

excesses, or whose minds have given way under a long continued pressure of care and anxiety, the original disease of the brain rapidly increases, and speedily ends in fatal disorganization."

We make some selections from that part of the report which relates to the management of the patient. It is pleasant to perceive that at this, the first hospital for the insane, whether in America or Europe, at which a course of scientific and literary lectures was delivered before the patients, this important branch of moral treatment has not fallen into disuse.

"The Library and Museum have continued to be resorted to by both male and female patients at different hours of the day. The lecture room, with its very complete apparatus, has been in very frequent use during the winter, and the exhibitions of dissolving views with the magic lantern, on two evenings of the week, have been attended by most of the patients, and have afforded them a high degree of satisfaction."

"An important element of success in the application of the various measures designed for the welfare of the insane, is their separation into small groups or companies, so that patients with the same form of disease, and consequently requiring the same remedies, may as far as practicable be subjected to the same details of treatment. In order that hospital classification may be perfect, it is not necessary that the subdivision of patients shall be very minute, or that it shall comprise only fixed number of classes. A more important point is, that each class shall be so small that the attendants in charge shall not be overburdened with their duties, so as thus to be prevented from giving to the patients the careful attention that each case requires. It is easy to understand that in a large institution, with several hundred patients, though there may be numerous wards and classes, the number of patients in a ward, and their proportion to the attendants employed, may be much greater and the classification consequently more defective than in a smaller institution, where, owing to the reduced number of wards, the classification might appear to be less complete.

"In our Asylum the wards are designed for ten patients each, and the proportion of attendants to patients being as one to four, which is perhaps larger than in any similar institution in this country, enables them to give that minute personal attention to each case that is so necessary to the best welfare of the insane."

We believe that the relative proportion of attendants to patients has always been larger at this hospital than at any other in the country. P. E.

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ART. XVIII.—*Hospital Notes and Memoranda; in Illustration of the Congestive Fever, so-called, or Epidemic Cerebro-Spinal Meningitis, as it occurred in the Winter and Spring of 1862-63, in the Camps in and around the Town of Newbern, N. C.; with some account of its Origin, Nature, and Treatment.* By J. BAXTER UPHAM, M. D., Surgeon in Charge of Stanley General Hospital, 18th Army Corps, Department of North Carolina. (Reprinted from the Boston Medical and Surgical Journal.) 8vo. pp. 38. Boston, 1863.

THE disease to which the notes and memoranda of Dr. Upham refer, is, in every point of view, an interesting one. In many parts of the United States it has prevailed of late years as an extensive epidemic, and in the great majority of cases its fatal course has not been stayed by any plan of treatment that has been put in practice. Every contribution, therefore, which is adapted to improve our knowledge of its pathology and treatment cannot but be in the highest degree acceptable.

The records of cases, some twenty in number, presented by Dr. U., are mainly from the note books of his associates on the medical and surgical staff of the General Hospital at Newbern, N. C.; while the autopsies were made, under his inspection, by the attending surgeons in whose wards the deaths occurred. These cases, in every instance, originated in the camps and barracks adjoining the

town, from whence they were brought into the hospital at an earlier or later period after the attack.

The town of Newbern is situated upon the river Neuse, at its junction with the Trent, some forty miles from its entrance into Pamlico Sound. Both rivers are navigable for a few miles above their junction. There are no tides at this point, but the depth of water is affected by the force and direction of the wind. The town is built upon a flat, sandy soil, raised only a few feet above the water. The surrounding country is level, alternating with sandy plains and swamps, for a mile or two from the outskirts of the town, and then begins the great, almost impenetrable, pine forest, with its marshes and tangled undergrowth. The climate is; for the most part, mild and salubrious in winter and spring, but hot, humid, and subject to malarial influences in summer and autumn.

The troops were encamped mainly just beyond the town, in the driest practicable spots, and sheltered partly in tents or barracks. The barracks were built of green stuff (dry timber not being within reach); the logs, mostly of hard pine, being taken immediately from the forest, or from out the water where they had been lying for some weeks. The barracks were necessarily cold and damp and redolent of pitch and paludal moisture, while, from their size in proportion to their inmates, and their internal arrangement, generally, the supply of fresh air within the wards was entirely inadequate, and the general diffusion of light and heat throughout them impracticable.

