The Physician in Industry*
The Wyers Memorial Lecture, 1960

By
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FROM THE BUTTERLEY GROUP OF COMPANIES

PREVIOUS MEMORIAL LECTURERS all knew Hubert Wyers long before he had entered on a full-time career in Occupational Health, but I was not so lucky, and I first met him as a fellow member of the Association soon after we had both abandoned general practice. The tribute paid to him by Andrew Meiklejohn (1958) makes it unnecessary for me to praise Hubert further but I feel I must say how closely we were drawn to each other from the first moment of our meeting. Perhaps it was because we had both been family doctors and had now taken the somewhat unusual step of becoming free-lance physicians in a new sphere. Perhaps the fact that we had other interests in common also played a part, for although I could never claim to have attained his level of erudition, nevertheless as a student I too gained some knowledge of the humanities. At any rate he was my good friend, and I regard it as a privilege and an honour to give this lecture in his memory.

The Doctor as Clinician

Although the title I have chosen may be rather hackneyed, it was a topic which had a perennial interest for Hubert Wyers, and this I feel justifies it. He was always of opinion that the doctor in industry was first and foremost a clinician, and in that rôle would be accepted by workers and management alike as the undisputed expert in his own field. On the other hand he used to emphasize that the control of environment was the concern of a team, of which the doctor was indeed a member, but without greater status than, say, the engineer or the chemist. It is because I feel this to be such a fundamental truth that I would like to discuss with you this afternoon the rôle of the physician in industry as clinician. And basically in industry we are all clinicians since we either work as such or are responsible for organizing clinical services of one sort or another. However, the interpretation I have put on the word clinical is fairly wide, and by it I would like you to understand the functions which we perform in dealing with people as opposed to the study and supervision of the environment.

I have avoided speaking of the medical officer and preferred the title of physician: I have done this quite deliberately because I think that when a patient seeks help he does so from a doctor, not an official: as the Lancet (1957) pointed out in a leading article, if doctors continue long enough to think of themselves as no more than medical officers, that is what they will probably become. For “as a man thinketh in his heart so is he,” Meiklejohn (1950) expressed much the same thought in his John C. Bridge Memorial Lecture when he said, “We are doctors, not medical officers or preventive hygienists, and when to the British workman we become good doctors, we shall be established in our duty and purpose.” And it is no less important to establish ourselves as good doctors in the eyes of our professional brethren.

Treatment at Work

Lord Taylor (1959) has said that prompt and efficient treatment of injury or illness at work is looked upon both by management and men as the first requirement of an Industrial Medical Department, and if this purely clinical function is not
satisfactorily fulfilled all else fails. This is undoubtedly true, but it must not be forgotten that the majority of people work in small units and for this reason most casualties must inevitably be treated in the first instance by lay folk; only those fortunate enough to be employed in a large works, factory, or office have the advantage of being dealt with by trained staff in properly equipped surgeries. Serious emergencies, whether treated by first aid worker or by nurse, must of course be sent to hospital with all speed, since it is only there that adequate measures can be taken to deal with them, but in all other cases, except quite trivial injury or illness, continuing treatment if required should, in my view, be carried out under the direction of the family physician. This rule should be absolute when treatment is given by a first aid worker, although more latitude must be accorded to nursing staff who should be allowed to use their discretion, based on training and experience, bearing in mind the prejudices of the particular family doctor.

The Personal Doctor
I have so far said nothing about the part which the industrial physician should play. But there is no doubt that he should at all times exercise the greatest circumspection in treating other doctor's patients. Although this is a controversial point, in reality no great ethical problem arises. For after all, most casualties occurring at work happen in small units, and they will inevitably go straight to hospital or family doctor, since it can only be in the highly organized medical department that an industrial physician will in fact be available to cope with them. However, for years polemics have raged furiously on this question, and it must be considered. It has been said that the doctor in industry is entitled to give a man who puts himself in the charge of the industrial physician. This rule should be absolute when treatment is given by a first aid worker, although more latitude must be accorded to nursing staff who should be allowed to use their discretion, based on training and experience, bearing in mind the prejudices of the particular family doctor.

