PROCEEDINGS OF THE ASSOCIATION OF INDUSTRIAL MEDICAL OFFICERS

THIRTY-NINTH MEETING

The thirty-ninth meeting of the Association was held at the London School of Hygiene and Tropical Medicine on March 24, 1945, Dr. J. C. Bridge in the chair. The morning session was devoted to private business and in the afternoon there was a discussion on ophthalmological problems and visual standards in industry.

Business Meeting

Honorary Membership.—Professor Thomas Ferguson, Professor of Public Health, University of Glasgow, was elected an Honorary Member of the Association.

Reports from Groups.—The Chairman reported on a recent meeting of the Group Secretaries with the Executive Committee of the Association. He stated that Group Secretaries on the whole were somewhat disappointed at the poor attendance of members at the various meetings that had been arranged. This was attributed very largely to travelling difficulties and to the fact that so many part-time men were unable to leave their practices. Many Group Secretaries were finding that visits to works and factories were more profitable to them when attendance was greater than at formal lectures. One or two of the smaller Groups had seriously considered disbanding but the Executive Committee had advised against this course, as, in the event of an industrial health service being formed, these small Groups would form a very useful nucleus for subsequent expansion. Dr. G. F. Keating (Nottingham) agreed with everything the Chairman had said regarding visits but thought there was still scope for joint meetings with, for example, members of the Public Health services. The feeling of the meeting was that the position of the Groups was satisfactory, considering all the difficulties.

Committee on Industrial Nursing.—The following resolution, proposed by Dr. P. Pringle (London) and seconded by Dr. A. Kefelas (Sunderland), was agreed:

That there be set up a committee on industrial nursing consisting of three members, one of whom shall act as honorary secretary to the committee. The committee to be elected yearly and retiring members to be eligible for re-election. The committee to have the following terms of reference—"to study all matters connected with industrial nursing and to report from time to time to the Executive Committee.”

The following were elected members of this committee: Dr. P. Pringle (London); Dr. Patricia Shaw (London); and Dr. Catherine Swanston (Secretary).

Foreign Relations Committee.—The following resolution was proposed by Dr. Patricia Shaw (London), seconded by Dr. William Gunn (London):

That a committee be formed for the purpose of establishing and maintaining relations with medical practitioners engaged in the practice of industrial medicine and hygiene (including teaching and research) in foreign countries. The committee to be elected yearly and to have power to co-opt and retiring members to be eligible for re-election. The committee to report to the Executive Committee from time to time.

This resolution was agreed and the following were elected members of the committee: Dr. Elizabeth Bunbury (London); Dr. W. E. Chiesman (London); Dr. A. Forgic (Dagenham); Dr. R. E. Lane (Manchester); Dr. T. Gwynne Maitland (Liverpool); Dr. D. C. Norris (London); Dr. P. Pringle (London), and the Honorary Secretary of the Association ex-officio.

Central Council for Health Education.—The Honorary Secretary read a letter from the Central Council for Health Education inviting the Association to become a constituent member of the Council and to nominate one member of the Association to the Council. The meeting agreed to accept this invitation and Dr. J. A. A. Mekelberg (London) was elected to represent the Association.

Institute of Ophthalmology.—Dr. H. F. Chard (Dagenham) was elected to represent the Association on the industrial sub-committee of the Institute of Ophthalmology for Research and Teaching (Royal Eye Hospital, St. George’s Circus, London, S.E.1).

Bulletin of Hygiene.—The Chairman stated that Dr. E. R. A. Merewether (Factory Department, London) had asked him to draw the attention of members to the Bulletin of Hygiene as he thought that it would be of considerable assistance to them. Its scope had recently been revised and there was an enlarged section dealing with industrial medicine and hygiene; also there were many abstracts on other subjects which could not fail to be of interest.

Chair of Industrial Health at Manchester University.—The Chairman proposed that the congratulations of the Association to Dr. R. E. Lane on his appointment to the Chair of Industrial Health at Manchester University should be recorded. This was unanimously agreed. Dr. Lane took up his appointment in September, 1945.

Vision in Industry

At the afternoon session the speakers on the discussion on ophthalmological problems and visual standards in industry were Dr. W. Jeffreson Lloyd (Birmingham), Mr. Joseph Minton, Ophthalmic Surgeon, Hampstead General Hospital, London, whose paper appeared in the Journal in April, 1945, and Mr. T. C. Summers, Surgeon, Western Ophthalmic Hospital, London.

