born in the country!* whereas, the fact is, they may be, and sometimes are, born *in the disease*, or have it under the appearance of Croup, of a cold, hoarseness or biliousness, and getting well naturally, or under treatment, the case attracts no attention either as to the character of the disease, or its natural mode of cure.

Severe or malignant forms of the disease are taken as models in the various descriptions—mild Yellow Fever is not described—it is said to get well if let alone, but its *mode* of getting well—its *natural* cure—is never pointed out, and in these errors lie much, if not all the uncertainty and contradiction respecting the disease. The consequence is, not only uncertainty, but many medical men scarcely know that Yellow Fever *can* be mild—they must see black vomit and death, and even then there is uncertainty, and well there may be, for these are erring; there are more certain signs of the disease appearing early—indicating the disease, while yet something may be done and much avoided and long before this black vomit, which indeed may never appear. A poor workman present at the building of *very* many, might tell how the Pyramids were, at least, begun to be built, but once erected, towering in all their majesty, every thing is uncertainty, confusion and contradiction with the most scientific.

It is certain that the mild is the grade in which the disease can only be studied with advantage, and then, by comparison with the more intense, something to be depended upon may be elicited.

I have not feared to speak of, to dwell upon, the *liver*, the *bile*, *calomel*, hazardous though it be now they are so out of fashion. I have long since believed that the liver and the bile played but a secondary part in our fevers, even in *bilious* fever, but in Yellow Fever it has appeared to be the *first* organ deviating from health, and that to its fractional derangement—in its increased, *vitiated* secretion and absorption, or perhaps in its total abolishment, can be found the chief—the *never* absent, symptoms and conditions of the disease—while to an altered state of the blood, even if from another and more occult cause, is due others, equally *never* absent in the more violent, at the fatal termination of the milder, and perhaps at the commencement of all grades.

The discrepancies respecting the liver and its secretion are evidently more apparent than real. The facts of its being affected and of its not being affected, as shown by dissections, are both true facts, and those of immense quantities of *bile* and *no bile* are also true facts—each set depending upon the degree of violence with which the poison has assailed the *function* of the organ, causing mild or intense attacks; the liver affected in one and not evincing it in the other—bile in the former, and no bile in the latter grade, that is, none *excreted*, but secreted, sometimes profusely and absorbed and eliminated or not, as recovery or death takes place, but *always* bile, except in a few cases, rare indeed, and seldom *not* mortal. And this exception proving the truth of the importance, attributed to the liver, for death is owing to this very fact of the abolishment of its secretion.

It is also called the most insidious of all diseases and yet in the de-

scriptions by those conversant with it, it is positively asserted that such symptoms lead certainly to recovery, while another *set* as surely portend death. The basis of these *certainities* of life and death, in a most *insidious* disease! what is it? *bile* in one, and *no bile* in another,—two opposite conditions rest upon the liver and its secretion.—Bile or no bile, in this disease, are synonymous with life or death, as will be seen.

It is not long since that much dispute existed whether this or that form of the fever which prevailed in this or that Island of the West Indies was Yellow Fever in one, and not Yellow Fever in another, so various were the descriptions of the *same* Fever.—All true, and yet apparently so different.

Dr. Good, than whom no man was equally capable in examining these discrepancies and extracting the truth, made the following remarks, the justness of which in their main points will not be disputed.

At p. 377. vol. 1. "Study of Medicine," he says, "in the midst however of so much discrepance, there is still much that is concurrent, and quite enough to establish the identity of the two diseases, if an abundance of other evidence to the same purpose were not at hand.—The Fever of Dr. Pym, specifically characterized by black vomit, is represented as being peculiarly dangerous and fatal; in that of Dr. Musgrave, this symptom only occurred in the most perilous cases, according to the latter the severest and most deadly attacks were among the newcomers; the mildest among the natives, or those whose constitutions were assimilated to the climate. — The yellow hue of the former (and I have already endeavoured to account for this) was of a *deep orange*; that of the latter a *lemon color*.—Dr. Pym describes three species of fever as common to warm climates, but which differ from each other in their mode of origin and diagnostic character.—In that of least danger, the colour of the surface, he tells us, is of "*a very deep yellow*"; in that of higher danger, it is of "*a deep yellow*" and in the disease before us, which is by far the most fatal, where there is any yellow at all, it is of "*a very pale lemon colour*;" which is in effect the very hue ascribed to the severest cases by Dr. Musgrave, as the "*very deep yellow*" or "*orange*" is to the mildest.—So that examined by their external livery as well as by their internal disorganization there can be no doubt that the two diseases are the same.

Dr. Pym appeals peculiarly as a distinctive character of the Bulam Fever, to the deadly and chlorotic paleness exhibited by the countenance in its latest stage or *most fatal incursion*.—But even this only shows, that in such case the disease makes a mortal attack upon the larger viscera, and especially the liver, *from the first*; and demonstrates the proposition I have ventured to lay down, that, in proportion as this organ is severely affected, is its inability to secrete propre bile, or indeed bile of any kind; and consequently that if the irritation only reaches a certain point, its secernents will be stimulated to emulge a larger quantity and of a deeper hue; a considerable portion of which will be absorbed into the sanguiferous system and produce the orange tinge, which, in the description of both these writers, peculiarly marks the disease before us in its less fatal attacks: while, if the febrile incursion be so violent as totally to derange the function, and still more the structure of the liver, no bile will be secreted at all, or, if secreted,

less in quantity, and consequently less diffusive in colour; and hence conveying a chlorotic, or livid tinge to the face, which at the same time exhibits a bloated fulness from effusion or debility of vascular action.

In confirmation of this remark, Dr. Jackson's earlier cases of practice furnish numerous examples; "examples indeed", to adopt his own words "of that form of disease when there is a considerable degree of vascular excitement in the early stage, *terminating* commonly by deranging the functions of an organ of importance, most frequently the liver or stomach."

Nothing but the improbability of an exposition of any part of this disease coming from a person never having seen it, or the most determined theory, can account for such approach to truth being overlooked or neglected. Had Dr. Good seen the disease begin in its extreme mildness, and proceeded through whatever causes to death, or had the same been presented to that close observer, Dr. Jackson, who acknowledged his total ignorance of the disease from his readings, and the necessity of examining it for himself on his arrival in Jamaica in 1774, they certainly would have perceived, that the liver was the *first* organ affected—that the poison not the disease deranged the function; that the derangement was from an excitation or abolishment *purely nervous*, which Good so well knew was alone sufficient to *vitate* to any extent, *greatly increase* in quantity, or *entirely suspend* the secretion, upon which, and its absorption or upon its "total" failure, he lays so much stress as proving identity, as distinguishing, yes, *constituting*! the milder and the mortal grades; also that "the febrile incursion"—"a considerable degree of vascular excitement" was the *effect*, not the *cause*, of the secretion and absorption, and a consideration of the facts that "no fever ever makes its appearance" * that the "pulse is slow and waveing", † in the mortal attacks "in the walking", "the congestive cases", would have shown them that the "total" derangement—the *abolishment* of the function was the *cause* of this condition of "the deadly and chlorotic *paleness* exhibited by the countenance in its latest stage, or *most fatal incursion*", and which, indeed, Dr. Good would have expressed, had he said that the *poison*, the *cause* of the disease, rather than "the *disease*, makes a mortal attack upon the larger viscera and especially the *liver, from the first*."

In stating the various facts it will often be necessary to include the opinions of those recording them, both being, sometimes, intimately interwoven—and it will sometimes be difficult to place facts in the position which they may have been intended to occupy with respect to the stage or to the mildness or severity of the case, as favourable or unfavourable in its termination, as often, too often, they are mere statements of facts; but I hope to succeed in placing some of them in their *true* position.

Doct. Lewis, in the New Orleans Med. Jour., July, '48, p. 40, states that no sophistry or authority could induce a creole or nurse in Mobile to the belief, that a man labouring under Yellow Fever either vomited or purged bile."

Doct. Harrison, in the same Journal for Nov., 45, p. 324, has said that "as, for the liver, the symptoms of the disease throughout its whole

* Harrison. † Lewis.

course, as well as *post mortem* examinations, show that it is not particularly affected, the passage of bilious stools, is as common an occurrence as we meet with, though not a grain of any mercurial has been taken." And Doct. Rush declares that "he was surprised to find so few marks of Hepatic affection"—p. 57. Med. Enq. vol. 2.

Many other Authors might be cited to similar opinions and facts, but these will suffice as general positions and somewhat as texts on which to proceed.

It is evident that Doct. Rush founds his opinion chiefly upon the fact that he "met with but two cases in which the patient could lie only on the right side"—and from the absence of soreness to the touch in the pit of the stomach—pain, swelling, soreness, inflammation &c, were in his day considered almost essential in primary affections of the liver.

In another part of his writings, he speaks of it as being sympathetically affected—and his whole work is full of proof of its *functional* derangement, as will be seen as we proceed. It was of *organic* or *inflammatory* affection of which he found so few marks.

Doct. Gillkrest's dissections of upwards of 200 cases, and his observations in the Gibraltar Epidemic of 1828, established the fact of absence of organic lesions of the liver, and "he and his brethren came to the conclusion that it was the *function* of the liver that was deranged in this malady." "The liver in ordinary cases was the organ most frequently presenting well marked morbid phenomena." And the evidence of this was chiefly found in the color of the organ, usually a *greenish yellow* or *pale olive* color and *dry*. "The organ was rarely enlarged in volume, no adhesions, abscesses or signs of inflammation were visible." "In cases of *extraordinary malignity* and *rapid mortality* this change of color was seldom well marked—but in a considerable proportion of these cases (200) it was sufficiently so to show that the organ was *passing into that state* which evinced the phenomena above mentioned. Here the engorgement appeared to be the principal character, though it was not invariably present."*

Of equal opportunity with Doct. Gillkrest I present the observations of Doct. Harrison, as found in the N. O. Jour., Sept. '45. He says "he has never seen any lesion in this organ (the liver) which could be attributed to the effects of the disease, the appearance, being at times very dark; in other cases, presenting a *pale yellow aspect*." "It is *paler* and *drier* than usual, at other times, however, it is *engorged* with blood." "In the worst cases, those of a *congestive* character, no *lesions* occur." This is spoken generally and includes the liver. "Chronic affections are met with, but also an equal number of cases at other seasons, and they have nothing to do with Yellow Fever, either in cause or effect."

How exactly these descriptions accord, and Doct. Nott, in speaking of the yellow colored, dry liver, says "it is not more constant than other lesions, and it is worthy of notice that there is a *marked difference* in the *frequency* of this lesion in different epidemics here." To what can this be owing but to intensity of attack? The disease is the same in other respects.

Doct. Pascalis, of New York, witnessing the Yellow Fever there (50

*See Med. Review. 1830, and Cyclopædia of Practical Medicine., Art. Y. Fever.

years ago) so common, and of comparatively mild grade, said "it is more than probable that the liver, *always* found by dissection to be of a *Nankeen* color, is the *first* of the *viscera deprived of its excitability*."*

Doct. Frost, observing the Yellow Fever of the most intense grade in Guiana, in 1803 and '4, wrote in Med. Rep., Vol. 12 and 13, that "in most of the subjects that I dissected the external membrane of the viscus was either in an inflammatory or gangrenous state, which sometimes penetrate into the substance of the liver, more especially its posterior convex portion. It was sometimes found preternaturally enlarged, of a deep purple or livid complexion, and again remarkably *indurated*." The *inflammatory* and *gangrenous* states will receive at *this* day their more just explanation in the fluid condition of the blood, and that this was the cause of the appearances he called inflammatory and gangrenous, is evident, as he says the lungs were, in a few, "in an inflammatory state" without adhesions "and the same is stated of the *stomach, bowels* and *urinary bladder*, while the blood formed in the heart, arteries and veins, was almost always unnaturally dark and fluid. Doct. Gillkrest would say of the *indurated* liver that it "*was passing into that state*" yellow and dry; or will not others rather suppose, not only of Frost's indurated liver, but of all those, yellow and dry, in Gillkrest's cases that the function of the liver had not been so completely overwhelmed by the poison at the onset as not to allow *some* secretion and absorption and deposit in the organ?

Dr. Frost says, "the blood drawn was in some dense and almost black, and if allowed to stand a little while, was as compact and solid as the substance of liver, and frequently without any appearance of serum on its surface; when in other instances it would be thin, and dissolved, and of an unusual *yellow* cast, and sometimes appeared greasy as though oil had been mixed with it." Of frightful grade, surely, was this yellow fever at Starbrock, Dutch Guiana; but still the proof of secretion and absorption of bile, not only in the blood, but in the skin, as he describes elsewhere; so rare is it for a "*total*" *suspension* of secretion and, still more rare, so *impossible* of *absorption* in *all* instances with *fever*, and yet so *common* for the power of *execution* to be abolished.

From Dr. Lewis, I quote that O'Halloran, in sixty cases examined, found the liver to be in all "of light straw color, atrophied, dry, brittle and gritty;" and it is impossible to suppose that the disease at Barcelona was of as malignant grade as at Guiana, or as sometimes in Mobile, or New Orleans, or as at Gibraltar.