The paradox therefore may arise that it is the industrial physician who is in fact the focal point, and who knows his patient as a whole man in his own observations. On the other hand, if indeed it is true that the general practitioner has ceased to exist, then the same can almost be said of the personal doctor. This is the result of divided authority, which I regard as the great heresy of modern medical practice. Partnerships in general practice have increased in number greatly in the last ten years and there is every incentive to the further development of this trend. As a result many patients can hardly claim to have a personal doctor, since they may be seen by Dr A. this week, Dr B. next week, and Dr C. the week after that, and with an extension of rota arrangements this is increasingly true even in the single-handed practice. Thus there is often no continuity of treatment. In hospital practice the position is not dissimilar since a patient may see the consultant on his first visit, the registrar on his second, and a houseman on the next. Conflicting opinions are often expressed by different doctors and the patient may be left in a maze, often without any clear idea about what is the matter with him, or the treatment which has been proposed. It is quite unusual to-day for a patient to know the name of the chief under whose care he was admitted to hospital, let alone in surgical cases to be able to tell one who performed his operation. The paradox therefore may arise that it is the industrial physician who is in fact the focal point, and who knows his patient as a whole man in health and sickness better than his so-called personal doctor or any other doctor. Even so, the doctor or doctors in a practice should know what is happening to the patients for whom they have accepted official responsibility.

I have now almost excluded the doctor in industry from any share in treatment, but his influence behind the scenes is of great importance, because he is the person who in the first instance must keep abreast of modern techniques, and who must by precept and example see that medical and
nursing staff and first-aiders do the same. Standing orders and a full description of routine treatment should be printed and circulated to everyone who undertakes it and regular discussions on alterations should take place at meetings with the staff, and if agreed should also be printed and circulated. Every encouragement should be given to doctors and nurses to attend post-graduate courses, and if possible at least one study day per year should be organized. First aid workers at small units present a more difficult problem, and it may not always be easy to obtain and keep the right sort of person. An approved basic training in first aid will soon be obligatory, but a few days spent in a well-run works surgery will do a lot to instruct and encourage first-aiders.

Medical Examinations in Industry

Great store is usually set by medical examinations, and the Dale Committee (1951) in its list of the duties of a person to whom they refer as an "industrial medical officer" accorded them a prominent place. First of all let me deal with placement medical examinations. Clearly high standards of physical fitness are required in some cases: for example a comprehensive medical examination is obviously needed when a candidate seeks employment abroad or as a driver of a public service vehicle. But a certain amount of self-selection inevitably takes place when a candidate knows that he will be required to submit himself to a meticulous examination and/or seeks employment in the heavier industries. On the other hand, one must ask oneself how far medical examination is necessary to determine the fitness of workers seeking employment in many lighter industries. In some there are special requirements: for example the personal hygiene of food handlers should be of a high order and they should be free from infected ears, mouths and tonsils (Graham, 1953) and in those engaged in the manufacture of radio valves (Bourne, 1943), and in certain hosiery workers (Weston and Adams, 1927, 1928 and 1929) good visual efficiency is essential; but is it not reasonable to suggest that a health interview carried out by an experienced nurse would bring to light most conditions of significance and would at least suffice as a screening procedure? Far too many placement medical examinations are made to-day and indeed it is not uncommon for a candidate for employment to have undergone several such examinations in the course of a year or two, or even in the space of a few months. And many of them seem to me anything but comprehensive, and of limited value. Although Herford (1957) has shown what can be done by a conscientious and dedicated doctor, many examinations of young persons are quite perfunctory, and largely useless. The number of medical man-hours which are wasted in this way must be enormous and as Meiklejohn (1958) has said:

"the truth is that the whole medical body is suffering from a creeping paralysis of good clinical work, due to a progressive, often purposeless, proliferation of routine examinations."

Since all school children are already examined in their last year at school, and tuberculin testing and B.C.G. vaccination if required are offered between the ages of thirteen and fourteen years, this would seem to be the time to perform a really comprehensive examination, including radiography of the chest and any other ancillary investigations judged necessary and proper; if the outcome of such an examination were recorded in a personal record card it might be made to form an integral part of the individual's documentation. Re-examinations later on in life would then only be required if indicated by reason of illness or increasing years. Certainly in a society where the school leaving age is fifteen, the office of Appointed Factory Doctor for the purpose of examining and certifying the fitness of young persons, has become almost if not quite an anachronism, especially since the Education Act of 1944 prescribes medical supervision of all those attending the County Colleges of the future. It is indeed hard to understand why only children who elect to enter undertakings coming within the scope of the Factories Acts should have to submit themselves to an examination additional to that carried out by the School Medical Service, and why these "young persons" are alone obliged by law to undergo annual routine examinations up to the age of eighteen years.

