shoulder, after excision. It was our practice to sacrifice diseased or doubtful bone quite freely, following rigidly the subperiosteal method of Ollier. We commenced passive movements on the day following operation, and encouraged attempts at active movement as soon as the swelling or reaction had subsided. We used splints which enabled patients to get up as soon as the effects of the operation had passed off.

Bone.

We have already referred to our experience in dealing with sepsis in bone, and will only mention the subject of mal-union and non-union. In mal-union, where the conditions interfered with the function of the limb, we believed it wise to avoid the lately infected area if there had been extensive or deep sepsis, and to do an osteotomy in a healthy area. In non-union, often with a considerable gap, we employed lateral grafts or medullary pegs. We preferred the medullary peg, taking it from the tibia. This enabled a portion of healthy bone to be placed in firm contact with a vascular area in the affected bone, whereas in a sliding graft bone is being dealt with which is often rarefied by disuse or porous by previous infection. Transplantation of a massive lateral graft, including medulla, gave good results, but it was very difficult to secure a firm apposition. The medullary peg has the advantage of stability.

This paper has mainly dealt with certain points, in investigation and operative treatment, which have appealed to us. We would give a wrong impression of the work did we not mention in conclusion that the after-care of the patient occupied the bulk of our time. In the massage and electrical departments, in the gymnasium and workshops, in organized exercises, sports and amusements, the gradual re-education of function was attempted. It may be interesting to mention that little special equipment was obtained for this work; the adaptation of the material to be found in any hospital met most of our requirements.

The enthusiasm and organizing ability of Lieut.-Colonel C. R. Sylvester Bradley, R.A.M.C., overcame all difficulties, and to him we are indebted for permission to publish this article, based on the practical work in the hospital under his command.

PHYSIOPATHIC PARALYSIS OF THE HAND, AND ITS CAUSATION.

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BABINSKI,¹ who first clearly described the condition, suggested the name of "physiopathic paralysis" for certain anomalous cases of paralysis and contracture of the hand following upon wounds of the upper extremity. The cases are of special neurological interest in that their general characteristics point to a psychological origin, yet, unlike other forms of functional paralysis, they exhibit well-marked organic changes in the tissues.

Clinical Features.

A large number of cases amongst soldiers and war pensioners, recently under my care, have provided material for the following observations, which are chiefly concerned with those features which serve to elucidate the pathology.

Without apparent adequate cause, a wound of the upper limb is followed by loss of power in the hand of the affected side. Neither the situation nor character of the wound bears any relation to the grade of the subsequent paresis; none of the symptoms correspond to the territory of any particular nerve.

The short muscles of the hand and the long flexors are chiefly affected. The muscles are sometimes limp, more often spasmodically contracted, so that the hand assumes various postures; frequently the palm is hollowed and the fingers imbricated one over the other, to form the so-called "accoucheur's hand." The paralysis is usually not complete; feeble movements can be performed in a tremulous or "wagging" manner. The thumb often escapes, so that the hand can meet the needs of a hospital patient or pensioner, though inadequate for any useful purpose.

The sensory symptoms are limited to an uncertain and varying hypo-aesthesia and contortions of apparent pain

on the performance of passive movements. The patients are unduly apprehensive of pain, and are devoid of the normal impulse towards recovery.

The affected muscles waste, often extremely; they exhibit mechanical hyperexcitability; slight electrical changes occur, but the reaction of degeneration is not present. The skin, subcutaneous tissue, and bones share in the atrophy, so that the whole hand appears attenuated and smaller than its fellow. The skin is salmon-pink or cherry-red in colour, with a satin-like sheen around the roots of the nails. Trophic sores do not occur. The nails are curved and longitudinally grooved, sometimes greatly deformed; beneath their free margin a small fold of skin is often visible.

Profuse sweating of the palm is a common and striking feature; and it is of special interest that this symptom is directly influenced by emotion. If the affected hand be unexpectedly seized and examined, the palm may be found normal or slightly moist; if now the hand be made the subject of discourse to bystanders, beads of sweat form upon its palmar surface, until finally a sheet of moisture is formed over the whole palm. The palm of the opposite hand may also become moist, but not to anything like the same extent; meanwhile the rest of the body shows no abnormal sweating. Localized flushing of the affected hand may sometimes be similarly produced.

Cases are sometimes left in massage departments without adequate psychological treatment, so that the natural evolution of the symptoms is undisturbed. Such cases in process of time enter a clearly marked late or secondary stage, in which the profuse sweating, the congestion, and the idio-muscular reflex have disappeared, but the wasting and the paresis persist; the latter is often accentuated by adhesions, and in severe cases by actual distortion of the joints.