There is to be found no evidence of *sanguineous* irritation, no swelling, no suppuration, no adhesions, no lesions, recognized *at present as organic*, as cause or effect, during life or after death by yellow fever. The affection results from, and is proof of, a purely *functional* derangement. Yet surely it is not exactly correct to say the liver presents no evidence of organic lesion as an effect, when in its yellow aspect state it is found to be so firm, tough—imparting the idea of wet sole leather; even cartilaginous, brittle, gritty, always dry and bloodless; in one of

*Med. Rep. Vol: 3.—Nankeen, like the liver being out of fashion, it may be well to say to the rising generation, that *India* Nankeen was more *yellow* than any they will see now, and it was to that kind he compared it.

all these conditions. It is not difficult to see that, with the color, these states are produced by its secretion, more abundant than usual, being necessarily delayed sometimes in the organ, and while the more liquid parts are absorbed, some portion imbibed; the more solid ones are deposited in the substance of the organ and it becomes dry, bloodless, because this deposit has impeded and totally obstructed the capillary circulation, from which condition of the liver, and a consideration of the origin of the portal circulation, may be deduced another reason; besides the liquidity of blood, for the profuse discharges of that fluid, from the gastro-intestinal mucous surface, and also one for the general hopeless character of a case at that stage.

But to decide this question fully the microscope is required, yet that the liquid parts, and such as would strike the eye, are absorbed to the last drop from the liver, is well shown by Dr. Gillkrest, who by such means as pounding, boiling, &c., failed to obtain bile from it, notwithstanding this fluid was present in the gall bladder in very many cases. This proof of increased power of absorption remaining after that of secretion was lost, is important, because the fact of the increased power is highly so, to elucidate the reason of so little distress in the region of the liver, and of the general suffusion of the system, seldom absent in life, and perhaps never after death, even in cases with scanty, perhaps no secretion after the attack. To the last drop it is absorbed from the liver, even after it has lost its secretory power, but has yet left a remnant of the "excitability," of which Dr. Pascalis has said it "is the first of the viscera to be deprived." *The first to be impressed by the poison, it is the first to be overpowered.*

The post-mortem proofs of functional derangement, and what is considered evidence of absence of organic lesion, being thus sufficiently shown, let us return to the question of *bile* and *no bile*, to see from as many authors as may be at command, or necessary, that there is both *bile* in abundance, or *no bile*, according to the mildness or severity of the attack, and that we have in life evidence, or not, of bile in proportion as it may be excreted, or as, being absorbed in whole or in part, we find it eliminated by the kidneys, skin, mucous surfaces and lungs, and deposited in the tissues; and in death bile or no bile, according to violence of attack, &c.

Of the color of the skin and other tissues it may, merely, be said that it gives the name to the disease, and if not invariable in life, it is perhaps never absent after death. It is admitted to be *general*, *partial* and *recurrent*, of *sudden* and of *slow* access.

An interesting case of this sudden coloring occurred during the late epidemic, showing the manner of its production and also the permanency of the yellow serum after an attack, the person remaining exposed to the influence of the poison. Mrs. V. had suffered from an attack of the fever a month previously; her health was restored, when, not having been well, from exhaustion and distress, but with skin quite free from yellow tinge, perfectly clear, she suddenly fell to the floor in a state of insensibility. I saw her within ten minutes; a light lemon color was diffused over all the exposed parts of her skin, which I was informed was observed instantly after she fell, (instant torpor of the capillaries and imbibition began,) the pulse was full, slow and laboring

with, now and then, a deep inspiration ; she remained insensible for 12 hours and had convulsions ; soon action began in the capillaries of the face, it became red, and the yellow color was observed to appear again and remain for days during her convalescence.

Dr. Rush attributed the color to bile when it is general and lasts for some time, (weeks,) but when transitory or local he thought it wholly owing to a peculiar action of the blood vessels, (capillaries,) and it was by others before, and is still by some, high in the profession, denied to be from bile in the blood ; it is insisted to be from some other condition of that fluid, to the depraved state of the *red* globules or other change of the serum, or from a peculiar *action* of the capillaries, and the fact of its occasional partial character is used as one of the proofs. It is said by Desmoulin that there is "a fluxinary movement" to the skin, an "elaboration" of this color is said by him to be made from the blood, but the serum of the blood must be previously yellow, and it has been shown to be so, even before an attack, before the "fluxinary movement" could take place. It was proven by Dr. Potter, of Baltimore, to be yellow before an attack, and he who had no superior in his day, considered it produced by bile. He daily bled, in very small quantity, a healthy young man just arrived in the city during the prevalence of the yellow fever. The serum was found daily to become more and more yellow, and soon the attack was developed. That the yellow serum is present during the disease is of universal admission and fact, and denied by few to be from bile absorbed.

The process of imbibition and exhibition taking place when action in the capillaries lessens, or ceases when the capillary circulation is impeded, explains the manner in which the color is developed, as Magendie has so well shown. It will not be thought strange that torpor of the cutaneous vessels may be partial, when it cannot be denied that a normal and abnormal action may exist and produce perspiration, healthful or vitiated, yellow or blue. A yellow and a blue perspiration, as well as a yellow skin, has been partial ; the two former from action, the latter from inaction, of the particular parts. Imbibition begins as soon as the capillary circulation is impaired, whether primarily through the state of the solids or fluids, torpor of one or fluidity of the other ; it begins first with the more liquid part, the serum, and the skin is yellow in proportion to the quantity and deepness of color of the bile in it, than with the more solid parts, the red or black, and the reddish brown, the ginger-bread color of some yellow fever skins is made. The skin may continue clear, or become white, chalky, deadly, white during life and soon after death it is yellow, pale yellow, and livid spots appear—the same process of imbibition has been at work.

The black and fluid blood not found in cases of jaundice resulting from other causes than the poison of yellow fever, accounts for the difference in color met with often, not always, in the two diseases. If the color is not orange or green, a person is not said to have jaundice, he is merely bilious ; an effect of many conditions, organic and functional, is sometimes dignified into a general disease and called jaundice, at others not ; the light lemon color of yellow fever is not often seen in jaundice, which may receive its explanation in the peculiarity and greater intensity of the irritation, producing bile, variously colored and in quantity

more or less acrid, according to its degree ; and we find the fact to be in the most dangerous cases, in which there is found any secretion at all, that *lemon* is the color either before or after death.

It is admitted by all that the color of skin, eyes, mucous surface of the tongue and mouth, the urine, &c., in jaundice, are solely produced by bile, and it is no more allowed to deny to the liver the capacity to be impressed in different modes, to receive irritations, each varying in character, intensity, and duration, as also in the bland, or acrid or other quantity of the secretion, according to the peculiarity of the "poison" or cause, and its "dose," than to refuse the same to the skin, to the mucous surfaces or other parts.

As we find much similarity between that Asiatic scourge, cholera, and our own disease of the same name, so we perceive much between yellow fever in its milder grades and jaundice, without *organic* lesion, and *combined* with a *fever* ; a great *difference*, yet a great *similarity* is found in each, and we cannot refuse the application of recognized principles and facts to this disease.

Baillie and others have shown that in jaundice, "there is often a *deficiency* in the quantity of bile, without any disease in the structure of the liver. Sometimes the bile is of a dark color, nearly as black as ink, and the liver quite sound in its structure." It is more frequently mere functional than organic disease. The secretion usually abundant, and, though generally, is not always, wholly absorbed ; its excretion is full in some cases, in others it is totally obstructed and no organic disease, no tumor found to account for it. In both diseases, the ducts are often found shut *in life* ; without organic cause ; in one *always*, and in the other occasionally, open *in death*.

After yellow fever the orange yellow skin, not to call it the jaundice skin, continues occasionally for a long time, even where calomel had not been used in the treatment.

During the attack, the yellow color begins in the same parts in the two diseases, and other points of similarity are found in the slowness of pulse and in the itching sensitive skin, in the constipation of the bowels, and the extrication of gas, the character of the stools often alike for awhile ; the same of the urine during a longer time, the absence of pain in the liver when unattended with inflammation or organic disease, the pains in the eye-balls, in the knees, (Charles Bell speaks of "pains in the knees preceding a *fit* of the bile,") and in the calves of the legs, the latter often attracting all attention to such a degree from its intensity and absence of other feelings of disease, that a patient having "jaundice with a fever," in the Natchez Hospital, in 1846, begged me to "cure that pain, nothing else was the matter with him," and the nearly similar starts of mind are to be considered.

Horackzeck's treatise on yellow atrophy of the liver, and Budd's work on this organ, afford valuable and incontestible proof of the intimate relation of disorder of the liver, as cause in the production of many of the symptoms and conditions of yellow fever.

In disorder of the liver, I have seen two cases of painful irritation and purulent urethral discharge, exactly similar to that found in yellow fever, solely attributable to this cause, as the skin, the eyes and the urine were yellow, and the stools pale, and as one case was a child

three years old and the other an irreproachable man ; this irritation of the urethra must be attributed to the acrimony imparted by the acrid bile ; they were soon relieved by a few portions of calomel and by iodide potassa. I have known many yellow fever patients only begin to complain of this pain when the urine showed the elimination had just began.

The perspiration has been observed to be yellow, partial and general, preceding, during, and succeeding an attack, and the mucous from the nostrils and lungs, and the saliva, have also been yellow, as remarked by Rush, Drysdale, Pringle and others ; and Dr. Rush gave the name of *Bilious* to the disease, so struck was he with proofs of functional derangement of the liver, and observing these for weeks before an attack.

He recorded at p. 60, and seq., *Med. Enq.*, vol. 2, the following : "In some cases there was a constipation of the liver, if I may be allowed that expression, or a total obstruction of secretion and excretion, but more frequently a preternatural secretion or excretion took place.

"On the first and second days of the disease, many patients puked from half-a-pint to nearly a quart of green and yellow bile, and the quantity of stools produced by a single purge was in many cases very great, they could be accounted for only by calling in the constant and rapid formation of them by the preternatural effusions of bile into the bowels."

"I attended one person and heard of two others in whom the stools were as white as in jaundice. I suspected in these cases the liver to be so constipated or paralyzed by the disease as to be unable to secrete or excrete bile to color the fœces." And Dr. Coxe attended a child, 17 months old, who had white stools for several days, "which turned black before it died." It was a happy circumstance when morbid bilious matter came away in the beginning of the disease, and upon this point of bilious vomiting or purgings early or late, all writers in all parts of the world agree that they are favorable ; favorable to certainty of recovery when occurring late. It is evident that Dr. Rush's observations prove bile to exist in the mild, and none in the violent grades or dangerous stages.

He says "a total deficiency of urine took place in many people for a day or two"; "it generally accompanied or portended great danger"; "a young man discharged several quarts of *limpid* urine just before he died" but the urine was in some plentiful, of a high color—at times clear, at others turbid—at 4th or 5th day assuming a dark color, it resembled strong coffee and continued of this color, in one case, for several days, after recovery;" p. 41 "we observed the effects of the same cause (concentration of the disease on the vital parts) in a *natural* state of the skin and in a *natural* appearance of the urine in the *most malignant* forms of the fever".

Dr. Drysdale says in the *Yellow Fever of Balt. of 1794*, *Med. Museum*, Vol. 1. „The urine was very *high colored* and *yellow* except in two cases, in which it was *limpid*, it deposited a *copious sediment* even in the exacerbations of fever ; in many instances there was a suppression of urine from the first hour of the disease to its generally fatal close."

Dr. Frost found the urine deep *red* and *small in quantity* in the *ma-*

lignant fever at *Guiana*, and the urinary bladder contracted to a very small size.

No bile in the most malignant, and bile was abundant in the milder as exhibited by the urine and evidently dependant upon grades, which affords a full explanation of the following accounts apparently so discrepant.

After stating that his experience did not bear out the statement of others, as to the *bilious* appearances of the matters vomited, Dr. Gillkrest says "bile is also usually absent on an inspection of the stools and urine" while others of West India experience say the latter was *saffron* colored and the former, the stools, under favorable circumstances, were bilious, and the Seville physicians in 1819 found the "urine yellow and paper dipped into it was tinged the same color." Dr. Lewis, in the N. O. Jour., Sep. '47., says "the urine in Jaundice is colored by bile, but it is not so in Yellow Fever. To be sure Jaundice sometimes supervenes in Yellow Fever, but this is rare, and when such is the case the urine is tinged."

These statements are only apparently discrepant. It is certain that they are solely attributable to the observations being made in cases of greater or less intensity, or at different stages in which bile was found excreted or not, eliminated or not, according to these circumstances and which some of the authors state and others do not.

In the epidemic at Woodville in 1844, the secretion was profuse beyond all example in my observation of fevers during 18 years, this was evidenced by vomiting, by the alvine discharges and by the urine. In the favorable conditions the two latter continued full and free—in those becoming grave the excretion failed, but still as recovery was promised, the urine was deeply charged with bile, and recovery took place alone in one case (Soher's) by this elimination, and in many by this and an excretion induced by calomel at late periods.