Dr. Lloyd presented, briefly, a picture of the visual problems confronting the industrial medical officer in his work. In an environment which can be controlled by the employer it is of vital importance for him to see that eyes operate under the best conditions. Lighting standards for industry are inadequate, and legislation in this respect has not been bold enough. It is doubtful whether higher management always appreciate the value of good lighting. It is important that once good lighting is installed it should be serviced properly. Excuses given for poor maintenance are difficulty of access to fittings, and the difficulty of obtaining labour. Electrical engineers in designing lighting systems should pay more attention to the accessibility of fittings. This applies particularly to large and high shops. Frequently there is loss of candlepower from dirt on bulbs and reflectors. Installation of flood lighting operated from the walls of shops should be more carefully considered.

The industrial medical officer wants to know from the ophthalmic surgeon the methods he would recommend to assess eyesight of entrants into industry. The past health history is important but insufficiently studied. Once a suitable method is agreed how are the results to be interpreted? For a number of years Dr. Lloyd had an eye service in his factories. The ophthalmic surgeons who operate this service say that the man engaged on fine precision work seeks advice for his presbyopia about 4 years after he needs glasses; yet it appears that these men are capable of doing the fine work asked of them during this period. On close work such as viewing screws few complaints of eye strain come through to him or to the management. One may ask why the eye strain is not constant, for in between periods of concentration there are periods when other operations such
as "riddling," take place which require little or no visual acuity. Thus the eye muscles can be relaxed and the girls can "gaze into space."

Another question that the industrial medical officer wants to ask is about the use of colour in industry, and what materials to use for backgrounds when close work is in operation.

Eye protection is a matter of great importance, and ophthalmologists should interest themselves more actively in the design of eye shields. The worker does not like safety devices such as goggles, and d' capacité the pieces should be altered or safeguarded in some way so that flying particles do not come near the eye level of the operator. In the engineering industry swarf in the eye is a common problem. Frequently the first-aid man in the works removes swarf and grit with much skill. He may stand the patient back against a wall and flick out the foreign body with a bristle from a broom! In this connexion it is important to determine how much eye work the trained nurse in industry should herself undertake. In Birmingham the Association notes that State-registered nurses in industry attend the Birmingham Eye Hospital for two weeks' training. The course lasts for some three hours each morning, and during that time she obtains practical experience and training from an eye specialist. This experience has proved of great value, and has very considerably increased her efficiency as a first-aid operator.

Dr. Lloyd was critical of the treatment that foreign-body cases obtain at general hospitals; and even at eye hospitals the out-patient department is frequently so overworked that removal of adherent corneal foreign bodies is often left to a nurse with little training and experience. The doctor in industry saw cases early and perhaps felt that his results were something to be pleased about. But was there excessive digging for the last piece of rust? It was important too to recognize penetrating wounds of the eyeball and little should be done to the factory's work by way of treatment; such cases must be referred immediately to an eye specialist. In his experience there was a great need for retraining of conjunctivitis in the factory population associated perhaps with imperfect ventilation.

It is a moot point whether the factory should interest itself in providing an eye service at the place of work. In war-time it has been of great help to the worker to have this. Management benefits in that operatives are capable of more accurate work, but if such a service is to be installed it must use the ophthalmic surgeon for the examination of the eye and the dispensing of spectacles. It was unfortunate that a sight-testing ophtalmic service was introduced during the war into many factories of the Ministry of Supply; these ophthalmics have cashed in on its publicity value. Where an eye service operates, workers wishing to use the service should pass first through the hands of the medical officer. The ophthalmic surgeon should be a recognized specialist and preferably attached to a local eye hospital, and his or her remuneration should be by a sessional fee.

Interest should be taken not only in refraction but in all eye and lighting problems in the works. Opportunity should be given to see cases other than those for refraction. Finally, Dr. Lloyd felt that there was a great need for increased research work on vision in industry. For example, more research might be carried out on the question of optical aids in fine work; at the moment there is much prejudice against this sort of help.

Mr. Summers approached the problem from the surgeon's point of view. But some years ago he acted as factory medical officer and was able to appreciate something of the difficulties. In eye accidents there is the bugbear of workmen's compensation always in the offing. It is now often a rule that employees, when taken on at a factory, have their visual standard recorded. The visual standard should be always recorded with glasses and a note made accordingly; this is a much more real standard of vision than the standard given with glasses. He had acted as consultant to a large industry for over twenty years and supported whole-heartedly the view that sight-testing opticians should not be employed on this work. The number of cases seen ran into over 15,000, and the following points are perfectly clear:

1. It has been necessary to examine every patient under a mydriatic.
2. Most of the glasses that patients are wearing, if prescribed by a sight-testing optician, are wrong.
3. Most patients that the service had astigmatism of varying degree.
4. That is not a recognized eye condition, many of considerable rarity, which was not seen in the course of the ordinary refraction clinic. Cerebral tumours have been sent to hospital for operation on more than one occasion.

