under Dr. Jones, with a large ulcer underneath the tongue. Tetanus followed. Cinchona, stimulants, opium and turpentine enemata were employed. She recovered. (BRITISH MEDICAL JOURNAL, August 20th, 1859.)

Such cases show the sort of injuries with which tetanus is connected. Conversely, Sir Charles Bell says, "a kindly suppurating wound is least allied to it." It would seem that the advent of symptoms is as the age, younger the subject, quicker their accession, and *vice versa*, which is no more than we should *a priori* expect.

From this sore umbilicus, then, the *materies morbi* circulates; but whether through the umbilical vein-arteries or surrounding vessels, it is not for me to decide. Dr. West says, "the umbilical vein has presented signs of phlebitis."

Small local sources of formidable maladies may be and are readily overlooked. Take the following case of pyæmia from a boil:—"A man had a small boil just above the right eyebrow, which had been squeezed open. Erythema followed—a soporous state, and death on the fourth day. The seat of the small furuncle was no longer perceptible, yet the vein in the neighbourhood was found filled with pus where it entered the facial vein. From this insignificant place, therefore, the blood had been impregnated with pus." (Dr. Stromeyer, *British and Foreign Medico-Chirurgical Review*, January 1856.) Take also, "meningitis of the cord, set up by phlebitis of the cervical veins, from chronic disease of the ear." Also, "paraplegia associated with gonorrhœa, from phlebitis of the vesical and pelvic veins, extending to the veins of the spine." (Dr. Gull.)

Abscess of the brain and lungs, from a diseased ear, and of the liver, from ulcers of the intestines, are sufficiently well known. Diabetes, from a blow on the head, may also be named.

We have been in the habit of requiring too manifest causes, and too extensive pathological appearances, to satisfy us of their effects and influences—to say nothing of our somewhat saltatory search, which could recognise nothing but bulky alterations—nearly forgetting delicate structure and susceptible function. "We may conclude," says Dr. Gull, "that the spinal cord may have its functions impaired, and even lost, and that suddenly, as far as the power of motion is concerned, without any distinct amount of anatomical lesion."

"If our knowledge of Pathology," says the Dublin reviewer, "is destined ever to attain precision or perfection, we doubt not it is by directing our inquiries into the causation of disease—to the changes which the vital fluid undergoes." That the blood is vitiated in tetanus, modern authors bear testimony. "A depreciation of the sanguineous fluid originates the malady." (Travers.) "There is something in the constitution of which the tetanus is the outward and visible sign." (Dr. Snow.) "Under the influence," says the reviewer (*British and Foreign*), "of certain atmospheric conditions or constitutions, pernicious atomic groupings may take place within the body, when the normal force tending to resist such changes is inadequate to prevent them."

"A short time only will elapse, says Sir J. K. Shuttleworth, "ere the means of detecting the seeds of disease in the blood, and of ascertaining whether the elements necessary to the due activity of the functions are in the right proportions, will be amongst the common modes of diagnosis in daily use." "How many diseases," he goes on to remark, "in the human body may depend on the imperfection of chemical changes in the assimilatory, or respiratory, or excretory organs, or in the tissues dependent on deficient innervation."

Why the gravamen of such a disordered state should be precipitated on the spinal marrow, may be difficult to determine. I am, fortunately, relieved of this requirement by the recollection of the multiform assault of other poisons; for example, of the marsh miasm in the production of melanæmia. "There being those cases," says Dr. Wilks, "where the cerebral symptoms predominated, those where the kidney is principally affected, those where the digestive organs and liver suffer, and those where the symptoms are merely those of anæmia." In tetanus, most probably, some allotropic variety of pus determines the site. That it should have a specific influence—that it should operate as it does when so precipitated is not more singular than the action of the oxytoxic ergot of rye, which, as Dr. Tyler Smith says, "passes into the blood, and affects the spinal centre, being specially directed to the lower portion of the spinal marrow, and to that part of it in relation with the uterus."