This brings me to the question of routine follow-up examinations in general. Nobody can object to routine medical examinations of people working in hazardous occupations and exposed to the effects of toxic substances, since such examinations are directed to a specific end and as we know have contributed much to the control, and in some cases the elimination, of these risks to the health of workers. They are limited in scope however; and other routine examinations, save in the case of those responsible for the safety of others, are carried out with very different objects in view. Periodic examination of adults not specially exposed to occupational hazards is in fact for practical purposes in this country limited to executives—a dreadful word which I shall not use again—I shall refer to them as "officials". We heard quite a lot about the pros and cons of
think that many people in this country would be ambitious has ever been done here. I do not myself (Schneider, 1960), but so far as I know nothing so prepared to submit to such an extended battery of factory and office populations has been advocated, more frequent examination of this kind for whole body as completely as possible. An annual or examinations are to be carried out on apparently healthy people not exposed to special hazards, these exercises, and one must agree that if routine may have, one has to consider their practicability. The routine examination in one clinic in the United States consists of the following procedures: Complete history and physical examination, laboratory study (blood count, sedimentation rate, blood serologic tests, urinalysis and examination of stool for blood, ova and parasites), X-ray films of chest, abdomen and gall bladder, gastro-intestinal series and barium enema, oral examination by a dentist including full mouth and X-ray films, electrocardiogram, proctoscopy, Papanicolaou smear of cervix, laryngoscopy (indirect), visual examination with orthorator, Cornell psychologic screening, and a conference with a psychiatrist (Davies 1960).

The last mentioned is indicated as an optional examination although it might well be thought that after an endurance test of this magnitude many people might indeed need it! But of course it is all too easy to make fun of these exercises, and one must agree that if routine examinations are to be carried out on apparently healthy people not exposed to special hazards, they should cover all the various systems of the body as completely as possible. An annual or more frequent examination of this kind for whole factory and office populations has been advocated, and indeed put into practice in the United States (Schneider, 1960), but so far as I know nothing so ambitious has ever been done here. I do not myself think that many people in this country would be prepared to submit to such an extended battery of tests, nor do I consider that routine examinations even on a reduced scale are practicable for large working populations. Even if it were I would question how far it would be justifiable to expend medical man-power in this way. If it is held that routine examinations are desirable and it is agreed that it is not possible to examine whole populations in this manner, we must discriminate, and in practice we know that discrimination is usually applied on the basis of a sort of inverted means test. Such a test must surely be repugnant to any physician if he really thinks these examinations are to be commended. But despite my criticisms of placement and routine follow-up examinations, I must claim the privilege of an Irishman and admit that in my own practice I undertake both! So far as follow-up examinations are concerned, at Butterley a limited routine examination has been available to all established employees for many years: I am referring to annual X-ray of chest which has had a response rate of about 60 per cent until about five years ago when it was made compulsory for all new-comers. Many of the workers are exposed to a dust risk and for them periodic supervision of this kind is essential; it is administratively and for many other reasons simpler to make routine radiography of the chest available to all. Nevertheless it is true that apart from those whose occupation involves a dust hazard, it is merely a substitute for Mass Radiography.

I make a point of seeing people who have reached the normal retiring age of sixty-five: many of these folk in fact carry on at work and I think it is important to make sure that they are engaged on suitable jobs. Auscultation of the chest or other clinical examinations are not done except on indication but I estimate the blood pressure (which also enables me to check on the state of the pulse), I examine the ocular fundi, urinalysis and a routine chest X-ray are carried out and the weight is checked. But the most important part of the procedure is the nice cosy chat we have together, and the appearance of the patient with one’s personal knowledge of him and his previous experience, gained from medical records usually extending over many years, are often more informative than the few routine tests which are made. We usually talk about the changes we have seen together over the years and also of what the future holds. Organized preparation for retirement is a good deal easier said than done, but I do try to put ideas for occupying their time into the heads of those who are about to retire and have not themselves considered the matter.

So far as officials are concerned, in two of the companies to which I act as medical adviser, as a
result of the pressure of public opinion, I have had to offer routine annual examination to certain goats (if I may put it that way), but not to the sheep. At the same time I have naturally made it clear that the merits of such examinations are in my opinion few. The guilt feelings which connivance in this practice arouses in me I stifle fairly easily, since I feel that the strictly medical value of these examinations is so small as to be of no significance. Anyway as a result of this offer about 25 per cent of potential participants sought examination, and I must say that I think I have done these people some good, not so much by offering advice on habits of life, which in most cases have rather surprisingly appeared to be exemplary, but mainly because I have their confidence and they unburden their secret sorrows to me. These people will talk to the doctor as they will talk to no one else in the organization and I submit with respect that if routine examinations are to be done at all they should not be done by some high-powered outside consultant. The essential thing is that the examiner should know the circumstances of the examinee both at work and at home; otherwise whatever value these examinations may have will be almost if not entirely lost. The obvious choice of examiner would seem to be the family physician, but he rarely has the time and unless the examination is conducted in a sufficiently leisurely fashion its ends will not be achieved. In addition, curiously enough, the subject who is being interviewed may give his confidence more freely, over certain matters at any rate, to the industrial physician just because he is not the medical attendant in the home. *Verbum sapienti satis est.*

It used to be said that confession was good for the soul, but nowadays we express ourselves differently, and we speak of the benefits a patient receives from the release of fears and frustrations. Certainly more people than ever seem anxious to confide in a doctor, and although some hold that the status of the physician has lessened in recent decades, it seems to me that in many respects the reverse is the case. It is a humbling thought and one of which we should always be mindful.