Glaucomas, cataracts and squints have been taken under his care and treated.

Emergency Considerations at the Works.—Lime burns should be bathed immediately with ammonium tartrate 10 per cent., before sending to hospital. Most of the lime burns can be removed without much inconvenience. For the other caustics, acids and so on, simple bathing and the introduction of oil, paraffin, castor or almond, is of use before sending the patient to the orthopaedic department at hospital. Another condition which is continually occurring is the simple infective conjunctivitis, as well as the moderately well-dressed through a factory and a great deal of interference with production may arise thereby. There is nothing really to supersede the old-fashioned treatment of painting with silver nitrate. This is done to the lid and followed either by the introduction of albucin or solution in saline, or 30 per cent. three times a day, or saline solution 1 : 100. This is a useful thing. A mild case will probably not have to be sent on work at all.

It is important to paint eyelids properly in cases of conjunctivitis. Acute glaucoma is frequently mistaken for conjunctivitis, with disastrous results. There should be no difficulty in recognizing this condition as the following factors are present:

1. There is considerable loss of vision.
2. The pupil is usually partly dilated, oval, with the long axis vertical, and tension of the eye is hard.
3. The patient usually complains of severe headaches on the affected side, which may be so bad as to cause vomiting.
4. Conjunctivitis, which is a redness of the conjunctiva, is without discharge.

No treatment of any kind should be given at the works in cases of glaucoma unless the doctor has had some experience of the condition and is able to say that the treatment is with eserin and subsequent operation, and if secondary and due to an iritis, treatment is with atropin, whoa is used in the treatment of glaucoma, or one occurring in a case of central vein thrombosis and new growth.

Although the time factor is of importance in these cases, it is very much more helpful to the ophthalmic surgeon who is going to deal with the case, if it arrives completely untreated.

Foreign Bodies.—The usual type of foreign body most frequently seen in industrial medicine is the small or large foreign body, entering an eye either slowly or at speed. The simplest of all injuries is that caused by a piece of rust entering an eye, blown in by an ordinary draught, or by a splinter of rust coming off an emery wheel or a file. In these cases, the foreign body is usually superficial and small. One that has blown in, will usually bathe out, or failing that, it can be removed by the edge of a card. The piece of rust that one gets from an emery wheel is usually embedded in the surface of the cornea, and can often only be seen by using a magnifying glass. To remove this, cocaine 4–5 per cent. should be instilled at ten-minute intervals. This should completely anesthetize the eye and allow the
foreign body to be removed with the full co-operation of the patient. Mr. Summers wished, if possible, to consign to an undignified and very deep grave that most popular of all ophthalmic instruments—the spud. This weapon can safely be described as the most dangerous thing that is still in modern use. It is true that by approaching the foreign body with the spud and digging hard, you can get it out, but you also remove a layer of cornea which will leave a permanent scar which very often results in diminution of the standard of vision. The removal of a foreign body by means of a spud, preferably a Bowman’s cataract needle, or, if one of those is not available, even a large triangular needle such as is used in general surgery, is just as easy as using a spud, if not easier. It is the custom in ophthalmic hospitals when removing foreign bodies, to have the patient lying flat, or in the barber’s chair with the head back on the headrest. An oblique light is thrown on to the cornea and binocular are worn by the surgeon, so that he can see the magnified foreign body with binocular vision and so realize the depth of the injury. Nothing whatever can be done to the cornea than has been done by the foreign body originally, and in a great majority of cases this should be undertaken with absolute confidence and competence by the factotum. But it is essential that one of the various types of binoculars be used. None of them is very expensive. The best of all is the Zeiss or Hamblin Zerok or possibly the night vision type, which is very cheap and quite efficient. It does not have such a high magnification as the Zeiss or Hamblin binoculars, and has the advantage that it is not necessary for the doctor’s ophthalmic correction to be introduced into the main lens of the binoculars. In the Zeiss or Hamblin type, the instrument has to be made to his pupillary distance, and this is quite easy to do on the object lent.

