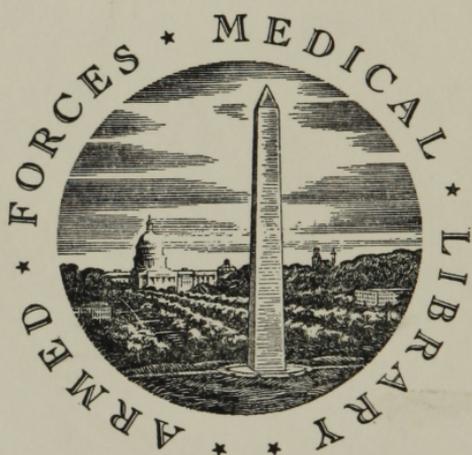


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WASHINGTON, D.C.

☞ *The object of the following publication, is to show the advantages to be derived from blood-letting, in the disorder on which it treats.*

Nathl. S. Foster

SOME ACCOUNT

OF

THE FEVER

WHICH EXISTED IN BOSTON DURING THE AUTUMN
AND WINTER

OF 1817 AND 1818.

WITH A FEW GENERAL REMARKS ON

TYPHUS FEVER.

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PREFACE.

THE following communication was intended and prepared for the New-England Journal of Medicine and Surgery, but it was presented too late for the last number. Since that it has been somewhat extended, and now its length precludes its admission, intire, into the next number of that work. I am, therefore, in some degree under the necessity of adopting this mode of publication. It is, however, with some reluctance that I give to the communication the form of a book, as it has no pretensions to more than an essay on the subject to which it relates. The principal object is to give to the public without delay, the result of a practice in a formidable disease, which is not in common use ; and particularly to excite attention to the morbid changes, which this disease effects in those, who fall its victims. The cases presented are numerous, and rather minutely detailed, because it is necessary, in order to form a proper estimation of the value of the chief remedy employed, to relate all the circumstances, which can have any influence on the results.

This subject, fever, demands a long and patient investigation. It is copious in new and interesting truths, whose development would furnish a volume, but before a thorough work can be produced, a greater accumulation of facts is necessary than has yet been obtained. It is hoped that the facts presented in the following pages will contribute to the elucidation of its cause, and the improvement of the treatment of this disease.

As I have before publickly appeared in favor of the practice of bleeding in other diseases, and as I again present myself its advocate under circumstances where it has generally been forbidden ; it may not be improper on this occasion to state, that my present favourable judgment of this practice is not the effect of preconceived opinions, or a favourite theory ; nor is it recently formed ; but on the contrary, it is the result of long experience, and it has been gradually matured. This practice was commenced with great caution, and with strong prepossessions against it. But its salutary effects in some cases, and the morbid changes produced by acute disease, which I frequently witnessed by examinations after death, at last wrought conviction that bloodletting was not only a highly valuable remedy, but an indispensable one. It was in the next place to be ascertained, to what extent this remedy might be used with safety and advantage ; and this part of the inquiry has been attended with much anxiety and watching ; the mind being constantly operated on by the fear of doing too much or too little for the safety of the patient. No situation is more trying to the physician, than when he sees the death of his patient inevitable, unless it can be averted by a remedy, the power of which has not been measured in the disease which threatens the mischief.

With respect to this question, much positive knowledge has been gained, but there is still much to be done. I am conscious that the way is an unfrequented one, and that great circumspection is required. But it is a rule with me not to advance a second step till the first rests on firm ground.

W. G.

SOME ACCOUNT, &c.

THE fever, which was in some degree prevalent in this town in the last autumn and winter, ranks properly under the denomination of typhus, but it differed in some respects from the usual appearance of that disorder. The principal symptom by which it was distinguished from the common form of typhus, was the primary, and often severe affection of the head. This symptom was truly characteristic, and appeared to be the cause of others not very usual, and all together they gave a peculiar aspect to the disease. It might with propriety have been denominated brain fever. In many instances it bore a strong resemblance to that variety of typhus called spotted fever. It has not, indeed, in any instance within my observation, exhibited that rapid progress to a fatal termination, which has sometimes marked that variety of the disease ; but some cases were extremely violent and distressing in their attack and progress, and manifested, very early, a bad character. Sometimes, indeed, it was mild, and yielded readily

to common remedies ; but a majority of the cases which came under my care were severe and troublesome. It did not, however, always discover its real character at its commencement ; it would appear mild at first, the patient fancying nothing worse than a common cold ; but in the mean time the disease was insidiously creeping on, and after a few days the situation of the unfortunate sufferer would be distressing and hazardous. But whatever may have been its aspect, it has been under some circumstances, very destructive of human life.

The disorder usually commenced with a chill and head-ach. The pain was sometimes in the back of the head, but in most instances in the forehead, and was accompanied with a sense of weight or great tightness across the forehead. In a short time the patient felt pain in the back and limbs, sometimes an excruciating pain in some of the joints. In some cases there was an extreme soreness or painful sensibility to the touch over the whole body ; in others a numbness, principally in the limbs, resembling that state in which the limb is said to be asleep.—The state of the skin varied. In some cases the commencing chill was not followed by any excess of heat, but an unnatural coldness continued during almost the continuance of the disease. In others the excess of heat was constant, but the skin at the same time was moist, and had its natural softness. In a majority of cases, there was one or two regular paroxysms of heat in the twenty-four hours,

and in the intermissions the temperature of the skin was natural.

The state of the circulations was not more uniform ; the pulse, however, was in most cases feeble and small ; in some greatly accelerated ; in others the pulsation did not exceed seventy or eighty in a minute ; in a few instances it was intermittent.

The strength in some cases was greatly and immediately prostrated ; in others the prostration was inconsiderable till the disease had advanced.

The tongue in some, was slightly coated and moist ; in others thickly coated with a white fur, which was disposed to become brown if the disorder progressed. In some it had no fur, but its surface was brown, dry, horny and cracked. In some severe cases the appetite at first was not materially impaired, and the secretions not greatly diminished ; but in others, at the first attack, constant nausea and vomiting were distressing symptoms.

In the progress of the disease, other symptoms presented, as heaviness over the eyes, a dimness of sight, anxiety, sighing and faintness, extreme flatulence, universal distress and jactation, delirium, stupor and insensibility ; distress in the chest commonly about the region of the heart, amounting in some instances to positive and acute pain, difficult respiration and dread of suffocation. These affections of the chest in a greater or less degree were not unusual in the cases which occurred in October. It will appear that they were not the effects of inflammation in that part of the body.

This must be considered only a very general outline of the symptoms produced by this disease. A more minute account is presented in the cases which follow.

CASE I.

The patient, a lady aged thirty, of rather a gross habit, had been a little indisposed for one or two days before the 8th October, on which day, at noon, she was taken with a general chill, accompanied with a severe head-ach. I saw her in the evening; an uncomfortable heat of the skin had followed the chill, and she complained of pain in her head, neck, back, and extremities; her tongue was coated and pulse accelerated, one hundred and twelve in a minute, quick, but soft. She took this evening an emetico-cathartic, and drank freely of balm tea.

9th. The medicine operated thoroughly, but she was not relieved. Pain in the head more severe; eyes dull, skin too cool; there was distress about the chest, and involuntary sighing: pulse one hundred and twenty, small and feeble; the throat inflamed and sore, and an extreme soreness over the whole body rendered the least motion painful. I immediately took from her a pint and a half of blood, it was thin, uncommonly black, coagulated slowly, but exhibited no buffy coat. After this she took an ounce of the sulphate of soda; and at bed time had poultices made with vinegar applied to her feet and the back of the neck, and took a pill con-

sisting of two grains of calomel, and half grain of opium.

10th. Not materially better ; pulse the same ; skin warm ; the urine distressingly hot and scanty. Repeated the bleeding to the amount of twenty ounces ; the appearance of the blood the same. Directed a cathartic, the cold ablution, and the following recipe :

R Subm. Hydrarg. gr. xij.

Tart. Antim.

Opii - - $\bar{A}\bar{A}$ gr. ij. M. f. pil. No. xij.

cum. sol. mim. Nilot. q. s.

One pill to be taken every four hours.

Evening. Symptoms the same, except the head and chest seemed a little relieved.—Bleeding repeated to the extent of sixteen ounces. The appearance of the blood the same. She was a little faint after the operation.

11th. The acute pain of the head, and the soreness of the flesh diminished ; throat nearly well ; pulse moderated to one hundred and ten, and more elastic. But she had a restless night ; sighs continually, has nausea, and a sensation of sinking or faintness at the pit of the stomach ; skin hot and the eyes inflamed.—V. S. Twelve ounces extracted ; blood more florid, but in other respects the same.

Evening. Said the bleeding in the morning gave great relief ; the symptoms, however, are not materially changed. The bleeding repeated to the amount of ten ounces ; the back of the neck blis-

tered. The nausea attributed to the pills, they are omitted.

12th. Had some sleep, and is better, except the nausea. To have an emetic, and at bed time eight grains of calomel. Pulse one hundred.

13th. Better; pulse ninety-six. The emetic operated favourably, and the calomel produced two or three black, alvine discharges.—Cold ablution and diluting drinks continued; calomel to be repeated at bed time.

14th. In general, much the same as yesterday. Skin hot and dry. To take the antimonial solution after the following recipe :

R Tart. Antim. gr. iij. Aquæ, font. ℥i. M.

Commence with ten drops, and increase the dose gradually.

15th. The smallest dose of the antimonial solution produced vomiting; it was, therefore, omitted. Sleep disturbed by dreams. Head not so well; it is dizzy, heavy and burthensome, and seems not to belong to the body; pulse ninety-four, strong; desired to be bled for the relief of the head; twelve ounces of blood were taken; it had for the first time, a thin buffy coat upon it. Again blistered the back of the neck, and directed a cathartic. The calomel had affected the mouth, and caused a considerable flow of saliva.

16th. Head in some degree relieved, and other symptoms quite favourable; pulse eighty-eight; muscular strength very good; the head constantly wet with cold water.

17th. Head not quite so well, other symptoms as yesterday. Got from the bed, and walked the floor without difficulty. Directed a cathartic on account of the head. Evening. Had three copious alvine motions, but the head is worse; it has shooting pains, principally over the right eye ball; dizziness and ringing in the ears; the capacity to think is lost, and the passing of time cannot be realized. Pulse ninety. I immediately took from her a pint of blood; she fainted; but this was to be attributed more to the length of time occupied in getting the quantity from a bad orifice, than to the loss of the blood.

After this, convalescence was so rapid, that on the 21st there were no remains of the disease, and she was out of bed all day without inconvenience.

It appears that this patient lost in about nine days, nearly seven pints of blood; and she was, without doubt, indebted to the persevering use of this remedy for her recovery.

CASE II.

On the same evening, October the 8th, I was called to a labouring man, who was reported to be in great distress. I found him in bed, complaining bitterly of an extreme pain, which he said was fixed in the most fleshy part of the thigh of the right extremity. He had also pain in his head and back, and a soreness of the whole body. Began to be ill towards evening; the indisposition commenced with

a severe chill, and was followed by great heat of the skin. Pulse one hundred in a minute, quick, and somewhat hard. Had no objection to blood-letting. A vein was immediately opened, and a large quart of blood taken from him. The following day he was decidedly better, but took a dose of the sulphate of soda. On the third day he took a second dose, and was very soon well.

His expeditious recovery was owing chiefly, I apprehend, to the use of blood-letting so soon after the commencement of his disorder.*

CASE III.

