BIBLIOGRAPHICAL NOTICES.

ART. XII.—*A Paper on Epidemic Meningitis*, read before the Medical Society of Montgomery, Alabama, in 1848. By S. AMES, M. D. 8vo., pp. 58.

IN this well drawn up paper, Dr. Ames has presented an interesting account of the epidemic cerebro-spinal meningitis which prevailed in Montgomery, Alabama, in the winter and spring of 1848.

The term cerebro-spinal meningitis he considers not to be strictly applicable to the epidemic described by him; the symptoms and morbid anatomy of the malignant forms especially, showing that the substance of the brain, if not of the spinal marrow, was almost invariably involved. He believes that there are good reasons for supposing that the same was the case in the epidemic form of the disease as it occurred in France. Thus MM. Tourdes and Forget mention the existence of hyperemia of the brain in, Dr. A. believes, every instance in which the condition of that organ is noticed. While the occasional observation of one of the products of inflammation, viz. softening, and in all the fatal cases, the occurrence of symptoms, such as abnormal sensibility and muscular motions, delirium, coma, &c., which, being observed in a disease having a constant excess of fibrine in the blood, may be considered as unequivocal evidence of inflammation of the nervous substance—at least so long as there is no proof that simple meningitis can produce them.

Dr. Ames commences with an account of the *anatomical characters* of the disease, drawn up from notes taken in eleven cases.

Brain.—The dura mater was the seat of abnormal vascularity in two cases—in one there being merely an abnormal development of vessels on its upper and lateral surface, on the left side; in the other there were red patches on both sides, and along the entire course of the longitudinal sinus, and also upon the portion covering the frontal bone just above its orbital plates—the number of patches being greater on the right side. This appearance occurred upon the arachnoid membrane in one case only—in which there was a very delicate pink or carmine tint diffused over it, while its usual polish was unimpaired. The pia mater exhibited abnormal vascularity in every case. The vessels crossing the convolutions were uniformly red, numerous, and large in size; in several instances many of them were a line or even more in diameter. At the base of the brain and on the cerebellum the red vessels were equally numerous, but less in size. They were also found in great numbers on the walls of the ventricles, accompanied, occasionally, with spots of capilliform injection, resembling ecchymosis to the naked eye. In different subjects, spots of red ecchymosis were observed on the lateral walls of the third ventricle, the anterior wall of the fourth and in the posterior horn of the left lateral ventricle. They were also seen, in several cases, on the upper surface of the hemispheres, and on the cerebellum.

On cutting into the substance of the brain, besides the red points commonly present in cases of congestion and inflammation, there was invariably found an infinite number of red vessels, containing sometimes fluid, at others coagulated blood. These enlarged vessels occupied different parts in different subjects—in but one case were they absent in the hemispheres. They were seen, likewise, upon removing the membranes, ramifying over the base of the brain, and the floors and walls of the ventricles, as well as on sections of any of these parts. The gray and white matter had a pink colour, dependent on the presence of vessels that were separately visible—which, although never entirely absent, occupied different parts in different subjects. In two cases, the medulla oblongata was clotted interiorly with dark ecchymosed spots. Of these alterations the cerebellum partook, to a greater or less extent, in every case.

Circumscribed portions of the membranes were softened in seven cases—in four, on the exterior of the brain, including the inferior surface of the cerebellum, and in the remaining three, on the floor of the lateral ventricle.

In nine cases the brain itself was softened; in seven, in some part of the hemisphere, chiefly in the cortical; in three, in the medulla oblongata and pons varolii; in five, in the fornix and septum lucidum; in one, in the walls of the third ventricle and canal leading to the fourth; in another in the corpus callosum and outer semi-circular rim of the left corpus striatum; in another, in the optic nerves, the commissure and the tractus opticus—in two cases, in the crus cerebri, and in one, in the cerebellum.

The arachnoid membrane was thickened and opaque, where it covers the anterior sub-arachnoidean space, in three cases, and where it covers the posterior sub-arachnoidean, in one case. There was an appearance of thickening in other places, but this was not certainly ascertained by separating the membrane from its connection.

In ten cases there was an effusion of yellowish-coloured matter, showing under the microscope an abundance of pus and lymph globules, on some portion of the membranes covering the exterior surface of the brain. In the greater number, enough of the effused lymph was coagulated to give some cohesiveness to the morbid product, but not enough to give it the appearance of an organized membrane. In appearance and consistence it resembled a very loose coagulum of fibrin. It was always found beneath the arachnoid membrane. In some cases it was so diffused as to look like a coating of cream upon the hemispheres; in others, it was confined, on the convex surface of the hemispheres, to the course of the large vessels between the convolutions. At the base of the brain it was in the greatest quantity, and met with, most frequently, about the optic commissure—it was here never absent. In one case it was found only at this part—the interstices of the convolutions being occupied by a serous fluid containing a few pus globules. In several instances, it projected from the arachnoid membrane into the sub-arachnoidean spaces, a line or more in thickness, and once the anterior cavity was occupied and even distended by it. It was found, also, on the corpora quadrigemina, the medulla oblongata, and around the third pair of nerves, where they penetrate the arachnoid membrane. The exterior surface of the cerebellum was frequently the seat of this deposit.

