PROCEEDINGS OF THE ASSOCIATION OF INDUSTRIAL MEDICAL OFFICERS

FIFTY-SECOND MEETING

The Fifty-Second Meeting of the Association was held in Glasgow from June 15 to 18, 1948. This annual provincial meeting was held at the invitation of the Scottish Group and was a success both in the merit of the scientific papers read and socially. The President, Dr. A. J. Amor, was in the Chair, and eighty-five members attended the various sessions.

At the opening session on June 15, Prof. T. Ferguson, Professor of Public Health at Glasgow University, read the paper entitled "Early Scottish Essays in Industrial Health," which appeared at p. 18th of the October, 1948, issue of the British Journal of Industrial Medicine.

Members then visited the University buildings and were conducted to the Hunterian Museum, and other parts of the institution and architecture, with the invitation of the Principal and Vice-Chancellor, Sir Hector Hetherington, were entertained to lunch in the University. In the afternoon visits were paid to the following industrial establishments: (1) Port Medical Services (during this visit the Medical Services for the Clyde, as developed by the Clyde Trust, were seen); (2) Airds Factory, Hillington, at which Dr. Collier demonstrated photographs of cases of oil acne and chronic ulceration, and arranged for a tour of the factory; (3) Haven Products, where Prof. Ferguson showed the attempt that had been made to employ seriously disabled persons.

On June 16, seventy members and friends sailed down the Clyde to the Kyles of Bute. During the morning, Dr. J. D. P. Graham, I.C.I., Fellow attached to the Department of Pharmacology, Glasgow University, read a paper on hydrazoic acid. Dr. Graham said that hydrazoic acid, which was also known as azomide, was a pungent explosive gas discovered by Curtis in 1890. Some of its biological properties were investigated by Smith and Wolf in 1904. Recently Dr. Graham had himself re-investigated the actions of the neutral, stable water-soluble sodium salt of azomide. This substance stimulated the central nervous system of animals and might cause death in violent convulsions, as did hydrazoic acid. Respiration was violently stimulated, there was a profound fall in blood pressure from a direct action on the blood vessels, and the heart was greatly stimulated. The motor activity of the bladder and gut was increased, with consequent evacuation, but the uterus was less sensitive. The coronary arteries were relaxed, and the bronchi were dilated by azide. Hydrazoic acid differed from azide in its actions in that it was more powerful and, being a corrosive substance, it produced pulmonary edema and exudative pleuritis after a long time, while azide in low concentration caused irritation in the conjunctivae and mucous membranes and collapse from hypotension had occurred as a result of deliberate or accidental inhalation of excessive concentrations of the gas, but no ill effects resulted in workmen exposed intermittently to lesser concentrations of azomide fume over a period of many years. During inhalation the systolic and diastolic pressure of ten men investigated fell to very low levels, but recovered subsequently. There also accompanied headache, palpitation, and some dizziness. No evidence of blood dyscrasia, liver or kidney damage, or indeed any impairment of health attributable to the inhalation of azide gas was detected. Nevertheless such a powerful substance had to be regarded as a toxic hazard worthy of careful investigation and control in any industrial process where azide was used. The possibility of release of hydrazoic acid fumes at any stage of the process had to be kept in mind, and measures suggested for the removal of this potent agent which had marked hypotensive properties in a concentration of one part per million or less.

Mr. J. Scott Tough, a member of the staff of the Burns Unit, Glasgow Royal Infirmary, followed with an interesting paper on some aspects of skin loss. He showed photographs of injuries treated by skin grafting.