Treatment, under such a pathology, would naturally resolve itself into the preventive, special and general. The preventive

would consist in the proper management of the cord. This became separated, in the case under discussion, it will be remembered, on the fifth day, two days before the usual time.

Dr. Boiveau observed, that all those attacked presented marks of inflammation about the umbilicus; considering it, therefore, traumatic tetanus, he recommended the dressings should not be removed from the cord before the fifteenth day—a practice attended with success. The period of separation will of course vary; but one thing is certain—its dropping off should not be prematurely facilitated by the pulls it often gets at the hands of nurses, to whose tender mercies this duty is conventionally entrusted.

The conversion of a festering into a kindly sore would be conducted on acknowledged surgical principles. It would demand our first and best attention, on the ground *causâ ablâtâ tollitur effectus*. Sir C. Bell says, "such a condition of the wound we often desire, as most like to put a stop to its violence."

The general treatment would be that of pyæmia and of its kindred affections, of which tetanus is undoubtedly one. On appropriate stimulants, largely administered and diligently sustained, we may hopefully base our principal reliance. Under such a plan and its associated addenda, I do not despair seeing tetanus one of the most tractable diseases of its class.*

MYALGIA AND MYOSITIS.

By THOMAS INMAN, M.D., Physician to the Liverpool Royal Infirmary.

CASE I. Jane M., aged 20, a milliner's shopwoman, was admitted October 20, with pain and stiffness of both lower extremities. She was of average size, stout, and apparently well nourished, but had lost all appetite for food for the last three months. Her business compelled her to stand in or walk about the shop the whole day. About a week before admission, the legs began to be painful, and when she came into the Hospital they were so bad that she could not walk without great suffering. She was unable to bend either knee, and "stumped" about on her heels, as if on wooden supports. The posterior part of both thighs and legs were of brawny hardness, and tender to the touch. She was ordered to lie in bed, and to take steel mixture. At this time, there was no sign, externally, of inflammation. The first part of my recommendation the patient would not submit to, until the next patient came in and she overheard my remarks to the students on her case; she then took to bed. In seven days after rest in bed, the left leg was quite well, soft, comfortable, painless; but on the right leg there was, at the upper part of the calf, a spot which remained hard, brawny, and tender to the touch. In seven days more there was cutaneous redness, and increased tenderness; and in another seven days a large abscess was opened, which had formed between the soleus and gastrocnemius. A large sinus forming, the patient was transferred to a surgical ward, where she ultimately recovered.

Probably the patient would have recovered without suppuration, had she rested the limb at the first when ordered to do so.

CASE II. Ann B., aged 22, a servant at an hotel, was admitted October 27, with precisely similar symptoms as Jane M. She was stout, but pale; her occupation consisted chiefly in standing at a dresser washing glass and crockery, and "from the time she left bed until her return to it she never sat down, except for a few minutes at dinner." Twelve months ago, she had been obliged to leave her place from excessive inframammary pain, which had been cured by rest and tonic medicines. She had been able to do her work tolerably well until her strength failed her, in consequence of menorrhagia and total anorexia. The posterior parts of the lower extremities were of brawny hardness, and very tender to the touch; there were muscular pains about the abdomen and lumbar region, but of no great severity.

She was ordered to lie in bed, with cotton-wool around the calves to keep off the roughness of the bed linen; and to take twenty minims of the tincture of sesquichloride of iron three times a day. Improvement was perceptible in three days, and she left the house, quite well, in a fortnight.

* Since reading this paper, I have observed that the view of the toxicæmic origin of tetanus has been advocated by Dr. B. W. Richardson, in a paper on Zymosis, read before the Epidemiological Society (BRIT. MED. JOURNAL, Nov. 19, 1859); and by Mr. S. Wells, in a paper read before the Royal Medical and Chirurgical Society (JOURNAL, Dec. 3, 1859). Dr. Richardson, it is stated, "claimed tetanus to be essentially zymotic. His theory of its production in traumatic cases was that the wound, in the process of healing, secreted a special albuminous product, which had the property of a ferment." I. H.