Mr. K. a small spare man, and sickly, began to be sick on the 21st October. The disorder commenced with a chill, which was soon accompanied with head-ach, pain in the back and limbs, particularly in the knee joints, and a soreness of the whole body. He endeavoured to remove his indisposition by cathartics, pediluvium, and drinking warm teas; having little success with these means, and his head getting worse, he had taken from him ten ounces of blood. I saw him on the afternoon of the 23d. He thought his head better, but the pain in the knee joints was so acute, that the least motion put him in torture. He had also pain in his back, and an ex-

* It is to be understood, that when the quantity of blood taken, is designated by measure, beer measure is meant; when by weight, avoirdupoise weight; taking it for granted, that a pint, beer measure, is a pound avoirdupoise weight.

treme degree of soreness and tenderness, so that he could not bear to be touched ; even the motions necessary for respiration gave pain. Skin unnaturally cool ; tongue thickly coated with a white fur ; pulse, small, feeble, but soft, and not accelerated. Directed an emetic, to be followed by copious draughts of warm teas, with the spirit of nitrous ether, and warm fomentations to the whole body.

24th. The distress somewhat relieved ; the skin had acquired a natural warmth ; other symptoms the same.—A cathartic to be taken ; the warm teas and fomentations to be continued ; the nitre, as it is disgusting, to be omitted, and the calomel pills to be given as in the first case.

25th. Symptoms not materially changed. The same treatment to be continued.

26th. In every respect worse ; continually restless and groaning ; head-ach more violent ; pain in the knee joints more acute ; pulse, small, quick, and feeble, one hundred and twenty in a minute ; skin below the natural temperature ; besides these, which had appeared in some degree before, a new symptom presented in a formidable shape ; this was a sense of great weight or oppression across the chest, directly in the region of the heart. For this, he said, he must have immediate relief, or he must die. I proposed bleeding ; he consented, and I took from him, at once, twenty-four ounces of blood. It was quite black, thin, coagulated slowly, and had a thin coat. Relief was immediately obtained.

Chest to be extensively blistered.—Evening. Symptoms a little moderated ; pulse, one hundred and ten, but it has a double stroke, that is, there were two strokes in the time of one, a strong and a weak stroke, the latter following the other instantly ; the stronger only was counted. Bleeding repeated, eight ounces taken. Pills caused nausea, they were therefore omitted ; six had been taken.

27th. Better ; pulse the same, except fuller. His chief distress arises from flatulency this morning ; an immense quantity of flatus continually passes up and down. A cathartic of calomel and rhubarb to be given.

28th. Flatulency abated ; head painful and heavy ; heat of the skin above its natural temperature, but at the same time moist ; pulse one hundred, pulsations still double.—V. S. Twelve oz. The blood had a thick, buffy coat.

29th. Has pain in the head over the eye balls ; other symptoms better ; pulse ninety-six, pulsations single. But on account of the head performed V. S. Took ten ounces of blood, and directed a cathartic of rhubarb, and super-tartrite of potass.

30th. Bled freely from the nose in the night ; head relieved.

31st. Bled again from the nose. Pulse eighty. Convalescent.

It had been my desire to conduct this case to a safe conclusion without resort to blood-letting. The patient's usual state of health had been very feeble,

and on that account his friends were opposed to this practice being adopted with him. But his symptoms became so formidable that there seemed to be safety in no other means. The result has been fortunate ; the patient's health, since his recovery from the fever, has been better than for years before.

CASE IV.

The patient, a female ten years old, had been severely sick at least four days. The parents, undertaking the management of the disease, had given her an emetic, a cathartic, &c. &c. She was, however, getting worse. She was delirious a greater part of the night previous to my seeing her ; complained of severe pain in her head, neck and back ; had a paroxysm of febrile heat every day, commencing about evening, and lasting seven or eight hours. Between these paroxysms the skin was cool, particularly the feet and legs were cold. Tongue coated, and began to be dark coloured ; pulse accelerated, one hundred and forty in a minute, quick, and very small ; the artery rigid, and apparently to the touch no bigger than a thread. Treatment. V. S. performed, and five ounces of blood taken. It was thin, and very florid. The back of the neck was blistered, sinapisms applied to her feet ; warm applications to the extremities, and cold water liberally to the head. She took cold drinks, and the antimonial solution. On the

second day of my attendance, her head was a little relieved, other symptoms not much improved; tongue getting quite dark. The bleeding repeated to the extent of four ounces, and a calomel cathartic to be given. Small doses of the antimonial solution produced nausea and vomiting, it was, therefore, omitted. The third day she was much better, the pulse, however, remained small.

The principal remedies used after this, were cathartics and cold ablutions. The eighth day she had no disease, the debility very moderate, appetite good, and she was soon well.

CASE V.

The sister of the subject of the preceding case, thirteen years old, was sick with the same disease. She was attacked two days later, but with equal severity. Being bled sooner after its commencement, the disorder yielded more readily. She lost twelve ounces of blood at three bleedings. She was the first well.

CASE VI.

October 26th, afternoon. I visited Mrs. C. a spare woman, between fifty and sixty years old. She had been indisposed for several days, and quite sick for the two days past. She had pain in her head and limbs, soreness of the flesh, dry skin, furred tongue, a pulse frequent, small, and feeble. Had taken physic twice, to evacuate the bowels, and had

sweated herself by means of warm teas. I directed her an emetic.

27th. She was not relieved by the emetic. Said that her head was tightly bound across the forehead, and there was a weight over the eyeballs. Pulse the same ; flatulency very troublesome. Took from her one pint of blood, had cold water applied to her head; and warm poultices to her feet.

28th. Head less painful, but heavy and dizzy has distress across the chest ; skin cold ; pulse irregular, each distinct, followed by two or three indistinct pulsations. Blistered the chest and back of the neck, and gave warm teas with the spirit of nitrous æther.

29th. Temperature of the skin restored ; head not quite so easy ; other symptoms much the same. To take a cathartic of rhubarb and calomel ; and after the operation, the calomel pills. Nitre omitted.

30th. Symptoms worse. Affection of the head and the prostration of strength increasing ; tongue dark, brown and dry ; pulse no better. The singular character of the pulse had deterred me from bleeding. The state of the head seemed now to demand it. Venesection was performed, and eight ounces of blood taken. It was uncommonly black, thin, and did not easily coagulate. Evening. Certainly no worse. She was pleased with the effects of the bleeding. Repeated it to the amount of four ounces.

31st. Better ; pulse regular, eighty in a minute, but small. To drink freely of a solution of the super-tartrate of potass, which was grateful to her.

Nov. 3d. The symptoms seemed improving till this day ; she complains that her head is worse ; has pain in her side, and sickness of the stomach. Gave an emetic ; to be followed by a rhubarb cathartic ; blistered the side.

4th. The emetic vomited her ; had some black alvine discharges, and the side is relieved. But the distress in the head is severe, and she has an acute pain in the right eyeball. V. S. ten ounces of blood taken, and the back of the neck again blistered.

6th. In some respects better ; but the distress in the head continued, and the right eye threatened with a total loss of sight ; the left had been for many years affected with a cataract. Bleeding repeated to the extent of six ounces, and the forehead blistered.

7th. Head a little better. It ought to be mentioned, that there had been, regularly every day, for five or six days past, a paroxysm of febrile heat, which commenced at about six, P. M. lasted from five to seven hours, and subsided without perspiration. It had begun to diminish in length and severity.

The treatment after this, consisted principally in the administration of cathartics, and in repeatedly blistering different parts of the head. Finally, the

disorder subsided, and the head and eye were restored to their natural state.

Had the bleeding been sooner repeated, at first, the disorder would probably have been less protracted, and attended with less danger in its progress.

CASE VII.

October 27th. I was called to see Mrs.—l. She had been a little indisposed two days; complained of pain in her head, back and limbs; had smart uterine pains, being seven months advanced in pregnancy; pulse quick and small; skin hot, tongue coated, and the strength prostrated. Took from her a pint of blood, and directed a cathartic dose of senna and manna.

28th. Uterine pains removed; other pains mitigated; but the head is heavy, and bound across the forehead. Pulse small, contracted, intermits after every third pulsation; skin cool, but dry; secretions diminished; urine little in quantity, high coloured, and painfully hot. A cathartic dose of rhubarb and calomel given, flaxseed tea and other diluting drinks. The bleeding was not repeated on account of the intermission of the pulse.

29th. Pulse and head the same. Blistered the back of the neck, and gave the submuriate of mercury in small doses.

31st. Nothing has been gained the three last days; head more painful and heavy; pulse the same, still intermitting; the mouth evidently affect-

ed by the calomel, but no relief follows ; has two paroxysms of heat regularly every twenty-four hours, and the disorder is acquiring a more serious aspect. Under these circumstances, blood-letting seemed the only remedy that could arrest its progress, and as its effect on the pulse in the preceding case was pleasant, I had little hesitation in using it. A pint of blood was, therefore, taken from the arm ; it was thin, coagulated reluctantly, and had a thin buffy coat. The intermission of the pulse ceased while the blood was flowing, and did not return.

November 1st. Better ; pulse regular, and only eighty-six in a minute, but the head is not right. Took a cathartic ; the soreness of the mouth is troublesome.

3d. Not so well this morning ; the paroxysm of heat more severe ; head heavy, pulse one hundred and ten. Repeated the bleeding to twelve ounces.

In a short time after this, all febrile symptoms disappeared, and she became very hearty.

CASE VIII.

October 28th. Mrs. K—e had been ill seven or eight days with what she supposed a bad cold. She had taken an emetic, and two or three cathartic doses with teas, &c. Her symptoms became worse ; she had pain in her head and limbs, prostration of strength, and great restlessness ; palpitation of the heart, and distressing flatulency ; skin dry, pulse quick and feeble ; tongue coated, and beginning to

have a dark colour. V. S. Took one pint of blood, which was very black, coagulated slowly, and had no buffy coat. Gave her a cathartic dose of rhubarb and magnesia, and allowed her to drink snake-root tea. The next day, not finding much improvement, I bled her another pint. The cathartic had produced some dark coloured stools, and the flatulency was relieved.

The third day the head was relieved, but the palpitation returned with violence. Blistered the back of the neck, repeated the cathartic, and allowed the ammoniated alcohol in the snakeroot tea.

During the succeeding eight days, the disease varied in its appearance. In this time emetics, cathartics, blisters, and the submuriate of mercury, were used as remedies.

On the 12th day, the twenty-first since the commencement of the disease, the patient was evidently worse. Had an acute pain in the right eye; accompanied with an increase of the heaviness and dizziness of the head. The palpitation of the heart, excessive flatulency, and a sensation of fainting, were constantly present. The skin was harsh, and rather hot; pulse one hundred, quick and sharp; coat on the tongue of a dark brown colour. Bled her ten ounces, and repeated the cathartic. The next day symptoms improved, and from this time she gradually recovered.

CASE IX.

Mrs. —e, aged thirty, had been ill five or six days, and taken much medicine. Has pain in her head, over the eyeballs, and tightness across the forehead; pain in her back and limbs; prostration of strength; restlessness, loss of sleep, &c. Pulse feeble, small, one hundred and twenty in a minute; tongue coated; has regularly, every day, towards evening, a chill, followed by heat. Bled her to the amount of a pint, and gave a cathartic of the sulphate of Soda.

2d day. Symptoms very little improved. Bleeding repeated to the extent of twelve ounces.

3d day. Better, except she had distress in her chest, and an indescribably strange feeling in her head.—Warm fomentations to the chest, and blistered the back of the neck.

4th day. Blistered the chest, and repeated the cathartic.

6th day. Symptoms improving.

8th day. She imagined it necessary to take wine and food to restore her strength, and yesterday she treated herself with roasted chicken, cider, and a glass of cherry. Pain in the head very much increased; took an emetic.

9th day. Had acute pain in the right eyeball, and in the right side of the head. Pulse one hundred and twenty, small.—Six ounces of blood were taken from the arm, and the neck blistered.

10th day. Pain in the head less acute, but complained that it felt heavy; she lay in a state of

considerable stupor, and only replied to questions in a low, muttering voice. Gave her a cathartic dose of rhubarb and calomel.

11th day. Symptoms very little better; pulse one hundred and twenty. Bled her ten ounces.

13th day. Repeated the bleeding eight ounces.

14th day. Better. After this, she rapidly recovered, without the aid of bark, wine, or any thing more stimulating, than common, simple diet.