In nine cases there was an effusion of fluid into the arachnoid cavity. With this effusion, pus globules were mixed, in uncertain proportions, in every case in which they were sought. In two cases the effusion consisted chiefly of pus, mixed with blood globules. In the case in which the arachnoid membrane had a pink colour, a small quantity of the effused fluid, after standing a short time, coagulated. In one case, the cranial portion of the arachnoid was the seat of an organized false membrane. In some places this was soft, and adhered but slightly to the true membrane; but in other places, and in large patches, it was quite as strong as the arachnoid at the base of the brain, and adhered with a good deal of firmness. Its colour was rather a dingy pink, and from its surface, everywhere, pus could be scraped. In four cases, a morbid effusion was found in the lateral ventricles—in one, it consisted of a cream-coloured layer, semi-fluid, on a part of the left corpus striatum; in another, there was about a drachm of a greenish-coloured pus; in another, serum turbid from flocculi; and in another serum mixed with pus and blood.

Concrete fibrin was found in the vessels of the brain in several cases, viz: in the internal carotids, in two; in the basilar artery, in one, [a dark coagulum of blood was found in this artery in one case, and black fluid blood in another;] and in the longitudinal sinus and veins leading to it, in one; the concretion in this case occupied the entire length of the large vessel, and extended from it into the smaller vessels, from which threads of fibrin were drawn out to the length of several inches.

So far as the spinal cord was examined, the lesions, generally speaking, were the same as those met with in the brain in the same cases. The intense vascularity of the pia mater was always present, but the lympho-purulent deposit and the injection of the cord proper, were less common than in the brain. The spine was opened in its whole length in one case only. In this the dura mater

had the colour of muscle, which was uniformly diffused over every part of it, the internal surface being divested of its polish. It was thickened, also, in its whole length, but not equally; its arachnoid covering was also thickened in the parts which were separately examined after maceration. The cervical portion of the cord was softened in every part; presenting, in colour, various shades of white, yellow, and red—the filamentous portion exteriorly being reduced to a disorganized pulp, which came off with the pia mater, and adhered to the finger when touched; the colour of this part, without being brilliant, was a pure and beautiful white. This alteration was found principally in the upper part of the cervical expansion of the cord; nearer the dorsal portion, where the softening was rather less, the colour degenerated into a dingy yellow of several shades. The vesicular matter of this part of the cord was less altered than the fibrous. Although much softened, it would bear division with the scalpel; its colour, in some parts, was purplish, and in others, a more or less dull red. Besides this general colouring, a transverse section of the firmest part showed a number of red and dark spots and striæ. In the dorsal division, the gray matter was more softened than the white, the softening becoming more decided in proceeding downwards. The pure white colour was not observed in this division; the yellow tinge predominated, intermingled, here and there, with shades of dull red. The deposit of lympho-purulent matter was found chiefly about the roots of the anterior cervical nerves, being decidedly greater on the right than on the left column.

Abdomen.—In other parts of the body no lesions were observed, which seemed to be other than accidental, or particularly worthy of note, except those found in the digestive tube, and mesenteric glands. Here the alterations were so constant as, even in the few cases examined, to denote something more than a casual complication. The abdomen was opened in five cases. In all of them the mucous membrane of the stomach and ileum was reddened, thickened, and softened, to a greater or less extent. In the stomach, this alteration was found mostly in the smaller curvature, about the cardiac orifice; the parts immediately about the pylorus were not observed to be softened in either case. In the ileum, the examination was confined to the lower part, in extent from one and a half to four or five feet. In all but one, the membrane was most altered in that part nearest the cæcum; in the case excepted, the membrane was equally affected throughout the portion examined—about five feet; in four cases, including the latter, there were lesions of the agminated, solitary, and mesenteric glands. Enlargement of the first—with, in one case, their destruction by ulceration. The mesenteric glands were enlarged, red, and, in one case, softened.

Blood.—The blood taken from the arm, and, by eups, from the back of the neck, coagulated rapidly, forming a large and loose coagulum, in which all the corpuscles were rarely included. The serum separated from it very slowly, and in small quantity. The colour was generally bright—in a few cases, nearly approaching to that of arterial blood; it was seldom buffed. In thirty cases it was buffed only in four. It presented an excess of fibrin.

Symptoms.—Dr. A.'s analysis is taken from the notes made in sixty-four cases.

