of Bright's disease in that spirit, though the measures must be graduated according to the depth and amount of the poison. Following out this principle, these patients ought to be roused by means of strong coffee or tea; interested by the society of friends and the business of everyday life; directed to take exercise briskly, and, so as to stir their circulation, keep themselves warm and earn their digestion, at the same time, that they avoid fatigue and exhaustion. They ought, indeed, to live, so to speak, within the income of their organs; but they ought, at the same time, to live almost up to that income. The many exercises of life increase the powers of life, just as the oarsman or the mountaineer, by steady training, from being out of condition, weak, and capable only of a spurt, and incapable of long-sustained exertion, acquires, in a very few days, such powers of exertion and endurance that he can last through the race, walk, and climb and descend for eighteen hours, and have strength to spare at the end of the day; so the patient, with chronic Bright's disease, by steadily increasing his exercise in the varied pursuits of life, daily gains power and rises above his disease. Although these very exercises lessen the poison, by stimulating all the organs of excretion, yet the poison is still there; but, just as the patient poisoned with opium is roused to resist its effects, so the patient poisoned under influence of Bright's disease is roused to resist its effects. In the same way that the muscles and chest and heart are enlarged by steady exercise, so the healthy portions of the diseased kidney are enlarged so as to increase and bring into play the powers latent and otherwise of this organ. Every organ has within it a reserved force very much greater than the force used in the ordinary quiet doings of still life. Thus I found, by exact experiments twenty-six years ago, that I breathed sixteen times as much air when I ran at the top of my speed, or rather just after it, as when I lay still in my bed. This experiment, published by me, is quoted and confirmed by Dr. Edward Smith. My lungs thus had a reserved force that was sixteen times as great during their maximum as during their minimum labours. Every organ has a like reserved force, the kidneys included, though the extent of such force is unknown. When these organs are diseased in part, they are still healthy in part, unless the destruction of the surrounding structure is complete. When the exercises of life increase and the general health improves, the kidneys improve under the effect of the general improvement. Thus cases of Bright's disease may improve indefinitely, and, leading a healthy life, be practically healthy, though these kidneys are crippled and have lost much of their reserved force; just as the one lung of many a patient with empyema is crippled, even after health is restored. When the other lung plays freely, it is developed to compensate somewhat for the loss. The reserved force, however, of the lung is lessened, and all the organs of the body and the heart in particular moderate their exertion; and all the members of the body balance themselves in harmony with the crippled organ, which becomes the lowered key-note of the whole frame. I once, when in Switzerland, with my whole thoughts and work centred on the country and free from the medical mind, awoke with this axiom in my mind and almost on my tongue: "Health is not the mere soundness of any one organ, but the healthy balance of the whole"; and so the balance of the general health is in keeping with the lower or higher power of the kidney. When the respiration is greatly distressed and suspended by turns in Bright's disease, the proper treatment is steadily to eliminate the poison, and, at the same time, to rouse the powers, either by a small quantity of tea, strong coffee, or whisky; by stimulants externally; and by maintaining the power by means of iron and food; by practising, indeed, in a conciliative manner, the plans that experience and physiological reasoning have pointed out to be the best and soundest for the general treatment of the disease, supplemented by such means as the nature of the case may expressly suggest. These cases are very formidable, and generally die; but not unfrequently, as in the cases I named to you, the patients recover from the emergency, and even live for years. When coma and sopor are present, the hot-air bath and external stimulants, the strongest coffee, and a treatment analogous to that of deep opium-poisoning, but differing according to the necessities of the case, must be pursued; and this sometimes succeeds.

THE St. Alban's Rural Sanitary Authority propose to appoint Dr. Saunders, the Medical Officer of Health for the adjoining combined districts, as Medical Officer of Health (and Public Analyst) for their district also, instead of the union medical officers, as at present.

AT Cannock, a letter has been received by the summoning officer from the Local Government Board, stating that they are willing to issue an order forming the parish into a Local Government District of three wards, viz., Hednesford, Chadsmoor, and Cannock; the Board to consist of twelve members, four from each ward.