CASE X.

John Cross, aged twelve, had been ill four or five days, and his friends had administered to him an emetic and cathartic, but his disease progressed. Complained of pain in his head, back, and limbs, chillness, loss of appetite, prostration, &c. Pulse one hundred and thirty, small, quick, feeble; tongue had a white fur upon it. Bled him six ounces, and directed the solution of tartrate of antimony.

2d day. The solution, in very small doses, produced vomiting. Head better; pulse one hundred and twenty; solution to be omitted; a cathartic dose of senna and manna to be given.

3d day. The symptoms continued the same; repeated the bleeding to four ounces.

4th day. Disorder seems disposed to continue; same quantity of blood taken as yesterday.

5th day. Symptoms all better; pulse one hundred; tongue cleaning; appetite returning. His recovery was soon complete.

In most of the preceding cases, the disease in its commencement was apparently mild, and it progressed slowly. In those which follow, it was more sudden and violent in its onset.

CASE XI.

November 8th. John Bright, about thirty, a mechanic, was taken about noon; with severe chill, and pain in his head to such a degree as to oblige him to quit his work and go to bed. I was called to him in the evening; he was groaning in agony with the pain in his head; said it would burst, and he would submit to have it opened to obtain relief. The seat of the pain was in the forehead, and the top of the head. He had also pain in his back, and limbs, particularly the knee joints; sickness at the stomach; and prostration of strength; pulse one hundred, quick, small and hard; countenance pale, and expressive of anguish. He consented to be bled, and when I had taken one quart of blood from him, he begged me to proceed, it gave so much relief to his head. I took eight ounces more, when his pulse was affected. The blood was dark, not disposed to coagulate, and had no buff. A cathartic dose of senna and manna to be given; diluting drinks, and the head to be bathed with cold water.

9th. Pain in the head did not subside so much that he could sleep till towards morning, when he rested a little. Cathartic operated well. Symptoms generally mitigated. Bled him to the amount of twelve ounces only. Blood the same aspect.

10th, 9 A. M. Had a restless night ; pain in his head severe ; had great distress in the right side of the thorax. Pulse eighty, full, quick ; skin cool ; tongue thickly coated. Took from him one pint of blood. Blistered the back of the neck, and gave him a cathartic.

11th. Head and chest relieved. Cathartic had not operated well. Had severe pain in the bowels. Warm fomentations to be applied to them, and cathartics repeated till the bowels are evacuated. This was not accomplished till evening, after which they were easy.

12th. Countenance anxious, head not entirely easy ; had heat last night, and was restless till towards morning. Pulse seventy-five, slow, full, strong.—Took from him twelve ounces of blood, and gave him another cathartic. The blood had a thick coat of fibrin.

13th. Much better ; can sit up ; wishes to remove from his present lodgings ; is permitted. Walks down two pair of stairs, rides some distance, walks up two pair, with no other inconvenience than a little fatigue.

After this, he took a cathartic and was immediately convalescent.

On the 22d of the same month, he took to himself a wife, and commenced a journey of several hundred miles.

CASE XII.

The patient, a girl of sixteen years old. She was suddenly taken ill with a chill, and sickness of the stomach ; this was soon followed by severe pain in her head and back, and an aching of the limbs. She took an emetic, which operated powerfully up and down, and used pediluvium, but all without relief. When I saw her she had been ill about twenty hours ; complained much of pain in her head ; countenance swollen and crowded with blood ; pulse one hundred twenty-six, quick, small, feeble ; said she was cold and extremely weak. Blood-letting was recommended, and twenty four ounces large, were immediately taken from the arm. It was quite black, and did not readily coagulate, and had no buffy coat ; she took a cathartic dose of the sulphate of soda.

2d day. Much better ; head relieved, pulse one hundred and ten ; but the disease was evidently not subdued. Repeated the bleeding, and sixteen ounces more of blood were taken.

3d day. The first object that struck my sight on entering the chamber, was my patient sitting at the fire ; countenance bright and natural ; symptoms of disease nearly gone ; pulse one hundred ; tongue cleaning : health was soon restored without farther medical aid.

CASE XIII.

November. Mr. H., forty years old, was suddenly seized with the symptoms of this disorder; they manifested much violence, especially the pain in the head. Very soon after the attack, he was bled; One quart of blood was taken from him at once. He was immediately relieved, and with the assistance of one or two cathartics, the disease was speedily and entirely removed.

CASE XIV.

November. John E. a lad eleven years old, in the same house with the above case, was violently seized with this disorder. Pain in the head and limbs very distressing; tongue coated, pulse one hundred and twenty in a minute, quick and feeble. He was bled immediately after the attack; eight ounces of blood were taken. He afterwards had an emetic, and the two following days a cathartic each day; and was then convalescent.

CASE XV.

December. The patient, a middle aged working woman, was obliged to take to her bed in consequence of inability to continue her labour. She began to be ill at noon; I saw her in the evening; she complained that she was tired, had pain in her head and back, and a feeling in her head when she raised it from the pillow, which she could not describe;

pulse not much accelerated, but feeble, and easily compressed; tongue coated with a dense white fur on each side, but natural in the middle; skin of its natural temperature. These were suspicious symptoms, though their aspect was not at present very bad. I advised her to be bled; and immediately took from her arm, twenty-four ounces of blood, and gave her one ounce of the sulphate of soda.

2d day, 10 A. M. Symptoms much the same. Repeated the bleeding to the same quantity.

3d day. Symptoms mitigated, but not subdued. Repeated the bleeding to a pint.

4th day. Still better. Took an ounce of the sulphate of soda, and was soon well.

Other cases of a similar nature might be added. The five last cases were unquestionably indebted to blood-letting for the sudden check to the progress of the disease. In the two first of the five, the symptoms, in their commencement; were very formidable, and no hope of a favourable issue could be entertained, unless a strong impression could be made at once.

In the cases, which follow, the disease was not entirely arrested by blood-letting, but I think it will appear that the patients owed their final recovery to this remedy.

CASE XVI.

The patient, a female aged about thirty-five. From the best account which could be collected, she had been sick about four days. At the time of my

visit she was very ill. She lay on the bed in a state of extreme prostration, and apparent stupor, groaning incessantly with the distress she suffered from the pain in her head, and the aching of the whole body. The pain was seated principally in the forehead, and crown of the head. When roused to speak, she said it was indescribable, but seemed most like an immense weight, which would crush her to the earth ; and this sensation was accompanied with a constant and violent throbbing. Her pulse was not much accelerated, but it had no firmness, and was easily obliterated by the pressure of the finger. Tongue coated with a dense white fur upon each edge ; the middle, about one third of its surface, was red, quite dry and rough. The skin had about its natural temperature. Under these circumstances, blood-letting, to my apprehension, was the only means of relief. Twenty-six ounces of blood were, therefore, immediately taken from a vein in the arm. A cathartic dose of senna and manna directed, and the constant application of cold water to her head.

2d day, 10 A. M. Her head, she said was easier for a short time after the bleeding last evening, but it soon returned as severe as ever ; she had no rest, but was groaning all night. Repeated the bleeding to twenty-four ounces. Blistered extensively the neck and back. Evening. Not materially better. Took sixteen ounces more of blood. Cold water continued to her head.

3d day. Slept a little ; head easier ; tongue brown in the middle, but moist ; pulse one hundred and twelve. But she complained of distress across the chest, and sickness at the stomach. Takes nothing but cold water. This calm was not to be trusted. Twelve ounces of blood were taken. Evening. Was quite faint after the bleeding. Chest and stomach relieved ; but the head was heavy, and throbbled. The application of cold water continued.

4th day. Symptoms not so favourable as yesterday ; pain in the head returned with almost its former severity. Stomach sick ; pulse one hundred and twenty, quick, small, feeble ; tongue dry, quite dark coloured, and cracked in the middle. Skin warmer than usual.—Bled her twelve ounces, and gave a cathartic dose of the sulphate of soda, to be assisted by an enema. 6 P. M. Pain not quite so great as in the morning. Repeated the bleeding to eight ounces.

5th day. Pain in the head abated, but it feels large, heavy and dizzy. She is occasionally delirious. Pulse the same ; coat on the tongue peeling off, and leaving a raw surface. The cathartic of yesterday operated once only. A dose of Jalap and calomel to be given. The head to be shaved that the cold water may be more directly applied. Evening. No material change.

6th and 7th days. She was comparatively easy ; some of the time slightly delirious, but seemed at least to be no worse.

8th day. Pain in the head came on again severely about midnight; complained bitterly of the pain in her head; distress at the pit of the stomach, and an aching of the lower extremities. Pulse one hundred and twenty; tongue dry, skin rather warm. Bled her ten ounces.—6 P. M. Symptoms much the same. Repeated the bleeding eight ounces.

9th. Symptoms milder; head, she says, feels more like her own, and objects appear more natural to her. Bowels to be moved by an injection, and the cold water continued to her head.

14th day. The symptoms had appeared to be mild the four last days, pain in the head abated, and our anticipations were favourable. To-day the aspect is less flattering; had a restless night, pain and dizziness of the head distressing; pulse quick and small, and one hundred and twenty in a minute, skin hot and dry. Bled her six ounces; gave a cathartic and again blistered the back of the neck.

After this day, the symptoms continued mild for five or six days; they then subsided, and the patient recovered rapidly.

CASE XVII.

Patient, a lad sixteen years old. Visited him December 19th, 4 P. M. He had been sick about eight days, confined to his bed the most part of that time. He had been bled once to the amount probably of eight ounces; had taken some medicine, principally a mixture of the spirit of nitrous æther, and the

wine of antimony : but his symptoms had been getting worse. He complained of pain in his head, principally in his forehead ; pain in his back and limbs ; weariness and aching of his extremities ; pulse one hundred and twelve, quick but soft ; tongue thickly coated, the coat in the middle of the tongue brown and dry ; skin rather warm, but not dry ; that of the head very hot. The treatment commenced with removing all stimulating articles both of medicine and diet. Twelve ounces of blood were taken from the arm ; and the constant application of cold water directed to his head, and the cold ablution to the body, when the heat was on.

20th, 9 A. M. Symptoms continue the same. Repeated the bleeding fourteen ounces, and directed a cathartic.

21st. Some amelioration of the disease.—V. S. Twelve ounces of blood taken.

22d. Was quite faint after the bleeding yesterday ; but when this was removed, he found himself much easier. Had a good night : pain in his head very much diminished ; pulse one hundred ; feels bright, and delighted with his improved state. But he had a paroxysm of heat in the afternoon, and was not so well in the evening.—Advised bleeding immediately, but he was disposed to defer it.

23d. Does not feel so happy as yesterday morning. Pain and heaviness returned in the head ; pulse one hundred and twelve, and he has more heat and restlessness. Disappointed that he does not con-

tinue to mend, loses his confidence in blood-letting, and declines having it again tried. Directed a cathartic ; blistered the back of his neck, and continued the cold water.

24th. Disease progressing. Pain in the head increased, accompanied with an increase of heat and restlessness ; pulse one hundred and twenty, tongue more coated, of a darker aspect, and dry ; urine scanty and very thick.—Consented to be bled, and sixteen ounces of blood were taken.

25th. Symptoms mitigated, but not so much so as on the twenty-second. Cathartic to be repeated, and the subm. of mercury to be given in small doses.

26th. No improvement since yesterday morning ; the pain in the head and the heat continue unabated. Pulse one hundred and twenty ; tongue and urine the same.—V. S. Eight ounces of blood were taken.

27th. The heat abated after the bleeding yesterday, but returned again in the night, and continues, notwithstanding the constant application of cold water. Repeated V. S. Eight ounces of blood were taken.

28th. The symptoms a little moderated. Requests that the bleeding may be repeated, so great was the relief which he experienced from it yesterday. V. S. Eight ounces of blood taken. Had two or three alvine motions by the calomel ; it is to be omitted.

29th. Pain in the head and heat very much diminished ; coat on the tongue peeling off.

