sloughed away, leaving the bones exposed. The visceral surface of the dura mater was smeared with lymph; the external surface was healthy. There was a considerable effusion of lymph and sero-purulent fluid in the sub-arachnoid space. The brain was in all respects healthy. All the other viscera were healthy.

CASE IV. J. C., aged 40, was admitted on May 14th, under the care of Mr. Hawkins. At twelve o'clock of the night previous to his admission, he was standing at the bar of a public house, drinking some gin and water, he having had something to drink before; but his friends stated he was sober, when he suddenly fell backwards, and struck the back part of his head against a wall. When admitted, at 11 A.M., he was perfectly insensible, and his breathing stertorous, he having been in this state, his friends said, ever since the accident. There was an incised wound, about one inch in length, over the middle of the right parietal bone, but it did not lead down to bone, neither could any depression or fracture be detected. He had passed no urine since the accident, but his bladder did not appear at all distended. Both pupils were regular, and rather contracted, but they were constantly changing; the conjunctiva was insensible; the skin cold; pulse 96, and scarcely to be felt. There was whiffing from one of the corners of his mouth, but no paralysis. Five grains of calomel was directly put upon his tongue, and his head was shaven. At 3.30 P.M. he was becoming sensible, and answered when spoken to.

On the following day he was quite sensible. The pulse was 95, quiet. He had no pain in his head. The wound was healed.

May 17th. There was a little puffiness and pain around the wound, but they had disappeared by the next day.

May 19th. At 4 P.M., and 12 (midnight) yesterday, he had rigors, lasting each time for half an hour, and followed by profuse sweatings. To-day he complained of great general headache; the pulse was 80, soft; skin perspiring; tongue white, and rather furred. Three grains of calomel and five of Dover's powder were given at bed-time, and a senna draught the following morning. After the bowels had well acted, all these symptoms left him, and he had no return of them; on the 25th, he left the Hospital, quite well.

CASE V. Johanna B., aged 59, was admitted on February 5th, under the care of Mr. Tatum. This woman was knocked down by a butcher's cart, the wheel of which passed over the left side of her head. She was immediately brought in for a large scalp-wound on the left side of her head, extending from the external angular process of the frontal bone to about the middle of the temporal ridge; the bone being exposed for the space of about a crown-piece, and the integuments being separated from the pericranium almost as high as the vertex, and below down to the ear. The parts, which were covered with mud, were cleaned, put into proper position, and strapped. The right ear was much lacerated at its lower part, a small piece of it having been torn completely off; and there was also a lacerated wound in front of it, over the right temple. The lower jaw was fractured in two places, corresponding in position to the bicuspid teeth, the intervening portion being quite loose. There was a considerable bruise just above the left mamma, but no fractured rib could be detected. There was no concussion of the brain. Her pulse was very slow and weak. She was ordered carbonate of ammonia with chloric ether, in camphor mixture, every four hours; with five ounces of port wine, and three of brandy. On the 7th, there was much erysipelas and swelling of both eyelids and left side of the face. The wound had become sloughy, and there was much puffiness around it, especially behind. She was very low, and had no appetite; but there was no sickness, nor any pain in the head.

February 9th. The erysipelas was still considerable. She had much bronchitis, having had it to a trifling extent for three weeks previous to her admission. There was great difficulty in bringing up the expectoration; but her breathing was relieved by the sitting posture, and after the application of a mustard poultice.

From this time her breathing became more difficult, and at times she was almost choked from the bronchitic expectoration that she had not the power of bringing up. The wound of the head became excessively sloughy and offensive, the matter burrowing much beneath the integuments, especially behind. She was supported as much as possible by beef-tea, brandy, etc.; but she gradually sank, and died on the 11th.

POST MORTEM APPEARANCES. There was a large sloughy

wound on the left side of the head, in which a great part of that side of the frontal bone was exposed. Another wound also existed on the right side of the head, just in front of the ear, which was greatly lacerated. There was a quantity of very offensive pus in the cellular tissue, beneath the tendon of the occipito-frontalis. On removing the skull-cap, it was found that a small piece of the inner table had been slightly separated from the rest of the skull, at the anterior inferior angle of the left parietal bone, by a fissure running obliquely through the diploë. The effused blood on the edges of this fissure clearly showed that it had been produced during life. The fragment of the inner table so separated was about the size of a shilling. When found, it was slightly displaced inwards; but this might have been a result of the sawing, as the section ran through it. The brain seemed quite healthy. The lower jaw was found fractured in two places. The lungs were healthy, except considerable injection of the lining membrane of the bronchi.

REMARKS. These five cases will point out most of the pathology of, and complications that are met with in, scalp-wounds. All of them show the two most common and almost invariable seats for the wound to take place; namely, firstly (and this is by far the more general of the two), in the loose cellular tissue, between the occipito-frontalis and the pericranium; and secondly, between the latter and the bones, where the adhesions, too, are but slight, except at the situation of the sutures.