The foot may be affected, but this is rare. I have seen five such cases with well-marked trophic changes during the last year. The inverted and hollowed sole and tense tendo Achillis appear to exercise a great attraction for surgeons; three of the five cases, from different parts of the country, had been submitted to tenotomy. In each case operation rendered the condition worse.

Pathology.

Babinski has suggested that the symptoms are reflex phenomena, the peripheral wound supplying an irritative stimulus to a centre in the cord, from which centrifugal impulses pass to the affected member. This view has not, however, been widely accepted in this country; the general features, and especially the rapid and striking improvement which often follows appropriate psychological treatment, have led to the general belief that the symptoms are essentially of psychological origin. The paralysis is thus regarded as hysterical and the trophic changes as merely the result of disuse.²

This explanation, completely adequate for the motor symptoms, is quite insufficient for the trophic changes which constitute the essential distinction between these cases and those of ordinary hysteria. In the first place, many long-standing cases of hysterical paralysis of the hand occur in which the disuse causes no trophic changes at all, or at the most a slight general wasting of the muscles; whereas in physiopathic cases severe trophic changes may occur with considerable rapidity. Again, were it true that the trophic changes were merely the result of disuse, they would become more accentuated the longer the disuse lasted. But this does not occur; on the contrary, in long-standing cases, as mentioned above, the profuse sweating, congestion, and idio-muscular reflex tend to disappear, notwithstanding the persistence of the paralysis. Finally, the physiopathic condition is essentially a war phenomenon; Weir Mitchell noticed similar cases during the American Civil War.³ In civilian hysterical paralysis localized sweating sometimes occurs, and may be regarded as a minor physiopathic manifestation; but severe trophic changes are exceedingly rare.

Some additional factor must therefore be imported by the effects of war, capable of superadding trophic changes in cases of functional paralysis.

Certain general symptoms, occasionally observed in unwounded men during medical inspection behind the line, throw light on the nature of this additional factor. Excessive sweating of a truly remarkable grade was sometimes to be noticed; even in cold weather the sweat

streamed down the upper arm from the axilla, and fell in rapid drops from the elbow to the ground; while the hairy scalp smoked from the warm moisture. Men showing this phenomenon were usually wasted, and a light tap on the pectorals provoked a strong idio-muscular contraction. These symptoms were seen in men going forwards, prepared to do their duty; the higher faculties still retained control of the machine, although the emotional strain of war had clearly produced a disturbance of the sympathetic system with its associated perversion of the internal secretions. The sweating, wasting, and muscular mechanical hyperexcitability thus produced are precisely the prominent symptoms in physiopathic paralysis.

Explanation of Symptoms.

The emotional strain of war induces an increased suggestibility (of which the exact process, conscious or subconscious, is outside the scope of this paper), so that a wound of the upper extremity is readily followed by hysterical paralysis of the hand. If the emotional strain has also brought about the profound disturbance of the sympathetic and internal secretions described above, these will specially affect the paralysed member, the nutrition of which is already lowered by immobilization. Further, since local sweating of the affected hand may be produced by emotion, it is reasonable to assume that other sympathetic impulses governing nutrition may be similarly affected.

In neurasthenia, morbid emotional states are generally credited with the power of causing functional disorders which may ultimately result in organic changes, as for example, in the abdomen. In physiopathic paralysis this process may be watched; and it is of special interest to observe its localization in the member towards which the patient's attention is directed, and which is the focal point of his emotions.

The physiopathic condition may thus be regarded as forming a link between hysteria and neurasthenia. The frequency of its occurrence in war is well explained by the depth of the emotional disturbance which war produces.

Relation to Nerve Lesions.

An irritative nerve lesion, owing to the pain and discomfort it causes, is not infrequently the provoking agent of a physiopathic condition; thus different areas of the same hand may show physiopathic changes side by side with the results of an organic nerve lesion. Such cases are often misunderstood; careful examination, however, readily discriminates the two conditions, the organic irritative lesion being distinguished by such features as the position of the wound, group-wasting, muscular tenderness, trophic sores and desquamation. The colour of the skin in the two areas is also often different. On examining such a hand I have often noticed the physiopathic area profusely bedewed with sweat, whereas the organically affected area remained dry, doubtless owing to the obstruction of the sympathetic impulses.

Treatment.

