spots; I cannot say that this obliteration was quite complete, because it was possible, by a close inspection, to see where they had been. They had much shrunk in size, and this shrinking appeared to me to be produced by a kind of lateral compression, as if the surrounding healthy tissues had encroached upon the spots so that they ceased to be a disfigurement. Thus we really have three distinct stages in this curious and rare disease; first, a hypertrophic stage, which is well marked; secondly, an atrophic stage, which is the only one usually described; and thirdly, a stage of contraction or obliteration.

A very interesting question arises as to the nature of these maculae atrophicæ. Kaposi places them among the partial idiopathic atrophies of the cutis, and seems to overlook altogether the early stage of the disease that I have here described. We have no more right to regard them as simple atrophies of the cutis than we have so to regard many forms of scleroderma, unless it be contended that as atrophy is only occasional in scleroderma, and invariable (if it be so) in striæ and maculae atrophicæ, therefore they may with more propriety be regarded as local idiopathic atrophies. Be that as it may, there is a hypertrophic stage, which I have described above, and which precedes any atrophic change whatever, and leads one to look upon this disease as closely allied to scleroderma. This view is confirmed by the fact that striæ atrophicæ have been observed in several instances coincidently with morphea and scleriosis.

THE POSITION OF REST IN FATIGUE AND IN PAIN.*

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THE importance will readily be acknowledged of everything which helps to define the principles on which *rest*—physiological or mechanical—should be applied to the treatment of disease.

Passing by other points (for instance, the discrimination between inactivity too prolonged or too complete, and necessary or desirable rest), it has seemed to me that, as this latter can in many cases be obtained only by completely fixing limbs for the time in one position, it is worthy of inquiry—What is the position in which the various parts of the body are most at rest? and, What are the laws which determine it?

It may, I think, be laid down as a rule that the position which limbs assume, when from any cause in pain, is essentially the same as that which is sooner or later assumed when in a state of rest from fatigue.

A man may "stretch his wearied limbs" for a short time, but he never retains them for long in a stretched position; by-and-bye they are drawn into one similar to that assumed when in pain, as a rule immediately on the pain accruing; for although, on a blow being struck over a muscle, the first movement may be to put that muscle in a state of relaxation, this is temporary only. Sooner or later, a limb in pain, as in fatigue, seeks what I call the *position of rest*—more marked in joint-disease, and especially in disease of the hip, but essentially the same. Briefly, it may be said that the arm falls to the side, the forearm is flexed and pronated, the hand in a line with it, and the fingers bent, but the index and thumb less so than the others; the thigh is flexed and rotated inwards, the knee bent, the foot tending towards the line of the leg, the great toe a little extended, the others rather contracted; and these rules hold good for parts of limbs left after amputation, at whatever point divided.

It has appeared to me probable that these constant positions, set up on the operation of different exciting causes, would have an explanation common to all. None that I know of has been given, as far as relates to pain generally, or to fatigue; but Mr. Hilton thus explains why an inflamed joint is flexed: "That the irritated or inflamed condition of the interior of the joint, involving the whole of the *articular nerves*, excites a corresponding condition of irritation in the same nervous trunks which supply both sets of muscles, extensors and flexors; but that the flexors, by virtue of their superior strength, compel the limb to obey them, and so force the joint into its flexed condition." (*Rest and Pain*, page 150.) Further on (page 157), he explains an exception in the case of the wrist, which when inflamed is straight, "in consequence of the flexing and extending forces being pretty equally balanced". So also the relatively less flexion of the thumb and forefinger, when the joints are inflamed, as compared to the other fingers. But this, even if otherwise satisfactory, involves no explanation of the position, when assumed as a consequence of pain from causes other than joint disease, or as a relief to fatigue; and I presume to offer an opinion that the real explanation of *all* is simply this:

That the limbs seek a position in which the parts of them are in a state of least tension and of least pressure; as skin and muscle have a property of ready adjustment, while ligaments have not, so, to obtain this, which I call the position of rest, it is necessary that the joints should be in such position that none of the ligaments are on the stretch, that is, somewhere about a mean between the ranges of easy motion.