SOME REMARKS ON THE AFTER-TREATMENT OF EXCISION OF THE HIP-JOINT.

By SURGEON-MAJOR J. H. PORTER,
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GUNSHOT-WOUNDS and diseases of the hip-joint, for which the operation of excision has been performed, present to the surgeon difficulties in the after-treatment which are seldom met with in other surgical operations.

The patient is utterly helpless; he is very likely prostrated with disease or by the wound, or the operation itself may have produced great exhaustion; he may be bound by splints or appliances considered necessary for promoting extension or counterextension; and the fact of his lying in this helpless condition is apt to bring about a series of complications, owing to the formation of bedsores, which in many instances are stated to have been the cause of patients succumbing; besides these, the surgeon has to contend with the copious discharge from the seat of wound, or that made by the operation, saturating the dressings, which, if not promptly removed, will become offensive, and may give rise to the formation of extensive abscesses or other complications. There is also the necessity for rearranging the sheeting and bedding, and for removing excreta by suitable utensils; and, at the same time, it is absolutely necessary to maintain the limb at perfect rest.

In investigating the experience of others with regard to how these arrangements have been carried out, we find that but little has been recorded; at the same time, nearly all recognise the importance of strict attention to the after-treatment, but lay greater stress on the formation and application of splints for keeping the limb in a proper position. Professor Volkmann of Halle observes that, if a mattress or something could be invented by which the cleansing of the wound in these cases, the defæcation of the patient, and, at the same time, his utter immobility, could be maintained, it would be a great boon. The same authority remarks: "With regard to the great mortality after the operation of excision of the hip-joint, much has depended upon the want of care in the after-treatment. Three times I resorted to excision; twice after the battles of Beaumont and Sedan, once in Dijon; all these patients died; two, as I believe, principally in consequence of bedsores." And, as a reason for the fatal issue of most of the cases which had submitted to excision of the hip-joint during the late war, he notices the impossibility of bestowing upon the sufferers that care which is necessary after such an operation. "As long," he says, "as we are not able to put these patients on good beds, in order to place the limb in proper position, we dare not expect success." "No excision," he continues, "in fact, scarcely an operation exists which requires such care and unwearied patience in the after-treatment as excision of the hip-joint. The excised joint must be kept at rest, and the patient must be so laid that the wound at the hip is not pressed and the surgeon can have free access to it; that the dressing and cleansing of the same may be accomplished without moving the patient."

Dr. G. A. Otis, of the American army, in his valuable classical work on *Wounds of the Hip-Joint*, observes that, though the method of operating in excision is important, it is far less essential than the after-treatment.

Baron von Langenbeck, in remarking on the difficulties in the after-treatment in military surgery, says: "To preserve a comfortable position for the patient, to prevent the occurrence of decubitus, and to enable us to give proper attention to the wound, bedsteads and the best mattresses are necessary."

Keeping such observations in view, and bearing in mind that the results of exarticulation at the hip-joint for gunshot-wounds have been very unsatisfactory, and that the best prospects of saving life after such injuries rest between conservative treatment and the operation of excision, for the success of which much depends on the after-treatment, one feels bound, when an opportunity offers, to try to devise some method whereby more happy results may be brought about.

On a recent occasion, I had under my care a case of disease of the hip-joint, for which I performed excision, and for which I designed a stretcher and bed for the after-treatment, as represented in the illustrations 1, 2, and 3,* which answered most satisfactorily, and which, with a little ingenuity, might be extemporised on service in the field.

* Illustrations Nos. 1, 2, and 3, are from drawings kindly taken by Professor J. D. Macdonald, F.R.S., R.N.

The stretcher (Fig. 1) consists of a substantial beech or ash frame with handles, and of such a size that, when placed on the mattress, the woodwork falls over its sides, and does not come in the way of the patient's arms or hands of the attendants.

Fig. 1.