Mode of Access.—Premontitory symptoms occurred in forty-three cases. In all of these, pain of the head was a prominent and constant symptom; but was not so acute as after the attack was formed, excepting in cases where the premonitory symptoms were followed by a comatose state. The pain was generally continuous, but occasionally remittent or intermittent, with or without regular periods. It was seated commonly in the forehead, temples, over one or both eyes, or in the occiput. Sometimes it occupied the whole head, but was most acute at the occipital and frontal regions. In persons who had been subject to attacks of sick headache, the premonition assumed this form—it was only in such cases that nausea and vomiting, as a premonitory symptom, was observed. In some cases, to the pain in the head, were added pain along the course of the spine, particularly in the neck; soreness in the muscles or joints; facial neuralgia; and, very rarely, giddiness, with or without dimness of vision. The strength was but little impaired—but little complaint of a feeling of general malaise; persons seldom ceased from their ordinary occupations, before the

attack was fairly begun. Generally the appetite was but little affected; but, occasionally, it was lost or greatly diminished. In a few cases, the disease was developed in a relapse from intermittent fever, during the cold stage of the second paroxysm. The duration of the premonitory stage was very various, and afforded no indication of the severity of the ensuing attack. In eleven cases it lasted less than twelve hours; in eight, twenty-four hours; in five, two days; in six, three days; in four, four days; in three, five days; in one, six days; in three, seven days; and in two, over seven. In nineteen out of twenty-seven cases, the full development of the attack began between 12 M. and 12 P. M., including the former, but not the latter.

Mode of Attack.—In twenty-eight cases, of which eighteen have had premonitory symptoms, the disease was ushered in by some degree of chilliness, never amounting to rigor. The chill was followed in a few minutes, sometimes not for half an hour, either by a decided febrile reaction; a state of stupor more or less profound, with cool skin and feeble pulse,—or this condition of skin and pulse, without stupor. When there was no chill, the attack commenced by the sudden occurrence of a state of coma or apoplexy—a degree of stupor not amounting to coma, accompanied by a feeling of excessive debility, giddiness, dimness of sight, or double vision; or, by a sudden aggravation of the premonitory cephalalgia, accompanied by various changes in the condition of the pulse, skin, &c.; while, in a few cases, the premonitory headache increased gradually, day by day, with but little change in the skin or pulse, until at last the patient was compelled to take his bed.

The state of the skin was noted in fifty-seven cases. It was *dry* on the first day, in 42; having the natural temperature in 14—below this temperature in 17; and above it in 11. It was *moist*, on the first day, in 15; having the temperature natural in 4; below the natural in 3, and above it in 8. The dryness sometimes predominated throughout the attack, when it ran its course quickly. In these cases, it proved very unyielding to remedies, particularly so to emissions of blood. In several instances, patients were bled to the verge of syncope, and this repeated within an hour or two, without affecting it. In more than one instance, death took place, the skin continuing dry in the moribund state. Generally, however, the state of the skin varied a good deal in regard to dryness and moisture, in the progress of the disease; being dry or moist at different periods of the same day, or on different days, without any regularity, or apparent dependence on the action of the heart. The temperature was less changeable—frequently remaining without change during several days, and but rarely was any observed on the same day. The change in temperature seemed to follow certain changes in the pulse, from a weaker to a more active state. There was never pungent heat of skin; even when above the natural temperature, in most cases, it was still below ordinary febrile heat. The head was never warmer than the trunk—the extremities were very seldom cool when the head and trunk were warm. When the skin was generally cool, it was always cooler, or positively cold, on the feet and hands. In some cases, the skin was abnormally sensitive to the touch, particularly on the extremities—the scalp was sore in only one case. An eruption around the mouth (*herpes labialis*) was observed in three cases. Purple petechiæ, which did not disappear upon pressure, occurred in one case. In some cases, the face was flushed, and the skin clear; in others, the face was pale, and the skin sallow; the lips were always deeply coloured. In one case, at the beginning of the attack, the skin had a peculiar shining aspect.

The pulse was, in general, slower, smaller, and softer, on the first day, than in health, and very irregular in the number of its beats, the intervals between them, and their force, in the same, and in different subjects. The softness of the pulse was its most constant feature; in but one case was it corded or hard; it very rarely rose above its natural fullness. A pulse quicker than in health was still less common. In general, it was slower on the first day than afterwards; in the greater number of cases it was below 56—in many below 60, in others below 50, and in several below 40. The irregularity in the number of beats to the minute was remarkable and characteristic. In one patient it was 76 at 10 A. M.; 96 at 12 M.; 68 at 5½ P. M.; 96 at 9½ P. M.; 76 at 9½ P. M.,

and so varying on the second day between 120 and 150. On another occasion, the pulse on the first day continually varied, during several hours, to some figure between 30 and 76. In a single case, the pulse, strong, steadily at 100, continued throughout the attack, which lasted three days, until half an hour before death, the period at which it was last counted. The slowness, softness, and irregularity of the pulse were observed in the very mildest attacks, as in the more violent or malignant; while, on the other hand, its smallness and feebleness were but little marked in the beginning, and during the progress of some of the most malignant cases.

