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LATE REHABILITATION OF THE INJURED

A SURVEY OF SEVEN YEARS' EXPERIENCE IN AN INDUSTRIAL CLINIC

BY

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Informed opinion is agreed that rehabilitation of the injured is inseparable from early treatment of the original trauma, and the importance of this was adequately stressed in the Delevingne Report of 1936 (*British Medical Journal*, 1937, 1, 1218; 1939, 2, 417, 461). Since time must elapse, however, before the changes recommended in such a report are generally accepted, some measure of compromise is necessary to encourage further progress, and the work of the Lanarkshire Orthopaedic Association is an attempt to improve some of the existing anomalies. The following report is a survey in narrative of the work of this association to date.

Before the present war, regional hospital service in Scotland had not developed to the same extent as in England, and thus it happened that the large industrial county of Lanarkshire, where coal-mining constitutes a major source of employment, depended mainly on Glasgow for all hospital and out-patient treatment. Trauma is a common occurrence in the mining industry, and as a result of this there were accumulating an increasing number of patients who had recovered in part from their original trauma but who were still scarcely well enough to return to their previous occupation. This raised among medical practitioners the question of providing a centre in the county where provision might be made for further treatment of these cases.

Following on a number of preliminary meetings with representatives of all those interested in the problem, an Orthopaedic Association was formed in 1935 with an Executive Committee consisting of six members of the body known as the Lanarkshire Medical Practitioners' Union, three members of the Coalmasters' Association, and three members of the Mineworkers' Union. It was agreed that maintenance costs should be borne equally by the mineworkers and coalmasters, and that a grant towards equipment should be made by the Miners' Welfare Committee. The problem of travelling expenses for patients attending the clinic necessarily arose, and this difficulty was overcome by the coalmasters making a grant to cover these.

The first session of the clinic was held in May, 1935, at Motherwell, a central town providing easy access by rail and road from all the surrounding mining areas. Accommodation was provided in the out-patient premises of the County Fever Hospital, whose x-ray facilities were placed at the service of the clinic. In the course of the first two years three further treatment centres were opened in welfare institutes adjacent to the main industrial centres.

The Ideal Aimed At.—At the beginning of the experiment it was stressed that the objective was the segregation of all injured employees at the earliest possible time. Unity of control throughout the period of treatment, and until full working capacity, or maximum improvement was obtained, was highly

desirable; but, since hospital facilities were not at present available locally, it was indicated that an attempt would be made to deal with that group of patients comprising the late stages of trauma.

Staff and Equipment

An orthopaedic surgeon controls the activities of the clinic and has the right to refuse treatment where this is unlikely to further the progress of the patient. In a clinic of this nature such a mandate is important, as otherwise patients who are out of work might be apt to look on the clinic as a club centre and thus falsify statistics, or at least give an untrue picture of the position. Treatment is carried out by an orthopaedic sister who is also a qualified masseuse. During the past year a secretary and a liaison officer have been added to the staff. The duties of the liaison officer are referred to later.

On the surgeon's recommendation it was originally decided to equip the clinic with simple radiant-heat baths and to add apparatus as circumstances demanded. The wisdom of this decision has been amply demonstrated in practice, for, apart from a heavy rowing-machine and plinths, all other apparatus has been devised from simple ropes, pulleys, and sandbags. In treating this type of patient the essential requirement is a well-trained orthopaedic sister, with personality and patience rather than an academic knowledge of electro-magnetism.

Working of the Clinic

There was some antagonism to the scheme in its early months, for the workman tended to view it as an attempt to coerce him to return to his labour, and the surgeon was apt to appear to him as an ally of the compensation authorities. At first there were many prolonged and heated arguments related to these points, but gradually the clinic came to be accepted purely as a treatment centre which had no aim beyond that of aiding and perhaps accelerating the return of the patient to full physical well-being. Two principles have been adhered to throughout and have helped to win the confidence of the patient. First, the surgeon's record cards are private, and the only progress notes sent out are dispatched direct to the patient's own doctor. Secondly, no medical reports are made by the surgeon on behalf of either patient or employer. This I believe to be an indispensable rule in the working of this type of clinic; otherwise, the possible appearance in the law courts of the surgeon in charge tends to create a suspicion of bias and invalidates the usefulness of the clinic as a purely therapeutic centre. Personal experience has shown that this has encouraged the patients to be frank in stating their views, their fears, and their grievances, so that they often seek advice before coming to a decision in respect of the particular difficulties of their problem. From this factor has emerged a social aspect to the problem of those injured in industry which, in the view of many of those concerned, is being inadequately dealt with.