As death approached, this elimination failed as well as the excretion and either pale, bileless stool or black bloody ones were observed.

These points have been shown in the most conclusive manner in the late epidemic at Natchez. It was called by various names, but all agreed in the fact of profuse secretion of bile; and yet no one ever saw this secretion excreted or eliminated while death was portending—the only instance of elimination by the kidneys at this period that I saw was the $\frac{3}{4}$ ss quantities in Mr. V.'s case.

These were the only two facts upon which the people and the physicians agreed without cavil and one physician, an old yellow fever veteran, witnessing the *intense* grades during twenty five years, reported a death from the prevailing *bilious* fever, which assumed a malignant type from previous derangement of the liver.

Of the Opelousas epidemic Dr. Cooke says (N. O. Jour., July 1846) "An arrest of the secretion of bile was the only never failing (symptom)" and that "the secretion of bile was a certain sign of returning health. In the fatal cases it never reappeared; hence the most painful anxiety was experienced until the presence of bile in the evacuations showed the restoration of the hepatic function." Most correct observation, and it is apparent he means that the *excretion* of bile did not take place, and was the only never failing symptom from the onset of the attack to the

termination, which was fatal if no bile appeared. His general description of these epidemics shows them to have been of high grade—and of this grade, in all countries and at all times it has been the same.

Of Charleston Yellow Fever Dr. Wardeman, Amer. Jour., Jan. '45, remarks that "the most pathognomonic symptom is a total cessation, or the much diminished and vitiated secretion of bile;" also if ejected at the beginning he considered it to have been secreted before the attack and that "the restoration of the function of the liver is the *most favorable* symptom etc."

Dr. Wardeman plainly is speaking of the severe form as he throws out ten mild cases in his calculation, and three-fourths of his patients were addicted to the *free* use of ardent spirits.

Dr. Nott observes that "another *striking peculiarity* of Yellow Fever too is the entire absence of bilious vomiting *after* the paroxysm of fever has passed, if perchance you see a blue, green or yellow tinge in the clear fluid vomited, you may hail it as the harbinger of *safety*; the prognosis is almost certain". Dr. Nott again says "the secretion (the excretion?) of bile in this disease is almost invariably suppressed early, in severe cases it is *rarely* vomited after the second day and I believe I have never seen it after the third day, *when they were fatal*, except in one or two protracted cases." The latter observation was published in 1845 in Philadelphia, and the former in 1848 in New Orleans, and although of similar tenor, they attract less attention, being separated, but connected they forcibly teach, if not the foundation, at least, certainly the object always to be had in view "that the liver is the organ by and through which the disease can be most successfully (surely) overcome." No doubt Dr. Lewis means in such cases and in similar stages as Nott describes, when he says that "a man in Yellow Fever either vomited or purged bile would not be believed by a creole or nurse in Mobile" and that this is Dr. Lewis's true meaning is also apparent from other parts of his own writings, and it is important to remark that nearly all his descriptions, good as they are, are of "grave and malignant Yellow Fever" and this is always true when he speaks of the *bile* and *urine*. At p. 297, New Orl. Jour., Jan., '45 he says in speaking of some cases of long febrile paroxysms that they were attended among other symptoms with occasional bilious vomitings", at p. 299 "If bile is ejected, it may be set down, not only as an exception but a *favourable* indication" and at p. 423, March Number, "The evacuations from this cathartic (mercurial in the first stage) are usually bilious, but as the disease progresses, (to death, or unfavourably of course,) the stools become gummy and inodorous" and it is this kind of stool, or ashy or dove colored—all showing absence of bile at late periods, that he solely refers to. At p. 159, Sept. No. 47, he says "If bile is vomited in the second stage (that of calm) it constitutes good reasons for *questioning the character* of the disease." Nothing could be said more conclusive, than this from one so versed in the peculiar signs of the disease, to indicate the predominating importance of the liver. It cannot be said of the bile in any other disease.

With all these evidences from himself and others, and the total absence of bile in the stomach and intestines *after* death, soon to be referred to—it is with surprise I find Dr. Lewis, in speaking of the

case of Dr. Fletcher, at p. 426, say: "This was the *only* instance which has come under my observation where *green bile* was thrown up with black vomit, a table spoon-full of each was ejected at intervals of 4 or 5 hours." This case has such important bearings—the fact of green bile and black vomit formed together—the only one to be found on record—that I hope to be indulged in suggesting that as some of the blood from the gums most probably entered the stomach, and meeting with the acids, was ejected, of an appearance impossible to be distinguished from genuine black vomit, or that made from *blood exuded from the stomach*, and was followed by *green bile* in the vomitings. I believe Dr. L. endorses Dr. Nott's conclusion that "no one can tell the *artificial* from the genuine black vomit." I make the above suggestion with the more hope of its correctness as Dr. Nott, in the American Journal, p. 281, says that the aqueous portion (of genuine black vomit) thus filtered, differed in color * * * ; in one of a light *green* color like dilute bile with an acid added, &c." This was the only one of this color and these experiments were made with the assistance of Doctor Lewis—and it must be this case that Dr. N. again refers to at p. 284, thus: A moderate quantity of bile may exist in the black vomit without being *perceived*; this I proved by adding bile to the artificial black vomit, and by filtering the genuine black vomit, the aqueous part of which in *one* case was *green*, and this color I *presume*, was attributable to a small admixture of bile."

The case of Dr. Fletcher, with this and the preceding one, seems to have been the same, and the *appearance* of bile more justly attributable to some *complication*, or to be viewed as an exception *so rare* as not to disprove the rule of absence of bile with black vomit, even had he died of Yellow Fever as he did not, but recovering after six days with black vomit and discharges of blood from the bowels and urinary bladder, died ten days subsequently of Cholera Morbus. And with Dr. Lewis I should rather question the *character* of the disease,—at all events, it is a case of much interest and shows the skill of its management.

Dr. Harrison* says the stools are sometimes "exceedingly large and offensive; at others watery and slightly tinged with coloring matter, then of a clayey, *ash colored* hue." "Sometimes they seem to be made up of water and bile, which (the bile) in certain cases is secreted in *immense* quantity." "At others, they are composed of dark, tarry, matter," and that these two latter kind are not "caused by the action of calomel" and that "the passage of *bilious* stools is as *common* an occurrence as we meet with, though not a grain of any mercurial had been taken."†

Dr. Lewis gives the case of a clergyman, who after a 24 hours fever, "continued for 5 days without fever, pain, nausea, or thirst, still growing weaker, more restless and anxious, with *scanty* and *colorless* secretion of urine, and thick dove colored putty-like discharges, which were forced away by by enemata," and this case affords a striking illustration of the absence of bile—no one can doubt that this was the foundation of his dangerous condition, and if the secretion had not soon come on, black vomit would.

Dr. Harrison observes that the gall-bladder in most cases contains

* Sept. No. 45, p. 136. † Nov. 18, 18, 45, p. 324.

its *usual quantity* of bile, which is to all appearance healthy—sometimes it is *greatly inspissated*; in others the bile is more mixed with mucous than usual. I have sometimes found the gall-bladder containing only a little *glairy mucous*; these cases are *rare*. The mucous coat of the organ is sometimes, like other mucous tissues, injected or spotted with *blood, &c.*”—more valuable proof of the two opposite conditions and the intermediate grades, could not be found. Dr. Gillkrest gives the same. He says “the gall-bladder containing bile *highly inspissated*, and sometimes dark tar-like appearance (blood?) or *altogether empty*.” These observers agree perfectly on this point as they did on the state of the liver.

And Dr. Nott says of the gall-bladder—“This was found in all the sixteen cases except *one*, to contain bile varying in quantity from $\frac{3}{4}$ ss to $\frac{3}{4}$ iv; color from pale green to olive and even black; consistence from water to tar—in one case the cyst contained about $\frac{3}{4}$ iv. of colorless fluid resembling gum water or *mucus*.”†

Now, Dr. Frost's account of the contents of the gall-bladder will show them in the *most violent* grade. “The gall-bladder was found *empty in some* and in a *few* contained a dark green, ropy bile, but *generally* was distended with black thick matter, resembling molasses or tar” (blood?)

It is evident that the secretion is more, in proportion as the case is less severe, and less as the attack is more and more intense—that much bile must have been in the gall-bladder, in some of the cases, and its liquid parts absorbed.

Death may accidentally and suddenly take place, and then bile may be found in the stomach and bowels, but, otherwise, in the due progress of the disease—*never*, as the preceding facts in life, and the following post mortem examinations make sure.

Lewis, after carefully examining 23 cases at Gibraltar, says, “very little of it (bile) was found in the stomach and intestines.” Very little, indeed, when in only one case (18) there was in the stomach “8 oz. of a yellowish liquid, which appeared to be nothing else than a part of the *drinks* taken by the patient” and the “small intestines contained a yellowish liquid mixed with mucus” and in another, the stomach contained a liquid of the same color, depositing on standing a little black matter.”

The fluid in all the others was red, and black in 18, and grey or mucous, etc. in others.

It is useless to refer by name to the various authors who have failed to notice the presence of bile after death by Yellow Fever—after death, in the regular process of the disease, it is impossible—if it were to be found it would have been noticed full often—such a fact of such moment to show the liver and its secretion had *no concern* in the disease, would not have escaped observation, and its universal absence in the stomach and bowels, while so frequently present in full quantity in the gall-bladder with the *gall-ducts, open*, deserves especial notice. This is observed in no other fever, not even in *bilious* fever of which patients die, or formerly died, while discharging bile, bile, black and of all colors,

* Sept. '45, p. 138. † P. 279, Am. Jour. Ap. '45.

and the bowels in their upper portion containing a full quantity of *yellow bile*. In Yellow Fever this never happens except death takes place *suddenly* from accident.

Bile and black vomit then are never found together *in life*, or *in death* from Yellow Fever, and bile absent, and because of the absence of bile, in the stomach and duodenum we find acids in abundance; and the accumulation of acids is shown by Prout to depend upon the deficiency—the absence of bile, and, thus, these two facts tend to prove and explain each other.

Having seen that bile is often present in full quantity in the gall-bladder and never vomited or purged in cases towards the period of death, and never found in the stomach and bowels after that event—yet we find the *gall ducts are invariably open after death*.

These facts constitute another discrepancy or contradiction more apparent than real—a contraction from excitation of the gall duct, resisting or not, the profuse secretion of bile, or the most powerful efforts of vomiting—then, a paralysis temporary or permanent, seems exactly to account for the facts observed—the *ducts are open, yet the bile does not flow*.—Let the œsophagus be paralysed, food may be forced down mechanically, but will not pass otherwise—the intestines in the same state—its peristaltic power gone, the *fœces* do not pass—yet in these cases the tubes are *open in death*, while it is no solecism to say they are *closed in life*. It may not be out of place to suggest that this condition of both these tubes are often found in fatal cases of Yellow Fever.—The former shown by the pumping mode of vomiting, an *inverted pharyngeal* movement, the œsophagus and stomach being evidently paralyzed,—a vomiting by the reversed power of the Pharynx alone, and the latter indicated by the intusceptions, is often remarked.

And besides the catarrhal, the croupy condition, the destruction of the mucous membrane of so much of the esophagus—the turbid urine, the *bileless stools*, *all so common* in Yellow Fever, and some, so rare in other fevers, indeed never met with, make the following observation of facts in “Croup-like convulsions” by Marshall Hall well worthy attention:—“Amongst other symptoms are frequently observed *bileless stools* and *morbid deposits* in the *urine*.—That the excited nerves may transfer their influence in dentition, in gastric crudities, in constipation, to the true spinal marrow, and thence to the branches of the pneumogastric nerves, may be regarded as proved.—Now this nerve sends a branch precisely to the *liver* and to the *kidneys*.”

Throug the medium of these branches the secretion, or the *excretion*, of the bile and urine may be impeded and the events confirm the theory. *

The gall ducts possessing a coat so nearly if not quite muscular—as near true muscular tissue perhaps as the iris—is admitted to have the power of contraction which, indeed, it has been *seen*, to possess by irritation of the nerve, and being muscular and contractile, propels the bile by a peristaltic movement, invited, physiologically, by the presence of food—but when in a pathological condition—in contraction

* Lectures on the Nervous System.

—may, or may not, yield to any force from fulness of secretion, or efforts of vomiting; and when, like that of the esophagus, stomach and intestines, this peristaltic movement fails under a temporary or permanent paralysis, the occlusion is as complete as if a tumor closed the channel.—It is reasonable to infer this paralysis—it is irresistible—which, it is plain, is the condition of the stomach and esophagus at late periods of fatal cases, and the tendency and *approach* to which, the deficient excitability of the lungs and heart, as shown in the *slow* respiration and the *slow* pulse, and which seems to be at the foundation of much of the character of the disease.—This, it may be, temporary paralysis of the gall duct, coming on at the period of calm, was *well* exemplified in the case of Nelson Newman in which exactly at that period, the *excretion* of bile ceased, for the stools *then* lost the straw color; while the *urine* and *skin* proved the continuance, and soon the *increase*, of the biliary *secretion*.