31st. Seemed to be doing well till the last evening, when the pain in the head returned with violence, and the heat of the skin was great. These symptoms have not diminished this morning. V. S. Eight ounces of blood extracted. Bowels to be evacuated ; cold water continued.

January 1st. Had a quiet night ; very little pain in the head this morning, and the heat very moderate.

2d. Head still remains comparatively easy, but he complains of pain in his back and aching of the limbs, is restless, and the skin continues hot and dry.—Consultation in the evening. It was agreed to give him the following :

℞ Subm. Hydrarg. gr. xij.
 Pulv. Ipecac. - gr. vj.
 Opii - gr. ij. M. f. Pil. No. xij.
 cum. sol. M. Nilot. q. s.

One pill to be given every six hours ; forehead to be blistered.

3d. Symptoms continue ; pain in the head increased ; pulse one hundred and twenty, quick, and somewhat hard ; skin hot and dry.—Consultation at noon. Agreed not to bleed more. Pills continued.

4th. Symptoms the same. Pills omitted, and a cathartic dose of rhubarb given.

These symptoms continued with very little variation, for five or six days longer. During this time no remedies were used except the cold ablution and occasionally a cathartic. The head now seemed to be liberated, but the back and lower extremities

were still affected. A distinct paroxysm of heat returned every day, but it gradually became weaker and shorter. Much benefit seemed to be obtained by often bathing and rubbing the back along the whole spine with cold vinegar ; at least this operation gave the patient much satisfaction. All the febrile symptoms gradually diminished ; but did not entirely subside till about the end of this month ; after which he regained his accustomed health with rapidity.

This case appeared to me to be one of those, in which the disease might have been arrested at the commencement by blood-letting. It is more difficult to procure such a result after the diseased habit is fixed, and some morbid change effected.

Had I used the remedy more boldly, when the patient came under my care, or even followed up the impression made after the third bleeding, the course of the disease might probably have been shortened. But something must often be yielded to the timidity of friends.

CASE XVIII.

February 3d, noon. I was called to see Mrs. L., a slender woman of infirm health. She was prostrate on her bed, and complaining in piteous groans, of a violent pain and a sense of an immense weight oppressing her head ; the pain was seated in the forehead, and over the eyeballs ; complained also of great weakness, pain in her back, and aching of

her limbs ; distress at the pit of the stomach, and nausea ; coldness and weariness. Pulse one hundred and thirty-two, small, quick, feeble ; the coat on the tongue already had a dark brown colour. I learned that she had been complaining of her head for ten or twelve days past, and had been quite unwell ; that with great exertion she went abroad on the second instant, and while absent, the pain in her head suddenly increased to its present excess. She fainted, and was carried home very ill. Under these circumstances, the prognosis could not be very favourable ; the disorder had continued so long, and acquired an aspect so formidable, that a mitigation of the distress was the most to be anticipated. The treatment commenced with bleeding, twenty ounces of blood were taken from the arm ; it was very black, did not coagulate for some time, and formed no buff. A cathartic dose of senna and manna to be given ; the lower extremities and the body to be made warm by jugs of hot water ; and cold water to be applied to the head.

4th. Cathartic operated well ; the nausea and distress at the stomach were so great, that she begged for an emetic ; she had it about six P. M. was thoroughly evacuated, but obtained no relief. Distress in the head and at the stomach continued all night ; it does not abate, but its severity causes continual sighing and groaning. Pulse one hundred and thirty six ; coat on the tongue dark brown, and dry about the middle. Urine in small quantity,

but deposits a large reddish sediment.—Repeated the bleeding to the same quantity ; the blood had the same appearance. Blistered largely the back of the neck ; gave a cathartic of jalap and calomel ; warm fomentations to the pit of the stomach, &c.

5th. She was faint for some time after the bleeding yesterday. The acuteness of the pain in the head abated, but it is extremely heavy and burthensome. Had a short paroxysm of heat last night, but the temperature of the skin is natural except that of the head, which is constantly very hot ; the wet cloths applied to it are heated with great rapidity. Stomach the same, accompanied with pain in the left side. A large blister to be raised over these parts. The cathartic did not operate well ; senna tea to be given. The mouth evidently affected by calomel, and it now appeared that she had taken, on the first and second, two doses of cathartic pills, in which there were twenty grains of calomel, and the bowels were only slightly moved. In the dose given yesterday, there were ten grains of calomel, quite enough in all to effect the system. Evening. Head more painful ; mouth very sore from the calomel ; strangury produced from the vesicatories. Stomach still in great distress.—Bled her twelve ounces, and allowed her to take the spirit of nitrous æther, a tea spoonful every three hours in flaxseed tea.

6th. Accidental symptoms relieved. Pain in the head not so acute. Cathartic operating this morn-

ing. Evening. Pain in the head distressing ; pulse one hundred and thirty-six ; tongue, &c. the same. V. S. Twelve ounces of blood extracted. Nitre omitted.

7th. Better this morning. Evening. Not so well. V. S. Ten ounces of blood taken.

8th. Her state the same as yesterday. Evening. V. S. Took six ounces of blood, and blistered the left side of the head, in which the pain was the most acute.

9th. Head more calm, but the stomach very sick, and in great distress. Bowels to be evacuated by magnesia and enemas. Evening. Stomach relieved.

10th. Pain in the head returned this morning ; pulse one hundred and twenty, more firm than it has been ; appearance of the tongue unfavourable ; skin has more heat than usual. V. S. Only five ounces of blood were taken in consequence of a bad orifice ; the patient had no convenient vein for bleeding. Evening. Head easier.

11th. Head in great distress again ; cannot endure the least motion ; pulse one hundred and twenty eight. Attempted to bleed, and obtained seven ounces of blood. Gave a cathartic, and again blistered the back of the neck. Evening. Bowels evacuated ; head less painful.

12th. Head in pain ; pulse one hundred and twenty, quick and hard. V. S. four ounces taken. Six P. M. Had a paroxysm of heat this afternoon ;

head and pulse the same. V. S. Eight ounces of blood obtained.

13th. Had a good night, and is quite bright this morning ; head comparatively easy, but not entirely free from pain ; can move herself with facility ; pulse one hundred and twelve ; tongue begins to clear.

14th. Head more painful to-day. V. S. Four ounces taken. Cold water to be re-applied.

15th. Still worse. Tongue dry again ; pulse one hundred and twenty. V. S. Eight ounces taken ; blood has a buffy coat. Back of the neck re-blistered.

16th. Seems better ; tongue cleaning ; asked for cider and beef tea ; indulged. Pulse one hundred and twelve.

17th. Has some pain in the left eye, but in other respects about the same. Took senna and manna.

18th. Pain in the eye increased ; has pain also in the back of the head. V. S. Five ounces of blood extracted. To be blistered behind each ear. It ought to have been mentioned, that the urine had become sufficiently copious and clear.

19th. Pain in the head increased, and has changed its place. It now shoots from the left eye, to the back of the head, and is very distressing. Pulse one hundred and twenty, quick and small. The tongue had been moist, and its foul coat nearly cast off ; its cuticular coat has now become dry, and of a brown colour even to its tip. V. S. Took

eight ounces of blood. Seven, P. M. Pain still severe, though not so bad as in the morning. Repeated the bleeding to the same amount. The cold water to the head very grateful.

20th. The same process seems to be going on in the back of the head, as has just terminated in the forehead. This now has become the seat of the pain, and the heat of that part is so excessive, that it can be kept supportable only by a constant change of the wet cloths upon which it lays. She had a chill this morning, followed by a sense of great heat; but to the hand of another her skin was quite cool. Pulse one hundred and twenty, quick; tongue as yesterday; urine again deficient, and thick, with a reddish sediment. V. S. and took twelve ounces of blood. Gave a cathartic. Six, P. M. No material change. V. S. Six ounces of blood extracted.

21st. Symptoms mitigated a little.

22d. Complains of a violent throbbing in the back of the head; the old pain in the side and distress at the stomach has returned. Bowels to be moved by a cathartic dose of rhubarb and an enema; hot fomentations to the side and stomach, and a blister upon each arm. Evening. Vomited several times after the enema was given. Took peppermint in hot water to relieve the stomach. Had two copious alvine evacuations, and the distress at the stomach subsided.

23d. Seemed a little better.

24th. Throbbing and heat returned in the head ; and likewise the pain in the side and distress at the stomach. V. S. Four ounces taken. Blistered the side and back of the neck.

25th. Strangury again from the vesicatories. Throbbing in the head still severe. V. S. Four ounces extracted.

26th and 27th. Symptoms more favourable.

28th. The patient very much worse. It seemed that she had yesterday several cold chills, and at twelve last night, commenced a smart paroxysm of heat, accompanied with severe pain in the left side of the head, ear, face and teeth ; aching of the limbs, distress in the chest, difficulty of breathing, restlessness and jactation. Pulse one hundred thirty-six ; tongue black, coated again to the tip. Immediately performed V. S. and took twelve ounces of blood. Six P. M. had a slight paroxysm at two o'clock, but has been quite easy since the bleeding.

March 1st. Some pain continues in the ear, face and jaws. Had a slight chill this morning, followed by a little heat ; pulse one hundred and twenty, quick. V. S. Six ounces taken. Blood does not readily coagulate, and has the buffy coat.

Various applications were made to relieve this pain about the face, among which were blisters behind the ear, and on the side of the face. We gave opium one night, but with unpleasant effects. The pain gradually subsided, and other symptoms seemed to be improving for four or five days. But

again her nights became restless, and the febrile symptoms were increasing. On the ninth, she complained of an acute pain in the left side of the head and eyeball ; pulse one hundred and ten, quick ; tongue dry and brown. V. S. Six ounces of blood were extracted.

These pains then subsided, and the febrile symptoms seemed so much abated, that a little wine was allowed. Six glasses in all were taken from the tenth to the fourteenth, when the febrile symptoms were again increasing ; head heavy and stupid, with pain across the forehead ; pulse one hundred and twenty, quick ; tongue dry and brown. The mischief was attributed to the wine. It was laid aside. Bowels well evacuated, and the cold water applied to the head. She took oatmeal gruel, and cold water with magnesia ; the latter was the most acceptable drink. There seemed to be some amendment till the eighteenth, when the febrile paroxysms became longer and more depressing ; and on the twenty-first, she had severe pain in the head and other unpleasant symptoms. Six ounces of blood were extracted.

On the twenty-second, she was much better ; pain subsided, pulse ninety-six, fuller than it had been ; she was bright, relished food, and flattered herself with a speedy recovery. But the unfortunate woman was now exposed to the noise and turbulence of a delirious husband, and for two days and nights had no repose. She suffered from agitation of mind

and became herself almost deranged. Her head became painful and the febrile paroxysms more severe, and a relapse was threatened. Six ounces of blood were taken from her; she was blistered about the head, and took a cathartic. She was relieved in a measure, and hopes were entertained that nothing worse would follow. Some pain continued in her head, and the pulse remained small and quick.

On the thirty-first, the pain in the head had increased, and the pulse was very small. Bled her six ounces.

April 1st, 9 A. M. The deterioration was not checked. She had completely relapsed, with violent pain, principally in the right side of the head, where it had not been before since the commencement of her disorder. She laid with her mouth half open, and complained of being very stupid, having great lassitude, weariness and soreness of the limbs. Tongue dry and brown; pulse one hundred and twenty, quick, and very small, like a thread. Here life was again in great hazard, and nothing promised relief, but the old remedy. I bled her to the amount of six ounces, and blistered the forehead, and the back of the neck. Evening. Symptoms the same. Repeated the bleeding to the same extent.

2d. Symptoms nearly the same. Pulse fuller, and larger. Repeated the bleeding to six ounces. Evening. No material change. Bleeding repeated to four ounces.

3d. Symptoms more flattering; stupor and pain abating; pulse larger, one hundred and ten in a minute.—V. S. Six ounces of blood extracted. Evening. Great heat on the skin, and head more painful. Took four ounces more of blood.

