THE GENERAL PRACTITIONER AND INDUSTRIAL HEALTH*

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May I first thank the College most sincerely for inviting me to give this lecture, one of the greatest honours which can be bestowed on a general practitioner in this country. I am particularly proud of being one of the founder members of the College, although I must confess that a fairly full life has prevented me from taking any active part in the work of the College.

To follow in the Mackenzie tradition is a most stimulating experience, particularly when one has read the lecture by our President on " Our Heritage ". May we all strive to emulate our worthy teacher, and so raise our branch of medicine to the high plane to which it rightfully belongs.

The title of the lecture caused me some anxious moments. For example, a trite phrase like " the Family Doctor and the Factory ", could be misconstrued with the limitation imposed by the use of the word " Factory ", and again one wonders whether people nowadays appreciate the full significance of the term " Family Doctor ", so I have compromised with the present title.

Much on the subject of Health in Industry has been spoken and written in the last decade—possibly too much—and we have been planning for years—too many words and too little action. After all this discussion, it is difficult to find new ideas, and in a somewhat cynical vein, one might wonder whether the title might not have been " Lost Opportunities " which have gone with " Forgotten Horizons ".

I will not try to compete with the wonderful efforts of my predecessors in this lecture—your President—our President—whose clarion call to the profession must be accepted; with the lyrical phraseology of our rural David from St Clears, who, with melody in his voice, showed us a soul enriched by his commune with nature —I cannot cajole you on the art of consultation—the advice you have received in all of these lectures has always been practical and well worthwhile. There has tended to be a slight emphasis on rural practice, and, of course, we are told that the best standards in general practice are often seen in our rural practice. Be that as it may,

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today I have to take you into the urban industrial areas, the slums of our Industrial Revolution, the soot, the smoke, the smells, and the grime of that social revolution where clean air is at a premium and human life used to be worth less than the machine. A sudden transformation, you may declare, and perhaps an angry one, but I am adjured not to be too controversial, which is not easy for one with a typical Celtic temperament. This I give you: I believe in my mission, which for years has been to justify the position that general practitioners have a major part to play in the promotion of industrial health.

The truly rural areas are no longer immune from the new developments of industry—the mechanization of agriculture, the siting of nuclear energy stations in rural surroundings—the toxic nature of the increasing number of pesticides and insecticides; for example, the recent death of a farm labourer's wife due to drinking water from a well contaminated by sodium arsenite—do we know the effects on animals of hormone selective weed killers? These are problems, new problems for the rural practitioner. But what are the problems of doctors in industrial areas? Sir David Munro, many years ago, with a certain touch of cynicism, said " the organic chemist is an inventive menace to health ".

Daily we have new substances, new metals, new alloys, new plastics, new resins, new chemicals, supersonic sound. Do we know of the cumulative effects of minimal doses of radiation, of the possible carcinogenic effects of new and lethal fumes? Radio-active isotopes are now used in over 500 factories in this country. A recent report from the Chief Inspector of Factories on Industrial Health says: " As in previous years there has been concern over the reports by the Radiological Protection Service indicating airborne radium contamination of film badges in thirty-nine instances in eighteen factories ".

In 1931, *The Lancet* speaking of the metal, beryllium: " Beryllium seems to be the Admirable Crichton of metals. To charge such an admirable metal with having poisonous properties is about as distasteful as accusing a trusted butler of stealing the family plate ". Yet we know that " fatal beryllium disease has been reported in persons who are exposed to very small concentration of beryllium, because they lived within a mile of a beryllium plant or habitually handled beryllium workers' clothing ". New processes are daily causing new casualties who will only be identified in the process of time, and then only because people have died. Chronic bronchitis is not necessarily a disease of industry, but adverse environmental conditions in industry can materially affect its progress.

There are many first class employers in industry in this country

who are fully conscious of their responsibility for the health of their employees, but there are far too many who do not maintain even the minimum standards required by legislation, as recent investigations have clearly shown.

My interest in the subject of industrial health goes back to my student days when part of my vacation was spent in an armaments factory in the first world war. I worked at the bench and on the various machines. I assisted in the drawing of steel water tubes from red hot billets—I saw the accidents, too many of which could have been avoided, and I wondered. My first general practice was in South Wales in a valley of coal mines and tin plate works, and the industrial environment was again thrust upon me. I lived through strikes—local strikes, general strikes—and again I wondered. I saw the hovels in which families lived and died, and began to realize how the environment of work and home were so closely linked together. I saw beds which, in the shift system, were never unoccupied and this was in 1924: the numerous and severe accidents associated with the mining industry, the ill health, the coughs that would not stop, the septic wounds which would not heal, the limbs so easily lost, the lives so quickly gone, and again one began to realize the implications of work. Were these conditions so very different in 1924 from those of the early days of the Industrial Revolution when Lecky wrote:

> The sanitary neglect, the demoralization, sordid poverty, the acute and agonizing want prevailing amongst great sections of the population of our manufacturing towns, can hardly be exaggerated. . . . The transitions of industry are always painful, but very few have been so much so as those in the closing years of the eighteenth century.

We have seen other transitions or revolutions, increasing mechanization, now automation and atomic energy, each change bringing with it fears, many of these fears being groundless, but a quick look back into history justifies the basis of some of them. One of the problems of the future—possibly the near future—will be the intelligent use of leisure. To me, it seems inevitable that the new developments in industry must mean shorter working hours or unemployment. There are already signs that we as a country have not prepared for this, and it is essential for us to adjust ourselves to a changing social pattern, and to act on it, e.g., political interests.

Meiklejohn in his Industrial Health Lecture in 1958, in referring to the Windscale accident, said:

> History was repeating itself. In 1784 the growing points of the challenge were represented by steam, Radcliffe and Percival. In 1957, by the atom, Windscale and Fleck. On this occasion, however, circumstances were vastly different. In 1784, the challenge comprised the excessive labour of children and young persons for 60 hours per week or more. Under-nutrition, malnutrition, grossly insanitary conditions, acute infectious disease and physical

strain and illiteracy. By 1957, all these matters had been substantially remedied, or at least ameliorated. By contrast, the new challenge includes the ageing population, the elderly workman, the use of leisure associated with a 48 hour week, diminishing to 40 hours, mental stress, the maintenance and promotion of health, the rehabilitation and resettlement of persons handicapped from any cause, and technical education. On the previous occasion, there was no experience to guide the reformers. This time we cannot plead such handicap. How then do we view the new challenge, and by what means shall we meet it?