In the more grave and malignant form of the disease, the *tongue* was broad and flabby, sometimes filling up the mouth so as to impede articulation, and becoming, by its pressure upon the teeth, indented around its entire edge. In one case, the tongue was so enlarged as partly to protrude beyond the teeth, and in a few others, the pressure produced on the thick edges, anteriorly, a line or raphe, as in the gums of the infant. The thickening and elongation were apt to increase shortly before death. The tongue was often coated over the whole of its free surface, always over the whole of the dorsum, and a part, at least, of its edges. The coating was usually of a pale ash or white colour, but sometimes yellowish; it was thinnest at the tip and sides, and became thicker backwards and towards the centre. When the coating began to give way, its edges became abrupt, and the clean edges of the tongue assumed the bright pink colour belonging to the alteration next to be described. There was always an abundant *flow of saliva*, generally more viscid than in health, and sometimes of the consistence of thick mucilage.

In other cases, the tongue was less obviously enlarged—it was generally broad, however, but not often thickened or indented by the teeth. It was always coated—but this never extended over more than three-fourths, sometimes one-half of the dorsum; it was very thin in front, and generally became thicker as it extended backwards. The uncovered parts, particularly the end and sides of the anterior two-thirds, had a bright pink colour—very peculiar and striking. As the disease advanced towards a fatal conclusion, it was not uncommon for the tongue to assume the condition first described. The tongue was never dry on the first day. In five cases, it became dry on the second, third, fifth, sixth, and seventh days.

Cephalalgia was absent throughout the attack in only one case in which there was sufficient consciousness to answer the questions proposed. Persons who had suffered from spasmodic or neuralgic headache, declared the pain in the disease under consideration as of a different character. Some described it as a continued painful roaring—others as a fullness and tightness, as though a band were tightly drawn around the head; or as if the forehead, crown, or sides were being crushed inwards. A greater number described it as darting and throbbing, frequent shooting through the head from behind forwards, and from side to side, with a violence causing the patient to cry out. In some, it occupied the temples, superciliary ridges, and frontal region; in others, the back of the head only. In the larger number it was felt over the whole head, being most violent in some one of the places mentioned, or under the parietal bones. The intensity of the headache was not proportioned to the severity of the other symptoms. In some of the worst cases, the sense of pain appeared to be obtunded by the oppression of the brain; but it was slight also in cases of equal malignity unattended by coma; while in some of the mildest cases the pain was most intense. It seldom continued during the attack, but disappeared towards the close of the first, or on the second, third, or fourth days, generally to return after an uncertain interval. It was generally aggravated by an erect or semi-erect posture—in two instances, however, such a position afforded great relief. In a number of cases the pain was aggravated by pressure upon some part of the spine, chiefly the cervical.

Giddiness was rarely complained of after the first few hours of the attack. It occurred in but few cases, and was never a prominent or important symptom.

The *conjunctivæ* were generally injected—the eyes glittering and watery. In a few cases, chiefly among children, the conjunctivæ had a pinkish tint, without the appearance of distinct vessels. The pupils were dilated in seven out of

forty-one cases; in the others, they were either contracted or natural. In three cases they were insensible to light from coma, and in two without loss of consciousness. In both these last perfect vision was restored in a few hours; the patients died apoplectic. Double vision occurred in six cases; photophobia, in six cases; in a number of others, the ordinary light was disagreeable, but in far the greater number, the strongest light was not complained of.

In several cases, there was a profuse discharge from the nostrils of thick mucus, alone or mixed with blood. In one patient the sense of smell was lost in one nostril; in a few there was spontaneous deafness; in one of these the deafness occurred three times on the second day; each time lasting about three hours, with intermissions of about the same duration.

Some degree of *stupor*, amounting, generally, to *profound coma*, was present on the first day, in eighteen cases; in a few others it appeared on the second or third day. Most commonly, this symptom passed off within twenty-four hours, but in some cases not for two or even three days; generally to return at some subsequent period, varying from twelve hours to several days. Sometimes there was no return of it, though the disease was protracted to many days—there were cases again—those proving speedily fatal in which it did not remit. *Delirium*, with or without stupor, occurred, at some period of the attack, in twenty-four cases; it was never continuous, sometimes lasting but three or four hours, and rarely more than twenty-four. It was wild and furious in two cases, and playful in one; in a few, it was melancholy and pathetic. The mind was generally desponding and apprehensive. In all the more violent cases, there was forgetfulness of the events which transpired during the attack, frequently from day to day, and this whether delirium and stupor were present or not.