4th. A little better in the morning. Gave her ten grains of calomel as a cathartic. Evening. Bowels not moved. The febrile paroxysm ran high. Had great pain in her head, at the pit of the stomach, and in one leg, and complains of numbness in the other limbs. Repeated the bleeding to six ounces, and the calomel six grains more.

5th. A little better. Had three alvine discharges, assisted by sulphate of soda.

6th. The same as yesterday. The mouth is affected by the calomel.

After the ninth, the head was quite liberated, but the inflammatory action continued in the spinal marrow, and the common symptoms of fever were exhibited in the trunk. Two exacerbations occurred every twenty-four hours, with intermissions of about two hours between them. Generally at the evening paroxysm a severe pain came on in the epigastrium, and the umbilical region, to relieve which, a variety of means were tried. A gentle cathartic afforded the greatest degree of mitigation. A sufficient dose, therefore, of the *Pilula aloes et myrrhœ*, was taken every night, to produce one or two alvine motions the next morning. The appearance of the discharges was natural. This pain returned only occasionally after the ninth.

The affection of the trunk continuing about the same, notwithstanding the frequent application of the cold ablution, particularly to the back, the tepid bath was used on the thirteenth. She was put into it three nights in succession, but deriving no apparent benefit, farther trial was declined.

May 1st. The febrile symptoms had nearly subsided, and health seemed about to be restored, when a severe inflammation of the lungs commenced, accompanied with cough, acute pain, and many of her former symptoms. She is obliged again to submit to farther evacuations, blistering, &c. &c.

The inflammatory action in this case was uncommonly obstinate; it would seem to be subsiding, but at the moment that a hope began to be indulged, that it would decline as in other instances, when relief was obtained, its increase would be manifest. Thus, no less than four distinct accessions of the disease occurred. That they were the effects of the spreading and augmentation of the inflammatory action, is proved by the fact, that the symptoms were in each instance reduced within the bounds of present safety by bleeding, and the patient allowed another chance for existence.

The cause of the protracted course of this case, was probably the diseased action having become fixed and extensively spread before the treatment commenced. I am aware that it will be attributed by some, to the mode of treatment. To such a supposition, I oppose what I confidently believe to

be the fact, that with any other treatment, at present known, sudden death would have been certain. The result of the other cases may also be adduced; in these the same effect ought to have been produced, were the supposition well founded. On the contrary, farther experience as to the safety of a free use of this remedy, will probably enable us, not only to arrest a destructive termination of this disease, but to bring even bad cases to a favourable and expeditious conclusion.

CASE XIX.

February 27th. The patient, a lady, Miss —, had been for many days indisposed with a cold and severe cough, and had suffered much with headach. She had endeavoured to remove these affections by cathartic medicines, squills, &c. &c. But as the cough and headach increased, and her lungs began to suffer with pain and soreness, she asked advice. This was on the twenty-fourth. She was bled; twelve ounces of blood were extracted from the arm. The next day took a cathartic, and was much better. The morning of the twenty-seventh, she was so well, (there was still, however, some pain in her head,) that she intended going abroad in the afternoon. She took a light dinner, but very soon after was attacked with a severe and general chill and shivering. This, some time after, was followed by a considerable heat of the skin, severe pain in the head, across the forehead; a stricture across the

chest, and pain in the shoulders, so as to render respiration distressing ; pain in the back, and aching of the limbs, accompanied with a numbness and pricking sensation. She had attempted to get relief by bringing on perspiration ; but her distress increased to a degree insupportable. I saw her at about ten P. M. She was greatly agitated, almost to delirium, begging to have an immense weight removed from her head. The pain in her head, she said, was indescribable ; that in her shoulders very acute, and accompanied with a frequent cough, nausea, and retching. Her skin had more than its natural heat, tongue slightly coated, pulse one hundred, quick, depressed. The artery seemed as if sunken deeply among soft parts, making little resistance to the finger.

All hot things were immediately removed except from the feet, which were cold. I took twenty-four ounces of blood from the arm, and she was a little faint ; had the head, shoulders, and chest constantly bathed with cold vinegar, and allowed nothing to be taken but cold and simple drinks.

28th, 9 A. M. She was quiet a short time after the bleeding ; the cold applications were very grateful, and she rested a little. Had, however, some delirium towards morning, and the symptoms were nearly as bad as last evening, especially the pain in the head, in which there was a throbbing so violent, that she compared it to blows from a mallet. The nausea on the stomach continued, and occasionally

she vomited, which she was very desirous of doing. The skin was cool, tongue more coated with a dense white fur ; pulse one hundred and ten. The bleeding was repeated to twenty ounces ; the cold applications continued, and she had an emetic. Six P. M. The emetic operated thoroughly, after three full doses of Ipecac. and the tartrite of antimony had been taken. The nausea and retching, however, were not removed, and the effect was so prostrating and distressing, that she was hardly sensible to any other pain. An enema was given, and hot fomentations applied to the epigastric region. Cold water to the head.

March 1st, 9 A. M. More comfortable ; pain in the shoulders and chest removed ; stomach more calm. The enema produced two or three alvine discharges. Pain in the head less violent, particularly if it be kept perfectly still. Skin cool, pulse one hundred and ten, the same character ; the coat on the tongue dark at the roots ; urine scanty and thick. Bleeding repeated to twelve ounces. Six P. M. Nausea returned in the afternoon ; rubbing the back with cold vinegar seemed to relieve it. Complains of a pain in the left side, and has a troublesome cough. Other symptoms the same. V. S. Ten ounces of blood taken. The back of the neck and the side to be extensively vesicated.

2d. Seems to be much better ; can bear moving very well ; pulse one hundred, still, however, quick and unresisting. The vesicatories have very little

effect ; to be continued. Seven P. M. Much the same, except the cough is troublesome.

3d, 10 A. M. Symptoms all worse ; was restless the first part of the night ; at about midnight had a severe shivering, followed by an increase of the pain in the head, delirium, pain in the shoulders, left side, and groin ; accompanied with cough, nausea and retching. Pulse one hundred and twelve, quick, but unresisting ; head very hot, other parts of the body cool, feet cold ; tongue red, and dry in the middle. Took from her immediately sixteen ounces of blood ; it coagulated slowly, and was buffy. The side was blistered, the neck only slightly irritated ; vesicatory to be renewed. Bowels to be evacuated by an enema. Cold water to the head ; artificial heat to the body and limbs. Seven P. M. A little relieved ; was faint after the bleeding in the morning, but she has had some slight chills since noon. Craves ice ; is indulged. Pulse the same as in the morning.—Repeated the bleeding to eight ounces.

4th. Had a very uncomfortable night from the strangury caused by the blisters, sickness at the stomach, and a sinking faintness ; a table spoonful of wine was given in the night, with a little peppermint ; she thought it made her head worse ; which she says feels immensely large, crowded and dizzy, but is quite free from pain unless moved quickly. Tongue entirely clean and moist, but its surface is pale, and as smooth as if polished.

Pulse feeble and small. Declines taking any thing except magnesia and water, made cold with ice.

4th. Had a more comfortable night ; strangury removed, but a soreness remains in the hypogastric region, and a frequent cough produces great pain in that part. Head as yesterday ; pulse one hundred and sixteen, quick, skin warm ; tongue the same. Bowels to be evacuated ; warm fomentations to the hypogastrium ; cold water continued to the head. Six P. M. Symptoms much the same, except a sinking at the stomach, and flatulence. Had two alvine discharges. In consequence of the great distress of the stomach, she took a tea spoonful of brandy in cold water. Allowed it to be repeated with great care.

6th. Stomach, bowels and cough relieved ; but her head still feels unnatural, large, and dizzy, and occasionally throbs with violence. Had taken only two tea spoonfuls of brandy. Six P. M. A very considerable change for the worse ; had a chill at noon, and has been cold since ; pain in the head returned, accompanied with slight delirium, sickness and a sensation of sinking at the stomach. Pulse one hundred and sixteen, quick ; tongue dry and brown, but as smooth as it has been. She had taken two more tea spoonfuls of brandy very much diluted with water. It is to be entirely omitted. To remove these symptoms, it was deemed necessary to bleed again. Six ounces of blood were taken. 10 P. M. She bore the loss well and seemed to be

benefited. Four ounces more were taken from the same orifice. It was very thin, did not coagulate for some time, and then had a thin coat of fibrin.

7th. Was tolerably comfortable through the night, but complains much of her head this morning; it feels immensely large and heavy; cannot realize that it is her own; if moved, it throbs violently. Pulse one hundred and twelve. Had the head shaved, and a vesicatory, sufficient to cover its whole surface, applied. Six P. M. Head thoroughly blistered; but it throbs more constantly than in the morning; sickness of the stomach returned. Had a chill at noon, and has been very cold since; she is with difficulty kept warm by bottles of hot water and other heating applications. But notwithstanding this coldness, she craves incessantly ice-cold drinks, which she often throws from her stomach. I again directed brandy to be put into her drink; hot fomentations to the epigastrium, and heat to the extremities, &c.

8th. She was in great distress all night; the vomiting ceased, but the sensation of sinking at the stomach returned to such a degree, that she supposed herself dying, and was willing to be released from her present sufferings. She took hot wine, peppermint, and the ammoniated alcohol, but the stomach rejected them; the puking gave relief. Her head is very much in the state it was yesterday morning. Six P. M. Stomach a little better; she is slightly delirious, or more properly may be said

to be highly excited. Complains of no pain ; pulse one hundred and twenty. Brandy and all stimulating substances forbidden. She had taken exactly one ounce of brandy since the last evening, but retained very little.

9th. Talked all night incessantly ; complains that her head is dizzy, and throbs ; pulse the same ; tongue still has that polished smoothness, except on one side is a deep ulcer, and she complains that its whole surface is raw. The back of the neck to be again blistered. Bowels to be evacuated. Six P. M. Delirium continues. Sleep to be procured by laudanum. The cold water to be re-applied to the head.

10th. Her stomach rejected the laudanum, and the vomiting returned whenever she attempted to take any thing. Six P. M. Calm and easy.

11th. Slept three or four hours last night ; but the delirium still continues ; complains of her head and stomach. A blister to be raised upon each arm. Six P. M. Delirium increased at noon, and she took one grain of opium, which in a short time caused her to vomit. She is more calm, and is to take nothing except mild liquids.

12th. Had a quiet night, and slept some. But this morning she had a cold chill, accompanied with a violent pain in the head, distress at the stomach, and in the throat ; she is perfectly calm and rational, but in great distress. Pulse one hundred and twenty. Took from her immediately, six ounces of

blood. Evening. Very easy and calm. Pulse the same.

13th. Quite calm and easy all night. Thinks her head feels better. Pulse one hundred and twelve ; skin of its natural temperature ; tongue the same as on the ninth. Head to be kept constantly wet with cold water.

14th. Complains more of her head this morning ; the least motion produces throbbing ; pulse one hundred and twenty. Bowels to be evacuated by medicine. Six P. M. Had quite a hot flush at noon, head and stomach in great distress. V. S. Six ounces of blood taken. The bowels were thoroughly evacuated.

15th. Symptoms milder. Evening. Has had a slight delirium all day. She takes nothing except a pleasant solution of the super-tartrite of potass. A blister to be raised behind each ear.

16th. Night pretty calm. Complains of her head and stomach. Evening. Heat at noon ; head and stomach worse ; delirium continues ; pulse one hundred and twenty. Bled her six ounces.

17th. Better, but has some delirium. Cold water to the head continued.

18th. Symptoms improving ; pulse one hundred and twelve ; tongue begins to discover some of its natural papillæ upon its edges ; they are, however, very small and pale. Some inclination for food is manifested, and chicken broth allowed.

19th. Seems to be doing well. Evening. Had a febrile paroxysm at noon ; is much excited, and complains of the throbbing in the head.—Bled her four ounces.

20th, 21st, and 22d. Moving on favourably ; takes nourishment, and sleeps tolerably well.