My further medical experiences in industry occur in Scotland, North Wales and Yorkshire, in a wide variety of industries, and there is always more to learn.

The Growth of Knowledge of Occupational Health

The idea of considering a man in relation to his environment is not a new one in medicine. It follows the best biological principles and is in the Hypocratic tradition which enjoins us to seek " the relationship of man with his way of life, and the influence of everything on every man ". Hypocrates in B.C. 355 recognized some of the effects of work on health when he spoke of the harmful effects of working in lead and the poison which resulted therefrom. Pliny the elder, spoke about the harmful effects of dust, and told us in the period of his life—A.D. 23 to A.D. 79—" Vermilion refiners covered their faces with a loose bladder, which enabled them to see what they were doing without inhaling the fatal dust ". In the sixteenth century, the German physician, Agricola gave a classic description of mining for metals in central Europe in very considerable detail in some twelve volumes. Paracelsus, a Swiss physician, who travelled all over Europe, published a book on the diseases which affected miners and smelters, and in the year 1530 he described the chronic lung troubles as " consumption, asthma and dyspnoea ", and here we are in 1959, embarrassed by 4,000 cases of pneumoconiosis notified in this country yearly.

In the year 1700 an Italian physician called Ramazinni published a comprehensive treatise covering the fields of occupational diseases, not only of craftsmen and labourers, but also intellectuals. This was the result of nearly 40 years extremely hard work, but he classified the disease of nearly 100 different occupations, which entailed hazards at their work. This genius, who is properly regarded as the Father of Occupational Health, stressed how important it is for the physician to know the occupation of a patient. In a notable passage in his book *De Morbis Artificum Diatriba*, he states:

> There are many things that a doctor on his first visit to a patient ought to find out, either from the patient or those present. For so runs the oracle of our inspired teacher Hypocrates who says 'When you come to the patient's house you should ask what sort of pains he has, what caused them, how many days he has been ill, whether the bowels are working, and what sort of food he eats'.
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> Ramazinni adds one more question—What occupation does he follow? and continues—Though this question may not be concerned with the exciting

causes, yet I regard it as well timed or indeed indispensable, and it should be particularly kept in mind when the patient to be treated belongs to the common people. The servile position of the workman in the days of Socrates was continued into the class distinction mentioned by Ramazinni.—In medical practice, however, I find that attention is hardly ever paid to this matter, or if the doctor knows it without asking, he gives little heed to it; though for effective treatment evidence of this sort has the utmost weight.

How true, and how amazing that in this twentieth century the same point is so often missed, and how little the importance of the impact of environmental and working conditions on health is fully appreciated. Ramazinni asked for the development of industrial medicine as a speciality, in order that workers could earn their living without suffering bodily sickness or injury as a direct result of it. Some cynics of that time suggested that the unemployed at least were healthy. Ramazinni recognized the limitations of respirators as general aids to prevention, but he advocated their use as protection against certain omissions of poisonous gases. He condemned the absence of ventilation and in default of any established exhaust system recommended that workers in dusty trades should work in spacious rooms with their backs to a draught, should wash their faces and rinse their mouths frequently with water, and should quit working immediately if threatened with lung trouble. Amongst other preventive measures which he advised were rest intervals, changes of posture, personal cleanliness, and moderation in food and drink. All these premises hold good today.

In our own country, the introduction of the steam engine in the later eighteenth century drove people from rural areas to the towns, and virtually forced workers into factories. This industrial revolution multiplied very considerably the occupational diseases, and increased the hazards of the workers both in the factories and in the communities outside the factories. We have not time today to delve into the horrible details of the employment conditions of those times, but they were as sordid as the conditions of the slaves for whose freedom this country at that time was fighting to obtain.

During the eighteenth century, Percival Pott began to take an interest in cancer of chimney sweeps; Robert Willen into the skin diseases associated with bakers, shoemakers, grocers and metal workers. The " contagious fevers " of the cotton industry gave Manchester physicians Percival and Ferrier an opportunity for research into industrial conditions and to start the Manchester Board of Health. But the realization of social ill-doing was probably the predominant motive in the attempt to improve industrial conditions between the end of the eighteenth century and the mid-Victorian era. The first attempt to improve the lot of the factory worker was Sir Robert Peel's Act of 1802 on the Health and Morals of Apprentices.

This restricted hours of work, prohibited night work for children, required factories to be white-washed and ventilated, and empowered magistrates to inspect factories. The Act allowed for too many loopholes for non-observers. However, it was the efforts of individual philanthropists, themselves members of the governing classes indicted for their victimization of the workers—Fielden (Lancashire mill owner), Oastler (Yorkshire land agent), Lord Shaftesbury—these all became very active and were supported by writers of that period who won the ear of the public; for example, Dickens, Kingsley, Mrs Gaskell and others. The social conscience was slowly awakening, but the results were limited by the fact that men were slow to learn—indeed, some did not wish to learn—that, without administrative machinery to give them life, Acts of Parliament are merely words. Nowadays, in contrast, we seem almost strangled by administration.

As early as 1830 a Bradford employer (John Wood) appointed a works doctor to watch over the health of the juvenile workers. He installed baths in his works, and arranged for his factory children to have seaside holidays. Crowley Ironworks had not only a doctor, but a clergyman and a school master to look after their workers' interests, and in Scotland we hear that " Mr John Smith of Deanstown near Stirling, employed the services of a medical gentleman to inspect the workpeople from time to time to give them timely advice, and, as far as possible, to prevent disease ".

