

# THE NEW ORLEANS MEDICAL AND SURGICAL JOURNAL.

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## Part First.

### ORIGINAL COMMUNICATIONS.

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I.—*Medical History of Alabama.* By P. H. LEWIS, M. D. of Mobile.  
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It is proposed under this head to condense from the recollections of medical men, and from the fragmentary accounts to be found in public papers and journals, such facts and material as bear directly upon the past diseases of the State. When, stimulated by the invitation of the Society, we first entered upon the field which has been so poorly cultivated, scanty indeed seemed the coming harvest; but by persevering in a rigid system of enquiry, enough, it is hoped, has been gathered to throw some light, at least, upon the mysterious habit and character which the diseases of Alabama have assumed at different periods of time.

The State of Alabama extends from 30°, 12' to 35 degrees North latitude. The Tennessee River passes through a small portion of the Northern section, the valley of which is separated from middle and Southern Alabama by a broad chain of granitic highlands, running East and West. The Chattahoochie forms a portion of the Eastern boundary, and the South-western section is watered by the Connechu. The other rivers are the tributaries of the Mobile, viz. the Tombigby, Warrior, Coosa, Tallapoosa, and Alabama. These rivers are so serpentine in their courses as frequently to vary twenty and thirty miles from the line of their direction to the Gulf.

The State is three hundred and forty miles in length, with a mean width of one hundred and sixty. The soil and geological features are strikingly diversified, giving rise to vicissitudes of climate, and phases of disease, unusual in so limited a region of country. And believing that an accurate acquaintance with the nature and character of the former

is of paramount importance in the study of *Ætiology*, the writer will, at a proper time, endeavour to point out those distinctive features that are observable in the terrestrial formations of the respective regions into which the State is divided.

In tracing the diseases of Alabama through all the changes they have undergone, we are insensibly led into a wide field of speculation; but after collecting all the facts pertaining to the specific character of each, the time, place and circumstances under which they are found, and their relative bearing to each other, we discover here as every where else, such a chain of facts as would lead to the conclusion, that nature, in all her ways, has adopted an uniform course of progressive action. As we see, that, by the operation of her invariable laws, the tender plant germinates and expands under the influence of heat and moisture, and passes through all its successive stages until it arrives at maturity, so in a similar order of sequences, following in the decay of that same organic formation, and under the same general influences, a noxious miasm is produced which becomes a powerful morbid agent for man's destruction.

That climate exerts a powerful influence in marking the character of endemic disease, is a fact so apparent that the careful observer cannot fail to perceive the regular gradation of all febrile affections, as he advances from a cold region of country to the burning influence of a tropical sun. The luxuriant growth of vegetation also tends to produce a great intensity in the miasma, that constitutes in part, at least, the cause of disease in southern latitudes.

When the early pioneer first settled in this country, disease, as a general rule, was uniform in its character. But as an improved cultivation of the earth goes hand in hand with the march of civilization, and as this, in its turn, exerts a sensible influence upon the atmosphere, by exposing the virgin soil to a tropical heat, we can readily trace a corresponding change in the character of disease.

Sensibly impressed with the difference of atmospheric temperature, in the woodlands, as contrasted with that of cultivated regions, we have endeavored to ascertain by experiment the extent of influence which this has upon the soil; and we have found that a thermometer inserted ten inches into cultivated earth, fairly exposed, will show an increased temperature of at least 8° over that of uncleared soil, in summer; whilst in winter the difference is equally great, excepting that it is reversed.—As a consequence of these changes of atmospheric and terrestrial temperature, the rapid increase and decay of vegetable and animal matter, together with physical causes not enumerated, such a change in the gaseous emanations is doubtless produced as tends to designate the character of disease at various periods of time.

Connected with this matter there is at the same time an altered condition of the constitution and temperament as man advances from a state of native simplicity to the refined and luxurious habits that wealth can command. In that primitive state of existence the mind was unfettered by corroding cares, the articles of food simple in their nature, and the oaken couch was as soft to the wearied husbandman as a pillow of down—then the robust frame enjoyed an almost uninterrupted condition of health, and great longevity marked man's pilgrimage on earth.

But when refinement slowly and stealthily creeps into his habitation; when the rude cabin obscured in the tangled vines of the wildwood, is exchanged for the more modern mansion of the exposed and cultivated plain; when the unlicensed freedom of sensual indulgence with the pampered appetite and excess of libation reign supreme—then is forcibly marked the cause of disease, tending to reduce the once stalwart man to a state of decrepitude; and the prattling urchin, instead of the glow of health that once sat upon his cheek, now presents the aspect of refined infirmity laying the foundation of an early grave.

To these various causes can be traced a gradual change in the character of disease from the first occupancy of our country to the present day—a change so forcibly exhibited that he who notes cannot fail in his diagnosis.

After a careful review and study of the regular gradation of disease we will so far anticipate inevitable conclusions as to divide the proposed history into three distinct epochs, viz: the Ataxique, Phlegmonic, and Adynamic. After tracing disease from its mild incipient action of early days, through the high toned phlegmasia of later times, until we arrive at that low stage of typhoid affection that marks the character of all disorders at the present day, it will be discovered that the above division, so far from being the result of any hypothesis, is natural and imperiously demanded.