Few, if any of the grand points of Yellow Fever can be fully understood without reference to the influence of the pneumogastric nerve, presiding as it does over the first *formation* and *healthful preservation of the blood*—from the pharynx to stomach, liver, kidneys, and from larynx to lungs and heart.

Surely the most important of all the secretions, is that of the liver—essentially *curative* of the morbid impression on the organ and absolutely necessary for its removal, although much of the distress and severity of the fever, is due to its *vitiating* quality, yet the mere *amount* of bile absorbed is no source of danger, provided it has a ready exit from the system through the emunctories; the danger, on the contrary, results from the *intensity* of the nervous excitement of the organ producing *poisonous* secretion, or not relieved by a full secretion and excretion, and the system saved by elimination, or it results, rarely indeed, from a total abolishment of secretory power.—This secretion in its fullness is curative also of the *disease*.

But besides all this, in Yellow Fever, the poison perhaps makes an impression also on the *lungs*, giving some other of the peculiarities,—blackness, fluidity, or other abnormal quality to the blood and consequently a vast amount of the danger of the disease—of the mode by which this change takes place we may as yet know nothing, but the fact that the lungs are impaired in their function, is shown by the sense of oppression; the peculiar *slow* respiration, the sighing and the quality of the blood, one or all so sure to be seen in the dangerous forms or stages, yet not to be detected by the senses in the earlier stages of many grades or throughout the mild.

The post mortem proof of this impairment was shown by Lewis, was noted by Dr. Frost at Demerara nearly 30 years before, and by Dr. Mitchell in the Yellow Fever in Virginia in 1841, 42, and has been by many others.

This condition of the lungs is *not* a product *after* death, and, as described by Lewis, is exactly similar to that resulting from the experiments of Dr. Reid, a short account of which, touching this point, may be found in Carpenter's Physiology, p.170, and Magendie's observation of the *same* effect from a like experiment, shows the manner in which the lesion, proof of *functional*, not *organic*, impairment commences,

the section of the nerve "seriously affecting the capillary circulation", and this causing the blackness and fluidity of the blood.

A blackness and fluidity—a deterioration exists, and it matters less *how* induced—if through the lungs than to understand its influence on the capillaries of the lungs, and on those of the gastro-duodenal surfaces, in the production of what has been called the "localization" of the disease—the *inflammation*—not losing sight of similar stagnations and exudations of blood in and from the capillaries and nearly all parts of the body, and to understand the *action* and *reaction* of the fluids and solids on each other, especially in the lungs and the mucous surface of the stomach and bowels.

The observations made by Magendie, so admirably explain these phenomena, and also many other of the post mortem appearances in Yellow Fever, that I must transcribe from his fifth lecture on the blood in the London Lancet Vol. 1. "38, "39.

"I will not for the present examine into the cause of its fluidity; but the case gives us an opportunity of verifying in the human subject the mode in which such blood effects the condition of the organs.—I have explained to you at length the serious consequences of non-coagulability—I have told you that, when so affected, the blood cannot traverse the capillary vessels, or at least that its circulation through them is materially modified; that it stagnates in the parenchyma of the organs, is extravasated, alters their appearance and sometimes renders them utterly unfit for the performance of their functions.

For my part whenever I meet with blood of this description, I feel certain that the lungs have been the seat either of engorgement, hepatization, cedema, or apoplexy: and if its fluidity be still greater I feel almost positive that there has been effusion within the cavity of the pleura."

"The blood (become fluid) lost one or more of its normal properties, and the lungs, *in its turn*, suffered from the modified character of the blood.—Stagnation and infiltration took place, etc." "The phenomenon of exhibition will account for a number of lesions in the other organs that are beyond all question, primarily produced by the liquefaction of the blood.—In my opinion, various morbid changes pointed out by pathologists as occurring in analogous cases, such as dark color of the intestines, erosions of the mucous membranes, effusions, sanguinolent diarrhoea, etc., are in ultimate analysis, traceable to the same cause."—

To call that a "localization" which, in this disease, is formed from nostril to rectum, in the mucous tissue of all the parts—in the cellular substance, and in the skin, is to lead one-self into a great error.—But, to show the strong tendency to, and to call it inflammation when seated in the gastro-duodenal mucous tissue, will not be an error and will lead to a necessary avoidance of irritants, in anticipation of its approach, and to a correct mode of treatment after its formation. Yet it differs materially from an inflammation of these parts in fevers or other disorders unattended with the fluid and black blood of this, and requires a corresponding modification of treatment—remedies for the blood as well as for the solids, and those for the former through the

lungs as well as through the stomach as recommended by Magendie and approved by common sense.

It is certain that a *nervous*, a *mere* nervous excitation, precedes the *sanguineous* irritation of the mucous tissue of the alimentary canal, and that it may be, and, in mild cases, is the only irritation, and that it is capable of *vitiating*, *increasing*, or *abolishing* the secretions, is fully seen in the catarrhal and other mild forms and in the most intense; and resulting from the disordered condition of the liver, also solely nervous, this nervous irritation often continues the sole derangement of the stomach and duodenum. Throughout, in many cases, those in which we find the blood to have suffered so little, the liver so well to go through its morbid process, fulfilling that law of the disease by a prompt and full secretion, and in which an excretion, an absorption and an elimination so rapidly takes place as I have so often witnessed.

But this nervous excitation gives the strong tendency to, and might well, alone, suffice to induce the sanguineous irritation which becomes so conspicuous in that mucous tissue, full of capillaries; yet on the other hand, the fluidity causes the peculiar character of the inflammation in this disease and, in its turn, this state of the blood is alone sufficient to produce it.

After observing Yellow Fever a second time in its mild form, mingled with cases of almost all grades, and better prepared to investigate, I repeat now the observations made after witnessing the disease in 1844, proceed from mild to severe grades; that "*nervous* irritations of certain organs (of the secretory vessels of the liver, and of the mucous tissue of the alimentary canal) and the alteration of the blood, are alone invariable and sufficient to constitute the disease. Although *sanguineous* irritation does supervene on the gastro-duodenal surface in a great majority of cases, yet it is not essential to constitute Yellow Fever; mild cases in which no appearance of inflammatory irritation is observed to attest this." "Remittent, intermittent or congestive fevers are not curable by maintaining a secretory action in one or all the organs. Yellow Fever ("the only true *bilious* fever") on the contrary is *always* tending to a cure as long as the liver can be induced to act well (that is to *secrete* and *excrete* copiously); and failing to *excrete*, the case is still tending to cure and *will* end in health, by the termination of the diseased process in the liver, through *secretion* and *absorption*, provided other secretory, *eliminating* organs, save the system from the effects of this absorption, affording time for art to subdue, what nature is incompetent to cure.—The gastro-duodenal inflammation, should that supervene, as it did in Soher's case, and in which "during 7 days there was no discharge from the bowels; no bile was thrown into them, but it is not so clear that it was not secreted in great quantities, absorbed into the blood, taken up and expelled by the kidneys, exemplifying that "his case could *not* have been brought to a happy issue but for the performance of this office (eliminating bile) by the kidneys."

This irritation of the liver has a time, *as a law* imparted, we must assume by the *peculiarity* of the poison, within which *to run its course*, yet not as determinate in this as it is distinct in its nature and in its product, and yet so much so as are the irritations of the skin in Measles, small-pox, vaccination &c., and in *their products*. It may vary in individuals,

or in epidemics, but its general uniformity, whether in cases mild or severe and whether recovery or death takes place, stamps this as a law, which all recognise and apply to the fever and the disease; in some it may not cease entirely; its violence may be only expended within a specific time, dependant, among other causes, upon the failure of a proper establishment of the process of cure, secretion and its exit from the liver and from the system, but *these secure* the liver only requires time, *will* have its allotted time to be relieved, and the system time for elimination when the disease, fever and all, has disappeared, *not to return*.

The affection of the liver is a painless one, and, at its commencement, cannot impede the circulation through the organ, on the contrary, the irritation being in the secretory vessels, requires and invites a greater flow of blood, yet it is not *inflammatory*, and the *one* febrile paroxysm, alone belonging to the disease, may rather be attributed mainly to a *sudden absorption* of bile, vitiated, and acrid in various degrees, and to its difficulty or total failure of elimination; a full open fever is favourable to recovery, so is full secretion of bile, less regardful of the quantity absorbed, and, even of its acrimony, than of its facility of elimination.

In the milder forms, those with open fever, the sanguiferous system evinces rather a *tumultuous* effort to rid itself of some absorbed morbid material and it only moderates gradually into *healthful* action with full elimination, and more promptly with excretion of bile, and *only* with these, the bloated face, the swollen hands, the eruptions, the subsequent boils and abscesses, tend to the establishment of this as truth.

The power of absorption by the liver is admitted to be great, and reasonably may be supposed more rapid if the secretion is less vitiated and more difficult, if more acrid—a provision for its safety, in view of the so common fact of the occlusion of the gall ducts, and the necessity for the exit—a process early at work as shown by the experiment of Dr. Potter, proven to continue to a late period by the failure of Dr. Gillkrest to procure a vestige of bile from the yellow liver, and shown to be of great degree by its continuance, even when large quantities are *excreted*—and in proportion to the quantity absorbed, of less or more vitiated, and *acrid* bile, will the fever be mild, or more intense, with danger also proportioned to its elimination.

The reference of the febrile paroxysm mainly to the *sudden absorption* of bile of *morbid* quality, and the continuance of each through the time required for the relief of the hepatic irritation, aids to show why uncomplicated Yellow Fever has only *one* fever, and *cannot* be cut short—will run its course, the latter fact, so important, so true and so much insisted upon by Harrison, Nott and Lewis, and it explains why to *cut short* the *fever* is to fail to cure the *disease*, as Dr. Harrison has so ably and so conclusively proven by his two Quinine cases recorded at page 332, N. O. Jour., Nov., 1845.

If anything in medicine ought to be considered surely established, it is, that the *fever* in Yellow Fever is not symptomatic of, or necessarily connected with, a local *inflammatory* affection. When any such exists, it is not till long after the fever has appeared, and sometimes the received evidences of it are present, for the *first* time, after the fever has disappeared, *never to return*.

A remarkable characteristic of the disease is that the heart so little sympathises with the local irritations, and less in proportion to the *intensity* of attack, and so certainly, not at all, at advanced periods of these, that the greatest errors of treatment by medicine, were excitant to the stomach, never cause the fever to increase or return, but rather to cease more quickly when used at earlier periods, and the greatest efforts to sustain the system by *such* means during and after the calm, not only fail, but hasten death.

These facts of such general notice in this, pertain to no other febrile disease, and they are inexplicable on any other view of the *cause* of the fever than the one suggested.

The correctness of this view of the cause of the *fever* is rendered more apparent from the fact that there is no fever—no eruptions, no boils, &c., in the most intense grades, in the walking cases, the so called *congestive* ones. In such cases, Dr. Lewis correctly says there has been an over dose of the poison—that they were usually without “any chill, fever or pain; the tongue was natural or very slightly coated—some thirst, pulse slow and wavering,” and “in proportion as the dose is increased” it produces such cases, and not those “active phenomena which distinguish inflammations and essential fevers.”

Dr. Harrison's description of the same class of “generally incurable” cases makes this more clear. He says, page 133, Sept., 1835, “no fever ever makes its appearance;” the patient in this form of the disease presents a *natural* eye, tongue and pulse—“the pulse is slow,” p. 146. The skin is also *natural*, except that towards the extremities it becomes cold, &c.” “The stools (surely without bile) are liquid, and the urine *copious* and *limpid*.”

The calm is virtually present from the beginning—no bile secreted and no relief to the liver and no fever—then *death is sure*; whereas, with bile absorbed, there is fever, and “a case of Yellow Fever promises to terminate well in proportion to the (full, open, “well”) developement of the fever”—Harrison, page 331, Nov., 1845, N. O. Journal,—and with excretion and elimination of bile, *life is certain*.

At page 146, Sept. No., 1845, he proceeds with these cases again, thus: “The peculiar disease goes on, however, though fever be absent, as indicated by the blood, its want of fibrine, the occurrence of passive hemorrhages, black vomit, suppression of urine; in short, all the characteristics of the disease;”—at page 133 “these cases are characterized by extreme restlessness from the beginning,” which, with the liquid (bileless?) stools, *copious*, and *limpid* urine, *clear* skins, surely point to a suspended or diminished and acrid biliary secretion, or to its deficiency, or total failure of absorption for their explanation; and, could there be seen to appear, at “the end of the second or third day” either bile “vomited or purged,” or by copious “*deep* yellow urine, the black vomit, &c. would *not* occur”—the prognosis (of recovery) would be almost certain, as said by Nott and more fully by others.

With full secretion and absorption of the bile, the patient has fever, and with excretion or full elimination never goes into the calm; the excitability of the organs is not destroyed; the progress of the case is then surely, though gradually, to health; but these processes defective or abolished, early or late in the attack, and he has no fever; the calm

is invariably at hand; the organ is wholly or nearly entirely deprived of its excitability.