Unfortunately, these were isolated examples, but we in Leeds properly claim some responsibility for subsequent legislation because of the report in 1832 of Charles Turner Thackrah, a Leeds general practitioner and founder of the Leeds Medical School, who published a book on *The Effects of Arts, Trades and Professions of Civil States and Habits of Living on Health and Longevity.* He includes suggestions for removal of many of the agents which produce disease and shorten duration of life. Meiklejohn writes in his book on Thackrah:

> Thackrah was a good General Practitioner and Clinician keenly observant of the effects of work and social factors on the health, not only of the masters and workmen, but on the whole community from childhood to old age. The methods which he employed embraced careful clinical investigation, analysis of the occupational processes, materials, hazards and environment, by personal visits to the places of employment, and always there was accurate recording and objective assessments of the facts. We realized the need for the education of masters; workmen, doctor and legislators, always towards the supreme objective—prevention.

This survey of working conditions in industry had a powerful impact on the introduction of the Factory Act of 1833, carried through by Fielden (already mentioned) against bitter opposition in Parliament. This Act regulated the hours of children and young

persons in mills and factories, and empowered the Government to appoint paid factory inspectors. The Act made it compulsory for children of 9 to 13 to have a certificate of physical capacity to undertake the work provided by a surgeon before they could start work, and this was the beginning of our system of certifying factory surgeons, now called Appointed Factory Doctors and who are in the vast majority of cases general practitioners. The Act was remarkable in that it required not only the inspection of factories, but also the education of all children in factories under the age of 13, who had to go to school for two hours a day in works' time. Children 9 to 12 were limited to nine hours a day and forty-eight hours a week, 13 to 18 to twelve hours a day or sixty hours a week; night work for children and young persons was prohibited. Again there were so many abuses and omissions that Lord Shaftesbury pushed forward the 1844 Act, which was a compromise to the demands of the workers for a ten hour day. This affected women and young children who should not work more than ten hours a day. There was bitter opposition to all these Acts, but in 1850 a further Act was passed which limited the working day for women and young persons to between 6 a.m. and 6 p.m. or 7 a.m. to 7 p.m. with a two hours interval, this achieving for the first time a real ten hours working day. To the surprise of the owners and the factory inspectorate, production did not drop, and a ten hour day became the legal maximum till 1937. Many other Acts to improve working conditions were passed in the intervening period, mostly in connection with specific industries and hazards, but the 1937 Act reduced the hours to nine a day with breaks, or a forty-eight hour week. Now, in 1959, we find demands for a 40 hour week, and indeed some Commonwealth members have achieved this working week for all their industries. This is a very brief account of the evolution of the Factory Acts. We had a subsequent one in 1948, and our latest is in 1959, which not only tightens the standards of first aid, but has given the Minister of Labour and National Service " the duty to promote health, safety and welfare in factories and premises to which the Acts apply by collecting and disseminating information and investigating and assisting to investigate problems of health, safety and welfare ".

The factory inspectorate, first of the Home Office and later of the Ministry of Labour and National Service, with severely restricted resources both of manpower and finance, has done magnificent work, but it had an impossible task, and so much more remains to be done that might have been done. We have in this country a quarter of a million factories, and we have nearly four hundred inspectors, including specialists in chemicals, engineering, etc., and a varying medical inspectorate of twelve to eighteen to cover all

these factories, over 200,000 of which have less than twenty-five workers—and how often can they be visited? Obviously an impossible task. But we must really applaud their achievements, for example, the very considerable work done on lead poisoning and many other environmental and toxicological factors. We must also pay very marked tribute to the 1,800 appointed factory doctors, many of whom have contributed in no small measure to the improvement in working conditions and the health of the workpeople. Unfortunately, one must admit here that the standards vary too much, and the supervision is inadequate. It must be so with so few medical inspectors. The huge areas covered by these medical inspectors do not allow of their potential being fully realized, and the dead hand of the Treasury must be forced on this issue. Everybody in industry realizes the need for expansion of both medical and lay inspectorate, and public opinion must be mobilized to make this issue a *must* on the part of the Government.

The development of industrial health services in the country has been quite unco-ordinated, provided by the Government, private industry, nationalized industries, with no clear pattern, no integration, and nobody's particular responsibility. Many firms employed doctors prior to the last war, but the emphasis in those days was too often simply on the exclusion of all but fit men, in an era of considerable unemployment and without any regard to skill. This led in turn to opposition on the part of organized workers to any idea of pre-employment examinations. Other firms, however, established most excellent industrial health services with a full realization of how much can be contributed to the creation of a happy and contented industry. The medical services of the Ministry of Munitions in the first world war, and the excellent services of its successor, Ministry of Supply, in the second world war, have shown how much can be achieved by efficient industrial health services. In 1940 Mr Ernest Bevin, the then Minister of Labour and National Service, introduced the Factory and Welfare Order which made it incumbent on firms engaged in armaments manufacture to provide medical and nursing services. Many appointments of works medical officers and industrial nurses were made as a result of this Order. Unfortunately, too many of these were inappropriate appointments of uninformed doctors who did no good to the cause of industrial health. Indeed their ignorance of what can be given to industry by knowledgable doctors led to their early dismissal at the end of the war and comparatively few were retained in a peacetime capacity. In 1941 the British Medical Association published a report on Industrial Health in Factories. The council of the B.M.A., believing that the time was ripe for an extension of industrial medical services on both humanitarian and economic grounds,

appointed a committee to consider and make recommendations on the principles which would govern medical supervision of industrial workers, and stated that more emphasis should be placed on the prevention aspects of industrial medical practice, that there should be closer association between the medical profession and industry, and that the part played by industrial factors in the causation of ill-health and diseases should be more fully appreciated by both practitioners and employers. In this Report, in a section entitled " The Place of Medicine in Industry and the Medical Needs of the Worker " we find the following:

When a worker takes up employment in a factory he has a right to expect that adequate precautions will be taken to safeguard his health, his safety and his welfare. In a factory where an industrial medical officer is appointed, the worker expects that precautions, above the minimum standards laid down in the Factories Act, will be taken to protect him against the particular hazards of his industry, that the health and medical services of the factory will be properly organized, and that the industrial medical officer will, in the event of injury to the worker, act as a liaison with the medical practitioners and hospital services, after initial treatment has been given at the factory. The worker will expect a medical officer to be a man or woman who can be trusted to speak impersonally from the medical point of view to hold the balance between the interests of the employer as such, and the employee as such.