The patient generally laid upon his back with the lower extremities extended. In two patients, both comatose, a position was taken on the right side, and maintained with great pertinacity; in another in which there was continued opisthotonos, the patient for several days lay upon the chest and abdomen, with the head thrown backwards; in other cases, when the head was thus drawn back, the decubitus was on the side. Tonic contractions of the extensors of the back, with retraction of the head, occurred in three other cases. Retraction of the head was observed in a number of patients, without the extensors of the back being affected. The muscles of the neck, when not in a state of tetanic contraction, were stiff and sore in thirty-five cases. In a few, the stiffness was confined to the sterno-mastoid muscles of one or both sides; but in others, the extensors were principally concerned, the head being kept steadily in its natural erect position, either involuntarily, or voluntarily as the easiest position.

Quivering of the muscles of the face, tremors of the hands, and embarrassment of the movements of the arms, tonic contraction of the flexors of the forearm, and of the recti-muscles of the abdomen, were, one or more of them, observed in some cases; subsultus tendinum, picking at the bedclothes, and reaching after imaginary objects, with other typhoid symptoms, occurred in three protracted cases. Strabismus occurred in nine cases; convulsions, coming on towards the close of the attack, in three cases; and at the beginning of the attack, in one case. An incomplete paralysis of the right eyelid occurred in one case, and of one entire side of the body in another—one of the mildest, in which the previous symptoms indicated no serious affection of the brain or spinal cord. In a few cases, there was a general soreness of the muscles, causing a great deal of pain in moving.

Pain in the cervical portion of the spinal cord occurred in twenty-three cases; in the dorsal in eleven, and in the lumbar in six. In all but two the pain was slight, the patients making no mention of it until they were questioned, and others complaining of it less than in ordinary remittent fever. Pressure applied to the cervical portion of the spine produced pain in the head, frequently darting to the forehead, eyes, and temples, in twenty cases. In two, during a state of deep coma, pressure on the upper dorsal vertebra occasioned great restlessness and apparent distress. Pressure on the cervical vertebra produced also pain at the top of the sternum—on the dorsal, pain in the middle of the sternum, at the epigastrium or about the umbilicus, as it was made higher or lower. Sometimes pain was not experienced in the part pressed on, but only

at one of the places mentioned above. The pain was often violent, and continued sometimes for several minutes.

Vomiting occurred in fifteen cases. In the beginning of the attack in two; at a later period, on the first day, in eight—not till the second day in three, and not till the third day in two. There was *nausea* without vomiting in three cases; one on the first, and the two others on the third and fourth days.

The *bowels* were either natural or constipated in all but one case, in which diarrhoea occurred on the sixth day, probably from the use of tartar emetic for a pneumonic complication. There was acute pain in the abdomen in three cases, and tympanitic distension with tenderness on pressure in one occurring on the third day.

Desire for food, more or less urgent, was expressed in eight cases, when it could not be considered a sign of convalescence, or of its near approach. The desire was by some evinced on the first or second day; in others, protracted cases, on the eighth or ninth day. In two or three cases, it was rather urgent, and continued so, in one, for several days.

The *respiration* was without stertor, excepting in two cases. In only five cases was the number of respirations below twenty-one to the minute; in two of them it was twenty, and in one fell as low as eight; in five, it was between twenty-six and thirty; in eight, between thirty and forty; in five, between forty and fifty; and in four, from fifty-two to fifty-six; generally, the breathing was regular. It was suspicious in one instance.

The *expression of the countenance* was exceedingly various and variable, affording little or nothing which was available in diagnosis or prognosis. When neither natural nor idiotic, the latter being observed in two cases after they had been long protracted; the various shades of expression were wild, anxious, or distressed, melancholy, heavy, and lastly, but rarely, brilliant and pleasing. Several of these varieties of expression were observed in the same patient at different periods of the attack; occasionally, at different periods of the same day.

Extreme *emaciation* occurred in but a small proportion of even the protracted cases. In the majority of cases, there was none perceptible. In one it took place suddenly, without excessive evacuations, on the accession of an acute and very formidable gastro-enteritis, produced probably by tartar emetic.

DURATION.—The disease continued from fifteen hours to fifty days. Three cases terminated on the fifth day; none on the seventh, and three on the ninth; while there were sixteen which terminated on the second and third, and nineteen on the fourth. Besides these, there were two which proved fatal within the first twenty-four hours, and two which lasted over forty days; one terminated on the fourteenth, and nine between the fourteenth and thirtieth; making fifty-five cases in all.

Dr. Ames divides the cases of the disease observed by him into two general classes. The congestive and the inflammatory.

Of the *Congestive class* he makes two divisions—the malignant and the mild. The affinity of these to each other was manifested by such symptoms as distinguish this class from the inflammatory, viz., the constant presence of a cool skin, a small and feeble pulse, and a characteristic tongue; broad, flabby, and coated with a white, yellow, or pale ash-coloured deposit. The malignant form was distinguished by the frequent occurrence of chilliness in the forming stage; great prostration of strength; the invariable occurrence, for the most part on the first day, of coma, or a very marked degree of stupor, delirium, or stupor and delirium; considerable retraction of the head backwards; embarrassment in the movement of the muscles of other parts of the body; a wider range in the frequency of the pulse, and its more changeable character otherwise—the greater quantity and viscosity of the saliva, and the thicker coating of the tongue, and an occasional tendency to assume the symptoms of the inflammatory class.