23d. Complains of her head to-day. Bowels to be evacuated. Evening. Head still aches, and she says she does not feel so well. Pulse one hundred and sixteen. Bled her six ounces.

24th. Quite comfortable ; bears getting up well, and takes nourishment with a good relish ; such as chicken broth, &c. &c. Begins to-day with the decoction of quassia.

I now flattered myself that the restoration of my patient was nearly accomplished. The disease, indeed, was not removed, the head was not liberated, the pulse remained at one hundred and eight or one hundred and twelve, and there was an exacerbation of the febrile symptoms at least once every twenty-four hours. But as the symptoms had so far yielded, it was to be expected they would continue to subside. We were allowed to indulge this hope for four or five days. But on the twenty-ninth, the prospect was not so favourable. The preceding night had been restless and uncomfortable ; she had sickness at the stomach, and considerable pain in the head, accompanied with deafness and dizziness. Gave her a cathartic of rhubarb and calomel, and blistered the back of the neck.

30th. The cathartic operated well, but relief was not obtained. The pain in the head, and the sickness of the stomach increased; pulse one hundred and twenty, quick and small. Took from her six ounces of blood, and directed two grains of calomel combined with a very little opium, to be given every six hours.

31st. Sickness and pain diminished; pulse the same.

April 1st. Symptoms all worse; a relapse had taken place, marked with all the severity of the first attack. Had a severe and protracted chill, accompanied with great pain and numbness in the forehead and back of the head; nausea and vomiting. The chill was soon followed by heat, aching and numbness of the limbs, pain in the back, side, and epigastrium; pulse one hundred and twenty, quick, very small, and sharp. The membrane of the tongue had been smooth and somewhat rigid; it was now brown and dry. Blood-letting was again resorted to; eight ounces of blood were taken; it was very thin, coagulated slowly, and was coated with a thin buff. Subm. Hydrarg. continued. Evening. Very little mitigation. V. S. Bled four ounces.

2d. 9 A. M. Symptoms a little moderated, except the pain in the epigastrium, which at times was very severe. Repeated the bleeding to six ounces. Evening. No material improvement. V. S. Four ounces of blood taken.

3d. The night passed comfortably, and she was a little better. The brown colour disappeared from the tongue ; pulse one hundred and twelve. The pain still continued occasionally in the epigastrium. Bowels evacuated by an enema ; discharge quite black. Twenty grains of the Submur. Hydrarg. had been taken ; the mouth was not affected. I directed four grains to be given twice a day, for the double purpose of affecting the mouth and the bowels. Evening. Symptoms the same.

4th. Suffered great distress last night in the head, and at the pit of the stomach, accompanied with vomiting ; took an opiate, but thought it increased her misery. These symptoms continue this morning. Took from her six ounces of blood, re-blistered the back of the neck, and the epigastrium ; continued the subm. Hydr. Evening. Very free from pain.

5th. Had some rest. The pain in the epigastrium returned ; she took two tea spoonfuls of the camphorated tincture of opium with some benefit. The pain and sickness returned this morning with great distress in the head. Repeated the bleeding to six ounces. Bowels evacuated by an enema ; discharge dark green. Subm. Hydr. continued. Evening. Quite easy till three P. M. when the pain returned with the usual febrile paroxysm.

6th. Had a bad night in consequence of the pain in the epigastrium, which moved also into the umbilical region. Was not relieved by the paragoric,

which was rejected by the stomach. Bowels to be evacuated by an enema. Mouth a little affected by the calomel ; forty-four grains in all had been taken ; not to be repeated. Head easy. Evening. Pain in the bowels relieved by the evacuation, but returned again towards night. Attempted to retain cathartic medicines, but, after being down two hours, they produced vomiting. Opiates, she insisted, increased her distress.

7th. Had some rest ; pain nearly subsided, but the stomach will retain nothing. Head remains quiet. Blistering to be renewed over the epigastrium.

8th. The vomiting subsided, and she slept some hours during the night ; but had a chill, followed by heat towards morning, and the pain in the epigastrium and the vomiting returned.

The stomach remained in this state, with intervals of rest, for four days longer. The sickness was attempted to be allayed by a variety of means. Sometimes opium seemed to do good, and sometimes a little brandy and water would be retained ; but, generally, any stimulating article seemed to increase the affection. If any thing did good, it was the mild bitter decoctions, such as wormwood, camomile flowers, and quassia. Every attempt to evacuate the bowels, either by medicine or an enema, invariably produced vomiting. On the thirteenth she was very comfortable ; bore getting up well, and took food with a good appetite. Pulse

one hundred and eight, soft, elastic. Tongue began to show its papillæ, red and prominent at the tip. The head continued comfortable. The bowels had not been evacuated for some days, except partially by enemas. This opportunity was improved to introduce rhubarb into the stomach, in small doses in pills at convenient intervals, for the purpose of producing a thorough motion. But when about twenty-four grains had been taken, the vomiting returned with great violence. It lasted till the evening of the fourteenth, when after a large quantity of pea-green matter had been ejected, it subsided. The fifteenth and sixteenth days were very comfortable. Sat up half an hour on the sixteenth. She was not so well on the seventeenth, had some headach, and a febrile paroxysm, accompanied with sickness. The smooth, thickened, whitish coat, which had covered the tongue, had cracked, and presented a number of deep ulcerations, which gave much trouble. The bowels were put in motion by an enema.

Things remained very much in this state till the twenty-sixth. A febrile paroxysm returned every day, for the most part accompanied with sickness; some days the sickness was considerable. There was, however, a gradual improvement. The tongue healed; the strength and appetite increased, &c.

On the twenty-sixth, the bowels began to move without assistance, and the evacuations were large and natural. The febrile paroxysms shortened, the

sickness nearly subsided : pulse one hundred, soft, full, and elastic ; tongue getting natural. After this there was a rapid improvement ; the sickness entirely subsided ; appetite good, and the stomach digested meat and bread with great facility.

The principle restorative articles, which have been administered, are the simple bitter decoctions, the juices of meat, and the bland articles of food. Wine, and other stimulants, were not agreeable, and were very apt to produce sickness.

May 1st. Since the last notice, wine is taken in small quantities, and the muscular strength is regained with rapidity.

The sickness of the stomach in this case is so severe, that it requires some particular notice. Disturbance of the stomach had not been an unusual occurrence in other cases, and in another part of this paper, I have attributed this affection to the state of the brain in this disease. In the onset of this case, it probably arose from the same cause. But after the relapse, the sickness was more constant, and often violent, and seemed to arise from a more local affection of the elementary canal. It did not seem to be owing to inflammation, in the coats of the stomach, or intestines ; the usual symptoms of such a state were not present.—For there were long intervals of rest from the nausea, in which time food was grateful, and borne well on the stomach. Still it appeared to be the effect of inflammation : opiates did not relieve it, but often

caused stricture and distress ; stimulants, though they seemed to afford a little relief, when the exhaustion was great, on the whole aggravated the evil. It appeared to me that the difficulty was in the caliac plexus and ganglions. 1st. The pain in the epigastrium arose from the same cause as the sickness, and the patient uniformly referred the pain to the place of this nervous plexus. 2d. The pain and sickness usually occurred by paroxysms, with other febrile symptoms, and they were the most successfully relieved by the same means which relieved the other symptoms. 3d. The secretions from the liver were morbid. 4th. The bowels could not endure the least disturbance ; and any attempt to move them, either by medicines or enemmas, produced distress and vomiting. 5th. The pain and sickness declined with the other febrile symptoms, and the stomach and intestines were immediately able to perform their natural functions with vigour. Positive evidence cannot be obtained as to the above point, but whatever were the cause of the vomiting, it essentially aided in reducing inflammatory action.

The extent of bleeding in the two last cases will to some appear excessive ; but there was no alternative. I should not have dared to have taken the risk of the patient's life, and left the disease to itself, short of any one of the evacuations of blood. It is not probable that it would be often necessary to carry the remedy to the same extent. It does

not appear, however, to have been in any way injurious ; and life, in my opinion, could not have been sustained short of this extent of bleeding ; unless, possibly, by repeating the operation at shorter intervals in the first stage of the disease, the course of it might have been shortened, and the less quantity in the end been necessary to affect a cure. These were extreme cases ; their symptoms were precisely those presented by the patient, who was the subject of *Examination first*. In case nineteenth they were even more extreme at the commencement ; they were of that description, which usually kills in from five to ten days. In such cases, I will venture the assertion, life never has been sustained, except by the same means. The laws of their progress, therefore, and the extent of means necessary to affect a safe termination, cannot well be comparatively estimated.

It will be perceived, that in the management of this disorder, I have placed a chief reliance on blood-letting, and from the character and result of the cases here presented, it will, I think, be readily granted, that my confidence was not misplaced. From the first of October to the first of April, I treated nearly forty cases of this disorder, all of which, except one, which was very mild, required the use of the lancet to a greater or less extent. Every case has terminated fortunately.* It is not

* How far the pneumonic affection in case eighteenth, is to be considered connected with, and a part of the first disorder, it is not easy to determine ; the patient, however, is in a fair way to recover from that attack.

pretended that none of these cases would have recovered without blood-letting. But it is believed, that more than one third would have died, and some of the remainder been in great hazard. This assertion is made with the greater confidence, as I witnessed some cases which baffled the powers of other remedies. Their symptoms were precisely of the same character and degree of violence, as in some of those, which yielded to blood-letting. Other means of cure, indeed, were not neglected, but the effect, must, I think, be attributed to this remedy. The principal remedies used, besides blood-letting, were,—1st, deprivation of all food and stimulating substances. This contributes to the same end as blood-letting. 2d. The cold ablution. This is not only very grateful to the patient, but probably aids very much in diminishing the severity of the symptoms. 3d. Vesication. From the received opinion of the *modus operandi* of this remedy, much was expected from it; frequent use was made of it in the bad cases, and it probably did good. I avoided, however, for the most part, this operation upon the head, as I thought quite as much gained by the application of cold water. 4th. Cathartics. These are important aids in most varieties of typhus. I cannot say, however, that they had any very positive effect in diminishing the symptoms of the variety at present under consideration. 5th. Emetics were used occasionally, and to obviate some accidental inconvenience. They

did not appear, in any other way, to be beneficial. 6th. The tartrate of antimony in solution. This could seldom be retained, in very small doses, but even then it did not appear to have the least effect. The contrary, however, has been evident in other varieties of typhus. 7th. The same may be said of calomel as an alterative. Even when salivation was effected, the symptoms of the disorder did not appear to be in the least mitigated.

Blood-letting, then, was, without doubt, the principal agent in effecting the cure in the above cases; and it appears to me to be the appropriate remedy for typhus fever. This is not my first essay with the lancet in typhus; I have before had reason to value highly its efficacy in this disease, though I have not been obliged to use it to the same extent. I can, therefore, recommend it with the greater confidence, as a safe and efficient remedy in this disorder; at least, it is as much so in this, as in the lung fever. It is not pretended that it will cure every case, under any circumstances; but it is in many instances the only means which can allay the disorder and give the patient a chance for life. It will, even in severe attacks, often completely arrest the progress of the disease, and put the patient in a state of immediate convalescence. But placing it on the same footing as to efficacy and certainty, it still holds important advantages over other means, two of which only I shall state. 1st. The debility X of the patient, treated with this remedy, is much

less at the termination of the disorder, though the loss of blood may have been considerable, than if treated in the common way. 2d. The senses of the patient are rarely affected, and that state of insensibility and suspense between life and death, which, in severe cases, forms the crisis of the disease, does not occur.* There is no marked crisis in cases treated by blood-letting. The disorder gradually diminishes, till it entirely disappears.