This was a first-class report, and it went into considerable detail on the duties of the industrial medical officer, the staffing of a medical department, the relationship of industry with outside medical services, medical education for industry, rehabilitation, industrial health research and the future of industrial medical practice. It produced a list of duties and ethical rules for industrial medical officers, and an appendix on the training of industrial medical officers, contributed by the Association of Industrial Medical Officers. Much of what was said then holds good today, but progress in the intervening period has been extremely slow.

We must think nowadays in terms of total man and total environment, and you cannot separate man at home from man at work. He is the same man, although it is true to say that his reactions in the various environments may not necessarily be the same. However, in the White Paper on the National Health Service, we find the following:

The proper continuance of environmental and preventive services in school and industry may well be coupled with the habit of using for these services doctors who are already engaged in the personal health service—so that there is a continuous blending of experience in both kinds of work. With the bulk of the profession engaged part-time or whole-time in the new National Health Service, this process can be more readily accelerated, and arrangements more readily made for the proper postgraduate training of general practitioners who are going to engage in industrial or other specialities appropriate to general practice.

These are brave words uttered in 1944, but only in the past two years have we succeeded in getting the Ministry of Health to allow

subjects of occupational health to appear in refresher courses for general practitioners, and this year, for the first time, we are being allowed to run four short part-time courses on occupational health, in addition to two full-time intensive courses at Manchester and London, all of which will qualify for grants from the Ministry of Health.

After these unfortunate intervening fifteen years, it is appropriate to look at the next paragraph of the White Paper and reflect on the narrow concept. This is also another point on which it is necessary to be clear.

> The subject of health in its broadest sense involves not only Medical Services but all those environmental factors, good houses, sanitation, conditions at school and at work, diet and nutrition, economic and so on—which create the conditions of health and prepare the ground for it. All these are fundamental, all must receive their proper place in the wider pattern of Government policy and of post-war reconstruction, but they are not the subject of this particular paper, which is concerned exclusively with the direct services of personal health, care and advice and treatment. No matter how successful the indirect influence of the environmental services may become in promoting good health and reducing sickness, there will remain a need for medical, nursing and hospital services.

We agree, but why deliberately widen the gap between the environmental and the curative services, when medical care obviously must pay regard to the fullest environmental conditions at home, at work and at play. This separation is typical of the tragedies of our welfare legislation.

In January 1945, the Royal College of Physician's Social and Preventive Medicine Committee published its second Report on Industrial Medicine. This again was an excellent report, and in talking about the extensive provisions of the Welfare State, it said:

> It would be hard to say which item of this vast programme is the most important. When, however, it is remembered that a very large number of workers are employed in factories, large and small, in offices, in shops, transport undertakings, in catering establishments, where they spend a third of their working years, it must be clear that the medical hygienic regulation of those working hours is a matter of importance. . . . It must be realized that what happens in the factory affects family life, and good or bad home environment influences factory life—for it is the whole life of a human being which is in question; one or other side cannot be given primacy.

Quoting from the National Health Service White Paper, the college report continues:

> The aim of the new National Health Service will be to provide every person, or better still every family, with a personal or family practitioner, who will be able to become familiar with the circumstances of those in his care in the home and at work. . . .
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> This statement is in full accord with the ideals of modern social and preventive medicine. It lays a just emphasis on the family as the unit for medical care, but it extends the application of medicine to man in his environment, in his work as well as in his home. This is the only true basis of a health service. . . . The industrial health service of the future must be comprehensive and national

in its scope. If this view is accepted, then it is clear that the family doctor has a vital part to play in the service as a part-time industrial medical officer, and that he must be trained for this function. The Committee . . . must emphasize their view that in a comprehensive industrial health service the general practitioners, who will be in the front line of the proposed national health service ' the first source of health on which the individual will rely ' will also be the main body of the industrial health services.

The conclusions reached by this committee were well ahead of the times.

In the immediate post war years there were developments, and industrial medical services were organized for the nationalized industries, and to a smaller extent private industries, but there were fears that they were developing at the expense of the hospital and general practitioner services, particularly in relation to medical and nursing manpower, and that there was considerable overlapping. This led to Mr Attlee, then Prime Minister, imposing a standstill on the future development of occupational health services in this country in 1949, when he set up the Dale Committee to consider the relationships between industrial health services and the other health services in the country. This committee reported to Mr Attlee early in 1951, and Mr Attlee in turn reported to the House of Commons in February 1951 in the following terms:

The committee has found that, in general, doctors and nurses, are well employed in the industrial health services without overlapping with the general health service, and do not think that any developments of industrial health services likely to take place in the immediate future will prejudice the general position in this way. The report recommends that the development of the industrial health services should be encouraged, and properly co-ordinated, and it makes recommendations for the establishment of co-ordinating machinery to this end. The Government accepts the report generally, subject to detailed consideration of the co-ordinating machinery proposed. Accordingly, although the need for the utmost economy in the use of medical manpower still persists, the suggestion I made on the 1st June 1949, that further development of industrial health services should be postponed for the time being, is to be regarded as no longer operative.

The Dale Committee did not indicate which Ministry should be responsible and the Standing Joint Advisory Committee has not yet been set up. That was eight years ago.

I think we have established that the general practitioner has his proper part to play in the sphere of industrial health, and we should now examine the implications of this. We must do this in some considerable detail because of the so many differing ideas on what this involves. In the past two years, quite a number of eminent people have described the relationship of the general practitioner working in industrial health. Lord Taylor who has done admirable work in the evolution of the Harlow Industrial Health Service, and has written at considerable length on the developments in this new town says in *The Practitioner* for August, 1958, " Good general practice is essentially good medicine wherever it is conducted. The

large part of industrial medicine is neither more nor less than general practice conducted in the context of the factory and other work places ".

He then goes on to make an analogy with obstetrics. In the General Practice Section of the Royal Society of Medicine, reported in *The Practitioner* of May, 1959, we have the following three relevant quotations:

Bidstrup. The principles on which the practice of industrial medicine are based are those of general medicine supplied to workers in a particular environment, and the principles of research in industrial medicine are similar to those adopted by clinicians, that is careful observation, recording of observed facts and diligent search to explain them.

Guymer. The title " Industrial Medicine ' is confusing and unsatisfactory, for it conveys the impression that it is a type of medicine quite different from ordinary medical practice. In fact, it concerns the application of clinical knowledge to the problems affecting the health and efficiency of the worker in industry.