The first case illustrates what extensive lacerations may occur in the scalp, and yet, on account of the very free supply of blood to that part, union may readily take place.

The second case appears to be one of those where contusion of the bone accompanies a simple scalp-wound. In these contusions, it is in the diploë that the mischief occurs; inflammation commences in it, which soon passes on to suppuration; and, on account of the very free communication its vessels have with those of the meninges of the brain, the latter become secondarily affected. It is also due to this suppuration taking place within the diploë, where, too, there are such large veins, that absorption of pus into the circulation of the blood readily takes place, and secondary deposits follow.

The third shows, when suppuration and sloughing beneath the occipito-frontalis does take place, how much more readily the pericranium is liable to become affected than the scalp itself; and this is easily to be explained, on account of the great difference there is between these two parts in their supply of blood. This case, too, is interesting from the great rarity of such extensive sloughing of the scalp.

The fourth is given to show how a surgeon may be deceived with symptoms of disease, especially in those affecting the head.

The fifth is interesting on account of the peculiar fissure on the internal plate of the skull, and no symptom whatever resulting from it.

WESTMINSTER HOSPITAL.

WOUND OF THE FEMORAL ARTERY AND VEIN.

By C. HOLTHOUSE, Esq.

IN the BRITISH MEDICAL JOURNAL of May 7th, of the present year, there is reported a case of the above accident, which was under my care at the Westminster Hospital, and from which the patient was discharged cured on February 25th last. It may be interesting to know the condition of this man's limb six months after his discharge; he having been at work as a carpenter during nearly the whole of this time.

On August 12th, being out of employment, in consequence of the strike, he called on me, and the following note was made: "The sore on the heel has not yet cicatrised; there is some oedema of the foot and ankle; the internal and external saphena veins and their branches are larger and fuller than those of the opposite limb; the pulsation in the posterior tibial artery is less distinctly felt than in the other leg, but this may be partly accounted for by the oedema; there is no difference in the temperature of the limbs, though there was at first (the weather is very warm); the patient still experiences some numbness of the foot and calf of the leg, and cannot walk far or quickly, without bringing on an aching pain in the latter."

In the "remarks" which were appended to this case at the time of publication, a doubt was expressed as to its being the femoral vein which was wounded; but that it really was so, and that this vessel is now obliterated at the seat of the

wound, I think is proved by the evidences of obstructed venous circulation, which the above condition of the limb reveals.

REMARKS. We were not aware, at the time of the publication of the above case, that there was any other on record in which the limb had been saved after a wound of both the artery and vein; but it appears that John Hunter made an endeavour, at any rate, to effect this object. In a manuscript copy of his lectures, from notes taken by Dr. John Clarke, with the inspection of which we have recently been favoured by the kindness of their present possessor, the following entry occurs:—"A. B. was working with a knife, and ran it into his thigh, and so wounded the crural artery where it passes through the third head of the triceps. A tumour was formed, with pulsation. A peculiar thrill arose in it. A tourniquet was applied, and a director passed into the wound. The parts were laid freely open; the artery found. A ligature was then made above and below the orifice. The vein bled, and was taken up too."

Unfortunately, the event of this case is not given; but it is more probable that the attempt to save the limb was successful than otherwise, from the very fact of the case being so dismissed, without any mention of gangrene or other evil consequence. At any rate, it is interesting to know that this great master of surgery thought it reasonable to attempt the preservation of the limb under these circumstances.

Original Communications.

PATHOLOGICAL AND THERAPEUTICAL CONSIDERATIONS RELATIVE TO INFLAMMATION AND FEVER.

By C. HANDFIELD JONES, M.B., F.R.S., Physician to St. Mary's Hospital.

[Continued from page 910.]

5. *Various forms of Inflammation.* The most important distinction to be made between different instances of inflammation relates to the degree in which they approximate to the sthenic or to the asthenic type. On a due appreciation of this, the success of treatment wholly depends. In *sthenic* inflammation, the *tissue* of the part is prominently concerned, its nutritive force is deranged and perverted, rather than simply depressed; it is inapt for functional work, but highly resentful of stimulation. The latter, if powerful, may subdue the morbid state of the tissue, but if it fail to do this, exasperates it. Tonics that would induce contraction of the blood-vessels through their nerves, and so diminish the hyperæmia, irritate the diseased tissue, and increase the morbid action. The healthy play of the tissue in attraction and repulsion of blood is exchanged for morbid attraction, and so accumulation of blood takes place. The effective remedies are such as annul this state of tissue-irritation, depressants, contrastimulants, or tissue sedatives as I have termed them. Thus antimony is an efficient lung-sedative in sthenic bronchitis or pneumonia, and colchicum an articular sedative in sthenic gout and synovitis. An excellent example of this form of inflammation is so-called acute eczema, which is aggravated by arsenic, and cured by leeches, lead lotion, salines, and antimony.