In the employment of this remedy, some regard is to be had to the end to be accomplished. It is to be presumed that no man would use blood-letting in any disease, unless he were convinced that inflammation, or a state approaching to it, were present. With this conviction, his object would be to subdue this state, or at least so far to diminish the inflammation, that life would not be in danger. But it is frequently said of bleeding, that it did no good, even where it would seem to have been indicated, and it is sometimes charged with the unfortunate result of the disorder. In such cases the quantity of blood abstracted, the circumstances under which it is done, as it regards the violence of the disease, and the progress it had made, are seldom taken into the account. It does no good to bleed a little when the inflammation is violent, and seated in a vital organ. This would be like attempting to extinguish a large fire with a cup of water. If we do not arrest the progress of the inflammation, we may as well do nothing, for death will as certainly ensue

as if nothing had been done. For instance, in a case of severe pneumonia, or in a case of croup, in which so much mischief had not already taken place by delay, that restoration was impossible, suppose we bleed to half the extent, or two thirds sufficient to subdue the inflammation, it is obvious that the result would be just as fatal as if no blood had been taken ; a little delay only might be effected ; and it is just as obvious that no part of the mischief should be attributed to the remedy. The urgency of the symptoms should guide us, and the quantity of blood which the patient may lose, or the number of times we bleed, is not so much to be regarded, as the effect produced on the disease, at least while the symptoms indicate so much violence, that death may ensue. The inflammation will be reduced within the limits of probable safety much short of danger from the loss of blood.

In typhus fever, the inflammation, which is present, I apprehend to be the cause of danger. Sometimes it is so violent as in a few hours to destroy the functions of life. In other cases, such derangement may be produced, that order cannot be restored. Such cases are not within the control of any remedy. But there are several reasons why blood-letting may not be successful in this disorder, even in cases which might be subjected to its power. The first is, delay in employing this remedy. It will readily be perceived that a disease of so much violence as were some of the preceding cases, and

in which the brain is so deeply involved, as is discovered by the examination of those, who have fallen victims to the disorder, would require prompt and decisive treatment. But besides the danger from procrastination, the first attack is the favourable time to make a strong impression on the disease, and if possible to suspend it entirely. An inflamed part returns to its natural state more readily if the inflammatory action be checked at its onset, than after a diseased habit is established.

Another is making too long intermissions between the repetitions of the bleedings. For the same reason that it is proper to bleed early, it is desirable to take the necessary quantity as fast as the patient can bear it. This cannot always be conveniently done at one bleeding, but, till it is done, the disease will be progressing.

A third reason why blood-letting may not cure this disease is, because it is not carried to a sufficient extent.

CASE.

A physician requested me to look at a patient of his and give my advice as to the propriety of bleeding in her case. She lay on the bed in a state of great prostration; groaning continually from the distress she suffered principally from the pain in her head. The pain in her head, she said, was indescribable, and she also had pain in her

side, and a general uneasiness. Her tongue was dry, and red in the middle, and coated with a dense white fur on each side. Pulse from one hundred to one hundred and ten, feeble, depressed, but quick. She had been ill from three to five days. It was a very bad case of the prevailing fever. I advised the gentleman to bleed, but at the same time, gave it as my opinion, that it would do no good, unless it were followed up boldly and expeditiously ; and that nothing essential would be gained by one or two, even copious bleedings. He agreed with me that she must in all probability die, unless something that would have a decisive effect were done. He therefore, concluded to try blood-letting, and abstracted from her arm, that evening, from twenty-four to twenty-eight ounces of blood. The patient expressed her sense of relief, particularly in her side. The next morning, perhaps ten ounces more were taken. The third day four ounces more ; the disease progressing. This treatment was then relinquished. The medical attendant tried, I believe, every other means, which the art suggested, such as constant vesication to the head, &c. &c. but the event was, as I predicted ; the patient died. The morbid appearances after death are presented in Examination first. It is very plain that two or three small bleedings could have little effect in reducing the inflammation that existed in this case.

No general rule can be prescribed, as to the quantity of blood that should be lost, as this must depend upon the degree and extent of the inflammation, and upon the ability of the injured part, to return to its natural state. One object was kept constantly in view, in the treatment of the preceding cases; it was, to reduce the inflammatory action within the bounds of probable safety. If the inflammation yielded before the patient had lost a great quantity of blood, the bleeding was continued, till it was subdued, and a cure effected. But if it did not entirely yield, and much blood had been lost, I ceased to bleed so soon as the danger was not imminent, and trusted to time and other means for the rest. The time the disease had continued, was not regarded. If, after having been once reduced, the disease again increased so as to put existence at hazard, I again resorted to the remedy but with more caution. This was done as often as the disease threatened to get the advantage, and the result proved the practice to be correct, at least, so far as it regarded safety. In cases seventeen, eighteen and nineteen, it was necessary continually to act on the defensive; not a bleeding was performed with an expectation of immediately terminating the inflammatory state. The indications, which guided me in my opinion as to the necessity of repeating the bleedings, were principally the state of the head and that of the pulse. These two symptoms taken conjointly could scarce-

ly deceive me. The quantity of blood taken at a time depended on existing circumstances. Bleeding, *ad deliquium*, is no guide for the limitation of this operation in adults. They will faint much sooner from a certain inexplicable impression on the nervous system, than from the loss of blood.

* Another reason why blood-letting may not be successful in this disease, arises from the practice of giving stimulants under the notion of supporting the patient's strength. But to bleed and give stimulants, is undoing with one hand, what we do with the other. This will not appear strange to those, who believe inflammation to be the cause of the phenomena. If it be necessary to give stimulants as leading remedies, it cannot, at the same time, be proper to bleed. If stimulants be given, blood-letting had better be omitted; for this reason, that bleeding in this disease, seems to render the system more susceptible to the action of stimulants. I reason in this way; a degree of inflammation exists in the spinal marrow and the brain, sufficient to interrupt their functions; hence follows the general prostration, in which the stomach partakes. Stimulants act through the medium of the stomach, but while in this state of prostration, it is not so susceptible of being excited, and stimulants put into it will of course have less effect on the system. But bleeding relieves, in a degree, the inflamed spinal marrow, and in proportion to this relief, it performs its office, and

the stomach receives its share of its influence, and is in the same proportion renovated ; stimulants will of course have more effect, excite the heart into greater action, and do more mischief, than the bleeding did good. I have uniformly found that any of this class of medicines were injurious in the cases, which I have treated, and if taken to any considerable extent before the head was free and the pulse in nearly its natural state, a relapse would follow, the more or less severe, according to the degree of disease remaining at the time. I found it necessary, therefore, to use them very cautiously and to relieve only some accidental symptom. In the convalescent state of my patients, tonics or stimulants were quite unnecessary, unless the disorder had continued a long time.

It seems indeed a little paradoxical that a mode of treatment, so diametrically opposite to the one I have recommended, should be sometimes, apparently successful. If blood-letting be the proper practice, it would seem that an opposite mode should be destructive. But it is a fact, that patients with this disease do sometimes get well notwithstanding great quantities of stimulants are taken into their stomachs, and the cure is ascribed to their efficacy ; but I have good grounds for believing that those, who get well with stimulants, would get well without them. That we may understand why stimulants are not always destructive in typhus fever, it is necessary to attend to the

phenomena, presented in a case, which is allowed to run an unimpeded course, or which no curative means are used to arrest. In such a case the first symptoms, which strike our attention are generally, prostration of muscular strength, lassitude, pain in the head, back and limbs; impaired mental energy; disturbance and for the most part acceleration of the circulations; diminution of the secretions, loss of appetite, increase of heat upon the surface, &c. &c. These symptoms get daily worse and worse; the prostration increases, and is soon accompanied with delirium, stupor, insensibility. The patient now presents a horrid spectacle of stupid madness; the powers of the system are almost suspended; he is trembling between life and death, and the balance is turned by a breath, to either side. In this state he may lay for many hours and perhaps days. But the event is sometimes fortunate. Why is it so? During this state of suspense the heart partakes of the general depression; its action becomes languid, the determination of the blood to the inflamed spinal marrow is diminished; the immoderate action in that part, therefore, ceases, and if it has not suffered too great an injury, this organ will gradually return to its natural state, its functions be performed, and consequently the powers of the whole system will be renovated. Precisely the same set of morbid phenomena may be witnessed, when the disorder is treated with stimu-

lants, only their progress is more rapid if stimulants be given from its commencement. The system soon becomes so prostrated as to be insensible to the action of stimuli, and then recovery may take place by the same process as that above described, but if it does take place, it will be in defiance of the remedies.

The chief objection to blood-letting in typhus is the debility with which the patient is supposed to be suffering. He is unable to support himself in an erect posture, and he has a quick and small pulse. These are supposed to be the effects of weakness. With the same propriety might the incapacity to move, produced by a compression of the brain from a blow on the head be called debility. Or with equal truth might the loss of muscular power and the quick and feeble pulse manifest in a fit of intoxication be attributed to debility. That the prostration is not owing to debility might be known from the following considerations. 1st. It is often sudden, taking place immediately after the febrile attack, and the patient from full health and activity is fixed almost immoveably to his bed; and when it is not so sudden, no causes have existed, which could have produced real weakness to a twentieth part of the extent of the prostration. Has he been subjected to great depletions or long starvations? People in this situation are less liable to fever than those in full vigor. 2d. The real debility is great-

er at the subsidence of the disorder than at its commencement, but the prostration is materially less. The debility then fancied to exist in fever, is only apparent. The depression of muscular strength, the effect of inflammation and disturbance of the nervous system, has caused the mistake. The phenomena of inflammation have been confounded with the effects of weakness.

The utility of any remedy in disease is best tested by experience ; and, *ceteris paribus*, its adoption should depend upon its comparative success. But we sometimes have another source, by which we are enabled to estimate the value of certain modes of practice. This source is the morbid changes effected by the disease, which are discovered to us after death. If such changes point to causes, which may be relieved by certain known remedies, such remedies should be employed in such disease. Were it generally known, that typhus fever was the effect of violent inflammation, in an important organ, bleeding would be considered by most physicians a valuable remedy in that disease.

The morbid changes produced by the variety of typhus under consideration, amount, I think, to strong evidence, that its phenomena were the effects of inflammation in the brain and the spinal marrow. This evidence I shall present, but before giving an account of these appearances, I will take the liberty of advancing an opinion respecting the cause of idiopathic fever, which I have for

some time entertained, and which is the result of much investigation and experiment. It is this, that the cause of the phenomena, which, collectively constitute that disease denominated fever, is inflammation of the medulla spinalis, in which the brain is often more or less involved, though not necessarily to produce the characteristic symptoms of the disease. It is not convenient at this time to discuss the subject at large, and I shall state very generally only some of the reasons, which have influenced me to adopt this opinion.

* 1st. In fever we find the same phenomena present, as in other disorders, where local inflammation is known to exist. Hence it is philosophical to infer that inflammation is present in fever, and that it is the cause of the phenomena in that disease, unless it can be shown, that such phenomena can be produced by other causes. 2d. Fever is understood to be a disorder of the whole system; and every organ is supposed to suffer in nearly an equal degree. If then it be true, that the phenomena of fever are the consequence of inflammation, it must follow that every organ in the body is in an inflamed state, or that this general suffering is the effect of inflammation in some organ, which has a very intimate connexion with all the rest, and more than a common influence over them.

Now, during the existence of the disease, we have no evidence that every organ is thus locally affected, and by examination after death, we do not discover that such had been their state. In fact,

in a great number of dissections after death by fever, every organ has been found in a sound state, except the brain and the spinal marrow. Hence we must conclude, that the general derangement of the system in fever is the consequence of the affection of some one organ, on which the rest have an intimate dependence.