Although it may be considered absurd to attribute any of the deterioration of the blood, as any of the symptoms of the disease, to the absorption of bile; though allowed to be so acrid as to cause excoriations of various solid parts; absurd, as making this frightful and obscure disease of too simple a nature; yet impelled by observations, and the facts from so many correct observers, as well as from general principles and experimental facts, I believe that in some peculiar and extreme vitiation of this secretion may be, will be, found much of that change in the blood which at present is attributed to some occult cause, acting in an imaginary manner. Why not a few drops or more of bile, acrid bile, as well as of other secretions or fluids, be a poison careering through the blood, producing more and more a gradual deterioration, as in long periods of incubation, or progress of the disease, or causing death rapidly with black vomit, producing liquid, blood in each, according to its quantity or own degree of vitiation?

Magendie made black vomit by injecting putrid water into the veins. Would he not have succeeded in the same by acrid bile taken from the gall-bladder of a person dead of yellow fever? Fresh water, neither bland bile would create danger, but let each be putrid or acrid! Thus, without reference to an unseen, an imaginary poison travelling through the system, we might (I believe we do) see the blood of this *bilious blood pestilence* created; but I fear created in a manner too simple to be credited, and not the less a bilious disease, because, in mortal attacks, there is no secretion perceptible to our senses; yet scarlet fever terminates rapidly in death without exanthem, sore throat, or fever. Cholera has its premonitories, its rice-water discharges, and shrivelled, blue skin, and yet death without either; and each during epidemics are not the less considered the same disease on account of these deficiencies from excessive violence.

Let principles and facts recognized as indubitable in other diseases, be applied to this; look at ischuria, sometimes a functional disease—"There is frequently considerable disease of the kidneys. The suppression may be partial or complete; it leads to fever, thirst, a urinous taste in the mouth and smell of the perspiration, nausea, [urine from skin and hands,*] vomiting, [of urine,†] hiccough, coma, convulsions"† and death.

From absorption of urine these, (why not?) those of yellow fever from *acrid* bile. Compare other characters, showing each a disease from a known and palpable poison—morbid urine and morbid bile—and note the also similar efforts of nature to relieve, &c. We are obliged to assume the influence of a deleterious agent, a "poison," in the production of many diseases; but let us drop the assumption as we would a simile, the moment we can recur to more seeming matter of fact, and the more we simplify, the nearer we approach truth, for nature works by few laws.

It is beyond dispute that the cases of Soher, Nelson Newman and Long, and the facts recorded of the Woodville and Natchez epidemics,

* Elliotson. † Marshall Hall.

with those from so many authors, prove the "safety," the recovery from bile secreted, excreted or eliminated, and that the same reference, as conclusively establish the "fatality" from no bile, secreted, excreted or eliminated ; and the same reference brings ready proof that, "although the liver is charged with a multitude of sins ; of many of which it is entirely innocent, it is lost sight of, despite the overwhelming evidence of its profound impairment, in yellow fever, which, could the title be exclusively appropriated to it, should be called the *bilious fever*, and thus the liver justly held responsible for, at least, one fever or (*and*) entitled to the credit of being the organ by and through which it can be most successfully overcome."

The preceding facts, taken from a few of our best authorities, have been hastily thrown together, yet with a reliance that the deductions from them are correct. And the hope is indulged that this attempt, unsatisfactory as it may be, will lead to a mode of investigating the disease different from that heretofore adopted, and about which as yet there is so much contradiction.

Natchez, December 20, 1848.

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APPENDIX

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APPENDIX.

Of the Epidemic Yellow Fever at Mobile in 1843 Dr. Lewis says at p. 295, N. O. Journal for January, 1845, that "The milder cases were mostly confined to the natives and acclimated. These attacks were occasionally so light and ephemeral as to pass off in a few hours, leaving the patient with some soreness of the muscles and slight pain in the hips and legs. But as a general rule they confined a patient to his bed for three or four days. After the chill, which was commonly of very short duration, the pain over the eyes and in the back and hips became for a short time intense. The flushed face, animated voice and sparkling eye, which characterized the febrile stage, have been aptly compared to the excitement produced by Champagne. I had a fine opportunity, on one occasion, of contrasting these with the grave cases. In one boarding house, I treated at the same time, seven cases of fever; five were thoroughly acclimated and two were strangers. During the first stage, the five acclimated patients complained much more than those who were not acclimated. In the former, the pulse was more rapid, the skin warmer, the pain and restlessness greater, than in the two last. There was also more irritability of stomach in the former than in the latter. The acclimated were in the street on the fourth and fifth day, whilst the non-acclimated passed through all the stages of the malignant Yellow Fever, one of them dying of black vomit."

In the July No. of same Journal for 1848, he remarks that, "In reporting previous epidemics we have had to note, in cases which had a speedy and favorable termination, the sharpness and intensity of these febrile pains. This autumn this was conspicuously the case. These pains were of an acute neuralgic character, and invaded the head, back, limbs and *entire muscular system*. The patient would not unfrequently cry out with intense suffering. During this febrile stage the skin was hot, pulse quiet, no positive nausea; occasionally, however, the contents of the stomach, with a little bile was thrown up. In ten or twenty hours the skin became moist, pulse became slower and pains rapidly abated. The most that the patient complained of after this, was great soreness of the muscles:—a few days rest, free from annoyance and excitement, and abstinence from indigestible *food and medicines*, were all that was necessary to immediate recovery."

One-half or more of the cases of Yellow Fever during that season were mild; and "although its access and the febrile stage were attended with symptoms, both painful and alarming, to the patient and his friends, they faded after a few hours continuance with great rapidity." And of the Epidemic of 1843, he says of such cases, "*Leave them alone, and*

the disease will run its course in a *short time* usually, as though medicine was given, and after it has run its course, the patient *is well*." Of the mildness of mild Yellow Fever, he observes (March, 1845,) "A well marked case of Yellow Fever may be even *lighter* than the *lightest* case of bilious fever."

Dr. Gillkrest informs us that "Experience during Epidemics warrants the conclusion that an individual, especially if a child, may go through the disease with no more than a slight feeling of indisposition for a day or two. In epidemics of ordinary severity, such mild attacks may occur in the proportion of one to ten or twelve of the severe grade, &c." The preceding suffices to show that Yellow Fever can be mild, which to some in Natchez was an unheard of thing: and therefore by them the late epidemic was denied to be yellow fever. The preceding also suffices to show, that if not interfered with, the mild disease will cure itself. If it be required to have still more evidence, that the pains and eruptions, observed in the late epidemic, have ever been noticed in yellow fever, as *incidental*, not *essential* to the disease, though very common in the milder grades, I produce the following from Drs. Rush of Philadelphia, in 1793 and Seq & Drysdale of Baltimore in 1794. Dr. Rush while speaking of the yellow fever of 1793 thus describes the pains of the Natchez fever of 1848: He says at p. 64, 1st part, Med. Enq. Vol. 2, "There was in some instances a deficiency of sensibility, but in others a degree of it extending to every part of the body, which rendered the application of common rum to the skin, and even the least motion of the limbs painful." At p. 65, "The pain which attended the disease was different, according to the different states of the system. In those cases, in which it sunk under the *violence* of the disease, there was *little or no pain*. In proportion as the system was relieved of this oppression, it recovered its sensibility. The pain in the head was acute and distressing. It affected the eye balls in a peculiar manner; a pain extended, in some cases from the back of the head down the neck. The ears were affected, in several persons, with a painful sensation, which they compared to a string drawing their two ears together through the brain. The sides and the regions of the stomach, liver and bowels, were all, in different people, the seats of either dull or acute pains. The stomach towards the close of the disease was affected with a *burning* or *spasmodic* pain of the most distressing nature. It produced, in some cases, great anguish of body and mind: in others it produced cries and shrieks, which were often heard on the opposite side of the street to where the patients lay. The back suffered very much in this disease—the stoutest men complained and even groaned under it—an acute pain extended, in some cases, from the back to one or both thighs—the arms and legs sympathized with every other part of the body. One of my patients, upon whose limbs the disease fell with its principal force, said that his legs felt as if they had been scraped with a sharp instrument. The sympathy of friends with the distresses of the sick, extended to a small part of their misery, when it did not include their sufferings from *pain*. One of the dearest friends I ever lost by death, declared, in the height of her illness that, "no one knew the pains of yellow fever but those who felt them." Of the fever of '94 p. 209, he writes, "John Madge had an immobility in his limbs

bordering upon palsy. A *weakness in wrist* in one case *succeeded a violent attack of the fever.*" The sensations of pain in this fever were often expressed in extravagant language. The pain in the head was compared to repeated strokes of a hammer upon the brain: and in two cases, in which this pain was accompanied by great heat, it was compared to the boiling of a pot. The more the pains were confined to the bones and back, the less danger was to be apprehended from the disease. I saw no case of death from the Y. F. of '93 where the patient complained much of pain in the back. It is easy to conceive how this *external* determination of morbid action should preserve more vital parts. The bilious fever of 1780 was a harmless disease, only because it expended its whole force chiefly upon the limbs. This was so generally the case that it acquired the name of the "break bone fever." p 210 "A soreness in the sense of touch was so exquisite with Mrs. Kapper about the crisis of her fever, that the presence of a piece of fine muslin upon her skin gave her pain." p. 9, 2d part, "I saw no new premonitory symptoms of this fever (1797) except a tooth ache. It occurred in Dr. Physick, Dr. Caldwell, and in my pupil, Mr. Bellinger. In Miss Elliot there was such a soreness in her teeth, that she could hardly close her mouth on the day in which she was attacked by the fever. Neither of these persons had taken mercury to obviate the disease." p. 12, "Several persons who died of this fever, did not from the beginning to the end of the disease, feel any pain." p. 41, "I lost a patient who complained of no pain but in the calves of his legs. Dr. Physick lost a girl in the city hospital, who complained only of pain in her *toes.*" p. 24, "The whole body was affected, in many cases with morbid sensibility, or what has been called supersensation, so that patients complained of pain upon being touched, when they were moved in their beds. This extreme sensibility was general in parts to which blisters had been applied. It continued through every stage of the disease. Dr. Physick informed me, that he observed it in a man two hours before he died. In this man there was an absence of pulse and coldness of his extremities; upon touching his wrist, he cried out as if he felt great pain." p. 49, "The absence of pain was always a bad sign."

Dr. Drysdale writes of the Yellow Fever at Baltimore in 1794, Med. Museum vol. 1, p. 130, that "The muscles were affected with numbness or immobility in many instances—occasional spasms were troublesome and in one case were confined to the right side and right extremities: a difficulty of *deglutition*, apparently disproportionate to the violence of the other symptoms, was frequently remarked. Fluids, instead of being swallowed, were often returned through the nostrils." p. 127-8, "They (the nerves) in some cases, acquired such a degree of sensibility, as to render the whole surface of the body sore to the touch." "The pains accompanying the Y. F. were more or less acute in every case. They extended through the head, back and knees. In one very violent instance, the former only were affected. In others the head would be but slightly affected at the beginning of the fever, while the back and knees suffered with excruciating torture. The pains were not always confined to the parts mentioned, but pervaded every part of the body—the arms and legs being included in their range. The pain of the head was differently seated—in the eyes, in one or both temples, in

the forehead, on the summit and on the back of the head. It winded in one instance through the cartilage of the right ear. It sometimes appeared to be fixed in the middle of the brain. In the back it was generally confined to the lumbar vertebræ: but extended occasionally through the sacrum and pierced forward through the bowels. In one case, the pain of the extremities was confined to one arm: in another, it was fixed only in one leg.

The torture from pain, was in many instances, exquisitely acute. A gentleman declared in anguish that the pain through his eyes "was enough to deprive him of his senses," and another confessed, that, the pains in his legs were so acute "that he could cry like a child." They often caused an incessant tossing from one part of the bed to another; but this inquietude was increased by finding relief in no position. The pains were not always fixed in the same places with invariable violence. I have frequently observed their abatement in one part succeeded by increased violence in another. Those of the head and back appeared in several instances to alternate with each other. In the *insidious* remissions of the fever, when the heat of the skin moderated, I very seldom remarked a proportionable remission of pain." "The *breast*, if debilitated by former attacks of disease, was always particularly affected with pain." p. 135, "A dull pain sometimes occurred in the lower part of the belly."

It seems that Dr. Drysdale, as well as Dr. Rush knew what *was* to happen in Natchez in 1848: their descriptions are perfect of what *has* occurred.

Of the eruptions which were so common *here* in 1848, from which and the *pains*, the disease was called "Dengue," Dr. Rush says at p. 66, "There were eruptions of various kinds on the skin, each of which I shall briefly describe:—

1. I met with two cases of an eruption on the skin, resembling that which occurs in the scarlet fever. Dr. Hume says, pimples often appear on the pit of the stomach in the yellow fever of Jamaica."

2. I met with one case in which there was an eruption of watery blisters, which after bursting, ended in deep black sores.

3. There was an eruption about the mouth which ended in scales, &c.

4. Many persons had eruptions which resembled mosquito bites—they were red, circumscribed, &c.

5. Petechiæ were common in the latter stage of the fever: they sometimes came on in large, and at other times, in small red blotches.