Pinsent. The part-time appointment in industrial medicine offers the general practitioner a unique opportunity to observe the environment of a patient in a rational system of health care. Few general practitioners in an industrial city should be without a professional interest in a small factory or two, situated conveniently to the practice area, where one or two sessions a week could both enlarge and enrich his experience of practice and his understanding of the industrial patient who is in his medical charge and care.

Herford—in the *British Journal of Clinical Practice*, referring to the responsibilities of the general practitioner, says—Another special department of medicine —in occupational health—is being developed, which requires specialist knowledge and skill, which can only be gained by study and experience.

Now these contributions, with the exception of Pinsent and Herford—admirable though they all may be—suffer from the same error. They tend to over-simplify this problem. Too many medical officers, with just that limited background and knowledge were drafted, or wafted into industry under Bevin's Factory and Welfare Order of 1940, and what was the result? The result was that during that critical period, many of them completely failed to prove to employers that what they could contribute to industry would pay handsome dividends in the factory or places of employment.

Herford's concept is very much nearer my own. Experience in general practice is essential, even for the full-time I.M.O., and is an excellent background on which to build the responsibility of the part-time I.M.O. But we cannot just loosely dismiss the difficulties of this situation by describing the practice of industrial medicine as merely general practice in a special environment, certainly not in the present state of general practice. It would be different if the emphasis in our general practice had changed from its present role of being mainly a curative service.

In the sphere of rehabilitation, the Ministry of Health has urged doctors to accept responsibility for what some may call a social

function—that of resettlement—but in effect this means that treatment now goes very much further and far beyond generally accepted ideas. This additional medico-social responsibility is fundamental to our continuing progress and existence, and cannot be lightly grasped. Even in the relatively small but important matter of giving a certificate of fitness for work, have we accepted our proper responsibility? Do we know the work, what it involves and its demand on the physical and mental systems of the patient, and its relationship to his total environment? Do we really know the total environment? Too often the answer is *no*, and with our present standard of clinical teaching it will remain so. Social medicine is not, as it would appear, the plaything of those who juggle with statistics and make them prove anything or nothing. It must be the background to our medical treatment, and the occupational history must be an integral part of any case notes or case papers.

Leak has admirably described in our own Journal the reaction of the doctor entering industry and how he gains in experience by all his contacts. But what do we know about functional analysis, job analysis, that unfortunate phrase " light work "? What do we know about the problems of human relations in industry, relations with employers, their organizations and the unions, the ideas of these organizations on the development of industrial health services?

In June of this year I was privileged to go to Geneva to observe the discussion at the International Labour Office Conference on one of the items of the agenda—" The Organization of Health Services in Places of Employment ". In the main, the conclusions contained in the recommendations finally approved by the conference for reference to all participating governments were acceptable to me, and, as it is extremely unlikely that this most important document will receive as much publicity as it should in this country, I am putting it to you today, because it may well shape the pattern of Industrial Health Services all over the world, both in developed and underdeveloped countries, for many years to come. With slight variations, it could quite easily be accepted as the pattern in this country. The requirements of the recommendations indicate quite clearly the functions of the doctor in industry, whether he be full-time or part-time. (Appendix, page 29).

I must apologize for this lengthy catalogue, but to realize our responsibility to industry, it is essential that what is required must be clearly understood, and you may now appreciate my hesitation in accepting quotations to which I have already referred. We have before us requirements of industry, and perhaps it would be reasonable to look at ourselves and, with a proper sense of responsibility,

carefully assess whether we are trained to undertake these requirements.

Training

There has been a tendency in medical schools in recent years to eschew the teaching of preventive medicine and public health, sometimes on the grounds that the new subject, Social Medicine, will take care of those and other aspects. But is this really the case? How often is social medicine taught as a subject, or how often is it really taught as it properly should be, as an essential part in all clinical teaching, and, indeed, in some pre-clinical teaching? The Royal College of Physicians report and other authorities state that doctors must be trained for occupational health—the General Medical Council is rightly reluctant, with an already over-crowded curriculum, to add to the statutory requirements for a degree in medicine. There are those who say that the subject of Occupational Health, like many others, should be left to the post-graduate stage.

Donald Hunter in his Pelican book *Health in Industry*—I most earnestly commend it to you all—dealing with the training of medical students says:

> A good doctor takes into account social and economic factors, conditions of work and leisure, standards of housing, clothing, diet and personal habits. He sees the injured worker as a bread-winner and the woman in child-birth as a wife and mother, the handicapped child as an educational problem and a source of special anxiety for the parents. Hence, from the beginning of his training, the medical student should be led to embrace the notion of a diagnosis which relates both the physical condition and the patient himself to the environment in which he lives, works and plays. The environment of the patient may be thought of as psychological, occupational and special economic. . . . Should the teachers of medicine arrange to take medical students on visits to factories, docks and mines? Undoubtedly they should, but too often they do not.

In the British Medical Association's Report on Industrial Health we find:

> That much more emphasis must be placed on medical education, on the relationship of industry, health and diseases, and efforts should be made to increase the practitioner's awareness of industrial factors in diseases. . . . In each of the main subjects of the curriculum, the student's attention should be drawn to the industrial aspect, and he should be taught to understand the effects of occupation on health.

It also sets out plans for the postgraduate education of the general practitioner in industrial health.

What has been achieved in recent years? In the ordinary curriculum very little, and the emphasis, in my opinion quite wrongly, has been placed on postgraduate training. I am privileged to lecture to final year students on the subject of occupational health, under the guise of " Preventive Medicine ", and the amount of interest shown has been most heartening. I have been asked for more

lectures, but there is no time, and we are unable to arrange the visits to industry which we would like because clinicians cannot allow time away from clinical teaching to attain this objective. The inclusion of a question with an occupational health aspect in the degree examination means that the interest is maintained, in spite of the lecturer, but now we hear rumours that the subject of preventive medicine and public health should be removed from final examinations or indeed any degree examination. Rightly or wrongly in these days when examinations are so fundamental, unless there is a possibility that the subject will be included in the degree examination, the final year student is tempted, quite reasonably, to discard or forget all that he thinks is not essential for examination purposes. That is why I would prefer to have industrial health taught by clinicians, informed clinicians, rather than as a separate subject. But until that stage is reached, it will have to continue to be a separate subject, taught at present in very few universities and medical schools under various guises or subterfuges. In recent years, departments of occupational health have tended to close down rather than expand, and this trend must be fought, because provision must be made, not only for part-time and full-time medical officers, but also for specialist medical officers in this particular field.