On June 17, Prof. Philip I. Dee, Professor of Natural Philosophy, Glasgow University, read a paper on radioactivity, in which he described in a clear and interesting manner the physical properties of radiations. Mr. A. A. Charteris, Director of the Radiotherapy Department, Western Infirmary, Glasgow, read a paper on some biological implications of radiology in industry. Mr. Charteris said that biological effects resulting from exposure to radiations were caused by their absorption in the tissues, in the process of which they parted with some of their energy with certain secondary effects. The general rule was that the most easily affected tissues were those in a state of physiological activity; it was the nucleus in mitosis which was most readily affected. Thus, in ordinary clinical radiotherapy, it was such tissues as the skin, the sites of haemopoiesis, and the gonads which had to be specially considered. This selective action was the basis of clinical radiotherapy, and one of the reasons why certain tumours could be treated without damage to normal tissue; the mechanism probably acted through effects upon intra-cellular enzymes and upon the chromosomes themselves. Modern knowledge of how the higher dose levels should be attained with due regard to the physical factors modifying their effect upon the body had largely eliminated the bad after-effects which were associated with the earlier stages of radiotherapy. Protection from ill-effects of irradiation in industry was bound up with prevention of the cumulative effect of many sub-lethal doses. Since such doses produce no immediate reactions, and their ultimate effect may not be known for a long time, such exposure, if permitted, may be much more dangerous and subtle in effect than larger ones. Mr. Charteris went on to consider the sources.
of irradiation which might be met with in industrial concerns. The first of these comprised radio-active substances which might exert an effect either by the deposition of active deposits upon the skin, or by the actual ingestion of radio-active materials. The second way in which the body might be affected was by external radiation, either from an x-ray plant, or from a filtered radium source, in which case gamma rays would be concerned. It had long been known that the blood showed certain changes after undue irradiation of the body. First there was usually a change in the white blood corpuscles, and it had long been thought that the typical reaction was a fall in the total count associated with relative lymphocytosis. In recent years it had been shown that this picture could be due to other causes than irradiation, but it was one which should be watched for.

Anemia was a result not usually seen in clinical work, but it was described by writers on industrial subjects. It was said that the aplastic form tended to follow large doses of external radiation, while the megaloblastic type was more frequently seen after alpha rays had been able to take effect, as when radio-active material had been about.

Exposure of the gonads was also described. As everyone knew, the achievement of certain dose levels led to cessation of physiological activity except in the interstitial cells, and to sterilization. What was less well understood was the possible effects of much smaller doses than this, especially if they were applied over a long period. Low-dose irradiation of the ovaries was regularly carried out in the United States as a therapeutic measure for various ovarian disorders, including sterility, and it was claimed that there could be no ill effects either to women so treated or to any offspring. Animal experiments had shown certain genetic effects, though these were generally after larger doses than those deliberately applied clinically, or encountered accidentally in industry. So far, no definite genetic effects had been discovered in man, but the mutations concerned were generally thought to be recessive and so it might be a very long time before they became obvious.

These agents might also affect the human skin. There might be chronic dermatitis with atrophy of the skin, including its glands, and interference with nail growth. Lacer might come chronic fissures, and susceptibility to local sepsis, together with the formation of warty growths and even squamous carcinoma. In the consideration of protective measures for those who might be working with radiations, a "tolerance dose" had been suggested. This was defined as the dose which a person could receive indefinitely without any biological effect, and the accepted limit was now 0.5 r per week. It should be observed that this was a body dose, and could not be applied to finger exposure. The two chief methods in vogue were the ionometric, in which a charged condensor was employed, and the photographic, where ordinary film was used and subjected to standard development so that the tint might be compared with various standards. Mr. Charteris said that so far as radio-active substances were concerned we had to deal with radon apparatus, the handling of radio-active isotopes, the working of an atomic energy pile, and luminizing as widely applied in industry. The first two of these were largely medical in their application, and much of what had to be considered was contained in the regulations for luminizing. Workers had to be protected against contamination of the skin, ingestion of material, and inhalation of radon.