I also continue to examine new entrants, and although I seldom come across gross physical defects rendering those whom I examine unfit for employment, and do not often find myself able to suggest treatment likely to remedy lesser defects, this does not perturb me, since I get the opportunity of discussing the job and whatever measures are needed to carry it out safely. The physician is probably the only member of the management team whom the average workman will ever meet throughout his career, and certainly the only one with whom he can be on anything like the same footing. The newcomer's whole attitude towards work and management is largely conditioned by the reception he receives at the outset, and his confidence in the industrial medical department will be largely governed by the opinion he has then formed about its efficiency. My principal reason for examining candidates for employment then is the chance it gives me of meeting them. I have belittled the worth of placement medical examinations and in general of routine follow-up examination. I have also—almost if not quite—debarred the industrial physician from treatment, so you may well ask "What is left?". In my opinion his most important function is that of a builder of morale, and gaining the confidence of the new starter in the first instance goes a long way towards attaining this object.

But this is only a beginning and the worker must also be convinced in his mind that the physician is fully aware of working conditions, and if for any reason they are not satisfactory that he will do his best to get them put right. To quote a leading American industrialist:

*I should like to say a word about the kind of Medical Director it takes to look after industrial health. He should be a passionate and tireless combatant in his strife for better working conditions. He must feel in his soul a responsibility to every man, every woman in the company and to their families. He must have real qualities of leadership... As between management and workers, he must visualise his responsibility to be that of the workers' representative at the management table (Given, 1947).*

**Health Supervision in Small Works**

The employee must also know that he will receive prompt and competent care, given cheerfully and with sympathy, should he sustain an injury or be taken suddenly ill. It is a truism that good primary treatment is the beginning of rehabilitation and it is comparatively easy to provide it in the large works or factory where it is possible for cases to be treated by a trained nurse under good conditions. But of course much the greater number of small units have no such advantage. What of them? The survey of small factories reported by Jefferys and Wood (1960) which was carried out recently in a metropolitan borough revealed a truly horrifying state of affairs, and if the conditions described are typical of those in the country as a whole then much needs to be done. The Halifax survey (1958) disclosed a not dissimilar state of affairs, and what personal experience I have of small units other than those
The working environment in respect of sanitary arrangements, cleanliness and tidiness, lighting on stairs and passageways, was considered unsatisfactory in many firms. They felt that industrial medical services covering small factories would accomplish much but they also (I think rightly) thought it unrealistic to suppose that such small managements would be prepared to join with neighbouring firms to introduce a joint scheme. They go on to point out that existing industrial health services have almost always grown from a preliminary recognition of the need for therapeutic services; they reiterate Lord Taylor’s view (1959) that only when these have become well established has it been possible to extend the concept to cover indirect control of the health of the worker by control of his environment. In the opinion of these authors the only practicable way of securing radical improvement in the working environment is through an improved system of statutory inspection. In this connection it is perhaps not irrelevant to mention that during a discussion on Small Plant Health Services at the recent International Congress (1960), there was a tendency to take the view that since comprehensive medical services had proved of value in the large organizations they should also be made available for the small unit. Whether a comprehensive medical service is really necessary in all these small units, where nearly half of the total labour force is employed, is at least open to question. It is certainly impracticable, and I think we do not cause a disservice by advocating it. I therefore agree with Jefferys and Wood that the solution of the problem lies in a system of statutory inspection, and I would favour the appointment of nurses to undertake this work. The status of the nurse with her professional background is unassailable, and given the right personality she could by persuasion, let alone by statutory powers, do much to organize really good first aid services in small units. The unsatisfactory arrangements in so many small factories to-day are due, not so much to callousness or inhumanity on the part of those responsible, but to sheer lack of knowledge and imagination. Most managers will respond to an appeal to their better feelings, especially if it is made to them by a woman who will often have more success in awakening compassion and in evoking a response than a man making a similar appeal. Having established satisfactory therapeutic services the well-trained industrial nurse should be able without undue difficulty to cope with environmental problems. If and when these objectives have been accomplished, I think that health services in the small unit will have attained a practicable level, with a concomitant improvement in the health of the worker and his efficiency. But I would not give the nurse the title of Inspector, which might well ruin the scheme—I suggest that she might be known as an Industrial Health Visitor.