The canvas bottom is divided into five portions; the three centre are six or eight inches wide; these are attached to the framework on one side by means of straps and studs, and on the other by straps and buckles, by which they may be pulled tight. They are removable at will, and enable the surgeon or attendant to dress the wound when the stretcher has been raised. The canvas at the top and bottom of the stretcher may be secured by cords or straps and buckles, so as to admit of being removed for cleaning. Two movable tressels have to be made for the stretcher to be placed upon when necessary.

The advantages which this stretcher possesses are that, from the moment the patient is placed on it, he need not be disturbed, as by simply raising it, placing it on the tressels, and removing one of the strips of canvas, the wounds may be dressed and excreta removed. The patient may be carried from one room to another or into the open air without the least disturbance; and, in the event of there being a bed sore, the stretcher may be placed on tressels for a short time and the parts relieved from pressure.

The Bed speaks for itself, as represented in Fig. 2, the chief features

Fig. 2.

in it being the firm foundation for the mattresses by having the bedstead boarded. The top mattress is divided into three portions, the centre one of which has a round hole ten inches in diameter in its centre, into which the patient's nates fit. This centre piece may be removed to facilitate dressing, as represented in the illustration.

Fig. 3 represents a crossbar arranged with straps and buckles at each

Fig. 3.

end, intended to insert between the sides of the stretcher, so as to prevent their bowing inwards when the straps attached to the canvas are pulled tight. It may be brought into use by gently moving the head portion of the top mattress, so as to allow of its being inserted underneath the stretcher.

Great difficulty has always been experienced in lifting a patient with excision of the hip-joint, and numerous contrivances have been invented for that purpose, which, no doubt, in the hands of their respective inventors, were found to be efficient. In the late exhibition held at Brussels, there was a large collection of such contrivances; but, in some, I observed much complicated machinery; in others, the canvas bottoms, when lifted, resembled loosely suspended hammocks; some,

again, had no means for allowing the surgeon to dress the wound; while a few were fixtures or cumbersome, and only capable of being used in the patient's room. I also observed, in many instances, that the details with respect to the position and arrangements for straps and buckles would be found quite impracticable when brought into actual use.

To Mr. J. Croft the profession is indebted for a most useful stretcher (see BRITISH MEDICAL JOURNAL of September 19th, 1874, p. 383), which, in a case of excision under his own care, he found satisfactory, but which I have modified to a considerable extent to suit the general requirements.

Numerous splints for the after-treatment of excision of the hip-joint have been designed by some of the most distinguished, practical, and thoughtful surgeons; but, when one comes to consider them, and see them used, one cannot but think that, if any means could be designed to do away with such instruments of apparent restraint, it would be as great a boon as that of inventing a convenient mattress, as already referred to. Such ingenious splints only prove the difficulties surgeons have to contend with in endeavouring to bring their cases to successful issue. I allude to the wire breeches of Dr. L. Sayre, the counter-extension socket and side-splint of Sir W. Fergusson, Mr. Erichsen's bracket-splint (a modification of Fergusson's), Professor Esmarch's plaster of Paris bandage for slinging both legs, Dr. N. R. Smith's wire splints for suspending the limbs, Professor Volkmann's rack, and Mr. Croft's splint attached by a bracket to the opposite side.

The above remarks are made with all due deference to the inventors, whose appliances have been recognised as having many advantages; but is the restraint exercised by them necessary? Would it not be advisable to try to dispense with it, and adopt the same measures which the late Dr. Stromeyer recommended for the conservative treatment of gunshot fractures of the thigh, *i.e.*, "do not irritate the muscles by straining them by mechanical contrivances, keep the limb a little at rest, like the hand of an assistant, by means of a light suspension-weight?" "Our first object," he says, "is to save a man's life, and the second is to make him comfortable, but not in the grave."