Type of Patient

It is unusual to see a patient who has not been under treatment elsewhere for some time. The period varies in the case of a soft-tissue injury from a few days to six months, and in the case of a fracture from months to years. In most instances no notes of previous treatment accompany the patient, and previous records are often difficult to obtain and frequently incomplete. A considerable number of patients not inaptly illustrate the expression "broken men."

The great proportion of patients are in receipt of compensation, although some are receiving national health insurance benefit. In the past two years there has been an increase in the number of patients seeking treatment while still attending their work, and there has been a tendency to refer minor injuries at an earlier date, but, on the whole, the bulk of the patients conform to the comprehensive title suggested above.

In the early months of the clinic's activity attempts were made to tackle the problem of providing "light work" in the mining industry, and in 1937 the Executive Committee finally agreed to a formula of occupational therapy in the form of "alternative work." The mineworkers stipulated that this work should not include such duties as those at present performed by the aged or by young boys, but should consist of some alternative duty specially provided. Agreement was reached by deciding "that in any instance where the surgeon considered that the patient would benefit from alternative work, then suitable duties should be provided at the rate of 25s. per week in addition to patient's compensation allowance, based on the earning capacity of 25s. per week." It was made a condition that this should not prejudice the patient if any later disagreement occurred regarding his physical fitness and where an appeal was made to the medical referee.

In practice this scheme was difficult to administer, as its hope of success lay in the full co-operation of everyone concerned, and it became clear that the presence of a liaison officer, to act as an intermediary in the home and at the pit-head, was necessary.

Social Service and the Liaison Officer

Experience of the valuable work which a trained almoner was accomplishing in an orthopaedic and fracture clinic to which I am attached pointed the way to a solution of many problems. As the patient gained confidence in the clinic workers he occasionally revealed problems of his private life which were greatly aggravating his physical burdens, and the advantages to be gained from the services of a trained almoner were placed before the committee. The suggestion of such an appointment did not meet with whole-hearted approval, the main opposition coming from the miners' representatives, who feared that such an arrangement would interfere with the liberty of the men and the privacy of their homes. In 1940, however, it was agreed to allow a trained almoner to work under the direction of the surgeon for a probationary period of six months. Her duties consisted in visiting the home of each patient, where her help in solving domestic burdens in cases of family illness, in arranging holiday convalescence, and in obtaining suitable training for younger members of the family earned general gratitude.

Contact was made with the unemployment bureau, with the industrial firms in the county, and more particularly with the various colliery managers. This personal approach has done a great deal to enlist sympathy and help. In the colliery, special work was arranged for 14 recommended cases in the first few months. Graduated duties were also arranged for many patients so that they might accustom themselves to the routine of their previous work. Similarly, where wet workings were often responsible for broken time in cases of the "rheumatic diathesis," arrangements were made to give recommended cases more favourable working conditions. In the past year 87 employees have benefited by this arrangement. Many relatively trivial matters were also dealt with, and the action taken has promoted a better mutual understanding of real or apparent grievances.

Recently, the emergence of the Government Training Scheme has opened up a wide field of possibilities for dealing with many of the problems of late rehabilitation, but the personal

approach of the liaison officer to industrial concerns in the county has up till now yielded more immediate results.

Clinical Conditions

The complaint is usually one of pain, swelling, deformity, or stiffness related to the limbs or trunk. The proportion of soft-tissue injuries is greater than that of fractures, and by the time the patients are first seen healing of bone is almost invariably established.

Recently a card index has been prepared so that a more accurate statistical record may be made, but this is only due to be brought into operation now. It is based on the punch record system. The back of the card is reserved for treatment and progress notes.