The epoch to be first considered comprises that period in the history of the State extending from the time the hardy emigrant first took up his abode among the children of the forest, down to about the year 1819.—Immigration to the State was not very great until about 1812, when the great fertility of soil, advantages of navigation, and beauty of early scenery, began to be so well known and appreciated abroad as to cause a rapid influx of strangers.

The early settlers came mostly from Georgia, Carolina, Virginia, and Tennessee, and generally pitched their homes at convenient distances from each other. Owing to the fact that these immigrants brought but few laborers with them, they chose the uplands and hammocks rather than encounter, with a feeble force, the rich and heavy timbered alluvion of the river swamps. This in some measure accounts for the health enjoyed by the early inhabitant, still this health was not uninterrupted: coming from places, where the seed of infection had been exhausted, to a new country whose increased heat and the occasional morass and stagnant pool gave rise to noxious vapours, it cannot be supposed that the system could withstand altogether the frequent invasion of this poison. The effect, however, of these exhalations was confined to the immediate vicinity whence they were generated.

The character of fever prevailing in these years consisted of the various types of intermittent, with now and then, in mid-summer, the occurrence of bilious remittent: quotidians in the Spring and the first of Summer, remittents towards the close of Summer, with tertians and quartans in Autumn, and frequently continuing through the winter.

The Remittent fevers of this day were exceedingly mild, yielding readily to the operation of one emetic, and not unfrequently to the spontaneous discharges of bile and copious sweats that usually occurred in

the first paroxysm. In the most serious and obstinate cases, the intermissions or remissions were irregular and incomplete; the hot and sweating stages rapidly succeeding each other, and the chill or cold sensation becoming less distinct with every revolution.

If in that neglect, so often attending the treatment of non-malignant diseases, these fevers were suffered to continue, they not unfrequently glided into a continued irritative type, attended with great *nervousness*, twitching of the muscles, general emaciation and debility, constituting, what in those days were termed "nervous fever." After remaining in this situation for weeks, they (the patients) either slowly recovered, or critical sweats and involuntary discharges ensuing, a fatal termination was the result. These remittents, however, rarely assumed this form; as a general rule the disease gave way after two or three paroxysms, to be replaced late in autumn by the stubborn and unyielding quartan of winter.

As a general rule, the intermittents or agues of those times were not dangerous in their primary stages, but when the patient became the subject of oft repeated and long continued attacks, the constitution was frequently placed in great peril; the young and athletic seldom failed in the end to triumph over this hated companion; but the aged, and those of infirm constitution or intemperate habits, had to run the hazard of diarrhœa, anasarca, or severe organic disease.

The cold stage of these Intermittents continued for many hours, attended with *gaping*, *stretching* and incessant *shaking*. It has been stated that in these fevers there was no danger in their primary stages,—inquiry has, however, brought to light a few exceptions to which attention is here invited. After several hours continuance of "a hard ague" the rigors and shaking would suddenly cease and instead of the usual signs of reaction and fever, the physician would be surprized to find the body bathed in a copious perspiration, slow compressible pulse, cool blueish tongue, sunken careless expression of countenance, with a cessation of all pain and anxiety. In a few hours the tendency of this condition was made manifest by a deepening of the foregoing symptoms, together with insensibility, swelling of the abdomen, and involuntary discharges. My informants, the late Drs. Shackelford and Crews, formerly of Connecuh, say that without a timely and well directed application of stimulants, both internally and externally, death soon closed the scene; but if the system rallied, a healthy action of the viscera slowly returned without the recurrence of another paroxysm.

Some of the older physicians refer to these cases as resembling the congestive fever of the present day; but a little reflection and examination should convince them that there is not the slightest analogy. Independent of the difference in symptoms, character, and mode of termination, we find in these cases the mischief to consist in the shock given to the system, by the violence of the ague, when in an atonic condition—whilst the other is but the sure and inevitable consequence of the invading poison.

Dysentery and diarrhœa in the spring and summer, tertian fevers in the autumn, and catarrhs and ill-defined pleuresies during the winter, were the disorders most prevalent among negroes: from the fact that

very few of this class of persons died of disease during this period, these maladies must have been exceedingly mild.

Having noticed such cases of fever as assumed a grave character, with the details our meagre data afford, and endeavored to impress you with their various modes of termination, it is deemed unnecessary to dwell at further length upon the simple affections caused by the imperfectly formed malaria of those days.

This thinly settled region at that remote period was inadequate to the support of scientific physicians; the few that were here having to unite some other occupation with their time-serving profession. Under such circumstances it was impossible that the Therapeutics of that day should have been dignified into anything like a rational system. Every planter and physician had his favorite remedy which he never failed to apply in the true spirit of empiricism. Tartar Emetic given to emesis was extensively used—as was also, especially in remittents, the *Bonacet* or Eupatorium Perfin. But calomel and jalap to “*pass off* the bile,” and Peruvian Bark to prevent the recurrence of the paroxysm, was the most uniform and successful system of practice. After the regular quartan ague became firmly established, the patient abandoned all attempts at cure; preferring the *luxury* of the mid-day sun together with the issue that accident or circumstances might produce, to the use of nauseous remedies in which he had lost all confidence.