In the case I am about to detail, I was unable to apply a straight splint, and, by a very simple means as regards the arrangement of the top mattress, sand-bags, a weight and pulley, extension and counter-extension were kept up, and the limb maintained at rest in a proper position, with excellent results. It does not, however, follow that I should again be so fortunate; but it may be an inducement to others to try the same means which, in some respects, have been advocated by Dr. Buck and other American surgeons.

The subject of the case was an officer in the Royal Scots, aged 40. During the Crimean campaign, 1855, he suffered from great exposure, and, on one occasion, after sleeping on wet ground, incipient disease of the right hip-joint became apparent. From these symptoms he appears to have been relieved; but subsequently superficial necrosis of the upper third of the shaft of the femur set in, and a considerable portion of exfoliated bone was removed, leaving a large cicatrix on the outside of the thigh. He returned to his regiment, served in China, the Mediterranean, and India respectively, until 1875. When in the latter command, after great exertion, he became incapacitated for duty, on account of lameness and intense pain in the right hip-joint. He was then invalided to Netley Hospital, where he arrived in August.

Perfect rest was now enforced, under which he greatly improved; but, in March 1876, after a severe rigor, a large abscess formed in the neighbourhood of the joint; on this being evacuated and the finger passed into its cavity, the head of the femur was found denuded of cartilage and resting on the dorsum ilii.

Excision of the head of the bone being the only prospect of saving his life, I performed that operation on March 30th, by a vertical incision of about nine inches in length behind the great trochanter, the bone being sawn through immediately above the lesser trochanter. The portion of bone removed is shown in Fig. 4 (natural size). The operation having been completed, I applied to the opposite thigh the socket of Sir William Fergusson for counterextension; but, on attempting to arrange the bracket-splint of Mr. Erichsen, I found it impossible, as the knee had been so long flexed, that it had become fixed and a straight splint could not be applied. This method of extension and counterextension had, therefore, to be abandoned. The patient, already very weak, was now almost completely exhausted; in fact, but little vitality remained, and for several hours it was doubtful if he would ever rally. With a view, therefore, to as little disturbance as possible, and to try and restore animation, I placed the limb on McIntyre's double inclined plane well padded, in which it remained for two days. On the third day, he had fairly rallied, but expressed himself as feeling most uncomfortable, due to the arrangement of the bed, which consisted of two hair-mattresses, on the top of which was placed the stretcher. To relieve this discomfort, which, he said, con-

sisted in a feeling as if he rested on the back of his head, left nates, and heel, I raised the stretcher and replaced the top mattress by one having a round hole ten inches in diameter cut in its centre. The stretcher being replaced and the centre strip of canvas loosened, his nates

Fig. 4.

fitted into this hole, which removed all pressure from his sacrum, on which a large bedsore had formed during the two days of his great prostration. The comfort of this arrangement was indescribable; but then came the question of extension of the limb; this I effected by a four-pound weight attached to the foot and suspended over a pulley adapted to an upright fixed in the floor at the bottom of the bed. The limb was supported by sand-bags, and the nates fitting into the hole in the mattress formed, as it were, *the point for counter-extension*.

From this time forward, he steadily improved. By means of the stretcher, he was raised from the bed, the wound dressed as well as the bedsore, sheets rearranged, the necessary utensils made use of, mattresses removed and aired, and his position in the hospital or his room altered.

On May 1st, extension was discontinued and the limb simply supported by sand-bags. On the 21st, he was able to move the limb slightly. On July 10th, the stretcher was shifted from under him for the first time, and, with a little help, he turned both legs out of bed. On the 26th, he commenced to walk with crutches, in which he daily improved. The great cavity left by the wound of operation steadily healed from the bottom, being simply dressed with carbolised oil morning and evening.

His convalescence was materially retarded by the old wound from the necrosis of the femur reopening, apparently in consequence of a piece of bone being set free.

The limb (ten months after the operation) is about two inches shorter than the sound one; but this great difference is in some measure due to the knee being still slightly flexed. There is no pain in or about the seat of operation. When he stands erect, he can lateralise and rotate the limb for several inches; and, with the aid of crutches, he can walk up and down stairs.