In *asthenic* inflammation, on the other hand, the tissue is much more quiescent, much less susceptible of irritation, and tolerant of stimuli. It takes no notably active part in the inflammatory process, but (if a surface) simply allows the transudation of cell-developing exudation. The phenomena are chiefly dependent on vaso-motor nerve paralysis, and consequently diminish and cease under the use of nervine tonics. Thus quinine is most beneficial in asthenic pneumonia. Arsenic in asthenic rheumatism and eczema. It is most striking in the latter disorder to find the hyperæmia, exudation, and heat of skin, cease under the tonic remedy; one is involuntarily reminded of the result of galvanising the divided sympathetic nerve. The sthenic character is commonly exhibited in the earlier period of inflammation, and is replaced by the asthenic in the later. Either, however, may exist during the whole course of the disease. Sthenic inflammation is usually excited by some locally acting irritant, but it may be produced as well as asthenic by vaso-motor nerve paralysis, or may even originate spontaneously as in whitlow. The resemblance of the visible phenomena of sthenic and asthenic inflammation may be so close, that nothing but careful testing

with remedies can make the distinction possible. Like chemical reagents, our drugs appeal to forces we cannot otherwise observe. It is, however, always to be remembered, that the perfectly typical cases of disease are rare, and that the majority are mixed, or intermediate between various types, and partake most of one or other. The term *substhenic* would designate correctly many such instances.

6. The modifications imposed on inflammation by the locality in which it occurs, the tissue which it affects, are noteworthy. In serous tissues, it is prone to spread over the surface, and to pour out copious effusions, which may be serous, fibrinous, or purulent; these mostly are more or less mixed. Even rheumatic inflammation commonly causes supuration in this tissue. In mucous tissue, inflammation is also spreading, and gives rise early to exudation, which, as long as the basement surface is entire, contains no large amount of albumen, but chiefly the characteristic slimy principle mingled with varying amounts of pus-corpuscles and immature epithelial particles. The high vascularity of many mucous membranes, and the thinness and delicacy of their epithelium, very much promote the early occurrence of exudation of the fluid part of the blood, and even sometimes the escape of the solid corpuscles. In cutaneous tissue the spreading tendency is much less, and is chiefly manifested in asthenic forms of inflammation, as for instance, erysipelas. Exudation does not occur to any notable amount as long as the epidermis remains attached. In the subcutaneous and areolar tissue, sthenic inflammation soon becomes circumscribed by fibrinous effusion, in the more central parts of which suppuration takes place. In asthenic inflammation, the morbid process is not thus circumscribed, and spreads often extensively, causing great mischief and peril. Solid masses of tissue, as liver, kidneys, brain, muscles, are far less prone to be the seat of suppuration than surfaces, or areolar tissue. One cause of this is, that in these dense textures exudation takes place much more sparingly. Another is, that large masses of tissue persevere more steadily in their normal nutrition than thin membranes, and are far less liable to deviate into inflammation.

Acute and chronic designate the rate at which inflammation proceeds. Acute may be asthenic, chronic may be sthenic.

7. *Reaction* (morbid) signifies that the vital forces of the part or system affected are not utterly or almost overborne and prostrated, but that they *resent*, and are stimulated after a manner by the morbid impression. It is most true there is no such thing as an intelligent striving of the natural forces against the cause of disease, to throw it off, as it were; the fact being simply that they are excited to unusual and abnormal manifestations. They are excited to increased action; but that action is not in the right direction, it is injurious and wasteful. Still it shows that the power of the tissues is not extinguished, that they are yet life-full. He who has stood by the bed-side of the patient in malignant dysentery or cholera, and painfully witnessed the utter non-response of the system to all remedies, or he who has been striving for a long period to upstay a weakly nervous system, that is evermore relapsing into debility and prostration, is quite rejoiced at the signs of good, outspoken, hearty reaction. There is hope to be able to calm and guide the one, there is almost a sense of despair in the attempt to raise and sustain the other. The signs of (excessive) *reaction* are essentially those of inflammatory or sthenic fever, viz., vigorous action of the heart, strong full pulse, hot skin, red lips, increased tolerance of blood-letting. Local reaction is equivalent to sthenic inflammation and its results. *Collapse*, on the contrary, is marked by debility, feeble-pulse, cold skin, blueish lips, diminished tolerance of blood-letting. Its local manifestation is gangrene.

Increased action is a term often used, and often I think not correctly understood. It is essentially the same as reaction above described. It is therefore clear that it does not mean real increase of healthy power, more vigorous functional action, but only a greater amount of action of some kind. Compared to healthy action, it is like a river bursting its banks and spreading destruction all round, as contrasted with the same stream duly restrained, irrigating meadows, and turning water-mills.

The above remarks have reference of course to morbid states. There is healthy reaction, as after a shower-bath; and healthy increased action, as when a gland or a muscle perform its functions vigorously.

8. *Causes of Inflammation.* If friction be kept up for some length of time on a part which has been unaccustomed to it, say the hand, as in rowing, inflammatory phenomena are produced. Blisters form on the surface, i.e., the epidermis is