Of the *Inflammatory class*.—In this class, Dr. Ames describes an intermediate group between the malignant and the mild, which he terms the *grave*. The affinity of these three forms was manifested by the symptoms which distinguish the inflammatory from the congestive class, viz., the uniform presence of a temperature of the skin above the healthy standard, a full and generally firm pulse, the tongue less swollen and flabby, and less coated. The *malignant* form was

marked by the early occurrence of delirium or coma, most commonly the former; great irregularity of pulse; tonic or convulsive contractions of other muscles than those of the neck; strabismus; occasionally amaurosis; a tendency to nausea and vomiting, and to a speedy and fatal termination.

The *grave* form was distinguished by the regularity of the pulse, never below 100 in the minute, except during a remission—by the contraction of the muscles being confined to those of the neck; sometimes to the sterno-mastoid of one or both sides. By the occasional occurrence of painful sensibility of the skin to the touch, and of the retina to light—by the occurrence of regular remissions, and by the absence of coma and delirium.

The *Mild Inflammatory* form was marked by the lower grade of the febrile excitement—the continuance of a good degree of strength, during the entire attack, however protracted—a tendency to turn into a chronic form—and by the absence of coma, drowsiness, delirium, and a cold stage. The disease was sometimes protracted to ten, fourteen, or even twenty-one days—the patients all the time being able to sit up, and to walk about a little. Even when apparent recovery took place within two or three days, there would still remain some confusion of mind; a sense of tightness across the forehead, or about the base of the brain, from one temple to the other; or, pain in the occiput or neck, upon any unusual mental occupation.

Each of these classes, with its several forms, is illustrated by numerous cases given in detail.

Remissions.—There was observed in very many cases of the diseases of both classes, a tendency to remission, at some period of the attack, varying from a few hours to several days from its onset; and frequently on the second and third days—days on which, also, the greater proportion of deaths occurred. They approached sometimes very nearly to intermissions; at others, they were obscure. Sometimes they were quotidian or tertian, and accompanied by remissions of fever, as if the meningitis were engrafted on an ordinary endemic fever. In other cases there occurred a remission in the cerebral symptoms, without any very obvious change in the febrile state—in others, again, the febrile symptoms remitted or intermitted without any abatement of those of the disease of the brain. There sometimes occurred, most frequently in the malignant forms of the disease, a decided amelioration of all the symptoms of the disease, which was occasionally the prolude of a rapid recovery. This was seldom the case, however, if the attack had lasted more than twenty-four hours; the remission being generally followed, after an uncertain interval of a few hours or days, by an exacerbation of all the symptoms, equal in intensity as before the remission. In a few cases a change of form occurred from the congestive to the inflammatory type—the stupor, coma, cool skin and feeble pulse, being exchanged for a state of reaction, a warm surface, and a full and strong pulse. The remissions were not regular in the inflammatory cases, particularly the grave variety.

Complications.—Inflammation of the fauces was observed in seven patients, five of whom had recently recovered from roseola, which was prevailing epidemically. Two had roseola with the meningitis; three bronchitis, and two pneumonia. Dr. A. remarks, that the affection of the mucous surface of the luteal canal, and of the mesenteric glands, may be placed under this head, although the existence of the former in every case in which the parts were examined, and of the latter in four-fifths, might justify the inference that a tendency to disease in these parts constituted an essential feature in the epidemic. This point would have been more satisfactorily determined if the abdomen had been opened in all the post-mortem examinations. A typhoid state was assumed at a late period, in three cases. The earliest period at which this was noticed was about the tenth day. Dr. Ames does not consider it as designating a form of the disease in any way connected with its essential pathology. As the three cases recovered, the nature of the intestinal alterations is not known.

Diagnosis.—The symptoms by which the meningitis was distinguished, after some familiarity with the symptoms was obtained, were the following, viz: The cephalalgia, its seat, particularly when in the back of the head, and the peculiarities which distinguish it from other forms of headache. The state of the

tongue, particularly its enlargement, indentation, and gummy or pasty coating, and the bright pink of its edges. The physical characters of the blood—the pain in the neck, and stiffness and soreness in the muscles—muscular tremors, and other embarrassment of motion—traction of the occiput downwards—the state of the pulse, which was valuable as a diagnostic sign in both varieties of the congestive type, but only in the malignant varieties of the inflammatory type—delirium—rigidity of the large extensor of the spine—coma—the state of the pupil, and the injection of the conjunctiva, which last, though not so important as the others, was more constant.