The stock of radio-active material was protected behind lead of sufficient thickness to obviate any gamma ray effect, and as small quantities as possible were exposed at any one time, the distance effect being made use of. The workshop had to have an impervious floor and suitably protected work benches provided at which an extraction ventilation system was in operation. Any dry powder was worked with in a screened cabinet, and there were various ingenious devices by which paint could be applied with a minimum of risk of contaminating the fingers. Employees had to be given full facilities for washing, and they carried some form of dose recorder such as photographic films, and had regular medical examinations. The luminizing paint used nowadays contained much less radium than was used during the war, the amount being 12 microgrammes per gramme of paint. External radiation was generally employed in the examination of castings and welds for faults which would not otherwise be obvious. Filtered sources of radium were used at one time for this, but were now hardly ever employed since sufficiently penetrative x rays were readily available and were much more easily controllable. Qualities of x rays at present employed were commonly those associated with the electrical potentials of 220–400 K.V. and in these cases the protective problem was simply that of shielding the set retired to a protected control cabin at the time when the exposure is being made, and precautions were taken so that other workers were neither in the direct path of the beam nor sufficiently near to obtain any significant dose through the "scattering" of the rays. Where more penetrating x rays were used, such as 1,000 or even 2,000 K.V., much more elaborate arrangements were necessary. The lecture was illustrated by lantern slides. In the afternoon, visits were paid to the Atomic Energy plant at Glasgow University, which was demonstrated by Prof. Dee, and to the Erskine Hospital where seriously disabled ex-service men and civilians were employed.

In the evening a dinner was held at which seventy-four members and five guests were present. The toast of the Association was proposed by Mr. W. Hope Collins, Director of William Collins Sons and Company, Publishers, Glasgow. In an encouraging address Mr. Collins gave his views on the practical application of occupational health to the needs of industry. For the past eight years he had tried to build up in his business a structure which was not only as substantial as one of its main pillars, but had, he added, provided a work environment which was of the utmost importance to the health and efficiency of the work force. Mr. Collins went on to describe the present accepted task of a medical officer of a large or medium-sized works, as follows: (1) to organize the surgery so that he can deal with injuries and alleviation of minor ailments; (2) to advise on matters dealing with safety, heating, lighting, etc.; (3) to examine new workers; (4) to maintain a close link with the personnel department. Although this did not sound much, it often took a long time to achieve. It was his experience that management and employees were at first equally ignorant and at times suspicious—the management fearful lest their authority was challenged and discipline weakened, the employees that something was being imposed upon them. Both were natural fears; therefore before any cut-and-dried schemes were started it was essential to begin with joint consultation between employees and management. This could quite easily be started with a "health or safety joint committee," perhaps with the setting up at the same time of a surgery under the charge of a Sister. This Committee would become the open...
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The forum where grievances could be aired and cleared. Later constructive suggestions could be put forward and the medical officer’s work could be introduced. He could carry the scheme a step further by bringing his specialized knowledge to bear on such questions as lighting and safety.

A chiropractor was not only a valuable addition to industrial surgery in industries where workers were on their feet; and there might also be a dentist. Examination of new workers could be quite separate and more complete than any examination by Factory Act doctors. While all this was going on, the medical officer studied the particular requirements of the firm in question, the type of work, the type of labour, etc. No set scheme could be laid down for all works, even within the same industry.

Any further progress now depended entirely upon the medical officer himself. From the time he entered the works he should be scrupulously fair to both management and employees. He would thus earn the respect and trust of both, and particularly of the employees, for it was their welfare that was of paramount importance. If he gained this trust the benefits to industry and social life generally were immense. The medical officer’s activities would also cover two main fields, vocational guidance and industrial relationships. Under the first, the doctor considered the physical and mental characteristics of each worker. These were then matched with the requirements of the operations required. In this way, errors in first placing of young workers were eliminated. Nothing was more soul-destroying for a young man or woman than to find himself in a job to which he was not adapted or in which he was not really interested, at a time when it was too late to make a change with any certainty of success. The medical officer could also therefore be of invaluable assistance in the planning of apprentice training schemes.

With regard to industrial relationships, Mr. Collins said that the Medical Officer could create that industrial morale which was of equal importance with military morale. By constant education of both management and employee in such things as hazardous processes, health, hygiene, diet, clothing, he could help to keep people both mentally and physically fit. The effect within the works would be immediately noticeable. From the very fact that he approached every problem from an unbiased angle, he would be listened to with confidence by both sides. It was the continual application of this unbiased attitude that would gradually change what in industry was called “sides” and “meeting round the table.”