By far the greatest snag of all is the invisible foreign body, and next to the ophthalmic spud as the most dangerous instrument in the world connected with the eye is the rattle-plug tool and the hammer chisel. Here a minute piece off the hard steel of the hammer can often enter the eye at speed and the workman will continue to work at that while wearing a hammer and chisel. He felt something go into his eye. One may be lucky enough to see that something has gone into the eye, but in many instances nothing whatever can be seen, and it is not until months later when the man appears with a traumatic cataract and says he has lost the sight of the eye, that investigations for an intra-ocular foreign body are started. All cases of this type when they appear at hospital should be x-rayed, because it is so much better to try to remove the foreign body before it gets bound down by adhesions. Intra-ocular foreign bodies can be blown in by compressed air pipes and in blowing out castings, but these usually get no further than being embedded in the cornea, like the foreign body from an emery wheel. A man walking through an engineering work shop where hammers and chisels are being used, or where high-speed lathe: are working, may get an intra-ocular foreign body, even though he is wearing glasses. One recent case was not spotted until months afterwards when a traumatic cataract had developed with early siderosis. The man himself made no complaint at the time to anyone. He merely remarked that he thought something had hit him in the eye, but supposed it could not have done.

Another type is the large foreign body. In these cases the condition is nearly always such that it is necessary to send the patient to hospital. The snag is where a large foreign body hits the eye and produces no apparent injury at the time, but the condition is usually so painful that the cases are sent to hospital, so that if commotio retinae, dislocation of the lens, or detachment of the retina have occurred these conditions are spotted right away. All injuries by a large object should be sent off to hospital, as either nothing is the matter or something rather serious, and in any event there is no treatment that can be done at the factory.

Head Injuries.—A comparatively minor head injury in a short-sighted person can produce detachment of the retina. From the high degree of danger of detachment occurring in a myope—about 7 dioptrists and higher—such employees should not be accepted for very heavy manual labour involving much stooping.

This condition can now be adequately treated, and some of the results have been gratifying.

Eye Examining par of New in the factory. When taking on fresh labour, except in the case of highly skilled employees, stereoscopic vision matters little, provided the people are adapted to the conditions of monococular vision. In the case of older workers with poor vision, an ophthalmic opinion should be obtained.

GLASGOW GROUP

At a meeting on March 28, 1945, Professor C. W. Illingworth, Regius Professor of Surgery at Glasgow University, read a paper on

The Peptic Ulcer, with special reference to factory conditions

During the past fifty years there has been a remarkable increase in the incidence of peptic ulcer, which now constitutes one of the most serious conditions of industrial medicine. The reports of the Department of Health on incapacitating sickness among the insured population show that in 1934, 580 per 100,000 men were lost from this cause in Scotland alone; and there can be little doubt that the position has become much worse since that time. Moreover, this figure takes no account of minor degrees of illness, which the worker may have to put up with, but serious enough to impair his working efficiency. Peptic ulcer is especially important in relation to industry, for it appears to be the psychological type of worker. In hospital practice over 60 per cent. of ulcer cases belong to social grade 3 as defined in the Census, that is to say, the group of skilled artisans, whereas less than 20 per cent. are unskilled workers. Experience suggests that in all grades ulcer is apt to occur in the most useful type of worker, the keen, active, high-tension vagotonic type.

Under the auspices of a Sickness Records Committee set up in Glasgow by the Nuffield Trust we have recently undertaken a survey of peptic ulcer which has brought to light many features of special interest from the standpoint of industrial conditions. Up to the present we have restricted our survey to perforating ulcers, for which the data are more readily obtainable. There are obvious difficulties in collecting reliable morbidity statistics for peptic ulcer as a whole, since this disease is not notifiable, is not sufficiently fatal, and does not even as a rule require hospital treatment; but for perforating ulcers it is possible to obtain exact figures, not only for the present time but for past years. Our survey has covered the region which includes Glasgow and the adjacent counties and is mainly based upon admission to the three main voluntary hospitals which are known to treat almost exactly 80 per cent. of the perforations in this area. It extends over the twenty-year period 1924–43 and includes over 7000 cases. The increased incidence of peptic ulcer as a whole is reflected in the number of perforations, which increased from rather less than 200 in 1924 to rather more than 400 in 1938. Then there was a rapid rise culminating in a high peak in the winter of 1940–41, followed by an equally rapid fall in 1942–43. These changes almost entirely concerned duodenal ulcer, whereas the rate of gastric perforations remained almost stationary.