CASE III. Martha P., aged 30, a very thin, pale, and delicate looking woman, was admitted Nov. 20, with severe abdominal pain. She was a nursemaid, and had a hard and fatiguing place. She was also of consumptive family, and had quite lost her appetite, and we were informed that considerable quantities of lead had been found in the water consumed by the household of which she was a member. On examining the abdomen, both "recti" muscles were rigidly hard, feeling more like cords or boards than flesh. The "obliqui" were also hard, but not to the same degree. Pain was referred chiefly to the inframammary region. There was great tenderness of the skin, and my examination, gentle as it was, produced much suffering. She was ordered to lie in bed, and to take steel mixture. A fortnight elapsed ere there was the smallest improvement in the pain and hardness; but at that period the obliqui were soft and the recti a trifle more yielding; in another fortnight the latter had become generally soft, but were thrown into cramp on the smallest exertion. She was able to sit up and dress herself, for the first time, December 23. The abdomen was then soft, but she reported herself as "still very weak."

Jan. 10th. In consequence of sitting up too long one day, the abdominal pain and hardness of the muscle returned, and she was obliged again to take to bed. The abdomen is again returning to a healthy condition; but there is some fear that phthisis is impending, and that a long period will elapse ere she recovers sufficient strength to leave the house.

CASE IV. About twenty months ago I was called into Shropshire to see a young lady, aged 18, who had been suffering from severe abdominal pain, and whose complaint had baffled her medical attendants—one fearing chronic peritonitis, the other a malignant growth. The following were the facts I elicited:—The lady was the daughter of a wealthy farmer, had led an active life, was a handsome, well made girl, without any expression of suffering in her features, and spoke pleasantly, though in short sentences. Her mother, I was told, had died of consumption, and she had lost four sisters from the same cause. The pain had been gradually coming on, and was now very severe; but her aunt, who was residing with her, remarked, "that she did not think the suffering could be very great, for the lady had only a few days before my visit left her bed, to ride on her pony a distance of four or five miles." Since that period, however, she had been so bad as to be unable to turn in bed without assistance. The pulse was good, the tongue clean, and there was complete absence of fever. The bowels were moderately regular, but there was an almost total loss of appetite. On making a physical examination of the abdomen, I found it universally (*hysterically* as older authors would have said) tender, and on being asked to point out the most painful parts, the patient mapped out the lineæ semilunares and the transverse fibrous bands of the recti. Percussion was everywhere resonant, but duller than natural, and a firm, resisting sensation was communicated to the plessimeter, as if it were struck on the other side, at every stroke of the hammer. Manipulation was much complained of; and, ere we left the room, the pain was said to be much aggravated, and, on renewed inspection, we could see all the abdominal muscles as distinctly marked as they are in the Farnese Hercules. Taking all things into consideration, I thought the case one of myalgia, which had been temporarily aggravated by the equestrian exercise referred to by her aunt; a treatment was adopted accordingly. Little improvement, however, took place for many weeks; but after that she gradually recovered. About a year afterwards, I saw her in Liverpool; she was then able to take a certain amount of exercise without pain, but if she exceeded that she suffered in direct proportion to the excess. Thus she could go to church in the afternoon without subsequent pain, but not in the morning; but she could endure this, if she rode there and back. She had had to lie down a great deal, and her favourite posture was a similar one to that assumed by Turkish ladies while sitting on their carpets and cushions.