Rehabilitation

Proper supervision of the whole period of a worker’s absence due to injury or illness is vital in keeping or restoring his or her morale. It is not sufficient merely to see that the patient is sent to hospital or to the care of his own doctor and to leave the matter there. One must keep constantly in touch with those responsible for treatment and with their agreement the affected person may with propriety be visited, which is specially important if he is still in hospital. The fact that the doctor from the organization for which he works has made it his business to come and see how he is getting on gives an immense fillip to the employee’s morale. It is clear to him that the management does not regard him simply as a mere number absent due to injury at work, but as a human being who has met with misfortune and for whom real concern is felt by his employers. It is still more important to retain contact with the patient and his medical advisers after he has left hospital, since only too often in his supposed best interests convalescence is unduly prolonged by groundless fears of the ill effects which a return to work may bring about. It is at this stage that danger to morale is at its greatest. The patient is no longer the central figure (real or imagined) in a drama, the recipient of unwonted attention from others, especially doctors and nurses, but he has become a solitary figure alone with his often rather sombre thoughts. The convalescent period is nowadays often considerably longer than that of active treatment and since for most people—despite music-hall jokes to the contrary—work fills the greater part of their lives, idleness has a devastating effect upon them. The late Margaret Jackson’s well-known parody of Lord Acton’s famous aphorism, “All leisure corrupts and absolute leisure corrupts absolutely” (Lancet, 1955), well describes the state of many of these people. The duration of absence naturally varies according to the nature of the illness or injury and also greatly in different individuals but the time which elapses before return to work is very largely dependent on the advice the patient is
given. In medical conditions the length of convalescence must inevitably vary much from case to case, but it is strange that it should also do so in (say) the straightforward "cold" abdominal operation.

Table I

<table>
<thead>
<tr>
<th>Age groups</th>
<th>No. of cases</th>
<th>Total number of days lost</th>
<th>Days lost</th>
<th>Max.</th>
<th>Min.</th>
<th>Mean number of days lost</th>
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<td>15-24 years</td>
<td>3</td>
<td>118</td>
<td>60</td>
<td>24</td>
<td>24</td>
<td>39.3</td>
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<tr>
<td>25-34 years</td>
<td>6</td>
<td>371</td>
<td>98</td>
<td>45</td>
<td>45</td>
<td>61.8</td>
</tr>
<tr>
<td>35-44 years</td>
<td>3</td>
<td>169</td>
<td>69</td>
<td>45</td>
<td>45</td>
<td>56.3</td>
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<tr>
<td>45-54 years</td>
<td>10</td>
<td>509</td>
<td>133</td>
<td>9</td>
<td>9</td>
<td>52.9</td>
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<tr>
<td>55-64 years</td>
<td>7</td>
<td>420</td>
<td>84</td>
<td>42</td>
<td>42</td>
<td>60.0</td>
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<td>29</td>
<td>1,587</td>
<td></td>
<td></td>
<td></td>
<td>54.7</td>
</tr>
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Thus in the last nine years amongst male manual workers employed in the engineering divisions of the Butterley Company, 29 herniotomies were carried out as well as 17 appendicectomies and 9 partial gastrectomies (Table I). The duration of convalescence in these cases showed enormous variation, for example in the case of herniotomies the maximum time lost was 19 weeks and the minimum only just over 1 week, and the mean was no less than 54 days. Nor, except in the case of the youngest workers, did the length of time vary greatly in the different age groups; indeed the men losing the maximum time of 19 weeks (133 days) and the minimum time (9 days) both belonged to the 45-54 age group. The appendicectomies and the partial gastrectomies showed a similar pattern. I would remind you again that all these men were manual workers and all made good recoveries, and those who returned to work early suffered no ill effects.

Similar results were reported by Moss and Dohan (1958) who sent a questionnaire to over 200 surgeons, industrial physicians and general practitioners. They found that after appendicectomy the delay recommended before returning to heavy work varied from 7 to 60 days and averaged 28 days. After a hernia operation in a patient aged 50 years the convalescent period before starting heavy work varied from 21 to 180 days. Yet members of the United States Air Force and Navy return to active and strenuous training after a delay only about a third as long (Gold, 1958). Also in veterinary practice, Allam and Martin (1958) have shown that surgical convalescence in animals is characterized by a rapid return to full activity. Dogs such as greyhounds return to competitive racing in 2 weeks following total hysterectomy and race horses are in full training within 4 weeks after a ventral herniorrhaphy. Hartwell's observations (1955) on human wound healing make it clear that regardless of the tissue involved the tensile strength of united surfaces depends principally on connective tissue repair which is complete with final restoration of a new epidermis within 25 days. Since most surgeons get their patients out of bed early after operation and keep them in hospital only a few days, it seems odd that so many of them are unwilling to agree to an early return to work.