A special study was made of the increasing incidence in 1940–41. A similar increase in London and Bristol coincided with the periods of air bombardment in these cities. In Glasgow, on the other hand, it anticipated them by a margin which though very narrow is quite definite. It is probable that in Glasgow, apart from a few desultory raids, the first air attacks were
the heavy bombardments of March 13–14–15, 1941. That month also saw the highest incidence of perforations, with a total of 86: but examination of the records showed that no fewer than 41 of these occurred in the first twelve days of the month, i.e. before the raids began. It is thought that, while the local air raids could therefore not be incriminated, the general state of nervous tension over the war situation may have been a factor as also may have been the physical weariness resulting from the great increase of overtime work and civil defence duties at that time. This relation to overwork and tiredness has been brought out by several other findings in our survey. In an analysis of the hour of perforation it is seen that the most common time of perforation is in the late afternoon. In our follow-up inquiry I have been struck by the large number of men who state that the perforation occurred within a few minutes of the end of their workday. The relation to fatigue is also brought out by an analysis of the case incidence by days of the week, which shows that there is no uniformity in the number of perforations occurring on Sundays and Mondays compared with other days. Many patients with active painful ulcers take the opportunity of the week-end to stay in bed, and it almost looks as though this period of rest gives a partial and temporary reprieve from perforation. Lastly, there is a curious variation which may possibly have to do with the fact that perforations are far less common in August, September and October than in the other months, and while this may possibly be attributed to the warmer weather or even to better dietary, the most likely explanation is that it is related to the holiday season. There is thus a good deal of evidence to relate perforations with periods of physical fatigue. In the same line of thought fatigue is one of the many factors concerned with the progress of non-perforating ulcers.

The peptic ulcer is becoming such a formidable problem it is clear that the question of treatment demands a much wider approach than has been attempted in the past. It is no longer a question of alkalis and diet or operative treatment. The problem is a social and industrial one. Every case demands a full investigation into the domestic and working conditions, and there is a marked correlation between the presence of fatigue in the family doctor the hospital and industry. At the Western Infirmary in Glasgow we have made plans for setting up a special ulcer clinic which may be able to achieve this co-ordination. Owing to lack of staff and lack of funds it has not as yet been possible to get it begun, but I am hopeful that both these difficulties will soon be solved. In the meantime under the auspices of the Nuffield Committee we have made a beginning by appointing a whole-time social worker who interviews the patients in hospital, visits them in their homes and improves their general condition. Although this appointment was made only a few months ago it is already showing useful results and there is no doubt but that it will prove an essential element in our ulcer service.

The organization of treatment for peptic ulcer cannot be complete without attention to the question of canteen feeding. In our follow-up survey we have paid particular attention to this matter, and, valuable as factory and other canteens are for healthy people, they are at present quite unsuitable for ulcer patients. Indeed, the great majority of our patients assert that they do far better with the old-fashioned carried 'piece' than with a canteen meal. Very few canteens in the Glasgow area make special provision for workers on a dietetic regime. In view of the frequency of ulcer and its importance as a causal disorder, it is difficult to understand why this matter might well receive the urgent attention of industrial medical officers.

At the same meeting a second subject for discussion was presented by Mr. Roland Barnes, Orthopaedic Surgeon, Western Infirmary, Glasgow, who read a paper on

The Painful Shoulder

Painful lesions of the shoulder joint form an important part of orthopaedic practice, and are one of the common causes of prolonged incapacity in the industrial population. Pain in the shoulder is commonly regarded as being due to 'fibrosis' or 'periairchitis', and no attempt is made to relate symptoms to underlying pathological changes. Until we make a real endeavour to diagnose the lesion responsible for pain in the shoulder, our treatment will continue to be empirical and our results unsatisfactory. This neglect and misunderstanding of injuries of the shoulder joint is largely responsible for the prolonged periods of incapacity. The other factor is the difficulty in hospitals experience in obtaining graded work for these patients, which alone can complete their rehabilitation and hasten a return to their pre-accident employment.

The majority of pain lesions of the shoulder occur in the heavier industries. They are especially frequent in the shipbuilding industry: this may be due to the long hours involved in the work as well as the high degree of shoulder level. The common causes of pain in the shoulder are: (1) tears of the supraspinatus tendon; (2) degenerative changes and calcified deposits in this tendon; (3) lesions of the subdeltoid bursa which frequently lead to adhesions between the musculo-tendinous cuff, and the overlying deltoid and acromion process; and (4) the condition known as 'suprascapular neuritis' but now thought in most instances to be due to a protrusion of a cervical intervertebral disc, which causes pressure on a nerve. In this condition there are a number of other factors which play a part in its causation.