The regiments most affected by the epidemic were the 44th, 45th, and 51st Massachusetts and the 10th Connecticut. The three first had been stationed at Newbern less than two months when the disease appeared, while the last named had remained in or near the same locality for nearly a year. These regiments were quartered in barracks. Isolated cases also occurred in the other regiments occupying tents. The 24th Massachusetts, an old regiment quartered in barracks near the 44th, it is believed, escaped the disease; in company with the 10th Connecticut, the 24th Massachusetts left the department before the cases of the disease became multiplied. These occupied, before leaving, a sandy, sterile plain on the right bank of the Neuse, some half a mile beyond the town, and elevated perhaps five or six feet above the level of the river. The 44th, which suffered most, was nearest the bank: in its immediate vicinity were a couple of small marshy bogs, through which flowed a stream of water. The water mainly used for drinking and culinary purposes was brackish and unpalatable; it was obtained from wells in the vicinity of the camp. Beyond and above the encampment, to the edge of the woods, as well as opposite, towards the river Trent, a broad, sandy plain stretched out for a mile or so. The woods in this direction had been extensively felled since the occupation of the town, as a precautionary measure. The 45th and 51st Massachusetts regiments were also encamped on the right bank of the Trent, two miles above the town, on a flat, alluvial, sandy soil, about 12 or 15 feet above the level of the river, and dotted with numerous small pools of stagnant water, even within the limits of the camp. The distance from the river at this point to the swampy woods beyond, is perhaps three-fourths of a mile. Over this extended and barren plain the winds have free sweep, bringing, in a dry time, a simoom of sands upon the camps. The water used by the last named regiments was mostly obtained from a barrel sunk in the ground at the river's edge.

The attack of the epidemic was usually sudden; the patients, most commonly, continuing on duty, without complaint, up to the very period of their seizure. Its subjects were, in most instances, the robust and apparently most healthy individuals, between the ages of 18 and 24 years.

The attack was ushered in with a sense of chilliness; headache, oftentimes experienced chiefly at the occiput; dizziness, pain in the back and limbs, occasionally very severe, attended sometimes with rigors, and with nausea and vomiting. A sense of stiffness in the muscles of the face and neck was often an early symptom. Some attacks commenced like a common cold, with a tendency to paralysis of the tongue, and some of the muscles of the face, while the respiration would be difficult and irregular, giving cause to fear congestion of the lungs. Early in the attack, tenderness at the nape of the neck and along the spine was often present. The skin was usually moist, but hot; the face suffused, often of

and dusky hue, with distortion of features, congested and suffused eyes. For the most part, there was not active delirium, but rather perversion of the intellect, with dulness and indifference to outward objects. From this condition the patient could be roused, and then would answer questions correctly. The tongue had, at first, a white, creamlike coating, which subsequently became yellowish or brown at the centre and base, and, more rarely, towards the close of the attack, dry and fissured. There was loss of appetite, but not usually very urgent thirst. The action of the heart was irregular, sometimes tumultuous; to it the pulse did not always respond. In most cases, the latter was accelerated—not strangely occasionally intermittent. The bowels were regular, or alternately loose and confined. Petechiæ, very similar to the true typhus eruption, were often present upon all parts of the body excepting the face; they were persistent under pressure, and varied in hue from a very dark raspberry to the blackness of true petechiæ. Purpural spots, of large size and abundant, were sometimes present, and were always a grave symptom. There was no marked tenderness of the epigastrium or abdomen. The more protracted cases were attended, towards their close, with sordes of the teeth and lips, and involuntary eversion of the urine and feces. Decubitis was mainly on the side, with the hand often retracted, and the neck rigid and stiff—partial opisthotonos. There was invariably great restlessness and fætication. As an accompaniment, and occasionally sequel to the disease, iritis and synovitis were observed in several cases—in one pericarditis. The patients often died without much indication of exhaustion.

The foregoing constituted the more prominent and constant symptoms of the disease—they were never all observed nor even the majority of them to be present in the same case. Some singular and anomalous symptoms were occasionally met with, as a pleasing delirium, with loquacity, priapism and decidedly erotic desires. In a few very severe cases no moan or sound of any kind escaped the patient, but the restlessness was fearful, and ceased only at death. In other cases there was much moaning. Stiffness of the muscles of the neck and back, or some perverted action of the muscles of the face, amounting at times to spasm, was almost pathognomonic.

The duration of the disease varied from less than thirty-six hours, to three, four, or six weeks, and even longer. According to Dr. Upham's observation, its most usual duration was from three or four to seven days.

In regard to the prognosis, this was in general unfavorable. Of about 40 cases received into the Stanley General Hospital, 28 proved fatal. Of the 5 cases referred to by Dr. Kneeland, all died, as did also the 14 communicated by Dr. Jewett. Dr. Cowgill reports 5 cases of recovery out of 12, being the largest ratio of recoveries in proportion to the number of cases treated.

