The future of industrial medicine depends on stimulating the interest of those now entering the profession by good teaching of the subject. Although education in this subject comes mainly by experience—the method by which most of the present industrial medical officers have learned their job—there must also be planned schemes of training. Recent expansion of health services in industry found those responsible for medical education unprepared. Apart from providing occasional weekend courses universities were unable to satisfy the demand for knowledge. Now is the time therefore to attempt to meet the needs and demands of the future, and it is a matter for regret that industrial medicine has been ignored by the Government’s White Paper on a National Health Service and is barely mentioned in the Report of the Inter-Departmental Committee of Medical Schools. Others, however, have shown greater foresight, and chairs and departments of industrial health may shortly be set up at certain universities situated in industrial areas. It is an interesting fact that the University of Toronto has instituted a Diploma in Industrial Hygiene (D.I.H.), the course for which occupies one academic year and is open to any graduate of an approved medical school. The development of a department of industrial health is a matter for careful thought, and the wise director will start slowly. The pattern will differ in different parts of the country, but there are three common underlying principles. A university department must teach not only students and doctors, but nurses and welfare workers, managers, and engineers; it must direct research into local problems; it must disseminate knowledge and be a centre of information. Teaching will be concerned largely with conditions that promote healthy working; with the broad aspects of prevention of incapacity caused by ill-health and accidents; with the medico-social problems within an industrial community; and with the causal factors of absenteeism, studied specifically in different occupations and groups of workers. Above all it must be practical in nature, and to this end the goodwill and co-operation of employers, who control the entry of doctors and research workers into factories where teaching and research must be done, is vital. In our present system the teaching of medicine is centred in the medical schools attached to the larger hospitals. The potential industrial medical officer must have a sound knowledge of general and preventive medicine and the principles of accident surgery. But the ordinary industrial doctor is mainly concerned with the application of the principles of preventive and social medicine to the workers in his factory, and to this end he should be taught. He has to learn, for example, how treatment and rehabilitation are concerned with the needs of an individual worker, his home, his job and his wages, and not only with a particular injury or illness. The problem of industrial health is not so much one of hospital medicine as of ‘non-hospital’ ill-health, a much greater cause of incapacity for work: it calls for a study of the normal, so-called healthy, individual and his responses to the varying stimuli of occupation. In the future these aspects should be dealt with in training the medical student for his qualifying examination; and they must be co-ordinated into courses of post-graduate education for those who wish to devote their life to the practice of industrial medicine.

The successful teacher will be he who encourages and directs research. In industrial medicine he must carry out field work in the factory, mine, or ship-yard, and to do this he will have to obtain the confidence of the workers. Academic isolationism must be avoided: it would be the downfall of any new venture. Industry is itself severely practical; it exists by its efficiency, which depends in turn on planning for production. The employer tends to measure the value of any ancillary service by its effective contribution to the maintenance of efficiency and health at work. In this connexion the work of the Industrial Health Research Board, described in this issue by its Secretary, Dr. R. S. F. Schilling, is of much importance. The development of the Board from 1918 onwards is something without parallel in other countries. Its researches cover an extensive field and the knowledge produced tends to promote good health, contentment and efficiency, when applied within any industrial concern. The Board’s work has greatly increased as a result of the war, but the health problems to be solved in time of peace will demand even greater effort. The amount of money spent on industrial health research is small compared with expenditure on other branches of industrial research; but money alone is not enough. We must find, and train, suitable men and women to act as teachers and investigators. While independent effort is essential, there is need for integration if wasteful and uninformed research is to be avoided. The day may not be far off when there will be built an Institute of Industrial Health on similar lines, for example, to the London School of Hygiene and Tropical Medicine; an institute for research, planned and co-ordinated, and closely linked with the various industries of the country; a centre of education and a bureau of information for all industrial health workers. But problems specific to different parts of the country, such as textiles in Manchester, light alloys in Birmingham, or ship-building in

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1 H.M.S.O. 1944. Pp. 313.
Glasgow, must be studied by research workers who possess a practical working knowledge of the difficulties to be overcome. Here is the opportunity for the industrial medical officer to become part of the team and to initiate research. He knows his industry, and above all he knows his management and his workers. His co-operation with the Board and university departments, with facilities and trained workers for technical research, is essential to their success. Without his co-operation advances in knowledge will be retarded. It is to be regretted that much excellent work already done by certain Government departments will never see the light of day and so be applied to the common good. We thus suffer from living in watertight compartments.