Before entering upon the consideration of the diseases of the second epoch, it may be well to mention that towards the close of the first, intermittents in some localities were not unfrequently distinguished by phenomena of a character not yet mentioned.

These cases occurred about St. Stephens, Claiborne, and probably other villages, in the years 1816 and 1817. During the paroxysms there was great pain in the back, furred tongue, bounding pulse, anxiety and active delirium; the intermissions marked by loathing of food, swimming in the head, and swelling in the region of the stomach and spleen. After three or four paroxysms of this kind, the fever became continued, attended with dry harsh skin, quick tense pulse, torpor of the bowels, and slight delirium in the evening. Diarrhœa, inflammation and supuration of the parotids, or chronic swelling of the abdominal viscera were the usual sequelæ of this form of fever.

The remittents of this epoch were only the sequelæ of an intermittent type immediately preceding. Upon the debility and abnormal condition of the liver and spleen caused by these remittents, disease of a similar but more obstinate character again ensued. The only plausible reason that can be advanced for this unity of disease, arises from the fact that malaria in its generative process from the simple elements that were then in existence was identical, and of course more uniform in its effects.

#### SECOND EPOCH.

The second stage of progressive action extends through a period of 14 or 15 years, from 1818 to 1833. This is the era the diseases of which present those marked and peculiar symptoms that cannot fail to be recognized as belonging to the active phlegmasiæ.

At this particular period the early settler had become an old citizen;

the rude log-cabin had in many instances given place to the stately mansion, and the girdled tree that stood in skeleton form around his habitation had crumbled under the pressure of tempest and decay. The ever-green of the hammock and the shady foliage of the undulating upland had now given place to the luxuriant cotton plant. Then too, the sluggish river and the dark lagoon began to yield up their cumbrous veils of foliage to the common mass of decomposing matter. In addition to these supposed causes, consequent upon extensive inroads into nature's forest, we may mention the exposure of a large extent of the earth's surface, the upturning of a soil abounding in organic remains, and the numerous springs of mineral matter, once hid beneath the surface of the earth, but now brought to light by the hand of man, all united in throwing forth their poisonous gases. Then too under the operation of natural laws, sprung into existence those numerous hordes of animated nature, the incessant reproduction and decay of which, doubtless contributed largely to those noxious exhalations, so active in producing disease and death.

And again, we should not forget that there is a principle well established in the progress of society, that as wealth accumulates, so luxury creeps into the favoured domicile, and under the imperious sway of sensual enjoyment, the wealthy inmate is tortured with a protean disease, unknown to the tenant of an humble mansion. From the causes thus briefly alluded to, we may distinctly trace on rational conclusions, that marked change in the character of disease so fully exhibited during this important epoch.

Between the years 1812 and 1818 the town of St. Stephens, situated on the lower part of the Bigby, had a large accession of population attended with a corresponding increase of houses and agricultural improvement in the vicinity. Fever of a severe and malignant type prevailed in this place during the summers of 1818, '19, '20, and '21.—During the two latter years, however, the town began to decline, and sank with a rapidity even greater than that which marked its rise.

Fort Claiborne, situated on the most elevated bluff of the Alabama River, was an unimportant place until about the year 1818, at which time it began to improve, and in 1822 the population had increased to 3,000. This high and elevated plain has a gradual declivity as it recedes from the bank of the river until reaching a few low marshy ponds. In 1819 fever prevailed in this town with great severity—making its annual visitation, with every summer an increased mortality, until the population began to decline about 1825 or '26.

About the years 1817–18 and '19, the town of Cahawba increased very rapidly in population, and at the same time a vast extent of that fertile region of country was brought into cultivation. In 1821, a year memorable in Alabama for a late inundation of the rivers, destruction of the crops, and wide spread disease, the citizens of Cahawba experienced their first epidemic visitation. Dr. Heustis remarks that the great overflow was in July, and that "in the month of August, the putrefactive process was so great that he was assailed in both town and country with a disagreeable odour resembling that of a room in which many sick of the fever were confined."

The newspapers published at that time do not disclose the extent of

mortality in their respective cities, but published very liberally of the reports which were brought them by their neighbours. There seems to have been a studied effort on the part of the inhabitants of these towns to conceal from those at a distance knowledge of the great fatality of the fevers of 1821 and '22. The people of Cahawba were so tenacious of the population of their town (the then seat of Government) that they held a public meeting in the midst of the epidemic, and resolved that the fears of those who had retired into the country were not well founded, and forced the public officers to return to the city and resume their various duties. This mortality, not less than twelve per cent. of the entire population, far exceeded that of the country settlements. The population of these towns was composed in part of emigrants from the Northern States and Europe—this class of persons were invariably attacked with more virulence than those who were accustomed to malarious regions. In those days, (and in this all the earlier observers agree,) a climatic attack of fever, generally of a continued type, was incident to the first year's residence, even in the absence of general disease.