AGE—SEX.—Among eighty-five cases, there were twenty-two whites, viz: five years old and under, *one*; between five and ten, *two*; between ten and twenty, *eight*; between twenty and thirty, *three*; between thirty and forty, *three*; between forty and fifty, *two*; over fifty, *three*. Of the whites, ten were *males*, and twelve *females*. The blacks were sixty-three, viz: under five years, *one*; between five and ten, *six*; between ten and twenty, *fifteen*; between twenty and thirty, *twenty-four*; between thirty and forty, *ten*; between forty and fifty, *five*; over fifty, *two*. Of the blacks thirty-six were *males*, and twenty-seven *females*.

MORTALITY.—The mortality was confined to the malignant forms. In these, from the best information Dr. A. could get, it was about sixty per cent.

LOCALITY.—The little city of Montgomery is situated on the left bank of the Alabama river, at the extreme southern convexity of a horse-shoe shaped curvature of the river. The bend nearly encloses several thousand acres of alluvial land which is subject to an annual overflow. The geological formation on which the town is built, following Mr. Lyell's division, is the *eocene tertiary*. At distances varying from fourteen to thirty miles, north and east, the tertiary forms an abrupt junction with the primary, consisting, at various points, of mica slate, gneiss, and granite. A belt of the eretaceous formation (prairie) running east and west, and varying in width from eight to fifteen miles, approaches within a mile of the southern and southeastern border of the town. Beyond the prairie, towards the south, the eocene tertiary is again found. On the western limit of the town, a range of hills takes its rise rather abruptly, and running first south, then east, and then north, forms an amphitheatre, which rises in some places 150 feet above the river bank, looking, from its northern aspect, on the river and the alluvial ground beyond it, and is crowned with a narrow strip of table land, beyond which, except on the eastern side, the ground again descends for several miles to a large creek, which empties itself into the river, several miles below or west of the town. A basin is thus formed with the hills on three sides, nearly, and the river on the other, having a sufficient inclination towards the latter to carry off the water which gathers during a rain, in rapid currents, and thus to secure, whenever a hard rain falls, a thorough cleansing of every part of the town. It is within the limits just described, and on the hills above, that the town is built; the greater part of the population residing below the range of hills. The residents on the sides of the hills, and on the level above, hardly comprise one-third of the whole population, which numbers in all above 4000 souls, a large part of which are blacks. The dwellings are built with ample space around them; there is no crowding, nor are the residents crowded within them, nor are there any accumulations of filth anywhere to be found—neither is there met with, within the city, any of the destitution of extreme poverty.

It was within the limits just described that the epidemic was chiefly confined. Whilst a large proportion of the residents below were attacked, there were but few cases among the residents on the sides of the hills, and still fewer upon the table land above. From the best information Dr. A. could obtain, he found that 250 cases of the disease occurred within the town limits, of which not more than 100 occurred above the base of the hills.

The surrounding country, which is thickly populated, was remarkably exempt, at this time, not only from the epidemic, but from all other diseases. After the epidemic influence had exhausted its virulence in the city, and in a great measure subsided, the disease made its appearance on a large plantation lying eight miles southeast of the city, where nineteen cases occurred, a majority of which were of the malignant congestive type. About the same time it occurred at another plantation (prairie) some three miles south of the first, passing over an

intervening one, which, with the other adjoining ones, remained as free from sickness as at the same season in other years. After it had disappeared from these localities, it appeared on a plantation three miles west of the one first mentioned, where four cases occurred, all of which were of the grave inflammatory variety, and here the epidemic influence terminated. There were no apparent causes why the epidemic should have occurred on these plantations to the exclusion of others.

The disease made its appearance early in February, was most prevalent in March, and disappeared as an epidemic in the latter part of April. Three cases occurred at intervals of some weeks, after the first of May. An epidemic *roseola* preceded and accompanied the disease as long as it lasted, disappearing with it. This was the case on the plantations as well as in the city. At the same time other diseases common to the climate and locality prevailed, some of them to a very unusual extent. These were dysentery, diarrhoea, intermittent and remittent fever, various forms of neuralgia, spasmodic cephalalgia, catarrhal fevers and bronchitis.

TREATMENT.—*Blood-letting* was employed, with few exceptions, near the beginning of the attack, frequently and boldly, without regard to the state of the circulation—in the congestive as well as in the inflammatory forms. The quantity taken at one bleeding, or at several in quick succession, was sometimes very great—on one occasion the quantity taken at a single bleeding was forty-eight, and on another forty-four and a-half ounces. In the greater number of cases the entire quantity taken from adults, in one day, varied from fourteen to forty ounces—in twenty-six cases the average was found to be thirty ounces. The effects of blood-letting were not so satisfactory as might have been expected. Within Dr. A.'s observation they were never promptly decisive for much good or evil; the pulse in congestive cases rarely filled up, or became regular; in some instances, it became quicker and more feeble, during, or soon after rather a small bleeding on the first day of the attack. In the inflammatory form the same thing was occasionally observed, though in this form an improved state of the pulse was more frequently the immediate consequence of the loss of blood. The most common sensible effect, however, was relief of the cephalalgia—but this was not always observed. Still, prompt and free bleeding, in the very onset of the disease, in both the congestive and inflammatory forms, was, Dr. A. believes, beneficial in consequence of the time gained by it, for other remedies more obviously beneficial. The impression of the physicians of Montgomery generally, in regard to bleeding, we are informed, was one of disappointment.