There is a demand from all sections of industry, and this was most evident at the I.L.O. Conference in Geneva, for properly trained doctors, but the emphasis is on training. At the moment, the supply of properly trained doctors is not adequate. We must see to it that we can provide these doctors, and we must not forget that most of them will be general practitioners acting in a part-time capacity.

The Joint I.L.O./W.H.O. Committee on Occupational Health Report for 1957 states that there should be at least twelve hours of formal instruction in occupational health for the undergraduate, and defines subjects to be covered. It also suggested that the main function of graduate education was to train specialists. On the subject of postgraduate education, it speaks of two main types, and this is most important for the general practitioner who wishes to take part in industry:

(*a*) Courses to introduce doctors to medical work in industry so that they may use the time they devote to the work to the best advantage.

(*b*) Refresher courses, seminars, lectures, medical instruction and even correspondence courses directed to the doctor already in industry.

It further states that general practitioners should be subsidized to enable them to take part in a postgraduate education, to enable locum arrangements to be made, etc. Now the impetus for the development of these courses must come from the general practitioners themselves, requesting that they be set up, because the response to courses already set up in the past few years has not been as overwhelming as it ought to be. Doctors have been rather wary of undertaking additional training unless they thought that there was a possibility of work in that particular branch awaiting them in the fairly near future, and it has been impossible in recent years to assure them that there will be this work. It is true that it is only within recent months that arrangements have been made for financial cover for doctors taking these courses, but under the impetus of probable further developments in the fairly near future, we hope to find a change of attitude on the part of general practitioners, and I must emphasize over and over again that it is our bounden duty to see that the doctors we offer to industry are properly trained to undertake the work.

I am satisfied that the impetus provided by the Industrial Health Advisory Committee of the Ministry of Labour and National Service, the employers, the trades unions, and certain informed groups of the medical profession, will stimulate a need for rapid development of industrial health services, particularly now that the political parties are using this as part of their platform. We must see to it that these are not just election promises or threats.

Future Developments

There are numerous ways in which health services in industry can develop, for example:

(1) full-time salaried service, independent of any medical service in this country;
(2) a full-time salaried service, integrated with the existing medical services in the country;
(3) a development of the role and function of the appointed factory doctor;
(4) a combination of voluntary and statutory services integrated with the existing health service of the country;

and there are those who are prepared to let industry develop its own services in its own good time.

I think in the first place, we must decide which government department is to be responsible.

I just cannot understand why there has been so much reluctance by government departments to accept the responsibility for this growing branch of medicine, so much so, that one wonders whether it would not thrive better under a public corporation answerable to Parliament.

If positive health, preventive medicine, public health, social

medicine mean anything more than names and if we have accepted our responsibility to regard our aim as the care of total man in total environment, there can be no excuse for a Ministry of Health with such limited horizons that it cannot see the close relationship of man at work with man at home—a Ministry with responsibilities for an accident service—which believes in a concept of rehabilitation —which does some preventive medicine and yet cannot accept the close relationship of preventive and curative medicine as expressed in the association of an industrial clinic with hospital beds. In spite of this, I still think that the Ministry of Health should be responsible.

The Ministry of Labour, in spite of its close association with the Factory Department, is not fitted for the role of co-ordinator or integrator with existing health services, but—if given the responsibility for the administration of an industrial health service—would do it extremely well, provided that it accepted a much wider concept of industry than at present covered by the Factory Department.

Having rather quickly decided departmental responsibility and in the process become liable to a charge of over simplification, we realize that the service must progress by stages, and that services indeed should be tailor-made to suit the differing needs of differing areas and differing industries. Clearly, such evolution will require central co-ordination and careful integration with existing services.

I am opposed to revolution in this sphere and prefer evolution, desiring to take both employers and workers with one in the further establishment of this service. The new towns, the examples of Slough and Harlow, the new trading estates, make this achievement more possible, but we must not forget the old familiar surroundings which will be with us for too many years. Can we introduce health centres for industry in those dark satanic mills and similar surroundings? I feel we must, because grouped round these large structures, are hundreds of smaller factories which cannot economically support individual medical and nursing services. Mr Kershaw (M.P. for Stroud) in a debate in the House on health services this year, referring to the Harlow Industrial Health Centre said—" For the smaller factories of 200 or less, some such provision should be made for industrial health services run by general practitioners, and it may well be that we can start on plans of this kind very soon ".

There was a suggestion that the medical services established in a large factory might take care of those smaller factories around it, but voluntary grouping in industry, area by area or by industry has never got very far. The industrial health services of Slough and Harlow are not typical of British industry, and even they have been bedevilled by problems of finance. It may well be that there will

have to be a statutory service in relation to the small factories and places of work. I regret this, but voluntary effort must first be given every facility to undertake the work, and if this fails, then statutory services must come in.

A full-time salaried service working on its own would not be acceptable to most employers and doctors in this country. A full-time salaried service, working in conjunction with the already established health services, would not, as far as we know, be acceptable to most of the medical profession, and would tend to eliminate the general practitioner from any part-time contributions. The third suggestion of an extension of the function of appointed factory doctors, has obvious merits, particularly as most of these are general practitioners. I think that very soon they might develop into full-time industrial medical officers, and though I have a very high regard for the full-time medical officer, I feel in the nature of things that it is better for this service that the work should be divided between full-time and part-time medical officers. I come, therefore, to my main point, that the more satisfactory development of the health service in industry can be evolved by a combination of voluntary and statutory services which must conform to a pattern, and must be integrated with the existing health services of the country. There will, of course, have to be an increasing number of full-time medical officers, and also a considerable increase of specialist medical officers working in this particular sphere, but inevitably there should be a gradually increasing employment of properly trained general practitioners working part-time in the service. Such resistance as there has been in the past to the employment of general practitioners will largely disappear if we can provide a properly trained person. Co-ordination must not only be central but regional and area standards must also be established and promulgated.