The anatomical lesions were chiefly confined to the brain and spinal cord. When death occurred within two or three days, there was commonly opalescence of the upper surface of the cerebrum—seemingly of the subarachnoid fluid; increased vascularity of the meninges of the brain and spinal cord, especially the pia mater; a large increase of serum, clear or turbid, and mixed with flocculi of lymph, in the subarachnoid space and ventricles, with, most usually, even in cases of the shortest duration, an abundant exudation, at the base of the brain and medulla oblongata, of thick, yellowish, apparently semi-organized lymph. Conjoined with these lesions there was more or less passive congestion of the lungs, increase of the pericardial fluid, and occasional engorgement and enlargement of the liver or spleen. When the disease had lasted from seven or eight days to several weeks, the deposits on the brain were usually more marked, especially at its base, around the pons Varolii, in the sulci of the cerebrum and cerebellum, covering the surface of the oblongata, and extending down upon the spinal cord, sheathing it, in some cases, throughout its entire extent. The deposit was either puriform, or concrete and semi-organized, and, frequently, from two to three or four lines in thickness. It was found also in the ventricles, especially in the posterior cornua of the lateral ventricles, in its concrete form, or else tinged and thickening, with an opaque greenish pus, the serous fluid of the whole cavity. The meninges of the brain, the pia mater especially, showed, not unfrequently, evidences of congestion. The only lesions noticed in the thoracic and abdominal viscera, were passive engorgement of the lungs in

their depending portions, the occasional presence of lymph in the pericardium and ventricles of the heart, and sometimes enlargement of the liver and spleen.

In two cases reported by Dr. Jewett, the one terminating in twenty-four hours, the other in twenty-three days: in the first the lesions were, adhesion of the meninges, either between themselves or to the surface of the brain, requiring them to be torn at certain points from the surface of the latter; the arachnoid space filled with straw-coloured serum, to the extent of perhaps three or four ounces; effusion into the lateral ventricles, especially the right, congestion of entire surface of brain, with small patches of lymph at base of cerebellum. In the spinal canal, a greatly increased quantity of cerebro-spinal fluid, of a yellowish and milky hue; meninges much congested, and the cord itself softened. In the second case the dura mater was strongly adherent over the longitudinal sinns, the lateral ventricles were filled with about three ounces of straw-coloured fluid; vessels of choroid plexus strongly injected; the fourth ventricle filled with serum and pus: a large deposit of lymph, three lines in thickness, covering the pons Varolii and inferior surface of the medulla oblongata. The meninges of the cord much congested; about half an ounce of sero-purulent fluid in the spinal canal; the spinal cord enveloped in a layer of lymph, in some places two or three lines in thickness, extending down, and sheathing to their very extremities, the cauda equina and sacral nerves.

Of the seven fatal cases recorded by Dr. Cowgill; in one where death occurred within thirty-six hours, there was cloudiness of the entire surface of the cerebrum and medulla oblongata, increased vascularity of the meninges, effusion of serum into the ventricles, injection of the pia mater of the spinal cord, evidences of inflammation along the whole course of the latter, with effusion of turbid serum in the lower part of spinal canal. In another case of thirty-four days' duration, there was injection of the pia mater, exudation of yellowish lymph along the sulci of the upper surface of brain, and a thicker deposit, of apparently plastic semi-purulent matter, on its inferior surface, especially over the pons Varolii and oblongata, with two ounces of serum in the lateral ventricles. In the remaining five cases, which were intermediate in duration, the lesions were, increased vascularity of the meninges, especially the pia mater; a thin deposit of lymph on the upper surface of the brain, in two of the cases; in three, a more abundant and consistent deposit of lymph-like matter at the base of the cerebrum, cerebellum and medulla oblongata, extending into the spinal canal in the form of either lymph or a sero-purulent fluid. In all the cases, there was distension of the ventricles with serum or sero-purulent matter.