Trauma and Arthritis.—In injuries affecting the muscle-joint system signs of arthritis are often detected clinically and radiologically, especially in the knee, hip, and spine. Radiological evidence of arthritis is very uncommon in the shoulder-joint proper even where clinical evidence is unmistakable, but irregularity of the acromio-clavicular joint is not unusual. Indications of arthritic change in other parts of the muscle-joint system are the rule even although these have remained symptomless to date. During routine examination clinical evidence of arthritis is sometimes detected in relatively young miners without any previous disability having occurred, and it is clear that this factor will predispose to joint injury and incapacity. The working conditions of cramped posture, damp, and repeated minimal traumata are all accepted factors predisposing to osteo-arthritis, and this relation of trauma to arthritis is an ever-present one in the mining industry. Spinal injuries due to twist or strain are notoriously common, and here again underlying arthritic changes which have been present over years of work in the mines are usually evident. The superimposed trauma is literally the "last straw," and the result is prolonged incapacity.

Age.—Tissues show the usual evidence of wear and tear from arduous work in the mines, but age in actual years plays little part in deciding working conditions for the individual. Not infrequently men between 60 and 70 are still actively engaged in work at the coal face, and although it is obvious that they are becoming more liable to injury it often requires some "accident" to bring about their retirement from labour. Frequently we see youths and young adults who are quite unsuitable for working conditions below ground and who are heading for early invalidism unless transferred to more suitable surroundings. Their attendance at the clinic is due to their working at a strain quite beyond their physical capacity.

Mental Attitude.—As a group the mining community is not nervous, though a few individuals have had their confidence shaken by imprisonment under falls from the roof and will not be fit for duty again if this necessitates return to their previous environs. On the whole they accept the discomforts of work with little complaint, but when faced with injury are unyielding in their demands for retribution. They are keen on any hazard, and thus are tempted to gamble with the "lump sum" settlement. Their generosity to an injured colleague is common knowledge: we had a recent example of this when a group on pay-day subscribed enough to purchase the "best artificial limb" for a disabled colleague rather than delay until "Charitable Boards" came to a decision.

Treatment

Experience at this clinic has shown the importance of the social aspect of rehabilitation of those injured in industry, and in my opinion it should form an integral part of any comprehensive scheme. A change of environment was desirable in many of the patients examined, and this was arranged by encouraging a greater use of the facilities existing in the Miners' Convalescent Home. It entailed a break in continuity of treatment at the clinic; but the patients were never away for longer periods than 7 to 14 days, and the occasion was thus used in the nature of a complete change from home and treatment. In 1938, however, the advantage of a residential rehabilitation centre in country surroundings was advocated as a reason for further extension of the scheme, and the committee still had this matter under consideration when war supervened. At present the difficulty is being partly overcome

by utilizing accommodation in an E.M.S. country hospital where the facilities of an orthopaedic service are available under the same surgical supervision as the clinic.

Only the principles of treatment will be mentioned here, as routine exercises vary little in nature from those described in recent articles on rehabilitation by Watson-Jones, Nicoll, and others. Most of the patients have local heat applied to the affected part, and a simple radiant-heat bath has proved adequate for this purpose in practically all cases. Active exercises are carried out on a graduated scale, and resistance exercises are begun as soon as muscle power justifies this. Recourse to passive stretching is seldom made, and then only under surgical guidance, but manipulation under general anaesthetic is occasionally required. In such instances the patient is transferred to hospital for at least a 48-hour period to ensure immediate post-manipulation co-operation in exercises. Electrical stimulation of an atrophied muscle is rarely practised after voluntary contraction is obtained, greater reliance being placed in the re-educational skill of the orthopaedic sister than in the effects of electrical stimulation.

Each patient is taken individually until he understands his instructions, and thereafter he is transferred to a class in which the competitive spirit is encouraged. The introduction of exercises to music was a popular innovation, and is now routine in all class exercises. At a later stage in treatment, when the patient is approaching fitness for work, he is encouraged to use the implements of his trade, but these have no place in the early stages of treatment. It is important that working posture be fully appreciated in any scheme of treatment, and in order that this might be understood and applied, the staff have visited the coal-mines and noted the attitudes adopted for each branch of the work. This knowledge has also proved of benefit when giving advice regarding suitable graduated duties before a patient returns to his previous work.

Some patients need local splintage as a temporary measure to support weak muscles during their stage of recovery. Others, again, require a more permanent type of support to aid function, as in drop-foot, or to control painful movements of a joint in the presence of gross arthritis.

As previously stated, the greater part of the equipment used in the clinic is devised by the orthopaedic sister from simple ropes, weights, and pulleys.