Psychological treatment by means of explanation, strong encouragement and re-education is the essence of success in dealing with these cases. The removal of the morbid mental state cures the paralysis and simultaneously eliminates the source of the perverted sympathetic impulses which are the cause of the trophic changes, the disappearance of the latter being greatly facilitated by movement and physical therapeutics. Recovery is almost invariable, and relapse is rare. Treatment is rendered noticeably easier by the patient's demobilization from the army.

Conclusion.

The emotional strain of war causes an increased suggestibility, with consequent liability to hysterical paralysis; the same emotional strain may also induce a disturbance of the sympathetic, the circulatory and trophic effects of which show themselves specially in the tissues of the paralysed member, partly on account of its immobility and partly owing to the localizing influence of the patient's emotions. This two-fold effect of hysterical paralysis with severe trophic changes constitutes the physiopathic condition.

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SOME REMARKS UPON SYPHILIS, MORE ESPECIALLY INHERITED SYPHILIS.

BY

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SIR JONATHAN HUTCHINSON said that "thousands of men marry at or about the end of two years after having had primary syphilis, and many at much shorter periods, yet the instances of communication to their wives or children are but infrequent." With this statement I cannot agree. I have for many years watched the children of men whom I have known to have had syphilis, and in almost every case a serious defect of some kind has shown itself in their children; this is true in cases where the parents were carefully treated, some for as long as five years, and more than one by Sir Jonathan Hutchinson himself. The usual manifestations of inherited syphilis are well known, but I wish to make special mention of certain diseases which are not generally recognized as due to this cause.

Nervous Diseases.—I think the large majority of cases of epilepsy occurring in the young are due to syphilis either in the parent or in the grandparent. Epilepsy occurs most commonly in infancy and at puberty. Recurring "convulsions" in infants are usually epileptic and may be cured by a course of mercury; I usually rely on hyd. cum creta (gr. $\frac{1}{2}$ to 1 ter die), or inunction with ung. hydrargyri fort. Epilepsy beginning later is curable, provided the disease be at once treated with mercury; but when such cases are left untreated for a few years cure is less certain and treatment has often to be carried out for two years or more. For adults, and even for older children, I nearly always prescribe mercury perchloride, which I prefer to the green or red iodide, because, in contrast with the iodides, I have never known it to produce salivation, although continued for many months, or even years.

As an illustration I mention the case of a girl of 15, who suffered from large lymphadenomata on both sides of the neck, that on the left side beginning later in spite of a course of treatment by potassium iodide in large doses. This patient was given mercury perchloride gr. $\frac{1}{2}$ ter die, increased gradually to gr. $\frac{1}{2}$ ter die. The treatment lasted for over seven years without intermission, and there was never the slightest sign of salivation; the tumours almost completely disappeared. In this case the father denied having had syphilis, but he died at the age of 84 in an asylum, and had Argyll Robertson pupils. This girl at 42 is still well and has had no recurrence.

For epilepsy occurring in later life similar treatment is invaluable. The following case is instructive:

A man of 65 began to have epileptic fits, which occurred during a period of some weeks. He admitted having had syphilis when 23 years old. He was treated with mercury perchloride, and his fits soon disappeared. He died from spastic paraplegia at the age of 77.

I am acquainted with many cases in which one or more children of syphilitic fathers developed epilepsy at puberty, and were cured by courses of treatment by mercury. I know of two or three cases of optic neuritis occurring in adults whose fathers were syphilitic.

One of these was treated by an eminent oculist, but did not receive mercury. His father sent him to Pagenstecher, who took him into his house for a few weeks and cured him by rubbing in mercurial ointment.

Another youth, who had well-marked syphilitic teeth, otitis media, and interstitial keratitis, was treated by oculists for nearly two years, being given potassium iodide and ten drops of liq. hydrargyri perchloridi (that is, gr. $\frac{1}{2}$ ter die). Pagenstecher cured him in a month by mercurial inunction.

The following is a remarkable case, showing, I believe, the effects of syphilis on the third generation.

A girl of 24 consulted me for spastic paraplegia with weakness of the arms and affection of the eyesight. Her grandfather and grandmother died between 50 and 60 years of age from tabes dorsalis and apoplexy respectively. Her father, who denied having contracted syphilis, was nervous and short-sighted; he had had an attack of unconsciousness lasting for a week (he died from carcinoma of the caecum subsequently to his daughter's illness). Treatment of the patient by mercuric perchloride led to very striking recovery of the eyesight and arms; the legs did not improve.