In no section of the State which presented during this period a cultivated condition, was there immunity from disease. One year subsequent to that in which the enterprising immigrant invaded the forest, fever began making its annual visits, until time with her incessant changes had destroyed the material whence it came.

The Spring months of 1819–20–21–22–23 were exceedingly wet, the rains frequently continuing until the first of August. It was during these years that the settlements and towns throughout the entire State were so generally and severely afflicted, as not only to create great alarm at home, but to give the country an unenviable reputation abroad. The inhabitants in the vicinity of the sandy and hammock lands, after 1825 became healthy, whilst those in the neighborhood of the yellow argillaceous soils, continued to suffer even with increased violence.

It is wholly impracticable at this distant day to attempt any thing like an account of the various epidemics of different localities, or to enter into a minute description of individual cases of disease; still it is believed that a sufficient array of facts can be collected for a true and correct representation of disease during those by-gone days.

Intermittent fever and dysentery, from their frequency in the Spring may be said to have constituted the prevailing forms of disease of that season—in many instances they ran into each other, becoming complicated and very violent. These irregular forms of disease, with the vast number of attending mild intermittents, had scarcely begun to attract attention when remittents, those connecting links in the chain of morbid action in the South, made their appearance.

The remittent fever was ushered in by a feeling of coldness of the extremities extending along the back alternately with flashes of heat and frequently accompanied with vomiting; these symptoms were soon succeeded by violent pain and throbbing in the head, flushed face, hot skin, and bounding pulse. The tongue was coated in the onset with white fur, which after copious secretions and discharge of bile assumed a yellowish caste. In a few hours a copious sweat ensued, and all these symptoms abated until a remission occurred. With some degree of variability in the recurrence of the exacerbations and remissions, the disease

proceeded for four or five days, and yielded under the influence of copious sweats and discharges of dark bilious matter. This mild character of fever prevailed but a few weeks in the first part of summer, before giving place to those of a more virulent character and to which particular attention is invited.

As a general rule the fevers of Alabama have ever been and still are of a remittent form, yet under those circumstances and in those situations in which they prevail with any degree of violence or malignity, there are cases of a continued type, or those in which a remission is but a deceptive veil, amounting only to a momentary calm, which is succeeded by a long and violent storm, constantly threatening the unfortunate sufferer with annihilation. These are the descriptions of cases which at that day demanded attention and to which the watchful eye of the physician was ever turned. They were the cases upon which danger alone waited, presenting that condition of the system in which is revealed the character of the attending and milder cases of the same type. And as such, they are properly considered the standard by which we are to judge and measure the character of disease during that epoch.

And first of the remittents. They were ushered in with a sensation of coldness, slight in degree, but often long continued,—with restlessness, thirst, and burning of the muscles. This condition soon passed into one distinguished by intense heat and dryness of skin, excruciating pain in the head and back, white furred tongue, frequent *tense* pulse, restlessness, and irritability of temper. In 18, 24, or 48 hours, during which time the lancet and antimony were freely used, a moderate perspiration with a decrease of heat and moderate pulse ensues. This abatement of distressing symptoms called a remission, rendered the patient so comfortable, when compared to his previous suffering, as often to flatter him that a happy crisis had approached—but in a few hours there was, without any sensation of coldness, a renewal of the febrile symptoms even more intense than before. After the second or third paroxysms which were irregular in duration, the disease gave way under the influence of copious evacuations of thick black matter and a general perspiration. In some cases, however, after one imperfect remission or a momentary calm, the symptoms became indicative of the most aggravated character of disease, the pulse became strong and corded, delirium of the most extravagant character attending. These cases continued many days, yielding in the end to the heroic practice of the times, spontaneous active hemorrhages, or unfortunately resulting in organic disease, or after the *departure of the fever* leaving the patient in a fatal collapse.

In other cases again, after the second or third paroxysms, the tongue become fiery red, pulse small, frequent and wiry, extremities cool, constant thirst, retching to vomit, great restlessness and delirium. In this description of cases (mis-named typhoid) there was evidently gastric and cerebral inflammation of the most active kind, generally proving fatal to the patient.

The observing men who practiced in those fevers state that the *pulse never lost its tenseness short of convalescence*. Dr. Heustis remarks, "*little abatement of the tension* took place even during the remissions."

But the most common form of obstinate and dangerous fevers throughout this period was the continued; they took place usually without chill



or sensation of coldness, the pulse slow at first, gradually became corded and bounding, the skin increased in temperature until it became burning hot, eyes injected and suffused, pain in the head, back, and joints, restlessness, thirst, and sometimes nausea took place; towards the evening, after the first day, delirium made its appearance, with hypochondriasis during the slight abatement of mornings. The duration of these cases depended very much upon the treatment; continuing four, five, and often nine days. These fevers were usually called "bilious inflammatory," and owing to the violence of the vascular excitement, local inflammation often occurred. Spontaneous hemorrhage from the nose, and black grumous discharges from the bowels were frequent, and always attended with happy consequences; a slight yellow tinge of the eye was sometimes observable from an early stage, but no yellowness of skin was visible except in the stage of imperfect and protracted convalescence.