In five cases that terminated fatally on or before the third day, observed by Dr. Upham, the lesions were, in two cases, congestion of meninges of brain; in three, extensive deposit of lymph at the base of the brain, especially of the cerebellum; in one, slight cloudiness, confined to the superior surface of the cerebrum, with some opacity of the arachnoid; in one there was absence of all abnormal deposits. In two cases, which lasted thirty-four and thirty-six days respectively, Dr. U. detected, in the first, cloudiness and slight deposit of lymph between the convolutions of the cerebrum, and a firm layer of coagulable lymph, two lines in thickness, on the lower surface of the cerebellum and oblongata; in the second, some increase of vascularity of the pia mater; a thin, milky fluid beneath some portions of the pia mater; on the upper surface of the brain, and at its base, a mass of tenacious yellowish lymph, three-eighths of an inch in thickness, extending down upon the spinal cord. In both cases the ventricles were distended with a sero-purulent fluid. In the six intermediate cases the lesions were, more or less congestion of meninges in three; in one only clouded appearance of arachnoid, and in five copious effusion at the base of the brain and medulla oblongata.

In respect to the true character of the disease under consideration, Dr. U. remarks that, from the limited number of cases that have been adduced, no definite conclusion can be arrived at, but he believes that by the process of exclusion, we may be able to approximate towards the truth.

"That it was not, in its essential essence and primarily, an inflammation of the membranes of the brain and spinal cord, it seems fair to conclude, Dr. U. thinks, from the failure of all the known means of combating such disease in

producing any adequate result. Venesection and local bleeding had alike no control over the violence of the disease. Blisters were not well borne. Calomel and saline cathartics in large doses produced no good effect. The outward demonstrations of the disease, if carefully studied, would seem to be rather the results of some subtle agency that had suddenly overwhelmed with its depressing effects the vital powers, than the excited and painful expressions of active inflammation." "The disease lacks, also, many of the important symptoms and other characteristics of the 'congestive fevers' of tropical climates. It is not intermittent, nor uniformly or commonly remittent. It occurs at a season of the year when miasmatic diseases do not prevail, and among the new troops who have not been previously exposed to malarial influences, by preference. It does not yield to, nor appear to be favourably influenced by, quinine, however early and perseveringly administered. The anatomical lesions, in the cases examined, which, other things being equal, would seem to accord with the supposition of its malarial origin, are the rare exception, not the rule.

"The disease seemed to Dr. U. rather to partake of the nature of typhus, in a severe and malignant form, identical in its essential elements with the typhus fever of Great Britain, which, under the names of maculated typhus, ship, camp or jail fever, has many times been observed in this country—having, in this instance, a special direction to the meninges of the brain and spinal cord, as, in other epidemics, the weight of the disease has fallen at one time upon the brain, at another upon the lungs, or other important viscera of the thorax, or of the abdomen. Springing up epidemically or otherwise, wherever there is long-continued crowding and exclusion of light and air, coupled with deprivation, hardships and exposure. In the disease under consideration, the circumstances of its origin are similar in kind, if not in degree, to those under which the typhus group of diseases most frequently originate. Very many of its phenomena and phases correspond with those witnessed in typhus epidemics. The suddenness of its accession, the dusky hue of the face, the suffused and injected eyes, the petechial eruption, and purpuric spots, the defective innervation of the respiratory and circulatory systems, as shown by the laboured, irregular breathing, and the often tumultuous and intermittent action of the heart, the sluggishness, but in other respects general freedom from functional derangement of the thoracic and abdominal viscera, and, after death, the passive engorgements, and the dark-fluid, sizzly, character of the blood, all point to the typhus element of the disease, and would seem to indicate a line of therapeutical management similar to that which experience has found most effectual in the treatment of that malady."

In respect to the treatment pursued in the cases to which the notes and memoranda before us refer; in the beginning of the epidemic it being considered of malarious origin the usual remedies in such affections were assiduously employed. Quinia, in some cases to the extent of from sixty to eighty grains, was given within ten or twelve hours from the first attack, but with no good result; in conjunction, stimulants and purgatives of calomel were freely used. Antiphlogistic remedies were also tried—cupping, wet and dry, to the back of the head and nuchæ—saline purgatives; epispastics to inside of thighs, calves, and ankles; frictions along the spine, with ementa of turpentine and brandy. When there was marked cerebral excitement venesection was most freely employed, but without averting or mitigating the symptoms. Calomel in combination with ipecac. in doses of two grs. of the former, and half a gr. of the latter, repeated every two hours, in conjunction with frictions or sinapisms along the course of the spine, seemed, in several cases to have had a good effect. Ergot, recommended by Dr. Brown-Séquard in certain affections of the spinal cord unaccompanied with active inflammation, was given in the form of fluid extract, in doses of from ten to fifteen minims, every four hours. Several of the cases thus treated recovered. Often a beneficial effect attends the use of camphor water in combination with carbonate of ammonia. Dover's powder and solution of sulphate of morphia were given at night to induce sleep.

D. F. C.