The toast of the Guests was proposed by Prof. F. A. E. Crew, Professor of Public Health and Social Medicine at Edinburgh University. After paying tribute to the guests individually, Prof. Crew referred to the role of the Universities in relation to industry. The opinion that staffs of university departments and those who emerged therefrom were men whose feet were high off the earth and whose heads were in the clouds was still far too prevalent and there was still far too much misunderstanding between what was called the working man, who earned his living doing something he did not wish to do, and the “non-working man,” whose creative or productive efforts gave him great emotional satisfaction. The fundamental problem that now faced industry was not one that could be defined as reequipment, reorganization, or modernization in respect of machinery or method but rather the attitudes of mind which were now called the “stress diseases.” Men and women worked because they were forced to work in order to escape the results of not working—work or the ambition encountered on all sides. Some men and women worked because they wanted a worthy sense of social duty and apparently enjoyed a sense of duty fulfilled. Even fewer men and women were encouraged by society to indulge in self-exploration and to seek self-discovery in advancing the boundaries of natural knowledge or in adding to the sum total of beauty in this world. To them the reward of work if this be work, was the satisfaction to be found in performance. It was most unfortunate that in our social evolution we had so allowed things to arrange themselves that many kinds of energy expenditure of value to the community had no kind of emotional appeal, for it was the emotional rather than the physical or intellectual elements in man’s nature that yielded the greatest satisfaction. The majority of people were obliged by circumstances to turn away from work to find their satisfaction in amusement, and it could not be denied that many of the activities within society which did not make for human betterment were in their ultimate nature the expression of cravings for change or for pleasure as a reaction to the monotony of daily work. Industrial medical officers were heavily engaged in securing an ever-increasing control over dangerous trades. Today those trades were most dangerous which were the most drab and the most dull. In spite of all the difficulties which stood in the way it seemed that the aim of society, fashioned by the guidance of medicine, should be the provision for every individual of suitable qualifications the opportunity of becoming a craftsman or a creative artist. In the social structure toward which we were now groping there could be no room for such as were forced to undertake tasks that were completely unattractive. If a man worked because otherwise he would want, then, being human, he would quite rightly work only for that time and in the least disagreeable way that in recompense would satisfy his needs. Without continuous and somewhat dangerous propaganda, the appeal to work in the service of and for the advantage of society could not be expected to appeal to very many people, and it certainly could not be expected to arouse the same feeling in individuals as did the invitation to work for the family or for the small social group. The objective should be the creation of a society in which the individual worked because he ardently wished to do so and because he found in his work complete satisfaction. It was wrong to give such emphasis as was now being given to the promise of reduction in working hours, of increased leisure, for this approach could mean nothing more or less than that work was to the great majority something which must necessarily remain distasteful. Nothing was more important than that this concept of work should be destroyed. Modernization meant far more than the reequipment of a plant with new machines, far more than the introduction of new methods, it meant above all else a change of mind, and it was in this sphere that universities had their contributions to make to industry.

On June 18, Prof. C. F. W. Illingworth read a paper on peptic ulcer, based on a study of over 7,000 cases of perforated ulcer. The impression that perforation cured an ulcer had been proved false, as of 700 cases followed up no less than 70 per cent. developed a recurrence of the ulcer and 20 per cent. had severe complications. Of all forms of peptic ulcers, duodenal ulcer in males was by far the most common, at least 70 per cent. of cases the onset of the ulcer symptoms had been present for an average of one year before the patient attended hospital. There had been
a considerable increase in the incidence of perforations during the war. The incidence dropped to about half from July to October in any year. Perforations were less common on Sundays and Mondays, and the most frequent hour for perforations to occur was 5 p.m. There was a widespread belief among many workers that their own occupation predisposed to the production of peptic ulcers. This disease had become common only during the past 40 years or so, probably as a result of increasing strain; the most hopeful line of future progress was in prevention.

Miss B. Grant, Canteen Supervisor at Anchor Mills, Paisley, followed with a talk on canteen services. In an address notable for its human approach, Miss Grant referred to the great increase in the number of canteen meals taken by employees during and after the war. There was difficulty in satisfying shift workers, and special arrangements should be made for juveniles, particularly the provision of extra food for those who were underweight. Meals should be served in attractive surroundings with a good colour scheme, but this would not camouflage a badly cooked meal. Miss Grant said that industrial workers were generally lazy eaters and food which required little mastication was preferred. She went on to describe workers' likes and dislikes for particular foods, with a survey of dietary requirements. There was no doubt that a good canteen service resulted in an improved standard of health in the factory.