This, then, I believe to be the principal element in determining the position of rest, though no doubt it is essential, too, that the articular surfaces should be in the position best adapted for each other. To me it is a readier explanation of the difference between the wrist and the elbow or knee; the wrist allows flexion and extension beyond the straight line; the position of rest, therefore, is neither, or straight: while the elbow and knee range in motion between extreme flexion and the straight line; the position of rest, therefore, is moderate flexion. It accords, too, with my statement that the position, essentially the same as in pain from other causes and in fatigue, is more marked in joint-disease.

To object, as I have heard done, that the ligaments are not sensitive, seems to me like arguing that to pull the hair of the scalp cannot cause irritation, because hair has no sensibility. Tension of any structure is never long tolerated.

Mr. Hilton (*op. cit.*, page 150) lays great stress upon the anatomical fact that "The same trunks of nerves, whose branches supply the groups of muscles moving a joint, furnish also a distribution of nerves to the skin over the insertions of the same muscles; and, what at this moment more especially merits our attention, the interior of the joint receives its nerves from the same source." On this he remarks: "This implies an accurate and consentaneous physiological harmony in these various co-operating structures." Exactly so, but this is just what I insist on; the muscles, as the motor agency—some contracting, some relaxing—put the limb in a state of rest, a state of the least tension, which I would suggest as more like an "accurate consentaneous physiological harmony between co-operating structures" than would be the excitement of an unequal contest between flexor and extensor muscles, leading to the inevitable victory of the one, and inducing a position which, Mr. Hilton says, ought at once to be changed. I am referring to the first passage I quoted (*ante*) and also to page 155, where he lays it down, as seeming to him, "that it is a great mistake on the part of professional men, when they see an inflamed knee or other joint beginning to be contracted or flexed, not to correct it at once".

On page 153, the "mischievous assiduity" of the flexors is spoken of; and again (page 152): "The muscles, indeed, appear to be told, through the medium of the nerves of the interior of the joint, that its articular surfaces are overtaxed; and, the antagonistic muscular forces of the joint being involuntarily excited, the joint is at once rendered rigid and stiff, for the purpose of keeping it at rest."

Let us now inquire what is the effect of irritation of a portion of skin upon muscles which are supplied by nerves from the same trunk as those supplying the skin. The musculo-spiral, which is an example given by Mr. Hilton, is a good test. Let the outside of the forearm be bitten by a dog, or torn, or burnt: does the injury excite contraction of the supinator-extensor group of muscles which are alone supplied from the same nerve? Do we see patients, under such circumstances, with the arm in any other position than that which I call the position of rest? I think not. I can understand this on the principle of "harmony between co-operating structures", but not on the ground of the pronator-flexor group being the stronger. In the first place, there is nothing in the injury to excite these muscles to action; secondly, I cannot see how this group can be the stronger, unless we are to believe that a carpenter would drive a screw with greater force if the thread were reversed.

Again, if there have been an amputation below the elbow, the stump is drawn up, flexed. Is this because the biceps and brachialis anticus are stronger than the triceps? I do not think they are stronger; but further, the biceps is a powerful supinator, uninjured by the operation, yet the stump is always prone rather than supine.

It does so happen that there is one flexor muscle which, beyond all question, is stronger than its corresponding extensor: the flexor longus pollicis pedis; yet the great toe, at rest, or when a joint is inflamed, is always extended, never flexed. Moreover, to say that flexors are always stronger than extensors, is directly opposed to the teaching of Carpenter's *Physiology*, that "the extensors of the leg upon the thigh are much more powerful than the flexors, a character which is peculiar to man". We know the enormous strength of the extensor cruris in voluntary and involuntary action; but, upon what facts can it be asserted that the flexors are even stronger? I know of none.

