stone, which caused an irregularly-triangular laceration, penetrating nearly to the cranium. There was immediately considerable bleeding, which could not be stopped by the usual dressings. On taking off the bandages his mother had applied, a large coagulum was found attached to the lacerated parts, from beneath which blood was continually oozing. After removing this coagulum, a tent of lint was firmly thrust into the wound, and secured in this position by means of strips of lint spread with white of egg and flour, which, in a short time, formed a compact hard covering, nearly as solid as a crab's shell. The following mixture was prescribed :—

Sulphate of soda, one ounce ;

Water, six ounces. To take an ounce every four hours.

16, Nine, a.m. The bleeding had continued all night, and the wound presented nearly the same appearances as before. The dressings were renewed, and the dose of sulphate of soda doubled.

Nine, p.m. The wound bled during the afternoon, but not so freely. The sulphate has not yet acted upon the bowels. The nitrate of silver was applied to the wound, and the dressings replaced.

16. The sulphate of soda has produced several free alvine evacuations, and no more bleeding has occurred.

22. No further hæmorrhage. The dressings remained firmly adherent, and required the application of poultices for their removal.

This boy had never suffered from hæmorrhage of an idiopathic character from any of the mucous surfaces, nor from purpura or any peculiar cutaneous affection.

William Lawson's mother died, the family became dispersed, and after many fruitless inquiries, I at length, by chance, discovered that he had been admitted into the Manchester Bluecoat School ; and, on applying to Mr. Greswell, the surgeon to that institution, he kindly informed me that Lawson had died in August, 1840, in consequence of convulsions supervening upon abdominal affection, apparently caused by too freely eating of fruit, and bathing when in a state of perspiration. There was no post-mortem examination. During his residence in the school he had a slight injury of the hand, which was followed by very troublesome bleeding, similar to that produced by the accidents previously noticed.

REMARKS.

The cases of hæmorrhagic tendency, which first attracted the attention of pathologists, will be found in the "London Medical and Surgical Journal" for 1808, in a communication from Dr. Otto, of Philadelphia, U. S. Upon reference to these and other analogous cases, it will be noticed that some time usually elapsed after the receipt of the injury, previously to the appearance of severe hæmorrhage, the wound not bleeding in the first instance more than similar wounds in other individuals. This is important ; for if we compare the time at which adhesion generally takes place, I believe it will be found to agree with the period of the supervention of hæmorrhage in these instances, provided the injuries be of equal severity. In such hæmorrhagic cases, the process, which has been termed adhesive inflammation,

appears not to be accomplished in a normal manner, although the vascular action of the injured parts is increased to an extent apparently sufficient for all the purposes of adhesion. The divided extremities of the vessels, instead of becoming agglutinated by the adhesive medium, not only remain pervious, but appear to acquire an increase in calibre, which allows them to pour out blood so freely as to give it the appearance of exuding from every point of the surfaces of the wound. Whether this irregular performance of the adhesive process depends upon the peculiar condition of the blood in such individuals, or upon some difference in the arrangement of their capillary system, is a question not to be very easily answered. The case I have recorded, is a proof that there is no deficiency in the coagulative power of the blood ; the coagula having firmly adhered to the surrounding uninjured structures, although the oozing from the wounds was continuous.

The failure of local treatment until the bleeding had proceeded so far as to threaten a fatal termination, and the consideration that injuries occurring in structures differing so much in their organisation were, when of equal severity, always followed by equally profuse hæmorrhage, would incline me to depend upon general treatment. I do not consider the slight trial given to the sulphate of soda in Lawson's case as very conclusive when separately viewed. But it acquires value when considered in connection with the treatment pursued in Dr. Otto's cases. I may add, that I should be inclined to place the greater reliance upon its efficacy, in consequence of my having for many years observed the beneficial effects of various saline preparations in affections of the vascular system, in which these are not usually administered.

May 11, 1842.

ON

CONTUSIONS OF MUSCLES.

By WILLIAM ALLISON, Esq., Surgeon, East Retford.

The most interesting circumstance connected with contusions of muscles is the difficulty of distinguishing those injuries from dislocations or fractures of those bones which form cups for joints. Muscles are bruised by falls or blows ; a limb is consequently stiff (whilst lengthened or shortened), and it becomes motionless at a joint, so that neither flexion nor extension can be performed by the subject of the accident ; and sometimes considerable swelling ensues before a medical man arrives. The surgeon's attempt to move the limb, in order to ascertain the nature of the injury, produces a painful, spasmodic action of muscles, sometimes without proving advantageous to himself, in his endeavour to find out the precise cause of the loss of muscular action and the stiffness of the limb. And whilst the surgeon has no means of completely satisfying himself with respect to the accident, he is closely questioned by the patient and his friends, and must either express his doubts or give indirect answers. We all know that by sleeping with the head upon the arm, so as to make good pressure on the median nerve, we may become unable, during many minutes after waking, to move the forearm ; that by sleeping cross-legged in a chair, so as to make a firm pressure

upon the popliteal nerve, we may be, during many minutes, unable to stand upon the leg; that rheumatic stiffness may require great muscular efforts to restore the use of the limbs; and that, sometimes after fractures of the arm or thigh, one means only can overcome the muscular rigidity, and restore action—namely, the frequent, resolute efforts of the patient himself to put the muscles in action; but I think it behoves us especially to ascertain the different effects and the practical consequences of violent muscular contusions.