During the violent epidemics of Claiborne and Cahawba, there were a few cases in which there was not such a high degree of vascular excitement or intense suffering. The morbid action set up in these patients was manifested by a slow and less corded pulse, slight stupor and gloomy physiognomy, the skin was slightly yellow and of moderate temperature, the stools passed in small patches, very much the appearance and consistence of putty, urine scanty and of dark brown color. In two of this description of cases, observed by Huestis, there were indications of "rapid putrefaction" and in one the blood ejected from the stomach was so dissolved and blackened as to give it the appearance of black vomit: In fact, in this case it was identical, and had description stopped here, the conclusion that many of those cases were yellow fever, would be inevitable. But the Doctor speaking of the discharges from the bowels, says:—"I took it to be the same as what is called black vomit, though it was discharged in immense quantities,"—he further says "this matter was inodorous, not perfectly black and stained the linen of a dark green color." Hence it is to be inferred, that this discharge instead of being "black vomit" was but one of the various characters of vitiated excretions that occur in the disorders of a highly malarious region. Still it cannot be denied that such of those cases (few in number) as were of low action, gloomy physiognomy, dusky yellowness of skin and eyes, tending to putrescency and collapse, simulated yellow-fever very closely.

There are other cases again (exceptions) that might be alluded to, but pretending simply to portray the general character of disease, attention is once more called to the remittent and continued fevers of high vascular excitement. In these diseases, Dr. Heustis remarks "*the blood was cohesive and free from that attenuated and dissolved condition which authors describe as characteristic of putridity in malignant diseases.* Not unfrequently the crassamentum was covered with the buffy coat as in cases of local inflammation." In this statement, the Doctor is sustained by all of the medical men who practised in his day. In the examination of bodies all agree that the liver was distended with blood, the spleen engorged and sometimes softened, and the membranes of the brain and stomach giving evidence of preexisting inflammation. In fact, if the statements of those who made examinations are to be relied upon, these evidences of inflammation are abundantly adequate to the explanation of the fatal termination.

THE TREATMENT pursued was bold and prompt, corresponding perfectly with the violent undisguised character of disease which the physician had to combat. Blood-letting, emetics, cathartics, calomel and jalap, with a constant *stand-bye* of the pulvis antimonialis were then the Sampsons of the art. If any patient passed through the stages of fever with an *unscared* arm, it was deemed a hazardous and unfortunate omission. The practitioners of that day now to be met with, tell us that this bleeding was repeated frequently in the same patient, and such was the acknowledged utility of the practice, that the lancet was placed in the hands of all overseers and heads of families. Heustis and Casey tell us that they bled universally, sometimes taking away 70 ounces of blood from one patient in the course of the fever; at the same time remarking that "the mildest cases required the lancet."

Peruvian Bark, which had been in high repute in the treatment of the diseases of the preceding epoch, was given during the remission of these fevers with unsatisfactory results. The large mass of physicians found it not only disagreeable to the patients, but annually producing increased violence of the succeeding paroxysm; and not unfrequently, when given in an early stage of convalescence, inducing reaction of the disease; hence they abandoned its use entirely. Dr. Heustis is the only advocate for its use, and he speaks of it with faint praise. Various remedies were used, still the lancet and antimony were chiefly relied upon. Calomel was used in every case, but it was not until about the close of this epoch that it became the chief ingredient of modern empiricism.

During the epidemics of the towns, children of all ages were frequently attacked with the prevailing fever. Negroes were not so generally or violently attacked as the whites; the diseases most partial to them, were dysenteries in the spring, agues during the cold nights and mornings of Autumn, and pleurisies throughout the winter.

During this period, the old fashioned intermittent, attended with an ague of sufficient intensity (to use the language of many a sufferer) "to shake down the bed," had given place to a mere creeping sensation, and the febrile excitement that in the former state was very imperfect, became developed in the latter to great excess.

The experience and observation of former times, seemed every where to attest the fact, that the more violent the paroxysm of the cold stage, the less intense was the degree of febrile excitement; and that when a higher tone of vascularity was set up in the system the reverse of this effect was induced; the chill was imperfect, amounting to nothing more than a rigor and the inflammatory action was increased in a threefold proportion. And these rules will hold good when referring to the exanthematous and remittent fevers of those extinct periods, for in both forms of disease there was invariably noted a depression of the nervous system, at the onset of attack, and according to its violence or minor influence the practitioner could generally arrive at a correct conclusion relative to the progress of the second stage. This principle so completely prevailed in the prognosis of disease incident to the second epoch, that medical men tell us, that in all violent and dangerous febrile affections, the rigor was either wanting or so indistinct as scarcely to be noticed.

Disease at that time did not run into putrescency; typhoid and typhus

fever were not known in the bounds of the State, and scarlatina had not developed that malignant form so fatal during these latter days.

To all of these rules there were exceptions, and so long as man is subjected to the same influences that do now and ever have existed, those exceptions will never cease. Yet amidst the endless variety of phenomena that each era may produce, there are prominent leading features that stamp them with characters too legible to be mistaken. And if we apply the laws of pathology to the increased vascularity of the tissue, bounding corded pulse, burning on the surface, fiery red tongue, constant tendency to local inflammation and buffy coat of the blood incident to the diseases of this period, no doubt can exist of their true character, and the propriety of placing them in that rank which we claim for them.