Mercury employed to produce its constitutional effects, proved to be a more efficient remedy than blood-letting, as well in the promptness and permanence of its beneficial influence. If not always effectual, it was always safe, and the good obtained by it was more apparent and quite as permanent as that from all other remedies. In a few instances, however, salivation induced early in the attack, and kept up for several days, failed altogether in producing any perceptible influence—in some cases time was not afforded to effect salivation, and occasionally, though very rarely, the specific influence of the remedy could not be obtained.

Blisters to the upper portion of the spine were found in mild and grave cases seldom to fail in removing or greatly relieving the cephalalgia, even when bleeding had failed to do so. In the malignant varieties, also, the relief afforded by them was very great. In the congestive forms, heat applied to the skin generally, mustard plasters, and frictions with oil of turpentine, were frequently beneficial.

Potassa.—Dr. Ames remarks, that his experience in the use of this remedy is yet too limited to determine positively its value, but he has seen enough to induce him to continue his observations, and to recommend it to the attention of the profession. It was given to children in doses of from three to five grains, and to adults in doses of from ten to fifteen grains, repeated every two hours. No case proved fatal in his practice, or, as far as he can learn, in that of either of his professional brethren, in which it was freely and continuously employed. But it is to be observed, that, under any treatment, the mortality was confined to the malignant forms of the disease; that the remedy was given in but few

cases of this kind, and that other remedies of the most energetic kind were also administered along with it. The powers of the remedy were exhibited in a much less equivocal manner in the grave and mild varieties. In many cases in which there were no febrile symptoms, properly so called, present, the cephalalgia was speedily and permanently relieved, and in others its administration was followed by a prompt reduction of arterial excitement, and the removal of intense cephalalgia and other symptoms of head disease. In one chronic case of the grave variety, in which the patient was fast sinking into a state of dementia, convalescence began on the day that the medicine was first administered. This man had been bled, salivated and blistered without benefit.

Quinine, Dr. A. employed frequently in the grave variety, to which it seemed most applicable, and some times with partial success. When the disease was attended with a fever which was regularly remittent, the meningitis appearing as if it were engrafted on a remittent fever, quinine occasionally arrested the paroxysms, but more slowly and with greater difficulty than in other fevers. In other varieties, the remedy cannot be recommended; its use here, if not hazardous, never affording much encouragement to repeat it.

Emetics were but little used. *Cathartics* were frequently employed as adjuncts, and to effect particular indications, but were not relied on as curative remedies. In two instances a free catharsis induced by drastic medicine was evidently prejudicial.

Opium, Dr. A. does not consider generally safe in the inflammatory malignant variety, or that it was of any use in the congestive malignant form. In the other varieties, it was a safe remedy, and very valuable as an anodyne merely.

We return our thanks to Dr. Ames for his very excellent account of the epidemic form of cerebro-spinitis, as it occurred within the sphere of his own observation. We have presented a very full digest of his paper, from the perusal of which our readers will, we are convinced, derive a more correct idea of the pathology and general characteristics of the disease than from most other sources.

D. F. C.

ART. XIII.—*Anniversary Discourse before the New York Academy of Medicine.*
By JAMES R. MANLEY, M. D. New York, 1849: pp. 36.

It is more than three months since Dr. Manley's Address was delivered before the New York Academy of Medicine, and a large miscellaneous audience. It produced a lively impression at the time, which is fully justified by the printed discourse. In style, thought, and argument, it ranks much higher than is usual with compositions of the sort, and is in every way worthy of the reputation of its venerable author. It is remarkably free from cant, that vicious form of sentiment which mars so many of the literary efforts of our prominent orators and writers. It appeals to no prejudices, and flatters no self-complacency, but handles its subject with a direct, and yet polished, common sense, which denotes the scholar and the man of enlightened experience. We shall quote freely from the pages of this discourse, although, from want of space, less copiously than we could wish.

After showing how pregnant with ulterior mischief is the mismanagement of disease, Dr. Manley traces the evil to professional ignorance on the one hand, and follies claiming to be medical systems, on the other. He says:

"Between the rivalries of bold imposture, presuming ignorance, and calculating deceit, the great and essential landmarks which have hitherto directed to the best means for the preservation of health, and the relief or cure of disease, are in danger (for a time at least) of being broken down and trampled under foot of men, whose contempt of every thing like medical education is their surest passport to the confidence of their patients.

"It is scarcely to be expected that the medical profession, alone and unaided by public opinion, can correct the abuses to which its own lax estimate of its duties has chiefly contributed; but the hope may be indulged, that a reform commenced among its own members will not be without its influence in ena-