6. Several cases of carbuncles, such as occur in plague, came under my notice, &c.

7. A large and painful anthrax on the back succeeded a favorable issue, &c.

8. I met with a woman who showed me the marks of a number of small boils on her face and neck, &c."

"Notwithstanding this *disposition to cutaneous eruptions, &c.*, in this disease, &c." At p. 12, "Those small red spots which have been compared to mosquito bites occurred in several of my patients." p. 57, Miss Shortall had an eruption of pimples on her breast such as I have described in a short account I gave of the yellow fever of 1762 in this city, in my account of the disease in 1793—(at p. 44 thus "an eruption

on the 3d or 7th day proved salutary") and he also says "There were cases of this fever so *slight* that patients were said to be neither sick nor well, &c., now and then, by neglect or improper treatment, it assumed a higher and more dangerous grade of the fever, and became fatal, but it *more commonly yielded to NATURE* or to a single dose of purging physic."

This is exactly applicable to the natural cure and the facility of aiding it, observed in our fever in the great majority of cases—and this is what I announced of the disease, provided it continued as mild as it began, yet people were made to believe that a few globules *made* the fever decline, which no efforts could have prevented going off almost at a specific time,—*cured* the pains, which also had a term nearly as natural and specific—and, in fine, *cured* a disease which *cured itself* and will always cure itself when mild and uncomplicated with other disease, or with old age, or with previous great debility from other causes.

To return. Dr. Drysdale, (Med. Museum,) says of the yellow fever at Baltimore, "It (the skin) was affected with eruptions of various kinds.

1. I observed a miliary rash appear in one case on the third day.
2. A number of very small red spots appeared, particularly on the arms, in some cases during the exacerbations of the fever.
3. Blotches, such as occur in scarlet fever, sometimes covered the whole body.
4. A few large red blotches, covered with small watery vesicles, appeared in a very mild case; they left the skin of a deep purple color.
5. In a few favorable instances there was an eruption about the mouth, similar to that in common fevers. In some which terminated fatally, the lips were sore and raw.
6. In a case which occurred in October, under the form of an intermittent, an eruption of red, itching blotches over the thigh preceded each accession of fever, and disappeared with the paroxysm." He met with no abscesses accompanying or succeeding the disease, among his own patients, "But in some who had not been bled, or used the mercurial purges he saw very troublesome abscesses."

Abscesses and boils are common sequelæ of yellow fever as has been observed by many writers—they are known to have been frequent in Natchez succeeding the epidemic—together with various evidences of derangement of the liver, as sallow, yellow, even full jaundiced skins, blotches, &c.

Dr. Gillkrest gives the following description of the tongue: "The loaded tongue, as if covered with *paste* has been mentioned by authors; but, in our experience, a perfectly clean tongue has not unfrequently been observed in a most dangerous attack. There may be a remarkable trembling of this organ, or it will sometimes be swollen, and have its apex turned downwards. The most characteristic appearance, however of the tongue, in yellow fever, is the *pasty* surface, with red edges and apex." The above will be recognised by all who witnessed our epidemic as the common appearance of the tongue.

In yellow fever it has been noticed that the mouth is sometimes sore and secretes mucus freely.

Dr. Lewis says that in 1843, "It so happened that I had charge of some patients who had not taken a particle of mercury; in many of these

I was surprised to see a developement of what I had looked upon as a slight mercurial affection. The gums were swollen and spongy, but the teeth firm; the secretions of the mouth were profuse, but of a thick mucus rather than saliva; the halitus peculiar, differing from that of mercury yet similar to it." This condition of the mouth was not uncommon in Natchez in 1848 and all were, erroneously, supposed to be mercurial, though no doubt a true mercurial salivation did exist with several.

All authors describe the facility of perspiration as indicating a favorable grade but the character of the perspiration is not remarked. Dr. Frost is the only one that I know who has noticed their *glutinous* character, using this word which all will remember is so expressive of the perspiration here. He observed this glutinous sweat in what he calls the remissions, that is, when the system was enabled to make an effort to relieve itself.

Catarrhal symptoms are frequently observed in yellow fever and, among many other places, in New York in 1793 the disease "often attacked under the mild and unalarming guise of slight catarrh or common cold," and cases having a free secretion and hawking of mucus from the throat have always been esteemed as favorable. Dr. Lewis observes that "attacks frequently come on with catarrhal symptoms, the patient complaining that he has taken cold," and after some description of the milder cases and their facility of recovery, he remarks, "if after this painful feverish paroxysm had passed, there was restlessness, hesitation of manner, decided disinclination for food and drinks, with signs indicating a *derangement* or *suspension* of the secretions—all of which may be unnoticed by the hasty and superficial observer—the patient would not recover without passing through those critical stages, ever consequent to an altered and suspended condition of the secretions in this disease. In many cases, I was able to pronounce upon the grade and course of the disease from the state of the *secretions of the mouth and bladder* (the urine?) and the expectoration. Mild catarrhs were prevalent during the autumn, and if, in the second stage of this disease the usual expectoration had ceased, and the mucus and saliva common to the mouth, were wanting, they afforded evidence that the patient would not recover without passing through a severe ordeal."

How exactly these remarks apply to many cases of our epidemic will be apparent to all, and I wish to call particular attention to them as bearing upon—as elucidating an important point in the case of Mr. Long—upon the fact of my *anxiously* looking for evidence of restoration of the secretions at the setting in of the second stage, and upon the fact of the return of the secretions of the mouth and throat during the night before the fatal Monday on which took place the change of physicians. The hawking of the secretions from the throat preceded and accompanied the dark, thin, gruelly discharge from the bowels, which was, in its turn, followed by the bilious (the yellow) one on Monday morning. It was the forerunner of the restoration of more important secretions and excretions in his case; and, *they* restored, he was *better*—he was *safe*.

In exemplification of the truth of the observations just recited (and shewn to be fully applicable to Long's case) from Dr. Lewis, he cites

the case of "a clergyman (in 1847) who had suffered for some years with a mild form of chronic bronchitis, attended with expectoration of a dark colored mucus. The fever declined in about 20 hours, the pains passed off and skin became soft and natural, as also the pulse. After coughing, I noticed that he did not expectorate as usual which was the first time it had ceased for years. He continued for five days without fever, pain, nausea, or thirst, still growing weaker, more restless and anxious, with scanty and colorless secretions of urine, and thick, *dove-colored*, putty-like discharges, which were forced away by enemas. On the morning of the 6th day the usual expectoration returned, and in a few hours a restoration of the secretions generally became manifest. Sleep and an inclination for food succeeding, put to rest all apprehension for his safety." I return to the general subject.

Dr. Dickson of Charleston describes that, "Yellow fever is a distinct form of continued fever, consisting specifically of but *one* paroxysm; this may and does vary notably in *duration*, but whether long or short is never repeated; it is always single." "The proofs of this doctrine are (as he says) abundant" and the explanation of the apparent exceptions is to be found chiefly in the complications—the intermingling of the poison,—the causes of periodical fevers, either remittent or intermittent. These complications may appear at the beginning, during, or at the conclusion of an attack of yellow fever. All of which has been so amply shewn by Lewis, Nott, Dickson and by others in various parts of the world that it no longer remains open to doubt that the exceptions to the doctrine of *one* paroxysm for yellow fever are owing to *complications* with periodical fevers;—the exceptions, indeed, are only apparent—and fortunate indeed was it that the genuine, uncomplicated, and mild yellow fever—that of *one* paroxysm—was the form it assumed here, for that is the form and grade which has a natural mode of cure or yields readily to proper treatment. But when complicated with a periodical fever it seldom, if ever, cures itself, and would as seldom yield to globules, the equivalents of nothing. Even a simple intermittent is not—cannot be cured by a reliance upon these.

Immunity from second attacks is generally supposed to be nearly complete and to form one of the characteristics of the disease—and the fact that former yellow fever subjects were attacked last summer was proof to some that the epidemic was not yellow fever. The protection afforded by one attack is great, but is not an immunity to the extent believed. It was long since observed by Dr. Colhoun of Philadelphia on this perfect immunity that, "This by no means accords with our experience in this country (America). Dr. Rush relates many instances where it was taken a second time, and some of which were in the *same* season. At New Orleans the same fact has been amply confirmed. Dr. Potter, of Baltimore, in the following note expresses his views on this interesting question:

"The annals of our country put this at rest. It is true, that in countries uniformly hot, the disease is seldom observed to occur more than once in the same subject, but in all countries where the winters are cold, we find very little difference in the susceptibility to the cause. The emigrants from St. Domingo were exempt from the yellow fever of 1797 and 1810 in this city (Baltimore), but in 1819 and 1821 they

suffered as much, *cæteris paribus*, as any other variety of the human species. I have remarked in my notes of 1821 that since 1793, I have attended more than a *hundred* persons in a *second* attack, *twenty-one* in a *third*, *seven* in a *fourth*, *three* in a *fifth*, and *one* in an *eighth* attack of yellow fever."

And the facts observed by Dr. Lewis, of Mobile, in 1847 "sustain the conclusion to which he arrived in 1843, viz: that yellow fever may attack the same individual more than once; but that second attacks are generally mild and harmless." And he justly remarks that, "in relation to acclimation and immunity from second attacks, the following carefully ascertained facts will be found more satisfactory than any assertions, &c;" and he gives the ascertained history of 240 (239) cases which stands as follows:—

Mild yellow fever, occurring	in natives and old citizens,	-	-	54	
"	"	"	"	in persons who had the disease previously,	27
"	"	"	"	in persons recently arrived in the city,	80
Grave yellow fever, occurring	in natives and old citizens,	-	-	8	
"	"	"	"	in persons who had the disease previously	3
"	"	"	"	in persons recently arrived in the city,	67

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Second attacks, during the *same* season, are asserted by Drs. Hastings and Potter to have occurred in numerous instances in the Squadron on the West India station in 1847. They had good opportunities for judging, as the subjects were constantly under their care. I believe it will not be denied that a few such occurred here in 1848, though I saw none that I could consider well marked examples of full attacks; but it was plain that the system was not fully protected from the influence of the poison and was more frequently thrown out of health from slight imprudence, or, even without, from merely remaining in the city. Previous to the appearance of this epidemic I had this evidently erroneous opinion and relied too much upon the completeness of the immunity, which was because I had seen nineteen out of twenty such persons escape attacks of yellow fever at Woodville in 1844, while not five others escaped; and one of these yielded to the disease here, which with other facts render it certain that more persons will yield to second attacks during one epidemic than another, whether owing to greater individual predisposition from common causes, or to some difference in the poison. The proof of second attacks is positive—against, it is negative. It has been common to hear persons in Natchez speak of having had attacks twice and it is of general admission that such are milder, which was fully exemplified here in 1848.

From the preceding it will be seen how common it has been to find, in yellow fever, such symptoms as *pains*, *eruptions*, and indeed all the minor conditions observed in our late epidemic. It was upon these unimportant symptoms, indeed, that the disease was declared *not* to be yellow fever—upon such as, though *very* common, are *not* essential—are merely incidental to the disease. It is useless to describe the disease in its grave, its most malignant form, for though some few cases of severity occurred it was not from these that the epidemic was called by a less terrific name—indeed these cases were seldom denied by the people to

be yellow fever—or rather the most determined disbelievers, out of the profession, admitted that there were *some* cases of yellow fever here.

I proceed then to transcribe from Dr. Dickson's account of *Dengue* as it appeared in Charleston. Such a description as that the two diseases cannot be confounded. The most unwilling to believe that our epidemic was yellow fever *must* see that it was not Dengue.

DENGUE.—“By this name is known an eruptive fever, or exanthematous affection, which, in 1827-'28, spread extensively over the West India Islands and the neighboring coast of the American Continent.”