CASE V. Mrs. T. aged 54, came under my care November 15. The following was the history:—She resided near York, and had been driving in her carriage, when the horses became unmanageable for a time; on being controlled, she determined to leave the vehicle, and walk home, a distance of two miles. Next day she complained of pain in both legs, especially about the hams, and for this her physician, considering it rheumatic, ordered the use of an ammoniacal liniment. Two days afterwards she came to Liverpool, and the morning afterwards the legs were so painful that she was unable, during the day, to leave the sofa, which she with difficulty reached. She was now

seen by a medical friend, who ordered a liniment containing belladonna, and on his leaving home next day, I took charge of the case.

On learning the foregoing particulars, I examined the legs, and found them precisely in the same condition as in cases I. and II. The right leg was the worst; but both were exquisitely tender, and of brawny hardness. They had been worse after each application of the liniment. On further investigation, I ascertained that the lady had been suffering for years from various myalgic pains, of great, often of intense, severity; that she was subject to severe "bilious attacks," vomiting, and almost complete anorexia; neuralgia of the forehead was common, and there was such an amount of "nervousness" that she was startled by the least noise, even by the doctor commencing a fresh observation. As it was clear that a walk of two miles was not, under ordinary circumstances, sufficient to produce myalgia of the legs, I inquired more minutely into the life and habits of the patient. I found that she was constitutionally delicate, that she had suffered from various severe diseases since childhood; that she had been treated by very powerful medicines; had been salivated for weeks together; that she was very active in her habits, and that, from the severity of her sufferings, she had, for the last few years, been recommended to take morphia; that few days elapsed without her taking four doses of this drug; and that whenever she had a shopping expedition, or had any unusual exertion, she took as many as six doses a day (as I did not see the prescription, I could not ascertain the exact amount, but inferred that each dose was about one quarter of a grain). To obviate the effect of these daily doses of morphia, she took nightly doses of aperient medicine, and the natural result of this mode of life was a steady diminution of strength, extraordinary irritability of the nervous system, of the stomach, liver, and bowels.

I recommended perfect rest, and after awhile succeeded in inducing the patient to give up, first the opiate and then the aperient. The leg was swathed with a morphia lotion, and subsequently with cotton-wool alone. But rest in bed I could not persuade my patient to take. The result was that the leg mended so slowly that she was constantly obliged to "favour" it, whenever she walked, by using the other as far as possible.

By quiet perseverance, the lady became convinced that she could do without her old medicines; for on giving them up the sickness, nausea, biliousness, and anorexia, gave way. By returning to them, occasionally, these symptoms returned, and at the end of about three weeks, she went back to Yorkshire, improved in every respect, yet with a constitution deplorably shattered, and requiring, at least, three months unremitting care for its restoration, and a leg still painful and hard.

Instead of giving herself the necessary time to recruit, the patient only gave herself two days, and then went about her household duties, as far as her aching leg would let her. In about a fortnight afterwards, I heard that the left leg, which had to do double work since the right one had been disabled, was more intensely painful than the other had been. My sole recommendation was a reiteration of my first direction—absolute rest in bed—and since then I have heard no more of the case.

CASE VI. The next case is, I think, especially valuable, as showing clearly the connexion between cause and effect. E. H. I., aged 9, was taken ill with scarlatina January 3. After a very severe attack, in which sore-throat, deafness, earache, and vivid redness of the skin, had formed the prominent symptoms, he felt sufficiently well on January 17 to chat vivaciously to the nurse. This was followed by pain in the omö- and sterno-hyoids for about an hour, during which period talking and swallowing were very painful. Next day he was allowed to sit up by the fire, in an armchair; after enjoying himself for about three hours, he began to cry with abdominal and cervical pain; on reaching bed, swallowing was intensely painful, the suffering being referred chiefly to the sterno-mastoid. At that time there was neither redness nor swelling, though the skin was exquisitely tender. In three hours the lad slept, and awoke on the 19th, with soreness of the neck, including the platysma, there was much dysphagia too, but the fauces and tonsils looked perfectly healthy, though pale; he was unable to move his head, which he said felt too heavy for the shoulders. The urine was healthy; by night the dysphagia became excessive, and there was abundant secretion of ropy mucus from the throat; the pulse was intermittent; there was considerable swelling about the upper and middle portion of both sterno-mastoids, and at the angle of the jaw. On the 20th the tongue was creamy, all the painful symptoms were

aggravated, the urine slightly bloody, and the debility excessive.