We are particularly concerned also with the development of occupational hygiene laboratory services, which could be established in conjunction with universities on a regional basis, and which must be staffed by experts who are not necessarily all medical, but we must look forward to rapid deployment in this field if the full benefits of medical deployment in industry are to be achieved.

Research

The problem of research looms large in questions of industrial health, and there is a tremendous amount to be done. Great things have been achieved already, but even greater problems remain. The College has already shown by its co-ordinated experience how much can be achieved in the field of research, and I suggest that in this sphere of industry there are many problems which

can be tackled by the College on the basis of its already well-known achievements. Money is bound to be made available for this purpose, and of course the research projects will have to be co-ordinated with the work of the Factory Department of the Ministry of Labour and National Service, the Medical Research Council and the Department of Scientific and Industrial Research. The Industrial Health Advisory Committee of the Ministry of Labour and National Service has already stimulated research projects, and there are many more in the field.

One word before my summary. The problems of human relations and communications are very considerable in industry. Questions of group and individual morale are matters to which great attention is paid, and industry is realizing that still more attention will have to be paid to this important subject really to achieve a more contented working population and employer group than at present, when we are troubled by actions, constitutional or otherwise, which are constantly disrupting industry.

Equally, in our own sphere of medicine, the problem of human relations is just as important, and I am satisfied that what might have been good some years ago when it was thought to be necessary to protect the interest of certain practitioners does not hold good today. I refer to the vexed question of special ethical rules for industrial medical officers. Although what I have to say may be at variance with the present policy of the Ethical Committee of the British Medical Association, I am satisfied that we no longer require special ethical rules for industrial medical officers. The ordinary human and professional relationships existing between ourselves and colleagues in other branches of the profession must be improved, and this doesn't apply only to industrial medical officers. We are one profession, we should be one brotherhood, each accepting the other's contribution to our ultimate aim—that is positive health in our nation. We recognize the differences which inevitably exist, and will always exist because we are so essentially individualists, but we must develop a group consciousness, a professional consciousness, one of my pleas to you is that the past should be forgotten, and that from now on we realize that our colleagues in industrial medicine are our colleagues in a noble profession, with whom we can work perfectly amicably without any special set of rules governing their conduct, a set of rules which has only led to a worsening of conditions and increasing troubles. Inevitably, as I have already said, there may be incidents and difficulties, but these can be ironed out perfectly easily by the adoption of good human relationships with the members of our profession, and I hope before very long that the Ethical Rules for Industrial Medical Officers may be swept into an appropriate receptacle.

Summary

I have endeavoured briefly to trace the position of the general practitioner in industrial health through the ages—to point out that informed medical opinion considers that general practitioners should play an increasing role in this sphere—to give you the up-to-date functions which are an inherent part of his responsibility in this particular sphere—to indicate that these responsibilities require adequate training if we are to give industry the contribution to which it is entitled—to apportion the departmental responsibility for the service—to emphasize that future developments in this service should be by evolution rather revolution and by a combination of voluntary and statutory services, but that if voluntary services fail, statutory services must be organized; finally that research in this field is most appropriate work for members of our College in co-operation with all the other agencies.

There is much more that one would wish to say, but luckily there is a time limit, and you have been most generous in your forbearance. Lord Moyniham spoke of the doctor's joy in that he lives in a land of advancing frontiers. I began with " lost opportunities " and " forgotten horizons ", but my final word is one of hope, of increasing opportunities to attain by your efforts the ideal of a happy and healthy working population in a healthy working environment—a somewhat hackneyed phrase, which is not so easily achieved as its triteness would suggest—opportunities for dynamic leadership in a branch of medicine which has the greatest potential for expansion.

Having mentioned the Dark Satanic Mills, and realizing that the Industrial Wealth of this Nation of ours has been achieved at the cost of all too many human lives and too much suffering, I finish with:

I shall not cease from mental fight,
Nor shall my sword sleep in my hand,
Till we have built Jerusalem—
In England's green and pleasant land.

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APPENDIX

Geneva Recommendation on the Organization of Health Services in Places of Employment, June, 1959

I. Definition

1. For the purpose of this Recommendation the expression " occupational health service " means a service established in or near a place of employment for the purposes of—

(*a*) protecting the workers against any health hazard which may arise out of their work, or the conditions in which it is carried on:
(*b*) contributing towards the workers' physical and mental adjustment, in particular by the adaptation of the work to the workers and their assignment to jobs for which they are suited; and
(*c*) contributing to the establishment and maintenance of the highest possible degree of physical and mental well-being of the workers.

II. Methods of Implementation

2. Having regard to the diversity of national circumstances and practices, occupational health services may be provided, as conditions require—

(*a*) by virtue of laws or regulations;
(*b*) by virtue of collective agreement, or as otherwise agreed upon by the employers and workers concerned; or
(*c*) in any other manner approved by the competent authority after consultation with employers' and workers' organizations.

III. Organization

3. Depending on the circumstances and the applicable standards, occupational health services should be organized either by the undertakings themselves or attached to an outside body—

(*a*) as a separate service within a single undertaking; or
(*b*) as a service common to a number of undertakings.

4. In order to extend occupational health facilities to all workers, occupational health services should be set up for industrial, non-industrial and agricultural undertakings, and for public services. However, where occupational health services cannot immediately be set up for all undertakings, such services should be established in the first instance—

(*a*) for undertakings where the health risks appear greatest;
(*b*) for undertakings where the workers are exposed to special health hazards;
(*c*) for undertakings which employ more than a prescribed minimum of workers.

5. Where the organization of an occupational health service, as defined in this recommendation, is not for the time being practicable, for such geographical or other reasons as may be defined by national laws or regulations, the undertaking should make arrangements with a physician or a local medical service for—

(*a*) administering emergency treatment;

(*b*) carrying out medical examinations prescribed by national laws or regulations; and

(*c*) exercising surveillance over hygiene conditions in the undertaking.