Anatomical features.—The supraspinatus muscle is inserted into the greater tuberosity of the humerus, in common with the infraspinatus and teres minor muscles. These three muscles have a common insertion (sometimes called the musculo-tendinous cuff) which blends with the capsule of the shoulder joint. Between the muscle fibres of the supraspinatus and the infraspinatus, this cuff lies subdeltoid bursa. Adhesions between the walls of the bursa prevent normal gliding movement between the capsule of the shoulder joint and the deltoid; this is the chief cause of a stiff and painful shoulder. The movement of abduction of the arm at the shoulder joint is initiated by the spinati group of muscles. If these muscles are out of action the deltoid cannot abduct the arm by itself, it merely approximates the deltoid tuberosity to the acromion. A tear of the musculo-tendinous cuff and the overlying deltoid is a definite pathological entity. The cure of this condition is usually surgical, the cuff being sutured together. In many cases the patient will be able to perform a normal range of movements after this procedure but in others pain and weakness will persist. The reasons for this are numerous and varied, but they are all related to faulty technique or to the presence of a fibrotic scar.

Clinical Features of a Tear of the Supraspinatus Tendon.—This injury is commonest in middle-aged labouring men and it seems to occur with especial frequency in the shipbuilding industry. The patient usually gives a history of a wrench of the shoulder, followed by inability to lift the arm, and severe pain referred to the insertion of the deltoid, features which often lead to the diagnosis of a 'strain' of the deltoid muscle. If there is a large tear, the patient is quite unable to abduct the arm more than about forty-five degrees, this range of movement being accomplished by rotation of the scapula on the chest wall. The deltoid is seen to be acting strongly, which at once excludes a circumflex nerve palsy as the cause of the disability. A full range of passive movement is possible when the arm is at right-angled abduction, but the patient complains of a sharp twinge of pain. When the deltoid passes beneath the acromion process. Once the arm has been passively abducted to a right-angle the patient can usually complete the abduction movement by his own effort; he has no difficulty in adducting the arm until it is just below the right-angle, when the limb drops powerless to the side. Apart from these features the only other abnormal finding is sharply
localized tenderness over the greater tuberosity of the humerus just below and in front of the anterior edge of the acromion process. These features are common to all supraspinatus tears, except that in some of the small tears, the patient may be able to actively abduct the arm but with much reduced power, and pain when the arm is at about right-angled abduction. Unless adequate treatment is given the disability may persist for years and the patient often develops all manner of trick movements, which together with the paucity of clinical signs may lead to a charge of malingering.

Treatment.—The diagnosis of a brachial neuritis can seldom be obtained outside of industry. In other words, they require modified work—not light work—which encourages active use of the injured arm and shoulder, and is progressive, so that there is a gradual build up of muscle power until it equals that of the opposite normal shoulder. It is practically impossible to obtain work of this type and as a consequence the disability drags on for month after month. It is true, of course, that many patients are quite willing to remain on compensation with a view to getting a better lump sum settlement, but that does not excuse industry from finding some way of helping those patients who are willing and anxious to return to work.

The following case is typical of many. W.P., a hammerman, aged 32, tore his left supraspinatus tendon on June 30, 1943, whilst striking with an 8-lb hammer. He was treated in an abduction plaster for seven weeks, and then attended the physiotherapy department. In October, 1943, the joint was manipulated. Five months after injury he had a full range of painless movement in the shoulder, but the muscles around the shoulder were still much weaker than normal. At this stage modified work was suggested and the patient was readily agreeable. For the next seven months repeated but unsuccessful attempts were made to obtain modified employment. In July, 1944, twelve months after injury, the patient was becoming extremely depressed. The doctor then suggested that he should go harvesting. This was arranged and proved quite ideal. The stacking of corn and similar work was just the type of job needed to strengthen his shoulder muscles. Six weeks later the patient returned to Glasgow a different man. He was in good health and spirits and had completely recovered from the severe pain in the shoulder muscles. Nine days later he returned to work—slightly modified in that he was not asked to do full-time hammering. Two months later, he returned to full employment.

Industry, as I see it, cannot afford to ignore this problem. How is it to be solved? Clearly the best solution is a genuine cooperation between management and trade unions, for without it nothing can succeed. Is it too much to ask that the sacrifices of principle that were readily made by all when this country was in danger should also be made for the thousands of workpeople who are injured every year in our factories?