Jan. 21st. Improvement began, and continued until the 23rd, when he was so much better that he was able to eat comfortably, and once again sat up while his bed was being made. Care being taken to prevent undue muscular exertion, he escaped any more myalgic pains until the 25th. During that day he had been "roaring" with laughter and fun, and had been sitting up in bed for the greatest part of the afternoon. At night, after a short sleep, he was awaked crying with severe pain in the iliac and pubic regions, which lasted for about six hours. On the 26th, he was too sore to move or to talk. On the 27th, he was much better, and lively enough to play; but, fearing to sit up, he only raised himself on one elbow, in the position assumed by the Greeks at their symposia. This position threw much strain upon the sterno-mastoid of the left side; and the result was, that a very intense pain in that muscle came on at night, with much swelling and tenderness, and difficulty of swallowing. After this, he became very fearful of moving, and lay quietly until February 1st, when he was again full of fun, and laughed and talked with more than usual vivacity. The same result followed, and the pain was referred to the tragus, the sterno-hyoid and thyroid, the omohyoid, and the platysma. The next day, he was too sore to move. During the whole of the complaint, the debility was excessive, and hæmaturia twice occurred, passing away on each occasion in twenty-four hours, without special treatment. He was able to leave home for change of air on February 10th, but remained subject to myalgia for many weeks. On one occasion, the 19th, 20th, and 21st of January, I felt no doubt that there was genuine inflammation, which had commenced in the sterno-mastoid, and had spread to the parts around, including the pharyngeal muscles and the faucial mucous membrane.

Dr. Sandwith of Beverley has told me of a case in which this state of things eventuated in permanent wryneck, for the cure of which he subsequently operated. On making a section of the muscle, he found it converted into a substance of almost cartilaginous appearance of hardness.

CASE VII. The next case is one where, after scarlatina, the myalgia was so general as to lead to the fear of acute rheumatic fever.

J. M. J., aged 10, a tall overgrown girl, of strumous habit, had a very mild attack of scarlet fever, but which was complicated by two attacks of hæmaturia, much vomiting, and by a serious epileptic seizure. The fever began January 22nd; and by February 26th she was sufficiently recovered to go to Southport for change of air. The journey involved a walk down stairs and to a car, a drive to the railway (one mile), a walk to the train (a hundred yards), a ride of an hour, a walk to a car (twenty yards), a drive of five hundred yards, and a walk into the house (twenty yards). On her arrival, she seemed to be in excellent health and spirits, and not to be at all fatigued; but, on the next day, she complained of intense pain and tenderness all over the body, and especially about the knee and ankle joints. This obliged her to keep to bed for two days, after which she slowly began to recover; but a whole week elapsed ere she could place one heel in advance of the other toe while walking, and three months elapsed ere she could sit up for more than two hours without having inframammary pain, on the one side or the other, according as she had been sitting. The last attack of hæmaturia lasted for four months ere it disappeared. No special treatment was adopted, nor did there appear to be any mischief resulting. She has since that period continued in perfectly good health.

REMARKS. These cases are sufficient to show—1. That excessive use of a muscle may produce an inflammatory condition; 2. That this condition may subside without suppuration or organic change; 3. That "resolution" is favoured by absolute rest; 4. That this condition is induced by what appears to be very slight exertion; 5. That slight exertion becomes excessive when beyond the patient's strength; 6. That the existence of myalgia, from apparently trivial causes, implies the presence of debility or cachexia; 7. That this cachexia may be constitutional or accidental—e.g., from anorexia, from prolonged use of aperients, or from scarlatina; 8. That the diagnosis of a case is not completed when "myalgia" is made out, but that it is necessary still farther to investigate the circumstances producing it. They suggest the idea—a. That the severe pains so common in scurvy, and the brawny hardness so constantly met with in the hams, calves, and thighs, in that complaint, are due to myositis, from overexertion, in individuals weakened