I have felt it to be no light matter to differ from one of the great masters of surgery on a subject which he has made his own; but the opinions, which, to me, have at present the force of convictions, I am bound to express with no uncertain sound, or it would be vain to hope

* Read before the Gloucestershire Branch.

for the free criticism I am now seeking. At any rate, I have endeavoured to look at the subject from every point of view. I had sought, in the first instance, for an explanation in some type of position of limbs in animals generally, towards which in rest they might revert. I had noticed that the position of all the limbs in a state of rest is a falling back towards the typical position in other mammalian animals; but one could only dismiss this as a curious circumstance, having no practical value. The question has, however, its practical side. Let us deal with it as affecting particular joints in disease.

First, as to the hip: One of the first symptoms of disease is a flattening of the nates, in other words, a wasting of the glutei, of which I would offer the following explanation: That the muscles are "told" of something wrong in the joint, and the glutei, so far from being excited to act, are led to remain quiet, wasting in consequence. The reason of this seems clear; for, if it be true that the commencement of hip-disease is almost invariably in the ligamentum teres, anything which causes this ligament to be stretched must be injurious. Now, the muscles which would do this, by drawing the limb outwards, *relax*; those which flex and draw it inwards, *contract*; and tension of the ligament is removed; "*harmony* between the co-operating structures". It will be noticed, too, that another great ligament of the hip-joint is by this means made comparatively tense: this, the ilio-femoral, is relaxed when the thigh is flexed and everted, which is exactly what occurs when effusion into the joint stretches it.

The usual treatment of hip-disease is at once to put the limb straight, and so make the ligamentum teres comparatively tense; but the indication which I should deduce from the considerations set forth would be, *to give the joint all the benefit of extension, both as regards steadiness, and relief of interarticular pressure, without changing it from the position of rest*; and this may readily be done by extension from the knee, obliquely upwards and diagonally across the bed, a treatment which is actually recommended as a temporary measure when the limb cannot at once be put straight.

Mr. Hilton argues (pages 149-150), that the flexed position is not the easiest, because, in hip-disease, "when the femur is put straight and the flexed position is destroyed, the patient from that time is free from pain". Not "from that time", I should say, though it soon becomes less painful, provided means are adapted to fix the limb quite still, and further to relieve interarticular pressure; but surely it is not fair to contrast this with the limb left all to itself in its previous position. Further, it may be said that stretching of ligament, provided it be continuous, soon ceases to cause pain in any position: Nature has her remedy in absorption of the unyielding element, on a principle applied every day in the treatment of deformities by mechanical means.

The desire, on the part of surgeons, to treat fracture of the thigh in an oblique position, is a very old one; and if it be accepted, that what I describe as such is really *the position of rest*, the desire would be strengthened, as a means of preventing the tendency of the upper fragment to project and as less irksome to the patient.

Again, as regards the knee, though it is less easy to fulfil the conditions of extension while retaining the position of rest, it follows, if my views are right, that it ought to be done. And here let me revert to the old question of flexors and extensors. It seems to me that, given a flexion of the limb as a means of attaining the *position of rest*, it is not necessary to conclude that the flexors are the stronger because of the dislocation which follows. The flexors, in *this position*, draw in the same plane as the opposing surfaces of the bones; while the extensors, with whatever force they draw, so long as the flexors do not relax, can only pull the head of the tibia against the posterior surface of the condyles.

Lastly, as regards the ankle, if for any purpose we wish to maintain a state of complete rest of it, or of the parts around it, for the healing of an ulcer or other purpose, it follows that, looking to the "physiological harmony" of all the parts, the joint itself should be free from tension—should be in a position of rest; but the effect of fixing the foot at right angles to the leg, as is usually done, is to force the wide part of the astragalus between the malleoli and stretch the ligaments which hold them together. A more extended position of the foot with the knee bent is clearly indicated.