Some Unusual Anomalies Compensation

Case 1.—A patient, after a crush injury at work, was left with spastic paralysis of lower limbs and permanent incontinence of bowel and bladder. He was first seen at the clinic following on two years' recumbency treatment, and after instruction was finally able to walk by the aid of spinal brace, callipers, and stick support. To relieve the monotony of existence he opened a small shop in his own home, but was advised that any attempt on his part to serve behind the counter would result in his compensation being reduced to that of partial incapacity.

Case 2.—Following on compound fracture of a lower limb with resultant knee and ankle stiffness the patient's general condition improved and he was advised to do home gardening to accustom himself to shovelling, etc. He was agreeable, but reported later to say he was informed that this would result in his being classified as fit for light work. Though this was possibly true, it delayed purposeful re-educational exercise in a willing patient.

Legal

Case 3.—A patient who had almost fully recovered from his injury was advised to consider return to graduated duties when reporting to his compensation board in a few days' time. He seemed troubled regarding this suggestion, and explained that he was under legal advice. It transpired in subsequent discussion that his law agent lived some 80 miles away, that he had never seen his agent, and that his case had been booked by a colleague who acted as a tout on a commission basis.

Trade Union

Case 4.—A patient under 18 years of age lost his leg as a result of an accident at his work and showed a desire to take an alternative vocational training. Arrangements were made for his absorption into selected secretarial work, but he was counselled by his union to delay settlement until his claim could be considered on an adult basis, it being stated that if he sought training prior to settlement it would prejudice his case. This introduced the psychological problem of possible change in mental attitude of a young patient during a long period of

inactivity and a probable lost opportunity of training. The patient's guardian agreed to accept the personal responsibility of settlement and immediate training.

Results

It has been difficult to keep a close and accurate follow-up of all cases discharged from treatment since the clinic started, but this has been rendered easier since the appointment of the liaison officer, and it is hoped it will be less laborious with the new index system of records. In the earlier years, statistics were maintained by reports from new patients concerning the activities of previous patients known to them either through domestic or working contacts—the freemasonry of the miner—or by direct communication. The results are shown in the Table.

Annual Report	No. of Patients Examined	Cases Unsuitable for Treatment	Cases Returned to Full Duty or Settled and Working
1935-6	183	20	123 (75%)
1936-7	221	14	136 (65%)
1937-8	325	25	208 (69%)
1938-9	378	36	270 (78%)
1939-40	350	18	229 (68%)
1940-1	414	19	303 (76%)
1941-2	385	37	274 (78%)

Conclusions

Early treatment of traumatic cases under unity of control is desirable until return to duty or maximum recovery. From experience in the present clinic this would be possible on a regional basis in Scotland by development of the after-care clinic system under the control of a central traumatic unit. The scheme should include a residential rehabilitation centre.

Treatment entails knowledge of the mental attitude of the disabled as well as of their physical complaints. This is best acquired at present by staff under training in an orthopaedic hospital, where they learn to appreciate many problems of the disabled during convalescence and where the advantages of vocational training are seen.

In an industrial clinic it is desirable that the staff visit the various industries in their region so that they may appreciate fully the working posture of the patient and may be able also to suggest possible graduated light duties in the patient's trade.

The clinic should be under the direction of an orthopaedic surgeon whose case records are strictly confidential and who should refrain from issuing medical reports, on patients under his care, for purposes of litigation.

A liaison officer who has had training as a hospital almoner is indispensable in work of this kind. The social aspects of this problem are not sufficiently appreciated, and extension of social service will do much to solve many of the problems existing between workman and employer.

Anomalies in the Compensation Act are well known to all, and the cases here recorded demonstrate some unusual occurrences and suggest obvious and easily effected improvements for these. Many other aspects of this particular problem are beyond the scope of discussion in this paper.

Trauma and arthritis are inseparable in many patients from the coal-mining industry. Some method of periodic medical supervision of the employees would be an advantage, so that with advancing years and decrease of physical power the miner could be recommended for less arduous duties. It might be possible to adjust wages by introducing a contributory pension scheme.

The mining industry has only limited scope for employing those patients left with residual disability, and it is desirable that regional rehabilitation and training schemes be established for co-operation between heavy and light industries. The recently introduced Government Training Scheme promises a solution to this problem, but it requires to make some more definite arrangements for the patient who is still in receipt of compensation because of residual disability.

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