During the course of treatment, he complained of severe pain in the inside of the knee, which was invariably relieved when extension was being applied by taking care that it was in the axis of the leg, and not forcing the knee towards a straight position.

NOTE ON GOUT.

By G. OWEN REES, M.D., F.R.C.P., F.R.S.,
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NOTWITHSTANDING all that has been written and said concerning gout, we still find our knowledge of its pathology most uncertain, and the views of our modern authors differing in a remarkable manner. Having lately perused a valuable lecture by Sir James Paget on what he terms gouty phlebitis, I have been reminded of many facts and views observed and considered by me for years past, and these have proved of more interest since reading that lecture, and I have become the more inclined to entertain the belief that the phenomena of the acute gouty paroxysm are best explained on the theory that the disease is essentially a capillary phlebitis, the venous inflammation being caused by the circulation of a blood-poison.

The comments made by our best known authors on gout, when alluding to the works of their brother-labourers, show that serious objections exist against the reception of any theory yet propounded in explanation of the acute attack. Thus, while Dr. Garrod believes that the presence of uric acid in the blood constitutes gout, and that the effusion of urate of soda is the proximate cause of the fit, we find, on the other hand, that Dr. Gairdner gives reasons for altogether doubting the correctness of that view, stating that Dr. Garrod's theory "not only does not explain the symptoms, but is absolutely contradicted by them".

When considering the opposing opinions of authors, it has often struck me that there must be some condition necessary to the production of gout other than the presence of urinary constituents in the blood, while it must still be admitted that such contamination plays a considerable part in the causation of the disease. We cannot doubt that, before an attack of gout occurs, the blood always contains an excess of uric acid. This, Dr. Garrod maintains, produces the attack by depositing as urate of soda in the tissues. Dr. Gairdner argues that, if it be so, the inflammatory symptoms ought only to set in when the effusion of material takes place, whereas the severe pain and vascular excitement appear *before* the swelling takes place and subside immediately on its appearing.

These litigants, however, cannot but agree upon one point; viz., that there is an excess of uric acid in the blood, though they differ so materially in regard to the effects attributable to its presence.

Now, we know that animal poisons of obscure character are occasionally produced in the blood, and cause inflammation of the veins among other evils. Is it not probable that, in gout, the blood, charged with urinary material, becomes so changed, that a poison is elaborated which inflames the venous capillaries? Sir James Paget has shown that the larger venous trunks are especially prone to disease in gouty persons. If so with the larger trunks, why not so with the capillaries?

The phenomena of the gouty seizure may, I think, be more satisfactorily explained on this theory than upon any other. The disease thus beginning in the elaboration of a poison from the urinary materials found in the blood, the venous capillaries inflame as a consequence; severe pain is experienced, which is relieved immediately when effusion and swelling occur.

Dr. Gairdner's views have especial reference to the veins, but he does not believe in any poisonous influence nor in the phlebotic state. He considers, however, that the "real seat and cause of the painful phenomena of gout" is in the distended venous capillaries, and he accounts for this distension as follows. "This fluid (the venous blood) is compressed between two opposing forces, that, namely, which is derived from the heart and arterial system, urging it forward on its course, and, on the other hand, the antagonistic resistance of the great veins leading to the right auricle." This position is attacked by Dr. Garrod, who states that the general state of vascular plethora is by no means always present, and its absence is observed in spare subjects and in those who strongly inherit the disease. This objection seems well founded.

If we assume, however, that venous inflammation is present, then, of course, we can explain the condition of the larger veins of the limb, which, thus affected by poison, will not be able to propel the venous current, and will become distended and remain so till the poison is eliminated or destroyed.

It seems certain that, when urinary matters are retained in the blood, very different poisons may be formed, owing to some varying causes of which we know but little. Thus, in Bright's disease, the blood becomes so contaminated, but the effects, as is well known, are very different from those of the gouty seizure. The poison produced is of quite a different kind, its most distinctive character being shown in its powerful action on the brain and in the production of convulsive action.