SYMPTOMS.—Dengue usually made its attack with pain, stiffness and swelling of some of the smaller joints, often the muscles of a limb, rigidity of the neck, aching of the back and loins. These pains were followed after an uncertain, though generally brief period, by headache, —suffusion of the eyes—abrupt, full, frequent pulse—hot, pungent, dry skin—restlessness, thirst and other tokens of febrile excitement. The fever did not remit, but declined and disappeared in a great majority of cases on the second or third day. In this early stage the tongue was generally clean, and the stomach quiet, but sometimes there was nausea, even vomiting. The determination to the head was occasionally violent. Instances occurred in which delirium was among the first symptoms, coming on at the commencement, and enduring until the subsidence of the febrile paroxysm. At this time the skin lost its heat and dryness, becoming relaxed, with abundant perspiration; and the local pains were all lessened in degree. A sort of miliary eruption or rash in some persons attended this sweating stage, and in a few others preceded both the local pains and the fever. It was, however, as connected with the first stage of Dengue, a very inconstant affection, seeming rather a mere accidental coincident than a symptom. The pains of the joints and muscles which, as has been said, were diminished in severity at the subsidence of the febrile exacerbation, did not go off entirely; a degree of swelling, stiffness and tenderness of the affected parts remaining permanently, though varying much in intensity in different individuals. This condition of things constituted a sort of deceptive interval between what may be described as the first and second stages of this strange disease. Many now believed themselves to have passed through the attack, and attempted to resume their ordinary occupations; but soon had occasion to discover that their sufferings were by no means at an end. On the third or fourth day, there being no fever present, or a very obscure degree of it, the tongue would begin to be coated with a yellowish fur, and the stomach would become distressed, uneasy, and irritable. The patient was now low spirited, fretful and anxious. Vomiting came on in some with great languor, lassitude and debility and restlessness at night. This was regarded as the most oppressive and insufferable of the stages of the malady. On the fifth or sixth day from the invasion, the period varying somewhat in different individuals, the annoying symptoms just described were relieved by the coming out of an abundant eruption, met with so constantly and in so very great a proportion of the cases, that it clearly demands to be considered a characteristic and essential circumstance in the history of the disease. It consisted of minute papulae somewhat elevated, of a florid red, and distributed in irregularly shaped patches, the feet and hands being somewhat swollen with a

sense of numbness and thickening. It appeared first on the face, then on the trunk and thighs, gradually spreading to the extremities. It resembled scarletina more than measles in the hue and aspect of the skin, but was less diffused or confluent than either. When fully developed, it was attended with some itching and burning of the surface, and at this time a second febrile paroxysm came on with return or aggravation of the muscular or arthritic pains. Inflammation and enlargement of the lymphatic glands in the neck, axilla, and groin attended in a good many cases, these parts being apt to continue swollen and painful for sometime after convalescence was fairly established. In a few instances, suppuration of these tumors took place. The eruption disappeared after two or three days duration, becoming gradually paler, with some desquamation of the cuticle.

Of all the symptoms of Dengue the affection of the joints was the most tenacious and troublesome, adhering for weeks to some patients, and constituting a sort of permanent lameness or loss of mobility. Nay, even now (January, 1835) some of the population of cities visited by this plague, persist in speaking of the rheumatic or quasi-rheumatic decrepitude and pain under which they labor as the effects of the Dengue.* All classes of persons were subject to this singular exanthem and all equally and alike. The aged and the young, the infirm and the robust, the native and the stranger, the black and the white, all shared the same sufferings. Very young children were liable to the disease, even from a few days after birth: nay, some were supposed to be actually born with it. The circumstances of these latter cases are described as follows:—"The mother having recently passed through the attack, or still laboring under it, the skin of the infant at delivery was observed to be of a scarlet red, the tongue and lips smooth and fiery; it was obviously in pain, and could not bear to be disturbed, screaming violently if lifted, or if its limbs were moved ever so gently."

"A sore mouth was among the frequent symptoms of Dengue, and one or two instances of pretty severe glossitis occurred. In the worst of these, the appearance of the organ has been completely altered and its functions much impaired, indeed nearly abolished, the articulation being extremely indistinct, and the capacity of appreciating taste and flavors singularly defective. The surface of the member is intersected with deep lines, which divide it in every direction, like flesh which has been chopped for culinary purposes. The ulcers formed in the mouth were often very irritable and painful, and healed slowly and with difficulty. Then followed a free flow of offensive saliva, with lividness and sponginess of the gums, offering considerable resemblance to the symptoms of mercurial ptyalism. In a few cases hemorrhage occurred from the gums and fauces."

Dengue is to be classed properly among the exanthemata. It is an

* The effects or sequelæ of our epidemic have been of a totally different character during the winter. The skin has been sallow, even much jaundiced with several and covered with blotches to a great extent on the legs—with boils, abscesses and large painful red swellings which disappeared without suppuration and with other evidences of deranged liver which need not be particularised. The occurrence of these I anticipated and spoke of, because I had seen evidence of Hepatic disease follow the epidemic at Woodville as its effect.

eruptive fever of distinct and specific character. Its essential symptoms are, in the first stage, a painful affection of the joints and muscles; and, in the second, divided by an interval, obvious and sufficiently regular, a cutaneous eruption.

The arthritic inflammation of the first stage was attended by fever of the ordinary type, of twenty-four to forty-eight hours duration. The eruption was preceded, as is usual in the exanthemata, by considerable gastric oppression with nausea and sometimes vomiting. Let us separate the characteristic from the incidental circumstances of its history, and from the former proceed to designate its correct name and true pathology.

1. An Arthritis—a painful and apparently an inflammatory affection of the joints—was in a vast majority of instances its earliest symptoms. The attack was rarely ushered in by a formed chill or febrile rigor. In general, the very first indication of seizure consisted merely in a painful affection of some joint or limb. [“In this singular disorder, the local pains usually preceded, by periods of considerable length, any symptom of fever or constitutional derangement. Hours would often intervene, during which the patient would limp through his usual occupation or amusement, and even eat heartily and apparently digest well. Cases, indeed, occurred in which the whole of the first or quasi-rheumatic stage would be gone through in this way, and the nature of the attack displayed at last, only by the breaking out of the characteristic eruption,” p. 622.] “As it was the almost universal fact, that these arthritic affections had thus endured for some time before the invasion of fever, with its ordinary concomitants, headache, red eyes, full, abrupt, frequent pulse, hot, pungent, dry skin, thirst, &c., so it was rather uncommon to find the stomach notably disturbed at this period or stage. Among the other irregular or incidental symptoms, was an eruption already mentioned, which showed itself occasionally thus early. It was a mere rash, and was met with oftener in children than in adults.

2. The *characteristic* eruption made its appearance later, after the subsidence of the febrile paroxysm and constituted a distinct second stage. After a duration, varying in different cases, the pain and inflammatory form above described, abated, or went off, to the great relief of patients, who often thought themselves now quite well, and whose sufferings indeed, sometimes, though in a very small minority of cases ended here. But it should be remembered, that when the case was thus abruptly terminated without a second stage, the patient was liable to be attacked again and again, with the arthritic affection, and other ailments of the first stage.

The eruption which has been thus indicated as essential, was preceded by great gastric distress, which, as in all the other exanthemata, diminished, as the skin became suffused, and was followed by a sort of secondary febrile exacerbation. It should be remarked, too, that the arthritis, which had been greatly relieved, returned at this time, henceforward remaining pertinaciously annoying for an indefinite period.”

Such is the description of this disease given by Dr. Dickson, and he informs us that “Dr. Daniels, of Savannah, considers Dengue to be certainly an exanthematic fever.” “He contends justly for the essential nature of the eruption, and remarks forcibly upon the danger of treating it as an accidental symptom.”

Great prostration of the strength and general debility, weakness of the stomach, continued pains in the joints and œdematous swellings of the extremities—such are the familiar effects of the Dengue. “As of a similar disease in India in 1824-’25. “The prognosis in this singular affection was remarkably favorable—perhaps no form of disease is known in which the proportion of deaths is so small.” “In a population of about 12,000 souls who occupy the town of St. Thomas,” says Stedman, “scarcely a single individual escaped.” In all its seats few died. The rare instances in which patients died, while laboring under it, presented some complication under whose incidental symptoms the patients sank, &c.”

TREATMENT.—The lancet was the favorite resort of a majority of practitioners. “Cathartics and diaphoretics were almost universally employed.” “Both the saline and mercurial purgatives had their advocates.” “Antimonial in the early stages and afterwards Dovers powder and other stimulating diaphoretics, were in general use.” The ordinary domestic practice, consisted in the administration of a mild purgative combined with or followed by a sudorific, as the solution of Epsom Salts in infusion of Seneka or *Serpentaria*, or hot lemonade, until the bowels were freely opened; the patient was then covered up, &c., and warm drinks given, &c. Such, with slight modification was the practice that I followed in the first few cases, &c., but an early observation of the happy influence of opium over the extreme sufferings of the sick, led me ultimately to depend on it exclusively, or nearly so, from the invasion to the termination of the attack, &c. It soon became my custom to administer, without delay, or preparation, such a dose of opiate as seemed proportioned to and indicated by the severity of the attack, from a tea-spoonful of common Laudanum down to such a lesser dose of this preparation, or of the Tinct. Camp. as was suited to the age and other circumstances. The above dose of Anodyne was repeated at intervals of one or two hours, until the symptoms were relieved.” Gold affusion was applied to the head if painful—hot water to the feet and warm fomentations and poultices to the suffering joints. “On the return of pain or fever forming the second stage, the same remedies were again resorted to, and with the same advantage, controlling, as it seemed the gastric distress, no less effectually than the arthritic pain and irritation.” Let the characteristic symptoms of Dengue be compared with the essential ones of our late epidemic to be found at p. —. Let a comparison of the whole be made.

MR. LONG'S CASE.

It may be considered an offence to the understandings of many of my readers to shew what symptoms and post mortem appearances indicate and what do not indicate “inflammation of the stomach and bowels.”

But I intend to exhibit beyond the possibility of doubt by any one, everything respecting the nature of Mr. Long's disease, which of course was, or ought to have been treated as “inflammation of the stomach and bowels” by *all* his physicians, if such it was.

A post mortem examination was made by Dr. Davis without invitation to the physicians of the city, all or nearly all of whom should have been invited and especially those in attendance previous to Dr.

Davis. It was intended to be private thus far, but Dr. Lyle presented himself unbidden as did I. Dr. Jones was also present. The Homeopathic doctrine rejects the appearances after death as not in the least teaching the nature or leading to proper treatment of disease, as it does, pretendingly, all belief in the restorative power of nature in the cure. Why an examination was made by a person holding these tenets may be enquired into by those who, unlike me, think they do not, and desire to know. I may not be able to express my indebtedness that the examination was made, but I cannot fail to make the appearances understood by all persons.

The symptoms and post mortem of Mr. Long's case at p. 506-9 will be borne in mind as we proceed.

Dr. Watson describes that "Acute inflammation, when it affects the peritoneum, usually spreads with rapidity over the whole surface of the membrane. This is characteristic of inflammation of the serous membranes generally. But it is not so with the other tissues that compose the alimentary canal. Inflammation may be, and often is, very limited in extent, &c." "I wish particularly to caution you against being misled by mere *redness* of the *interior* of the stomach, or of the inner surface of the alimentary canal in general; or of *any* mucus membrane; and indeed, I may add, of any serous membrane also. *Redness and inflammation* have been, too often, *convertible* terms." The redness that is independent of inflammation may be of various kinds; but the principal cause of it is *venous congestion*." "The appearances of vascular fulness (says Dr. Yelloly) in the villous [the inner] coat, whether florid or dark colored, in distinct vessels, or in extravasations of different sizes, are not to be regarded as unequivocal marks of disease; inasmuch as they occur in every variety of degree and character, under every circumstance of previous indisposition, and in situations where the *most healthy aspect of the organ* may be expected." To the truth of this statement I can bear witness, having at one time of my life carefully examined, with a view to this matter, a great number of stomachs in succession, in the dead house of a large hospital. "The vascularity (according to Dr. Yelloly) is entirely *venous*, and depends on a power capable of being exercised on the artery itself *at the close of life*, which carries on the blood to the veins, after the further supply of fresh blood from the heart is stopped."*

* The January No. of the N. O. Journal opportunely comes to hand on the 19th February to furnish the following extract from Dr. Dowler of New Orleans and in the same connection, I refer to a notice at p. 559 made by myself of the capillary circulation of the cutaneous and gastro-intestinal surfaces during the febrile and non-febrile stages of the yellow fever of 1848, their consentaneous condition of action and inaction:

Dr. Dowler remarks. "Observe, in the early stage of yellow fever, what red flushings or capillary engorgement discolors the conjunctiva, the skin of the face, neck and breast. As death approaches, this often is replaced by yellowness. After death, in those cases, where capillary action is most energetic, these same parts, occasionally, become much more engorged than ever,—flushed, livid, mottled, marbled, cyanosed, nay black, apparently tumid—and this, too, upon parts the most elevated. Now this is as much a morbid appearance as it would be in the cerebral or *abdominal centres* [or the stomach and bowels alone]. This appearance is of easy explanation, upon the theory of post mortem capillary circulation. The heart discharges no blood. The capillaries deliver their blood into the veins—these fill, as well as those large subcutaneous capillaries, that had suffered by dilatation during the disease."

Redness from mere *repletion* of the smaller veins, is usually *extensive and diffused, &c.* The redness that belongs to *inflammation* is generally *circumscribed* and of *limited extent*."

How exactly these observations accord with the extensive and diffused redness of the inner surface of the alimentary canal and with the engorged veins externally of that tube, in Long's case, showing their cause was not inflammation, need not be suggested, and it is only requisite to refer to the explanation afforded by Majendie at p. 588 and to the extract from Dr. Dowler in the note, to understand the whole subject.—The mucus membrane *had* been the seat of an inflammatory excitement and consequent dilatation, which had been overcome but which left the vessels feeble, and the fit recipients for the liquid blood at the last moment of life and even after death as shown by myself at page 569.

Dr. Watson further remarks "that it is generally difficult, and often impossible, to determine from the aspect of the vessels of a dead part, *from its redness*, that inflammation had been present in that part *during life*, unless the unequivocal products or effects of inflammatory action are present also" such as softening, thickening, induration, ulceration;—all of which were absent in the case in question.