However, since there can be little doubt that the doctor's fiat regarding the date of return to work is the dominant influence on the patient's behaviour, the industrial physician has an important rôle to play by using his influence with general practitioners and surgeons in the hope that they may be induced to adopt a more rational attitude to the conduct of convalescence. On the other hand there are times when an attempt must be made to restrain the zeal of surgeons whose ingenuity in devising new operative procedures seems limitless. An extremely simple example is the use of the Kirschner pin in the treatment of mallet finger. This technique undoubtedly gives a good result in many cases, but while the pin is in position the affected hand remains completely useless—up to six weeks perhaps. The mallet finger deformity if untreated is negligible, and there is for all practicable purposes no disability as a result of it. So I think that in the average worker it is better to leave the condition untreated than to submit him to the loss of many weeks' earnings. Of course the position may be different if the patient is a woman in whom anatomical restoration is desirable for cosmetic reasons, or perhaps in the case of a highly skilled craftsman engaged in delicate work. Physicians too have to be persuaded sometimes into understanding that a workman just cannot afford prolonged conservative treatment involving loss of time, if surgical treatment is likely to bring about a more speedy cure. Thus a short trial of conservative treatment for peptic ulcer may be justifiable, but if relief is not soon obtained one or another of the modern operations should be considered promptly and not as a last resort.

This brings me to mention how few of our hospital colleagues seem to understand how the other half of the world lives—and even some family doctors share this failing. They will cheerfully advise a workman to remain away from work for
a long period for what often seems quite an inadequate reason, oblivious of the financial hardship that this may entail. Strangely, too, the younger hospital doctors seem to be amongst the worst offenders; this may perhaps be due to the inexperience of youth, although one must also admit that in the provinces at any rate many junior hospital posts are held nowadays by men and women from distant parts of the Commonwealth and from foreign countries, who may have little understanding of social conditions in this country.

Follow-up examinations which carry similar financial sanctions are also arranged in the same light-hearted way for conditions most of which could quite easily be handled by the physician in industry or the personal doctor, and every attempt must be made to safeguard the patient against exploitation of this kind. To be fair I must say that in my experience when the situation has been made plain to those responsible for it they have usually been prepared to co-operate, but of course much tact is needed, for our motives are liable to be misunderstood.

Much has been said and written about the importance of the physical process of rehabilitation and while no one would deny the need for reconditioning of muscles following an enforced period of inactivity, in general I have not found adaptations of machines or other special arrangements needed when the return to work takes place. In most cases it is graduated rather than specialized work which is required; in fact I would almost go further and say that special departments for the rehabilitation of the injured may be something of a danger. Once again it is a question of morale which it seems to me is more likely to be enhanced if a man continues to work with his mates in a normal production shop.

The merits of the Industrial Rehabilitation Units sponsored by the Ministry of Labour have been given much publicity since the first was established during the latter years of the Second World War, but I must honestly say that I have hardly ever found it necessary to refer people to an I.R.U. and, despite the good results which have been claimed for these establishments, I have the feeling that a certain number of " scallywags " whose need is psychological rather than physical find their way into them. This may well be due in many cases to the corrupting effect of absolute leisure; the fault may not be so much in the patients themselves as in those responsible for their care. I think it is fairly obvious that I am something of a nihilist about certain aspects of rehabilitation.

The Keeping of Records

Osler (1906) once said, "It is only by collecting data and using them that you can get sense." Surely no greater opportunity exists for the study of a cross-section of humanity than in the practice of occupational health. But in order to do so proper records are vital: Fulton (1944) has referred to them as the 'seeing eye' of industrial medicine, and indeed this sums up their function. I suppose there may be almost as many methods of keeping medical records as there are doctors in industry; day books are much used for the day-to-day recordings of casualties and although I myself prefer a full-scale card index system I would not dare to say that one system is better than another. Nevertheless I do think at least two index cards are necessary if full information is to be readily available about the experience over a period of time of any given person. One is an absence record similar to the standard form proposed in a special report of the Industrial Health Research Board in 1944. The other is a code card based on that originally devised by Fulton. This card is divided into 240 1" x ½" sections and is capable of holding in code for the average employee a ten to fifteen years' record of every injury and medical condition treated in the Works Surgery. The right-hand half of the card is reserved for medical conditions and the left for surgical. This coding system is a veritable mine of information but I shall not discuss it further now except to point out the obvious, namely that it consists of a minimum of symbols and is a simple form of industrial medical shorthand. From the code card and the absence record alone it is possible to study the experience of the individual worker and of the group in much detail. So far as the individual worker is concerned careful and regular study of the record will often indicate a need for special measures to guard against certain kinds of injury or ill health; the code card will also show clearly and speedily whether or not the measures taken have been effective. Group study is equally important, and I have already shown one of the uses to which records may be put in describing the Butterley experience of the duration of convalescence after abdominal operations. I shall have more to say on the value of records in group study later, but I should now like to make a digression and its relevance will shortly appear.