### THIRD EPOCH.

Although the diseases of the State maintained up to 1834 the character described as belonging to those of the preceding epoch, yet after 1830, they began sensibly to change, especially those maladies that belong to the winter months. During the intervening years of 1830 and 1834 the inflammatory affections of winter assumed rather a low typhoid type, whilst the fevers of summer displayed less of that high toned vascularity, than had been their wont, and were attended with little fatality. In 1834 the change in type and character as contrasted with 1828 was complete and striking. During the summer and autumn of this year the red and scarlet livery of past years had disappeared, and disease henceforth robed itself in darker and more gloomy colors. The cold stage of fever had heretofore attracted no other attention than as ushering in the stage of preternatural excitement, the intensity and violence of which alone marked the degree of danger in the case. To local inflammation, or that sinking and collapse which ensued upon the breaking up of such high unnatural excitement in the system, was directed the attention of the physician for the issue of these evils. Disease then was bold in its approach, open and undisguised in its conflict with the constitution. But in 1834 we find its approach was insidious and unobserved, giving no serious warning of its proximity, until the unconscious victim was secure in its grasp. The patient first complained of depression, *heat and burning*, when to the touch the surface was icy cold. That cold, that first stage, is now the stage of disease and of peril; and that reaction which in past days, was looked to with fear and trembling, would now be hailed as the messenger of returning health and vigor.

Causes of a prominent nature have been assigned for the change which took place in the character and temper of disease about 1818.—Whether those causes were adequate to the production of these new pathological features cannot be asserted with absolute certainty, yet such a conclusion is plausible and sustained in part by events in the history of other and older States. But for the change which we are now contemplating, the mind cannot fix upon any tangible or supposed cause with certainty or satisfaction. In many parts of Europe as well as America, it was noticed, about this time, that disease assumed an adynamic type. This change, though not so marked elsewhere as in Ala., was still sufficiently prominent to attract general attention. Watson and other observers seem to hold the opinion that it was in some way influ-

enced by the epidemic cholera which immediately preceded. Owing to the fact that many cases of congestive fever, (then a new disease in Ala.,) resembled the cholera in some of its symptoms, the same conjecture has been made here.\* But when it is known that the congestive fever of Ala., is identical with a disease, designated by the names "cold plague," "congestive typhus" and "cold sickness," that has occasionally shewed itself in certain localities along the Mississippi and Apalachicola low lands since 1820, it becomes obvious that this particular form of disease is essentially indigenous to the country, and that its development in Ala. was owing to local causes rather than any (*inexplicable*) foreign atmospheric agency. But this particular form of fever and all speculation on the subject aside, and it becomes our duty, so far at least as unerring testimony can make it, to state, that diseases of every form, season and locality in the bounds of the State became at this particular time characterized by a low enfeebled state of the circulation, opposite that which previously existed; and that even the enlightened and observing surgeon, in cases of injury and violence, had frequently to stimulate and nourish, where but a short time before the most active depletion would have been required.

In relation to disease as it is presented during this epoch, (from 1834 to 1847,) it has already been intimated that there was a display of certain specific differences in various sections and localities of the state which could not be reconciled in any other way than by supposing that they were owing to some peculiarity attaching to the organic nature of each locality and region.

That the chemical character of the soil varies with the geological systems or formations, and that the morbid agents are as varied as these, is so evident as to require no argument. In fact, it is upon this hypothesis that the old and well established doctrine of malaria alone can rest with security:—for if disease were uniformly the same in regions distinguished by separate and peculiar physical characters, even in the same latitude, then that theory which is based on the supposition that these different formations would give out emanations that are identical, would not be entitled to serious consideration. But we find in Alabama that, although the diseases may belong to the same family, yet they are distinguished by certain differences as apparent as are the physical characteristics peculiar to the regions where they respectively prevail.—Finding that this connection and dependence every where exist, and the influence which physical geography exerts, independent of latitude, is not less apparent, the writer is forced to the conclusion that there will be no further advance in the science of ætiology without the aid of geology and chemistry; hence the propriety of a sketch of the geological structure of the state, together with such brief notices of the character of the soil of its different regions, as an imperfect knowledge of the requisite sciences, want of personal observation and his limited time will allow the writer to make.†

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\* The Cholera did not prevail to any extent in Ala.; only a few cases occurred in Mobile and Montgomery.

† For the facts in relation to the Geological features that prevail in the State, we are indebted to a communication from and frequent conversations held with

The middle portion of the state, from its fertility, wealth, population and severity of disease, is the first to demand attention. This region, known as the Prairies, runs through the State from East to West, embracing the following counties; Russell and a part of Barbour, Macon and Tallapoosa, with a part of Pike; Montgomery, Lowndes, Dallas, Wilcox, Autauga, Perry, Marengo, Sumpter, Greene, with a portion of Tuscaloosa; Pickens, Bibb and Shelby. The strata of this section are of the cretaceous formation; the boundaries of which are easily traced and defined. The lower stratum of the series consists principally of silicious sand, with various interstratifications of green sand, clay and limestone; above these is a bed of soft, impervious, argillaceous limestone. This bed, commonly known as rotten limestone, is, in some localities, from two to three hundred feet thick; while in others, it is found exceedingly thin, but never disappearing. Resting upon this stratum is a deposit of yellowish, pulverable limestone, which in a few instances is replaced by a pure white carbonate of lime.