NORTH-WESTERN GROUP
Chairman: Dr. E. Holland,
Mersey Docks Medical Service,
Hon. Secretary: Dr. G. Taylor,
A. V. Roe and Co. Ltd.,
Greengate, Middleton, Manchester.

A meeting of the North-Western Group was held on April 10, 1948, through the courtesy of Messrs. Alfred Holt and Co., Blue Funnel and Glen Line, Liverpool, on board S.S. Sarpedon. Dr. E. Holland was in the Chair. Dr. F. A. Wilson, the Company’s Medical Superintendent, addressed the meeting on industrial medicine in the shipping industry. He explained that the work of a medical superintendent was a different matter today as compared to some years ago, as he was concerned not only with the appointment of ship surgeons but with the examinations of all seafaring personnel and with the keeping of a complete record of the medical history of every man so that illnesses were followed up and he could ascertain that all were directed to the proper source to receive correct treatment; 9,000 examinations were carried out every year, apart from attention to sick and injured. Dr. Wilson said he was also concerned with general health matters concerning ships and was expected to give advice regarding accommodation, ventilation etc. There were also certain types of cargo carried, about which he had to see that ship surgeons were instructed with regard to medical hazards. He must also keep a careful watch on international health and deal with any epidemics which might break out aboard. Mention was also made of the compensation cases; these were examined primarily to report to the Company on their progress, but it was often possible to help by close contact with the general practitioner and hospital, and ready co-operation had been received from both these sources; special tribute was paid to the Dock Workers’ Rehabilitation Centre at Manchester.

Dr. Wilson said that companies were no longer justified in paying ship surgeons very low wages, as these doctors had frequently to attend to serious cases on their own, and therefore great care was necessary in the selection of such men. A number of examples were given of the major operations which had been carried out by surgeons who had been compelled to rely on the assistance of one or more of the ship’s officers.

The meeting concluded with a tour of S.S. Sarpedon.

SOUTH WALES AND WEST OF ENGLAND GROUP
Chairman: Dr. J. S. Spickett,
Messrs. Thomas and Baldwin Ltd.,
Ebbw Vale.
Hon. Secretary: Dr. G. Stenlake-Mundy,
The Bristol Aeroplane Co.,
Filton House, Bristol.

On May 14, after a short business meeting, the South Wales and West Group held their first Annual Dinner. The company of twenty-nine included Dr. Amor, President of the Association, and Prof. R. M. F. Picken, Professor of Preventive Medicine in the University of Wales.

Dr. Amor made a stimulating speech, and stressed the need for the University of Wales to undertake industrial research. Prof. Picken said that the Medical School would require more financial help before it could undertake work bearing on industrial problems.

There was a fruitful discussion on many problems associated with industrial health.

NOTTINGHAM GROUP
Chairman: Dr. G. E. C. Collis,
Messrs. Ransome, Marles Ltd., Newark.
Hon. Secretary: Dr. J. Magill Young,
Brush Electrical Engineering Co. Ltd.

A dinner of the Group was held on Sept. 2, 1948, ten members being present. The Annual General Meeting followed, with Dr. G. E. C. Collis in the Chair. The Minutes of the previous meeting were read and approved. On the presentation of the Balance Sheet it was decided that the Group Representative to the Council should approach the Council on the question of expenses for attending Council Meetings, and whether these should be borne by the parent body or by the Group. In the event of the expenses being borne by the Group the annual subscription would have to be increased.

Dr. G. E. C. Collis proposed and Dr. J. R. Spark seconded that Dr. W. S. Whimster, Raleigh Cycle Co. Ltd., be elected Chairman for the year 1948-49. This was accepted unanimously.

Dr. J. Magill Young, Brush Electrical Engineering Co. Ltd., was re-elected Hon. Secretary and Group Representative to the Council.