The practice of occupational health is not a specialty in its own right but rather a special application of medicine. The fact that such a wide range is covered in the many ramifications of industry and commerce must necessarily mean that the medical problems which arise from time to time
TRANSACTIONS OF THE ASSOCIATION OF INDUSTRIAL MEDICAL OFFICERS

will involve widely different disciplines. From this it follows that no one doctor can possibly hope to be a master of every specialized detail in occupational health; however deep the knowledge of toxicological problems which the industrial physician working in a chemical plant may possess, he would be unlikely to claim the same special understanding of the pneumoconioses.

This leads me to talk about the need for industrial hygiene laboratories which it has been proposed should be set up in this country for the purpose of investigating chemical, physical and biological problems which the industrial physician may find beyond his competence (Schilling et al., 1960). I think something of this sort is bound to come, but in my view it would be a mistake if such institutes were to be charged with the duty of fundamental research as is done in some of those on the continent of Europe and in the United States. The endless repetition of routine tests could be a frustrating experience for the director of such an institute, but industrial medicine covers many disciplines and basic studies should be the prerogative of the special university department—physiology, radiology, physics, or whatever it may be—and research should be initiated by it. Naturally in such work co-operation with the occupational health institute would be essential so that perhaps in this way dull routine might be mitigated. The industrial physician, especially the newcomer to industry, must not take anything for granted, and he must form his own conclusions from his own experience.

To quote Osler (1906) again, "Get accustomed to test all sorts of book problems and statements for yourself and take as little as possible on trust."

Although nobody can hope to be an all round specialist in occupational health, nevertheless each one of us in his own particular sphere has I think very special knowledge albeit perhaps in a rather narrow field. On the other hand it is true that all doctors working in industry have some problems in common, although one cannot generalize and all too often it is supposed that what obtains in one industry is also true of another. Every industry and indeed one might say every job has to be judged separately and it is for this reason that the physician in any given industry is or should be possessed of a knowledge of the working conditions in his own organization to which no other doctor can aspire. The investigations of the Committee on the Health of Munition Workers (1917) concerning the effect of long hours of work were undertaken primarily to determine their effect on productivity, and since it is a commonplace that fatigue reduces efficiency, it is not surprising that the reports showed this was in fact the case. However, as a by-product of these investigations it was also shown that sickness absence was less when the hours of work were reduced, and largely on the basis of these findings a shorter and shorter working week has been advocated partly, at any rate, on the ground that the health of the workers would be correspondingly improved. This brings me after a rather long journey back to my records, which showed that in two comparatively small units, each having a very stable labour force, the sickness rate was extremely low although the hours of work were long. One was a quarry employing an average of 18 people, who over 11 years lost a mean period of 4 days per person per annum due to sickness and accident combined. The other unit was the Butterley Farms Department in which the average number of workers was 66, with a mean loss of time over the same period of 5 days per person per annum as a result of sickness, and 0.8 days from accident. Accordingly I thought it would be instructive to find out a little more about the effect of hours of work on health in some other occupation, and I chose for study the records of a group of 45 foundrymen who had been continuously employed over the years 1951/1959. There was no reason for using this group except that much of the information had already been extracted for other purposes.

The normal working week for these foundrymen was one of 44 hours, and I regarded anything more than 8 hours overtime per week as "high" and below that figure as "low", and by chance the numbers were as equally divided as possible, "high" 23, "low" 22 (Table II).

In arriving at these figures I took into account absence due both to sickness and to default, since I do not think that for this purpose any true distinction can be made between them. In the case of those working on average less than 8 hours overtime per week over the 9 years, 10 people (43.5 per cent) had a mean loss of 5 days or less per person per annum, and 12 (54.5 per cent) a loss of more than 5 days per person per annum. On the other hand amongst those working an average of 8 hours or more overtime per week during the same period, 9 (39.1 per cent) experienced a mean loss of 5 days or less per person per annum, and 14 (60.9 per cent) a mean loss of more than 5 days per person per annum. Thus the amount of time lost by the two groups did not vary greatly; comparing the mean number of days lost per person per annum, one found that amongst those working on average less than 8 hours overtime per week, the figure was 10.5 and in the group working on average more than 8 hours overtime, it was slightly less, namely...
I refer to the problem of the accident-prone. which I have found the study of my records helpful, because someone else said so. Careful records of all accidents, particularly lost-involved. Long hours are not necessarily harmful to health. However, the kind of work and the conditions under which it is done must influence the effect of overtime on the workers. Long hours spent in monotonous repetitive work are commonly held to be particularly harmful and it is fairly generally assumed that repetitive work is the normal practice throughout industry to-day, although I doubt whether most of us would be prepared to agree with this proposition; I believe to whatever lengths mechanization and automation may go a considerable number of craft jobs will always remain.