1. The muscle or muscles may be so bruised as to be simply benumbed (with tonic or permanent contraction or with relaxation), the nerves being affected by the fall or blow, something like the brain from concussion.

CASE I.—Mr. Smith, of this town, remained with his leg, for half an hour, under a horse which had fallen with him, and which had then laid upon him, the horse having made fruitless attempts to get up whilst the leg was under him. Mr. Smith could not move his leg when first lifted up; but, being supported, he made great efforts to use it, until in ten or fifteen minutes he gradually became able to walk.

CASE II.—A woman, named Parkin, of Ordsall, fell from a load of hay upon the hard ground, in a very hot, dry summer; her thigh was for some weeks in the exact position of a dislocation into the ischiatic notch. By forcible extension I could place the limb in the natural position without pain; but it always returned to the apparently dislocated position. No fracture of the acetabulum nor of the neck of the thigh-bone could be felt. In four or five weeks she recovered the use of the limb.

2. The muscles may be bruised whilst in action, and remain stiff (with atonic contraction or with relaxation) so long as they are left at rest; but the moment an attempt is made by the patient or surgeon to move the limb, a violent, painful quivering or irregular spasmodic action comes on, and the limb cannot be placed in the natural position.

CASE III.—A boy was carrying two pails full of water, suspended from his shoulders; in attempting to step down with them, from a very highly-raised causeway, he slipped backwards and sideways upon the edge of the causeway, shooting his heels before him. On my arrival his leg presented the appearance of a dislocation upon the pubis. Every attempt to bring that knee to a level with the other, either on a mattress or when standing upon the sound limb, failed; but it produced painful, spasmodic muscular action. The chief pain was in the groin, where there was a swelling; but as the head of the thigh-bone could not be felt there, I proclaimed the accident to be “a serious injury of the muscles,” which probably would continue some weeks. By leeches, fomentations, &c., the boy recovered in a week.

3. Muscles may be bruised, with extravasation or some injury ending in suppuration.

CASE IV.—I was called (July 1) to a lady who had been thrown out of a pony carriage in this town; her shoulder was dislocated, and her leg was bruised. Both before and after the dislocation was reduced she walked twenty or thirty yards very well, and she was

sent home, a few miles off, in a chaise. The leg swelled, and became stiff and useless (to herself immovable). After leeches, fomentations, poultices, &c., had been used, with entire rest for upwards of five weeks, she became alarmingly ill, with high constitutional disturbance during her seventh month of pregnancy; and in about a week from that time (on the 17th of August) I opened a deep-seated abscess under the fascia of the gastrocnemius muscle, after which she became perfectly well, before her confinement (on the 17th of October), from which she recovered as usual.

4. Muscles may be bruised, with a laceration of fibres.

CASE V.—In June, 1839, I was desired to visit a stout, heavy, muscular man, who, it was supposed, had dislocated his hip. On my arrival I heard that, whilst sitting upon the shelves of a cart, he fell backwards with his shoulders upon the wheel, and reached the ground (hard sand-rock) in about the sitting position. Moving the limb gave excruciating pain, and occasioned spasmodic muscular contraction; nevertheless, after having placed his shoulders and hips in a straight line upon a mattress, and having grasped each ankle with one hand, I drew him downwards towards the bottom of the mattress, when I found the inner ankle-bone of the injured side full an inch and a quarter below the other, with the heel inclining inwards. I could bend the knee upwards towards the abdomen, but could not cross one thigh over the other. Adduction could be effected with some difficulty; but this limb was always longer than the other by an inch and a quarter, with the knee separated, and the toes turned outwards when in the easiest position, and there was a constant pain in the perineum. If the case had been one of dislocation into the foramen ovale, I supposed adduction could not have been effected, and I was not aware that it could be any other variety of dislocation. There was no crepitus about the joint; I, therefore, believed it to be lengthening of the limb, mentioned by the late Sir A. P. Cooper, and delivered my opinion decisively, “that there was not any dislocation.” However, I felt much more satisfied after my partner had accompanied me on my next visit. To the question, “What is the accident?” we replied, “A rupture of some part of the muscle which forms the buttock.”

The gentleman was bled in the arm, took an opiate, had his hip fomented, and warm, damp linen kept upon the painful part; he then took castor oil; on the following morning twelve leeches were applied, and afterwards poultices. We cannot lift patients so affected into and out of warm baths; he was kept in the easiest posture, &c., and the case went on quietly; but the lengthened state of the limb, the inability to move it without violent pain for some weeks, and the sensation of something in the perineum, gave rise to doubts amongst his friends respecting a dislocation. In this case extension of the rigid muscles after the second week, by pulleys applied as if for a dislocation into the foramen ovale, until fainting was produced, appeared to be serviceable. The consequences of the accident were, not only that the limb gradually became of the same length as the other, but that contraction went on until it was about an inch shorter,

as it remains to this day, that he halts in walking, and that he cannot ride on horseback without making the hip and thigh muscles very painful. I have on several occasions seen limbs as rigid from falls and bruises, when all attempts at motion have given violent pain; but in this case I cannot account for the lengthening and subsequent shortening of the limb, but by a laceration of muscular fibres. He can now walk ten or fifteen miles in a day without fatigue.