It will be observed that I draw my illustrations from the lower limb alone; the fact is, that the joints of the upper one are habitually treated in the position they naturally assume. And when we consider how numerous are the cases in which disease of the hip or knee goes on to destruction of the joint, and that these are the joints which are forcibly fixed in positions most widely differing from the *position of rest*, it would seem to be possible that in our persistent determination to fix limbs in what would be the best position, should ankylosis occur, we may be doing something towards making ankylosis the best result to be hoped for.

CASE OF LARGE PROSTATIC CALCULUS, WITH NATURAL PERFORATION FOR THE URINE: REMOVED BY RECTO-URETHRAL LITHOTOMY, AFTER EXTRACTION OF A PENILE URETHRAL CALCULUS.*

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THE patient was a man aged 54, a native of the Edinburgh district, who came under notice and submitted to operation in the first week of July 1877. Five years previously, he had suffered from difficulty of micturition and other urinary inconvenience, in consequence of which he had entered the Liverpool Royal Infirmary, where an operation was proposed and was on the point of being performed, but was frustrated on account of the fear and sudden departure of the patient. Since that time, he had had repetitions of the old trouble, but not to a severe extent until shortly before the date of the present observations, when he consulted his private medical attendant, Mr. T. W. Evans of Liverpool, who found a stone in his urethra, and sent him to me at the Stanley Hospital.

The penis was thickened, and very much hardened about its middle, and so tender that little examination could be endured. The urethra terminated anteriorly at the margin of the retracted prepuce, where it was wide enough to admit the point of a finger, being, in fact, now but a wide sinus. That part of the urethra which should traverse the glans penis had ceased to exist, owing to sloughing chancres which he had had many years ago in India. There was, moreover, a fistulous perforation of the urethral floor about an inch behind the preputial orifice, of the width of a crow-quill.

Under ether, on July 6th, the penis was explored with forceps, and eventually a triangular stone was removed, less than three-fourths of an inch long, more than half an inch wide, and a quarter of an inch thick. The surfaces were irregular; one concave and the other convex. This stone lay in a space lined with granulations; a wide sinus, bounded by a portion of the urethra and corpus spongiosum.

On passing a sound towards the bladder, it stopped in the prostatic region, and struck a stone or stones. By the finger in the rectum, it was felt that the foreign material was close above the mucous membrane of the roof of the bowel. The prostate felt hard, slightly enlarged, and of the usual shape. The patient was then turned on his side, and the stone cut down upon with a small knife in the middle line of the roof of the rectum; the hole was enlarged forwards and backwards with a blunt-pointed bistoury, after which a calculus with several projecting lobes could be distinctly explored with the finger, but not easily dislodged. However, at last, with the aid of a scoop, the stone was removed.

The patient had a severe rigor shortly after the operation; but, in other respects, he has been very well. The wound was left to take its course. In two or three days, he had a stool. He has complete control over his fæces, and urine when in small quantity; the latter escapes partly by the penis and in part *per anum*.

The treatment adopted was the administration of morphia subcutaneously for the first few days regularly, and afterwards when required. The diet was at first warm sago and water; afterwards bread and other farinaceous stuffs. Throughout, milk has been avoided.

The left testicle, which had years ago been swollen during his attack of syphilis, and which had dwindled down to small dimensions, became the seat of acute inflammation, which at its height was perceptibly relieved by the operation of a single leech. This complication was probably set up a fortnight after the original operation, on an exploration of the penis under ether, undertaken on account of persistent pain and tenderness in the organ, on the supposition that possibly some stone still lay unremoved. It was found, however, that the original operation had in this respect been complete. The case is still in progress, and the recto-prostatic aperture still remains; but I have thought that, in view of the extraordinary size, shape, and general circumstances of the stone concerned, its relation, at even this early period and in this imperfect form, would not be altogether inappropriate to the present occasion.

I have not been able to find any record of a prostatic stone, perforated in this manner and pervading the prostatic substances so completely as this has evidently done. The calculus has the shape of the prostate itself, with the addition of a promontory or spur at one end. Including the spur, the total length is $1\frac{1}{2}$ inches; without it, $1\frac{1}{4}$ inches. The greatest

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