3d. I have said, that in many cases, only two organs have been discovered to be certainly diseased after death by fever ; the brain and the medulla spinalis. But the brain may be inflamed and not produce the phenomena essential to fever. In fact, it has not that intimate connexion with all the other organs, necessary to cause that general sympathy with its own derangement. We have left then only the medulla spinalis, and we are thus led to this part as the seat of the mischief. But has this such a general and controlling influence over every other organ of the system ? To those unacquainted with modern discoveries in physiology, an affirmative answer may appear extravagant. But the point has been settled by repeated experiments. Those of Le Gallois have long been before the publick. He even inferred that the medulla spinalis was the source of life to the trunk. Dr. A. P. Wilson Philip has controverted this conclusion of Le Gallois, and contends that the muscular system has its power independent of the nervous system. But with respect to the independent function of the spinal marrow, and its powerful influence over the other organs, they do not disagree. I have re-

peated many of the experiments of Le Gallois, and the result has been a conviction, that the function of the medulla spinalis is independent of that of the brain, and that this function is of vital importance to the other organs. But another question is to be settled. What evidence have we that the spinal marrow is in an inflamed state in fever? Without adducing at this time the evidence we might draw from the phenomena of the disease and from analogy, I shall mention only the appearances, which are exhibited by this part after death by fever. In six cases which I have examined, the following phenomena were exhibited. 1st. An uncommon quantity of an aqueous fluid was found in the spinal canal, surrounding the spinal marrow and in contact with the pia mater, which is its immediate covering.

2d. The medullary substance itself had an unnatural hardness, and the spinal marrow, even after its membrane was dissected away, had almost the firmness of a cord, and would resist very hard pressure. These appearances I take to be proofs of previous inflammation.

This is certainly not the natural state of the spinal marrow, and these phenomena have not existed in a number of cases which I have examined, of patients who died of other diseases.

With this view of the subject, the cause of the several varieties of continued fever, might be explained; but I shall only remark, that in simple fever it is probable, that the inflammation is for the most

part confined to the spinal marrow. In typhus, the inflammation is more intense, and the brain is sooner or later involved. In the present variety, the brain seemed to be primarily and principally affected.

The three cases of dissection which follow, exhibit the morbid changes produced by this disease in the brain and spinal marrow. They appear to me to be the effects of inflammation in those parts.

EXAMINATION I.

Mrs. T., examined about ten hours after death.

The dura mater was in the natural state. The vessels on the surface of the brain were turgid with blood. The whole surface was covered with a thin serous fluid. This fluid was contained between the tunica arachnoides and the pia mater. The first membrane being raised from the latter into numerous cells, some large and extensive, others small. When one of these was wounded, the fluid issued out, and discovered a communication between several of them, but it was not general. The whole quantity of fluid could not be ascertained, but it was judged to be from two to three ounces from the surface of the brain. The tunica arachnoides seemed to be thickened, and two or three small portions of coagulable lymph were discovered upon its external face. The brain was hard and so tough, that it permitted the pia mater to be stripped from its convolutions, without the least derangement of its substance, the surface still remaining smooth. When cut with a sharp knife, numerous bloody

points presented in the medullary substance. It did not collapse ; the relative situation of each part seemed to be maintained ; the parietes of the lateral ventricles did not touch each other, but they presented themselves large cavities, and contained a little water. The plexus choroides was as colourless, as if it had been a long time bleached in water ; it seemed to be thickened, and was formed into numerous cells or vesicles, containing a thin fluid, and resembled, in some degree, a bunch of grapes. Each cell seemed to be distinct. The parts connected with the lateral ventricles were as distinct and as beautifully displayed, as if they had been made of wax. The corpus callosum, the septum luidum, and the fornix had such a degree of toughness, as to bear rude handling without giving way in the least. The Thalami nervorum opticorum had some appearance of waste and irregularity of surface, as if corroded in spots. The optic nerves were shrunk and very hard. The infundibulum was open from the third ventricle to the sella turcica, but the pituitary gland was shrunken to a very small, hard substance, and occupied a very small space in the bottom of the sella turcica, which otherwise was empty. The firmness of the brain increased as it approached the crura cerebri ; the pons varolii and the medulla oblongata were remarkably hard and elastic. After their membranes were stripped off, which was done with great facility, and without the least mutilation of the medullary substance, they could bear very considerable pressure

and handling without being defaced or having their natural forms altered. The corpora pyramidalia and olivaria, together with other elevations and depressions, would remain distinct and beautifully displayed. The medulla spinalis had an equal degree of hardness : it was like a cord, and resisted very firm pressure. The cervical portion only was examined in this case. The spinal canal contained much serous fluid, surrounding the medulla spinalis. It continued to ooze out for some time, and seemed to come from the deep parts of the canal. The cerebellum has not been mentioned ; it was not much harder in this case than is natural.

The chest and abdomen were examined. The left lung afforded evidence of its having been inflamed. A portion of this lung, about the size of two hen's eggs, in the neighbourhood of the seat of pain, when she was living, had become thickened and hard ; when it was cut into, globules of pus were discovered. The lungs were in other respects sound. The stomach and other abdominal viscera were sound, and exhibited no marks of having been inflamed.

This case was the last examined in the order of time. It is put down first, because a more particular account was taken of its morbid appearance, than in the cases which follow.

EXAMINATION II.

P. K., examined about fifteen hours after death.

The tunica arachnoides in this case, was raised by an aqueous fluid in the same manner, and about

the same degree as in the preceding. The superior parts of the brain, perhaps, were not quite so hard, but the parts about the ventricles were equally firm and tough. The pons varolii, the medulla oblongata, and the medulla spinalis were in the same state, and after their membranes were stripped off, could be handled with nearly as much facility, and with as little injury as a muscle. The cerebellum in this case partook of the general hardness. An aqueous fluid was found in the spinal canal in this, precisely as in the preceding case.

The thorax and abdomen were examined, but not the least mark of recent inflammation could be discovered. The heart and lungs were sound; the inner coat of the stomach, and the other abdominal viscera had not apparently suffered from recent disease. I saw the subject of this examination twice during her sickness. Her symptoms appeared to be of the same character as those of the first case of this paper.

EXAMINATION III.

—, examined about twelve hours after death.

The appearances in the head in this case were very similar to those in the last. The presence of an aqueous fluid over the surface of the brain, in the plexus choroides, and in the spinal canal, was observed. The condition of the several parts of the brain was the same; the cerebellum was very firm and tough. The dorsal portion of the medulla and spinalis was examined; it was unnaturally

hard, but the degree of hardness was less than that of the cervical portion.

I did not see the subject of this examination before her death.

Every one in the least acquainted with anatomy, knows that the condition of the above brains, independent of the presence of the aqueous fluid, is not that of a healthy brain. The brain in its natural and healthy state, is quite soft, pulpy, and is handled with difficulty. But in these there was a wonderful degree of hardness and toughness,* and even when the membranes were dissected away, they could be handled with great facility, and without so much as soiling the fingers. I have examined the brains of a great variety of subjects, who have died of very different diseases, and I never witnessed, (except in cases of typhus fever) any thing like the above state, except in two instances of subjects, who died in consequence of frequent epileptic fits, accompanied with some of the phenomena of fever. In these two cases, the brains were remarkably hard and tough. No uncommon quantity of aqueous fluid, however, was present. The condition of the medulla spinalis in these two instances, was not noticed.

* This hardened state of the brain, though it has sometimes been noticed, has not been, I suspect, sufficiently recognized as the effect of inflammation in that organ. But it will hardly admit of a question. The same thing is witnessed in the lungs and other viscera arising from the same cause. It is probable that many brains have been reported to be sound, which were really in this condition.

To what process shall we ascribe this extraordinary change from the natural condition of the brain, but to that of inflammation, or a process in the substance of the brain itself similar to that which takes place in the capillary system of other parts when inflamed?

The presence of the aqueous fluid would alone have excited strong suspicion of the previous existence of inflammation. In fact, it is nearly conclusive, that inflammation had been present in the membranes or in their immediate neighbourhood. But there seems to be no other adequate cause for the change which had been effected in the brain, than inflammation. The phenomena of the disease ought to lead us to suspect the presence of inflammation, and the result of the treatment which has seemed the best suited to control the disease, should add weight to such an opinion.

Many of the phenomena which this disease exhibited, are not common in fever, and their explanation is to be sought in this primary and general affection of the brain. The almost constant absence of heat, noticed in most of the cases, appeared to be owing to a less quantity being generated than in health. The brain, it has been ascertained, has considerable influence in the production of heat in the trunk. But whether this influence be direct, or whether it be through the medium of the lungs, and the diminution of the heat be owing to the disturbance of their functions with respect to

the change of the blood, cannot be positively asserted. It is well known that the par vagum, or eighth pair of nerves, is largely distributed to the lungs, and that they are seriously affected by any injury to these nerves. They have their origin in the medulla oblongata, in which we have seen much diseased alteration, and from which these nerves would be very likely to suffer. Hence the distress in the chest, complained of in some of the cases, might be owing to the injury which these nerves had sustained. Might not also the uncommon blackness of the blood be, in some measure, attributed to the imperfect manner in which its change was effected in the lungs? In cases of fever, in which the brain was not primarily affected, the venous blood has been almost as florid as the arterial.

The distress in the thorax, I suspected at first, to be owing to inflammation in that part. But examinations after death showed that this was not the cause in every case. A respectable physician informed me that a patient, to whom he was called in a late stage of this fever, and too late to do any material good, complained bitterly of this distress in the chest, and he understood that she had done so from the commencement of her disorder. But upon examination after death, not the least mark of any previous disease was discovered in the thorax. He was not permitted to examine the head, but he was satisfied that there was the seat of the disease. The patient, who was the subject of *Ex-*

amination second, complained to me of great distress in the chest, which, she said, had been very constant ; but there was no evidence after death, that any inflammation had existed in that part. In some cases there was, indeed, acute pain in the side, which was undoubtedly the effect of inflammation in that neighbourhood. The stomach, likewise, suffers from any injury to the par vagum, and we may probably refer to this cause the great disturbance of the stomach in this disease, manifested by flatulence, pain, sinking, nausea, &c., and not to any local alteration in that organ. The stomach, however, is generally affected by any considerable injury done to the brain.

Other phenomena were present, which were common to this and other varieties of typhus. They admit of an easy explanation on the principle, that they were the effects of inflammation of the brain and spinal marrow. The inflammation of the latter organ, I am persuaded, is the cause of the phenomena common to the several varieties of continued fever ; and however different may be their aspects from the simultaneous affection of some other organ, the pathognomonic, or those symptoms which entitle the disorder to be denominated fever, arise from the inflamed state of the medulla spinalis. If this view be correct, it will give to the character of fever the same degree of singleness and precision, and to its medical treatment the same definiteness, as is obtained in other local affections. One object

will be kept steadily in view, and this will be to subdue the inflammatory action existing in the spinal marrow; and when this is accomplished, the disorder will subside.

NOTE.

Since the preceding pages were written, I have read the work of John Armstrong, M.D. on Typhus Fever. He is an ingenious and able advocate for the practice of blood-letting in typhus; and his book ought to have the candid attention of every physician. I do not, however, mention it on this occasion for the purpose merely of commendation; I wish to advert to one point, among others, in the view here presented of this disease, in which I do not agree with the author. He divides the progress of the disorder into three stages; first, the stage of depression; second, excitement; third, collapse. These stages may often be distinctly observed in typhus, if the course of the disorder be unimpeded, and the division is unquestionably of much practical utility. But it does not appear to me, that the last stage must so necessarily take place, as he seems to represent. The mild forms of fever usually terminate without it; and that variety which he denominates the simple typhus, does not always run into this stage even when little is done in the use of

curative means. The severer forms of this disorder, or what he calls the inflammatory typhus, may often be reduced to the simple form, and a resolution be effected without a collapse. In my opinion it should be the great object of medical treatment, to prevent this stage of the disease ; and this may usually be effected by the timely use of the lancet. I have successfully employed blood-letting at the moment that a collapse seemed inevitable ; and when the state of the pulse, and of the sensorium indicated almost the presence of this stage of the disorder. But after a small bleeding the senses have brightened, the blackness and dryness of the tongue diminished, and the pulse reported a more favourable state of the internal movements. If, however, a collapse be fully established, I agree with Dr. Armstrong, that the lancet should not be used. In fact no remedies will avail much then, and life or death will depend on the extent of the previous mischief.

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