In relating the foregoing cases, I may not have classed them correctly. For instance, the pregnant lady may have had some laceration of the deep-seated tissues of her leg, as the carriage wheel had evidently passed over it; but that being now doubtful, merely serves to show the difficulty of stating the precise extent of injury at the first visit after an accident.

A surgeon, called to reduce a dislocation, has to distinguish one from a fracture near the joint; and sometimes, in forming his diagnosis, he is perplexed by muscular rigidity; at other times by considerable tumefaction from extravasation of blood; and on some occasions by extreme tension from effusion, the consequence of inflammation. As the late Sir A. P. Cooper, when speaking of dislocations, said, "Few accidents are more likely to endanger the reputation of the surgeon, as the patient may become a living memorial of his ignorance." I shall not apologise either for having called the attention of surgeons in the commencement of their career to this particular part of their practice, or for reminding them further that the biceps tendon may be ruptured, or that it may be displaced from its natural situation in passing over the head of the os humeri.

VACCINATION DEFENDED AGAINST THE ATTACKS OF MR. BROWN.

Letter IV.

TO THE EDITORS OF THE PROVINCIAL MEDICAL JOURNAL.

GENTLEMEN,—In resuming my observations on Mr. Brown's letters to Dr. Gregory, I beg to direct your attention, and that of your readers, to the experiments detailed in Letter III., pp. 55—56. These are for the purpose of ascertaining the influence of the vaccine upon the variolous malady; and the result seems to be, that when the two poisons were introduced into the same system, at the same time, or within two or three days of each other, constitutional small-pox was produced, notwithstanding that the local affection of the vaccine vesicle was perfect; that if variolous matter were introduced two or three days after vaccination, the result was small-pox somewhat modified; but that if five or six days were suffered to intervene between the two processes, the influence of the small-pox inoculation was totally subdued. It is unnecessary to notice the endeavour to produce a hybrid disease.

Now, really, if these experiments be of any practical value, it is, either that they tend to prove the identity of the two diseases, or the prophylactic agency of the one over the other.

First, the disorders are identical; they run the same course uninterrupted the one by the other; and the result is the same, except only this, that the one

is a much milder form than the other. Yet if this be granted, where is the utility and what the object of Mr. Brown's speculations, for if the two maladies are the same, only the one is a milder and the other a severer form, in the name of common sense, why prefer the latter to the former?

But, secondly, the vaccine is a prophylactic against small-pox, according to Mr. Brown's experiments—that is, give it fair play; let it have time enough to produce its influence upon the constitution before the more active morbid poison shall have developed its agencies, "and the influence of the small-pox inoculation was totally subdued."

Such, however, was not the result, when the two poisons were introduced together and at the same time. Is there anything extraordinary in the fact, that two morbid poisons being introduced into the constitution at the same time, one very mild the other very violent, the latter should supersede the former? Is it not consonant with reasoning and experience, that the more powerful agent should extinguish the less powerful agent, granting that the same favouring circumstances should be given to both? This fact, therefore, will not in any way detract from the value of vaccination.

If we pursue Mr. Brown's experiments we find, that if the vaccine poison were introduced three days before the variolous, its modifying influence upon small-pox was most marked; and that if the interval were extended to five or six days, the influence of small-pox was entirely subdued. Such, then, is the result of Mr. Brown's own experiments—they prove the power of vaccination over small-pox, incomplete unless a proper precedence shall have been given to the former, complete and entire if this necessary rule shall have been complied with. Even according to Mr. Brown's own showing, therefore, vaccination is a perfect prophylactic against small-pox; the duration of the security thus afforded is another question not now before us. This is more than the judicious vaccinator contends for, as has been previously shown.

I cannot pass over this part of Mr. Brown's treatise, without adverting to a note of very mischievous tendency at p. 56, in which he remarks that this "class of experiments seems to afford the very best expedient against the small-pox epidemic, short of the practice of inoculation." What! shall a class of experiments, which produces complete small-pox in the first series, and modified small-pox in the second, in all probability both capable of diffusing genuine small-pox through the neighbourhood, and so producing the epidemic—shall such a class of experiments go forth to the world as the best expedient for putting an end to small-pox? Really, I can only account for such a recommendation by supposing a supernatural influence upon Mr. Brown's reasoning powers—*Quem Deus vult perdere, prius dementat*.

But Mr. Brown combines these experiments, the truth of which we cheerfully grant him, with cases of failure of protection from small-pox, by vaccination, during an epidemic which raged in his own neighbourhood, when he became convinced that there was some deficiency in "the absolute and permanent power of the vaccine process against small-pox." Although we by no means discover this, as a consequential reasoning from the experiments cited above, yet we are