It should be more generally realized by industry and government that research into medical and health problems is no less important than scientific research directly connected with economic production. The importance of the latter to the future wealth of this country is fully appreciated. Is it too much to hope that the health of those who specifically create that wealth will receive similar recognition?

**HEALTH OF THE MINER**

Industrial medicine includes within its scope industries other than those conducted in factories. And because there is a tendency to forget this, it is well to take a glance at the vast problem which confronts those responsible for the health of the coalminers. The figures for 1938 speak for themselves. During the year some 6 million workers were employed in factories and something over three-quarters of a million in mines. Persons losing three days work or more from industrial diseases in factories numbered 3125, dermatitis accounting for 2420 of these; in mines men absent for the same time numbered 7767, nystagmus accounting for 1020 of these, and bent knee for 4505. Factory workers losing three days or more on account of injury numbered 218,317, including 718 fatal cases; 163,077 miners were similarly off work because of injury, with 983 deaths. In cash payments for compensation factory workers received £2,770,331 and miners £2,738,355—practically the same amount. Here is one index of the problem and of the work to be done—both curative and preventive—in this developing branch of industrial medicine. The field is surveyed by Dr. S.W. Fisher elsewhere in this number of the Journal.

He makes the point that medical questions in the mine such as working environment, first-aid treatment, and a study of industrial diseases, must be tackled in their natural setting by observations in the place of work itself—down the mine. Uninformed criticism is never helpful and in many ways has done much harm to this vital British industry. But Fisher, who speaks with authority, does not attempt to deny that in mines there is much wrong to be put right; that accidents are all too frequent; that first-treatment facilities must be improved (for example by a nursing service organized at the pit head); and that we need increased knowledge of miners' diseases, such as pneumokoniosis and its relation to incapacity, beat hand and beat knee, and nystagmus. And then there is the question of working conditions—the effects of high temperature, humidity, lighting, dust and posture, and the urgent question of ventilation—all of which need further study.

The first medical inspector of mines was appointed in 1927. For many years he worked largely on his own. Only a few medical officers were employed by colliery owners, and, as in the case of factories, they were to be found mainly in the larger and more progressive organizations. Although other doctors have had much to do with miners—for example in examining them for compensation purposes, and in connexion with rehabilitation—their work has been done, for the most part, above ground. Far too few doctors have investigated conditions underground, at the place of work. Within recent months a new mines medical service has been set up, so far only on a regional basis and in skeleton form. It is a beginning, and it is interesting to note that it is a service organized and paid for by the State, where the doctor has an inspector's statutory right of entry into the mine. The larger employers will no doubt still continue with their own service, and their help and co-operation will be important in this new venture. But for the smaller mines, and for the less enlightened owners, a full service was never more urgently needed. Its post-war development will be watched with the greatest interest.

Meanwhile another medical provision for miners has developed with great rapidity. In January, 1943, the Miners' Welfare Commission accepted from the Ministry of Fuel and Power the responsibility of developing special rehabilitation services for the injured miners of Great Britain. Residential centres with facilities for gymnastics and for recreational and physical therapy have been established throughout the coal-fields in association with selected fracture A hospitals. In each area a full-time surgeon is appointed jointly to the fracture hospital and the rehabilitation centre; he is assisted by physical training instructors, masseuses, and occupational therapists; he is under an obligation not to engage in medico-legal litigation on behalf of the owner, the insurance company or the miner. Social problems and problems of re-employment and retraining are dealt with by a special member of the staff, closely collaborating with the management committee which is composed equally of miners and owners. Mr. Watson-Jones, who was appointed by the Commission as Honorary Director of Rehabilitation, recently reported progress 1 and said that rehabilitation centres were now in operation for half a million miners; in

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1 Workmen's Compensation: Statistics of Compensation, etc., during the year 1938. Home Office, May, 1940. Cmnd. 6303. H.M.S.O. Pp. 32. (No more recent figures are available as this issue has ceased for duration of hostilities.)

2 Iron and Coal Trades Review, May 19, 1944.

3 Colliery Guardian, May 19, 1944.