Of the post mortem appearances nothing more need be said except to repeat any acknowledgments that may be due for the favor conferred upon me by the examination of the body and my presence at it.

Dr. Watson observes that it is remarkable, all things considered, how seldom the stomach is affected with acute inflammation. Scarcely ever do we find either the organ as a whole, or any one of its tissues separately, the subject of *spontaneous* acute inflammation."

Dr. Dickson of Charleston describes that "Acute Gastritis you will seldom meet with * * * It is readily recognized by the presence of severe pain at the pit of the stomach, with a sense of heat or burning, and intolerable oppression, nausea, and frequent and violent vomiting. After a short time, there is extreme tenderness at the Epigastrium, with inability to bear the slightest pressure: the skin becomes hot and dry—the pulse is small and contracted, but hard, tense and frequent—the tongue, at first covered with a white fur, becomes clean, and red, especially at the tip and around the edges; there is much thirst, but every thing taken is apt to be at once rejected, or occasions a sense of weight, and brings on hiccup. There is great anxiety and depression of spirits, with restlessness and sighing, and a peculiar and striking prostration of strength. As the case progresses, the tongue becomes fiery red, inflames and ulcerates, and the lips, gums and cheeks are hot, dry and swollen—the fauces and œsophagus take on similar appearances, and deglutition is quite difficult. The pulse loses its tension, and is weak and threadlike and undulatory—the eye is red and suffused—the bowels are often little disturbed, but usually at first constipated, they are *afterwards irritated into diarrhœa*; the mind is affected with low muttering delirium; the matters vomited are very various—at first the contents of the stomach, then mucus with a little bile, perhaps, and towards the termination, a diversity of morbid secretions, and not unfrequently the black vomit, the extremities grow cold, circulation languishes, respiration becomes more and more difficult, and death terminates the sufferings of the patients at a period ranging from a few

hours after the first access of the disease, to three, four, or five days, or a week."

This is a description of inflammation of the stomach, and it does not correspond with Mr. Long's case. He, it was said, died so gently, so free from pain or distress that the gentleman attending him was not conscious he was dying. But it may be said *for* Dr. Davis that he reported the disease inflammation of the stomach *and bowels*. If so let the following description be compared with the case.

Dr. Elliotson thus describes inflammation of the intestines. "In simple enteritis,—supposing it to be active and violent,—we have acute deep-seated pain; and this may occur in various parts of the intestinal region. Although the pain is constant, yet it is aggravated at intervals; and it is increased on pressure." "In this disease, where there is this sharp fixed pain, there is usually great costiveness. The abdomen, after a time, becomes tense; and, from the severity of the pain, there is anxiety of countenance. The tongue grows white, and the breathing is quickened. Nausea and vomiting soon occur; and if complete obstruction take place, we may have vomiting of feces, this occasionally happens; and formerly a particular name was given to it;—"the iliac passion."—The patient lies on his back,—just as in peritonitis, with his body drawn forwards, and his limbs drawn up. The patient lies quiet, for if he moves about he increases the pains. A patient is often disposed to be restless throughout, but for some reason, he cannot. In these cases the patient keeps the body still, but tosses his arms about. The pulse becomes quick, and it is generally small and somewhat hard. It is generally in cases of this kind, that we have what is termed a *wiry* pulse; that is to say the pulse is as small and hard as a wire. The tongue at last grows brown, and ultimately (provided things go on from bad to worse) the pain ceases; the patient will often bear pressure; the abdomen swells, and becomes very large and if we place our fingers across it, and strike it, the sound is as hollow as that of a drum.—The patient then becomes exceedingly restless, and delirious, the pulse becomes irregular and very rapid, the respiration is also quickened and death ensues."

To which is added from Dr. Dickson that "constipation of the bowels is a common symptom at first; but an irritating diarrhœa is apt to come on towards the unfavorable terminations, the stools consisting of mucus with bile—of serous and ichorous effusions, known as *lotura carnium*, [washings of blood] and of black matter similar to that thrown up." These are the symptoms of inflammation of the bowels—of the *smaller* intestines—Mr. Long's case presented the *reverse* of them all at the termination—The character of the discharges during the last week of his life renders all doubt impossible. One thin, yellow stool on Monday and two full pultaceous yellow ones of large size afterwards.

Will it then, in desperation, be said *for* Dr. Davis that the inflammation was in the *large* intestines presenting as they did a *deeper red* color? Dr. Watsons says, and every one knows, that—

"Dysentery consists essentially, in inflammation of the *large* intestines." "Its characteristic symptoms are griping pains in the abdomen, followed by frequent mucus or bloody stools, straining and tenesmus." These suffice—they were totally absent in this case, as were all symptoms

indicating an inflammatory state of the stomach and bowels through any part of their extent, from the time, and long before Dr. Davis saw Mr. Long.

It will be seen that the character of the discharges during the week preceding his death was the entire *opposite* of such as attend "inflammation of the stomach and bowels." The contents of the bowels, if any in such cases after death, would of necessity, be of the same nature as the discharges just described during the last days of life—and what were the contents in Mr. Long's case can be known by referring to p. 569 and those during the week preceding death will be found at p. 568.

It will be seen at p. 585 that, in death from Yellow Fever the contents are never yellow—*never bilious*; and neither are the operations of this character—they are *bloody*—they are *bileless*; with him the discharges and the contents of the bowels were *bilious*—were a yellow pultaceous mass.

Mr. Long did not die, then, of "Inflammation of the stomach and bowels"—he did not die of Yellow Fever, though this was the disease with which he was attacked, and for which he had been treated by Dr. Lyle and myself and carried by us to a point of *safety*, as may be seen at page 582-3 from the testimony, in such cases, of as good authority as the South contains, and also by reference to any and all authority.

He died of "Debility," of "exhaustion resulting from [yellow] fever" of a mere inanition from the withholding of *stimulants* and *nourishment*, liquid *animal* food—the former to invigorate and sustain the system, while the latter was affording a *permanent* strength and healthful action to the organism, by replenishing the liquid, the impoverished blood.

Compare the case of Nelson Newman with Mr. Long's—the period of the fever—the condition in the calm,† the stools, the urine and the bleeding skins—the treatment and the *results* in each and the truth of this is amply established.

It has been said, with a view to impress the public mind to my discredit and shame, that Mr. Long's disease was inflammation of the stomach and bowels,—that I caused this by Calomel! and that I gave brandy in such disease, while the fact that brandy was *continued* is studiously withheld;—it was also said the calomel caused an *obstruction* of the bowels!—and this was pronounced merely because water would

† After describing the first, or febrile stage, and the second, or that of the calm, Mosely remarks, "It is in the *beginning* of this second stage when attempts have failed, or have been neglected in the inflammatory [the febrile] stage, that the *great struggle* is to be made between *life and death*." This was the moment anxiously looked for, and at which I saw I had failed in Mr. Long's case. I immediately informed Judge Thacher of his critical condition and explained to him and others upon *what* depended the struggle about to take place, namely, the failure of a discharge of bile *into* the bowels,—the failure of an *excretion* of bile; and this was the time, "the beginning of this second stage" when an excretion suddenly ceased in Nelson Newman's case; and this was the moment when the great "struggle between life and death" took place in the case of Dr. Lewis' clergyman noticed at page 584—and for the same reason in this as in my two cases. These authors state, and all persons conversant with yellow fever know the fact; I point out the *reason* for the fact, which my own obser-

not enter the bowels by its own weight while the end of the tube was held against the side of the bowel. All these absurdities, these worse than absurdities, have been palmed on the public, and have been believed and repeated by some.†

The case of Soher will now be read with more advantage than before. It exhibits that I knew *when* calomel would be injurious; *when* the morbid symptoms were to be combated by other means—by local bleedings, &c.; and *when*, these relieved, calomel could be given again with advantage, or, at least, with safety, and, certainly, *not* to cause “inflammation of the stomach and bowels” in this case, as, also, *not* in Nelson Newman’s and *not* in Long’s.

It exhibits also, that I knew what was the chief *curative* symptom in that case of Yellow Fever, namely, the full secretion of deep yellow urine and which I, citing this case, explained to several of Mr. Long’s friends was, next to a discharge of bile by the bowels, the most to be relied upon § (though not found in Long’s case as profuse as in Soher; for, indeed, there was a less profuse secretion, thus to be removed, in the former than in the latter)—I venture nothing in saying that, but for this mode of relief to the blood, Mr. L. would have had Black Vomit by the 5th or 6th or 7th day,—and also that, but for the same, so would N. Newman and Soher have had Black Vomit; and I venture nothing in saying that nature would have failed in her efforts in these cases but for the *propriety* of the treatment—its adaptation to the stages—and, all

vation had taught me through sad experience.

It was only on the 23d February last that for the first time, I read Hillary’s work, and on the 8th of this present month, Mosely’s, on the Yellow Fever of the West Indies,—and much to my regret not, in time, to use their remarks and descriptions, so confirmatory are Hillary’s, of my own observations of the nature of the late epidemic, and of yellow fever, as seen before and as studied from books.

Although out of place, I must insert from Hillary p. 109 that “when [in yellow fever] they are fainting they turn *yellow* about the face and neck instead of *pale*, and as the faintness goes off they recover their natural color again;” a remarkable proof of this condition of the system in our epidemic will be found at p. 578 in the case of Mrs. Vanhoesen.

† Their grossness is now exposed, and not the less palpably can I expose the misconceptions of a few respecting any question of general success of treatment, throughout the epidemic; and should any one intimate that I was, *during* the prevalence of the epidemic, or at other time, so far forgetful of professional and all other propriety, as to offer *a thousand dollars* to him who would show a case I had lost, guarded, withal by *little, saving* clauses, I can, in this improbable event, prove that I never did such a *wretched* act. Did *any* one do so gross a thing? a thing, gross if true, and worse than gross as *not* true, in the claim it makes of losing none.

§ In Mosely’s work is found the following remark by Towne who had practised in the West Indies,—“Another *great* benefit we gain from blisters is the tendency they have to the bladder, by which means another *plentiful* discharge of the *redundant* bile is obtained, for by the precipitating, if I may use the expression, those particles to the urinary organs, they throw off *abundance* of them by that secretion.” He evidently mistakes this important *curative* symptom, this effort of nature,—for an *effect* of the blister—but it, not the less, establishes his estimate of the value of a *full elimination of bile by the kidneys*—a physician who attributes all favorable changes to remedies, and all unfavorable ones to the disease, *never* learns, and worse than that, *deceives* himself and others, and thus it becomes true that experience *deceives*, while it *teaches*, under more discriminating observation.

this based upon a knowledge, in *advance*, of those stages I claim to have *aided* nature to the recovery in the cases of Soher and Nelson Newman and I claim that Dr. Lyle and I could and would have done the same in Mr. Long's, had we been allowed.

Inflammation of the stomach is rare as an idiopathic affection—that of the bowels alone is more common—it is frequent in some parts of the canal conjoined with other acute diseases, especially with fevers. “In fevers we must look out for gastritis” as also for inflammation of the bowels, both of which I had done in Long's case—had found such as existed, and had subdued it.—Proof of the latter, or of the absence of inflammation is found in the fact that he became *better* from or *after* the use of *brandy*, and the fact that brandy was continued by Dr. Davis condemns his written opinion—his report of the disease, for though given by him in quantity too small to answer the requirements of the case, it was enough to destroy—to agonize a patient suffering with “inflammation of the stomach and bowels.”

If this inflammation was conjoined with, was symptomatic of other disease, even allowing its presence on Monday, one week preceding the death, will it ever be answered for Dr. Davis what that disease was? Was it fever? Was it Yellow Fever which he denied existed in Natchez? Will it not be necessary to insist that the inflammation meant by Dr. Davis was none of your *material* changes of the organism—was *spiritual* and required *spiritual* remedies? This indeed is the last ground on which to defend his view of the case and the treatment. *Disease is spiritual, not material,—remedies are spiritualized by human means!*

Upon spiritual medicine must the defence be made; that is “infallible,”—presents a bold front and has innumerable loop holes for escape, when its fallibility is exposed. Upon spiritual medicine then, upon this phantazy from a German dreamer's brain, which, pretendingly, rejects the *restorative* power of nature, its only dependence, and which claims one of its chief tenets to be as true as the Christian doctrine of Original Sin, and so united in *destiny as in origin*, that one can only fall with the other; upon such mysticism, upon such bold, such presumptuous effrontery of doctrine, and upon such futile practice was the life of Mr. Long risked and sacrificed—and this without the expressed *approval* of the attending friends of Mr. Long, for they all, with perhaps one exception expressed their *disapproval* of the change of physician—of the change of practice. This change of practice was instituted at a time when he was declared by Dr. Jones to be decidedly better—when Mr. Thomas Henderson said he was better, and when Dr. Sidney Smith considered his symptoms *highly favorable*—Dr. Smith had seen him on the Friday and Saturday preceding and again within two hours of the change of physicians on Monday and, having heard such unfavorable accounts of his condition, was surprised to find him so much better than on the two former days.

Then why did he not recover? I have answered this in the account of the case, and the confirmation of that is left for the judgment of the Public and the Profession.