IV. Functions

6. The role of occupational health services should be essentially preventive.

7. Occupational health services should not be required to verify the justification of absence on grounds of sickness; they should not, however, be precluded from ascertaining the conditions which may have led to a workers' absence on sick leave, and informing themselves about the progress of the worker's illness, so that they will be better able to evaluate their preventive programme, discover occupational hazards, and recommend the suitable placement of workers for rehabilitation purposes.

8. The functions of occupational health services should be progressively developed, in accordance with the circumstances and having regard to the extent to which one or more of these functions is adequately discharged in accordance with national law or practice by other appropriate services, so that they will include in particular the following:

(*a*) surveillance within the undertaking of all factors which may affect the health of the workers and advice in this respect to management and to workers or their representatives in the undertaking:

(*b*) job analysis or participation therein in the light of hygienic, physiological and psychological considerations and advice to managements and workers on the best possible adaptation of the job for the worker having regard to these considerations;

(*c*) participation, with the other appropriate departments and bodies in the undertaking, in the prevention of accidents and occupational diseases and in the supervision of personal protective equipment and of its use, and advice to workers and management in this respect;

(*d*) surveillance of the hygiene of sanitary installations and all other facilities for the welfare of the workers of the undertaking, such as kitchens, canteens, day nurseries and rest homes and, as necessary, surveillance of any dietetic arrangements made for workers;

(*e*) pre-employment, periodic and special medical examinations—including, where necessary, biological and radiological examinations, prescribed by national laws or regulations, or by agreements between the parties or organizations concerned, or considered advisable for preventive purposes by the industrial physician; such examinations should ensure particular surveillance over certain classes of workers, such as women, young persons, workers exposed to special risks and handicapped persons;

(*f*) surveillance of the adaptations of *jobs to workers*, in particular handicapped workers, in accordance with their physical abilities, participation in the rehabilitation and re-training of such workers and advice in this respect;

(*g*) advice to management and workers on the occasion of the placing or re-assignment of workers;

(*h*) advice to individual workers at their request regarding any disorders that may occur or be aggravated in the course of work;

(*i*) emergency treatment in the case of accidents or indispositions, and also, in certain circumstances and in agreement with those concerned

(including the worker's own physician), ambulatory treatment of workers who have not been absent from work or who have returned after absence;

(*j*) initial and regular subsequent training of first-aid personnel, and supervision and maintenance of first-aid equipment, in co-operation, where appropriate, with other departments and bodies concerned;

(*k*) education of the personnel of the undertaking in health and hygiene;

(*l*) compilation and periodic review of statistics concerning health conditions in the undertaking;

(*m*) research in occupational health or participation in such research in association with specialized services or institutions.

9. Where one or more of the functions in the preceding paragraphs are carried out, in accordance with the national law or practice, by appropriate services other than occupational health services, these should provide the industrial physician with any relevant information he may wish to request.

10. Occupational health services should maintain close contact with the other departments and bodies in the undertaking concerned with questions of the worker's health, safety or welfare, and particularly the welfare department, the safety department, the personnel department, the trade union organs in the undertaking, safety and health committees, and any other committee or any person in the undertaking dealing with health or welfare questions.

11. Occupational health services should also maintain relations with external services and bodies dealing with questions of the health, safety, retraining, rehabilitation, reassignment and welfare of the workers.

12. (i) Occupational health services should begin a confidential personal medical file at the time of a worker's pre-employment examination, or first visit to the service, and should keep the file up to date at each succeeding examination or visit.

(ii) Occupational health services should maintain appropriate records, so that they can provide any necessary information concerning the work of the service and the general state of health of the workers, subject to the provisions of Paragraph 21.

V. Personnel and Equipment

13. Every occupational health service should be placed under the direction of a physician who will be directly responsible for the working of the service either to the management or to the body to which the service is subordinated.

14. The physicians in occupational health services should not have under their care a greater number of workers than they can adequately supervise, due account being taken of the particular problems that may be associated with the type and nature of the industry concerned.

15. The physicians in occupational health services should enjoy full professional and moral independence of both the employer and the workers. In order to safeguard this independence national laws or regulations, or agreements between the parties or organizations concerned, should lay down the terms and conditions of employment of industrial physicians and, in particular, the conditions concerning their appointment and the termination of their employment.

16. The physician in charge of an occupational health service should have received, as far as possible, special training in occupational health, or at least should be familiar with industrial hygiene, special emergency treatment and occupational pathology, as well as with the laws and regulations governing the various duties of the service. The physician should be given the opportunity to improve his knowledge in these fields.

17. The nursing staff attached to occupational health services should possess qualifications according to the standards prescribed by the competent body.

18. The first-aid personnel should—

(*a*) consist exclusively of suitably qualified persons; and

(*b*) be readily available during working hours.

19. The premises and equipment of occupational health services should conform to the standards prescribed by the competent body.

VI. Necessary conditions for performance of Functions

20. In order that they may efficiently perform their functions, occupational health services should—

(*a*) have free access to all work places and to the ancillary installations of the undertaking;

(*b*) inspect the work places at appropriate intervals in co-operation, where necessary, with other services of the undertaking;

(*c*) have access to information concerning the processes, performance standards and substances the use of which is contemplated;

(*d*) be authorised to undertake, or to request that approved technical bodies undertake—

(i) surveys and investigations on potential occupational health hazards, for example by the sampling and analysis of the atmosphere of work places, of the products and substances used, or of any other material suspected of being harmful;

(ii) the assessment of harmful physical agents;

(*e*) be authorized to request the competent authorities to ensure compliance with occupational health and safety standards.

21. All persons attached to occupational health services should be required to observe professional secrecy as regards both medical and technical information which may come to their knowledge in the exercise of the functions and activities enumerated above, subject to such exceptions as may be provided by national law and regulations.

VII. General Provisions

22. All workers and their organizations should co-operate fully, attaining the objectives of occupational health services.

23. The services provided by occupational health services in pursuance of this Recommendation should not involve the workers in any expenses.

24. Where national laws or regulations do not provide otherwise, and in the absence of agreement between the parties concerned, the expense of the organization and operation of occupational health services should be borne by the employer.

25. National laws or regulations should specify the authority responsible for supervising the organization and operation of occupational health services. They may, in appropriate cases, confer on recognized technical bodies the role of advisers in this field.