It is frequently said that doctors and other professional people are lucky, since their work is interesting and creative, and for them it is hard to define exactly where work begins and ends: it is deduced from this that although the professional person indeed puts in long hours they are without ill effect on his health and that the contrary is true of people in other walks of life because the work they do lacks interest and is not creative. It may be true to say that a workman is able to draw a sharper distinction between work and recreation than the professional man but it seems to me unwarrantable and arrogant to assume that what appears dull and uninteresting to an outsider necessarily seems so to those who undertake jobs of this sort. I said earlier that work dominates the lives of most people, and is indeed their major interest. Anyone who will encourage workmen to talk about themselves will soon prove the truth of this, and may also be surprised to hear of the satisfaction which they gain even from so-called unskilled jobs which often require more skill than is supposed. So all in all I really cannot accept the thesis that relatively long hours of work of themselves are necessarily detrimental to health. Surely the lesson to be drawn from this is that work must not start laying down the law about the ill effects of overtime without very careful consideration of the kind of work and the kind of people involved. Long hours are not necessarily harmful because someone else said so.

I should like now to turn to another topic on which I have found the study of my records helpful, I refer to the problem of the accident-prone. Careful records of all accidents, particularly lost-time accidents, are for many reasons essential in industry, and over the years I have made a point of reviewing the circumstances of every accident involving loss of time in relation to the physical health and general background of the injured person. With the help of the code card and the absence record it has been possible also to study the incidence of both trivial and lost-time accidents, and the sickness and absence experience of these individuals. To my surprise I found that the records of those people with a susceptibility to small accidents showed that they had greater liability to sustain serious accidents than others. Now the hypothesis that all workers do not start in life with an equal risk, but that some are more liable to sustain accident than others, is the basis of the concept of accident-proneness which was first put forward by Greenwood and Woods (1919) following their studies for the Industrial Fatigue Research Board. Their report and the others which followed it describing investigations (Newbold, 1926) in which the original work was repeated and extended, are almost the only part of the vast amount of research undertaken by the Industrial Health Research Board and its predecessors, which has made any noticeable impact on the public at large; indeed the phrase "accident-prone" has now passed into the language. Since our observations lent no support to the thesis of Newbold that people showing a susceptibility to small accidents should be placed in or transferred to work not carrying much risk of serious accident, a five-year study of the records at one of the Butterley Works was undertaken in conjunction with the British Iron and Steel Research Association. I shall not weary you with a detailed analysis of our findings, since they will be published.
elsewhere, but the evidence we collected supported
the view that the observed differences in minor
accident records reflect differences in the reporting
of accidents by individuals rather than differences
in their proneness to accident: thus the reporting
of a high number of trivial accidents by any given
worker cannot be regarded as an indication that he
is more liable to sustain serious accident.

There are many other factors involved in this
study with which I have no time to deal here and I
have mentioned it not so much for any intrinsic
value it may possess as a piece of research, but to
emphasize the importance of keeping adequate
records and to underline some of the uses to which
they can be put. However if the findings of this
study are accepted, then it is clear that in seeking to
supervise the health of the worker, to guard him
against accident and to sustain his morale the
industrial physician has a full-time job on his hands.
He is faced with one of the most difficult tasks
which a doctor can be called upon to undertake
since he has to deal with all the many vagaries of
human nature. Osler (1906) as usual has summed
it all up:

Our study is man as the subject of accidents or
disease. Were he always inside and outside cast
in the same mould, instead of differing from his
fellow man as much in constitution and in his
reaction to stimulus as in feature, we should, ere
this, have reached some settled principles in our
art.

And I think all doctors remain interested in people,
even if only as armchair clinicians.

In the course of this lecture I have tried to outline
some of the ways in which clinical medicine may
make a contribution to the improvement of the
health of the industrial worker, but all that I have
said has already been so lucidly stated by Smiley
(1956) in a memorable essay, that I cannot refrain
from quoting him:

"We as doctors are constantly in touch with
people in need, always aware of human frailty
but ever conscious of the potentialities of
goodwill and occasionally of greatness in those
amongst whom we work." He concludes:

"Occupational medicine as a vocation beckons
to it technically good doctors, generous in their
sympathies, liberal in their sentiments, humble in
their ignorance, adventurous in their seeking, and
courageous when as sometimes happens they are
misunderstood by those whom they serve."

These reflections are not profound or very
original. They are in fact only a collection of other
men's flowers, if I may presume to borrow a phrase
from de Montaigne. But Hubert Wyers would
not have had me end with an English rendering
from a latter day Romance language, so I shall
close with a well-known line from Terence which I
think is fitting and would have pleased him:
Nihil dictum est quod non est dictum prius.

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