This deposit, though occasionally extending quite to the surface, may be regarded as sub-soil. It is the repository of numerous fossil remains, and is well calculated to furnish a rich supply of nourishing material for the exhausted soil spread upon the surface.

The most perfect type of the cretaceous or prairie formation is between the Alabama and Bigby rivers; most of the other portions being overlaid by hills, ridges, and slight elevations composed of sterile sand, gravel, or ferruginous clay. The prairies are somewhat undulating, and consist of varieties known as the *black*, *bald*, *post-oak*, *slough*, and *cane-brake*. The bald prairies are destitute of trees; sometimes, when they are elevated, barely covered with grass; the extensive prairies, however, are abundantly supplied with this kind of verdure, and the soil consists of a deep, black, argillaceous mould resting on a sub-soil already described. The post-oak prairie differs from these very slightly. The slough prairies are generally lower than the others, being the valleys, which are traversed by serpentine creeks; the soil is a dark grey. The cane-brake soil differs but little from that of the slough prairie; the color is usually lighter, it is more glutinous, and of much greater humidity.

The result of analysis by Mr. Ruffin, editor of the Farmers' Register, shows that the soil of the perfectly bald prairie contains from 50 to 70 per cent. of carbonate of lime, and that this ingredient grows less as the soil is covered with verdure, or trees; while the slough or cane-brake soil is found to contain only from 3 to 15 per cent. of carbonate of lime, and frequently none at all.

At the instance of Col. James S. Deas, and others, an analysis of the prairie soil was made by Drs. Cooper, and Gibbs, of Columbia, South Carolina, which furnished the following results. The rich black soil (bald prairie) contained 25 per cent. carbonate of lime, and 28 per cent. of vegetable matter; slough prairie from the same plantation, 15 per cent. carbonate of lime, and 25 of vegetable matter; the other ingredients, aluminous earth, with a small quantity of silex and iron. In proportion as the earth was penetrated, there was an increase of vegetable matter.

Mr. C. S. Hale of Mobile—who, impelled alone by an enthusiastic interest in the geology of a State exhibiting such varied and wonderful structure, has at an immense personal sacrifice made himself acquainted with most of its sections.

In this analysis there was no attempt made to separate the animal from the vegetable matters. There can be no doubt, however, that the animal matter greatly preponderates in these soils, especially as we descend;—the immense mass of fossils on the surface, increasing in the sub-soil below, and the absence of evidence that vegetable matter has ever existed in any abundance since this soil emerged from the ocean, would seem to be conclusive on this head.

The manner in which a deposit, similar to that of the prairie, is formed, can be seen in any of the innumerable shell banks about the Mobile Bay, which are exposed to the air. Small patches or stræ of a deep black or dark greyish mould, evidently the product of the epidermis of shells, and the remains of small marine animals, can be traced throughout those that have been long exposed. These shell banks in the course of a few years are covered with a coarse grass, and as vegetable matter accumulates from the floods in the river, vegetation of a higher order springs into existence.

But from this example of the formation of prairie soils, it must not be inferred that those of the prairies were formed under precisely the same circumstances. The fossil remains found in them are those which are peculiar to deeper waters, and such as are never found in bays or estuaries. Under these circumstances, the question naturally arises, whence came the vegetable matter necessary to the forest growth, which here and there exists.

For its solution, the opinion of an intelligent agriculturist is here given. In a communication to the Farmers' Register, he remarks that "immediately after the elevation of these lands, they were unfit for the higher forms of vegetable life; but that under the influence of heat and moisture, the growth and decay of the inferior grasses, for a long period of time, accumulated the requisite amount of vegetable constituents.—The annual decay of these grasses gave an accession of vegetable matter to the earth, which, by repeated rains, has been washed down the hills; and this increase of vegetable matter has given growth to trees, which, in turn, by the falling of their leaves, have continued their growth, and increased the fertility of the soil." [Col. J. S. Deas.]

Within the boundaries of the prairie region, in the vicinity of the rivers, though unconnected with them, there is an occasional low swamp of the largest forest growth; the soil is a deep black mud, resting on a subsoil of white clay which contains fossil remains in the greatest abundance; the beds of these swamps are generally as low, or even lower than the bed of the river, and though very fertile, were not brought into cultivation until very recently.

The winding streams of the prairies usually dry up in summer, leaving numerous holes, or natural sesspools filled with water. In these, as well as in the waters of the cisterns excavated in the prairie limestone, there is, after every rain or accession of new material, a green scum thrown to the surface; this fermentation ceases in 10 or 15 days, after which the waters become pure.