by scorbutic cachexia; b. That the hardness of the abdominal walls, so common in cancerous affections and in inflammation of the liver, may be due to myositis, the result of overexertion in a cachectic subject, or from the spread of inflammation from the liver to the recti and obliqui; c. That the few cases in which myalgic pains are relieved by local bleeding are those in which overexertion has produced a quasi-inflammatory condition in the affected muscle; d. That the condition of the abdominal walls referred to must always complicate the diagnosis of abdominal tumours; e. That, in all cases of suspected abdominal disease, the examination must be made with the greatest possible gentleness, so as not to provoke the irritable muscles to contract.

In conclusion, I would remark, that any one who wishes to ascertain for himself the power of the muscular system under varying circumstances may do so by using Hutchinson's spirometer. He will find in his own person that he can blow it up high or low, according to his condition at the time. So sensitive is this test, that the influence of a day's fatigue, diarrhoea, influenza, and the like, are all marked by a diminution of the amount expired, varying from five to twenty cubic inches. In fact, the spirometer is not simply an index of the state of the lungs, but is an index of the inflating power. I have often noted that those of consumptive tendency, though of sound lungs, are the most subject to myalgia; it is in them also that we meet with the greatest deficiency of respiratory power, as shown by the spirometer.

TURNING AS A SUBSTITUTE FOR THE FORCEPS IN CASES OF NARROW PELVIS.

By ROBERT JONES, Esq., Strefford.

In a series of papers published some years ago in this JOURNAL, Dr. Simpson advocated the operation of turning in labours connected with narrow pelvis, in preference to the use of the long forceps or craniotomy, provided it be had recourse to early, as being attended with less danger to the mother, and as affording a greater chance of saving the life of the child. He states that morbid contraction of the brim is, whatever mode of delivery be adopted, liable to cause rupture of the uterus, especially when the labour has been allowed to be protracted, and the compressed tissues of the cervix have consequently been rendered friable; and that, owing to the elasticity of the cranial bones, great force might be used in extracting the head, without endangering the child's life, etc.

The following case is related as corroborative of these views. A few years ago, early in May, Mrs. Cook requested me to attend her in her forthcoming confinement. She is a little spare Irishwoman, aged 38, the wife of a coachman. She had then nearly completed the eighth month of her eighth pregnancy. She informed me that her first four labours were tedious and painful; the children were small, but born alive, and were still living; that, in her two next confinements, she was attended by two different medical men, both living at Leintwardine; that in each the labour was painful and very protracted, and craniotomy was had recourse to in each. In her seventh confinement, which happened eighteen months ago, she was attended by a gentleman practising in Ludlow; this time the labour lasted thirty hours; it was left to nature, and the child was born dead.

I took this history as sufficient evidence of the existence of a morbidly contracted pelvis, and at once suggested the induction of premature labour. To this my patient stoutly objected. There was, therefore, nothing for it but to wait the natural time. Accordingly, early in the morning of the following 21st of June, I was sent for. I found she had been in labour all night, and for the four last hours the pains had been very powerful. The vagina was well lubricated, the sacrum very hollow, and the promontory greatly projecting forwards. The os uteri was well dilated, the membranes entire, and the child's head just entering the brim. With a trifling degree of force, I pushed back the head, carried my hand into the uterus, and brought down the feet without the least difficulty. Not so, however, with the head; for this required all or nearly all the strength I could use and keep up for some minutes. The head at length passed. The child was apparently dead; but the funis beat feebly, and at long intervals. Cold water being gently dashed on the face repeatedly, the child gasped, cried, and ultimately breathed well, and, I believe, is still living. The mother made a good recovery.