As a general rule, the prairie soil having any elevation, from the fact that it is very retentive of water, holds such as it has in summer with too great tenacity for evaporation to go on rapidly; hence, after the first two or three years, the superior healthfulness of the elevated prai-

ries; while the low lands along the creeks known as the slough prairie, the swamps already mentioned and the reed marshes have proved to be more certain and prolific sources of disease than any other formations in the State, the low alluvion of the river bottoms not excepted. In fact, some of these localities, as the reed marshes in Greene, though very fertile, have been abandoned.

For want of proper information as to their fertility, the farmers did not begin to cultivate the prairies until about 1830. From that time until 1837, the labor of the state increased very rapidly, and the prairies and swamps, together with many of the connecting sloughs and morasses were brought into cultivation. But at the same time that the abundance and richness of the products of this region are such as to constitute them the cradle of agricultural wealth, the great prevalence of a new and malignant form of disease has designated them as the bed of those enervating poisons, which have so often struck down the youth and vigor of the country and added new terrors to southern disease.

That portion of the state lying north of the cretaceous formation, presents very different features. Mr. Hale says "it sustains the character of a sedimentary, fossiliferous formation; and consists of two groups, the oldest of which belongs to the upper Silurian, and extends over the greater portion of this part of the State. The other overlying deposit consists of several detached beds of bituminous coal." These beds extend over portions or the whole of Tuscaloosa, Walke, Blount, Bibb, Jefferson, Shelby and St. Clair counties, and are separated by a chain of sterile hills from that bed of coal in North-Alabama which seems to be the "continuation of the great Apalachian coal field."

The North-Eastern counties, say, Coosa, Talladega, Benton &c. belong to the granitic formation. These two sections of the State present a broken and hilly appearance; the valleys are traversed by beautiful, rapid creeks, frequently very wide and affording space for extensive farms. The soil is a yellow, argillaceous lime-stone intermixed with sand and gravel, abounding in organic remains and is occasionally very productive. The counties of Talladega and Benton are the richest in this section of the State and have come into cultivation since 1830. During those summers when the waters are low and the condition of the atmosphere is such as to favor evaporation from the moist valleys of these two regions, (coal and granitic,) disease is very prevalent, but of a less malignant character than that of the prairies.

"Passing the southern limits of the cretaceous group, we meet with another of the ascending series, which comprise the strata of the lower tertiary formation, usually termed the Eocene." Corresponding with the lime-stone bed of the cretaceous and immediately joining it, is here presented a remarkable bed of lignite, with an underlying bed of clay. These beds are from 30 to 50 miles in width, extending quite across the State and marking in its course the southern limits of the cretaceous formation. This bed of lignite abounds in radiated iron pyrites, which on exposure to the atmosphere decomposes and forms a sulphate of iron. "This part of the Eocene is remarkable for being the seat of numerous sulphur springs; as those of Clarke; the Bladon springs; those of Munroe and many others."

Some portions of the Eocene group may be resolved into three subdi-

visions. The lower comprises the principle bed of the Claiborne group, (shells.) The middle consists of an uneven, but not very elevated deposit of yellowish limestone, and is noted more especially as being the locality of monster skeletons of the Zeuglodon. The upper consists of what is usually termed the white or nummulite limestone. But in many places, the beds of sand, marl, limestone and clay are so variously interchanged and intermingled in the different deposits as to render it impossible, in many instances, to identify the strata by their mineral characteristics or to give them any systematic classification.

The white limestone group is found situated, very generally, in detached and elevated masses; it consists principally of carbonate of lime, and varies in its complexion from pale yellow to a pure white; it is devoid of argillaceous qualities.

Embraced in this region are the counties of Munroe, Washington, Clarke, Conecuh, Baldwin and Mobile, of South-Alabama. Throughout this region is presented a sandy soil, poor in productive material and freer from causes of disease. The exceptions are to be found along the creeks and branches that here and there struggle through a loose soil, or along the river bottoms. In this region, the Alabama and the Bigby rivers come together making sluggish streams or semilagoons, known as the Mobile, Tensas and Spanish rivers.

From a short distance above the junction of the Bigby and Alabama rivers, extending to the city of Mobile, are extensive bodies of low, swampy alluvions, of mixed, variable and doubtful character; such as low, open, muddy morasses filled with green coarse moss and stubble cane; shell banks of varied elevation extending for miles on a line parallel with the river and an occasional island, studded with a dense forest. The soil throughout this low bottom region is of recent formation and devoid of argillaceous qualities.

There is an occasional farm on the islands of this region; the malaria arising from which is so active and abundant as to defy the attempts of the white man to make a permanent settlement.

(To be continued.)

II.—On *Dysenteric Diarrhœa*—A peculiar form of bowel affection, which has occurred in Memphis and its vicinity in the last three or four years, with a report of seven cases—their treatment, &c. By LEWIS SHANKS, M. D.

Bowel affections may truly be regarded as the scourge of the Mississippi Valley. In that portion bordering the Mississippi river, from St. Louis down, no season of the year is exempt from these affections in some one, or more of their various forms.

Diarrhœa, in its various grades of violence, and stages of continuance, is the form most frequently presented, and indeed, may be said to exist in a greater or less degree, in all seasons of the year, as the endemic of the valley.

The characteristic symptoms of the numerous cases of *Diarrhœa* oc-