

A.A.I.N. was created and continues to exist so that it may serve the industrial nurse by helping her to increase her professional competence. To the extent to which our association is successful in providing this service to individual nurses, it also enables industrial nurses to better serve the cause of good health within industry.

OCCUPATIONAL HEALTH — RECENT TRENDS AND FUTURE PROBLEMS

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The origin of International Congresses on Occupational Health, now taking place for the first time in the U.S.A., was a meeting of a group of experts of this then new field of medicine held 1906 in Milan, Italy, when an international organization was founded—"The Permanent International Committee on Industrial Medicine"—its name being changed in 1957 to "The Permanent Committee and International Association on Occupational Health." International congresses have been organized every three to four years from 1906, except during the two great wars. The character of these international meetings has changed considerably during the 54 years. At the beginning a small number of experts from a few countries met for discussion of a new, then rather unknown and not very well-recognized, field of medicine. These meetings have changed into large congresses, with thousands of participants from all over the world discussing problems of occupational health which are generally recognized as an important part of medicine of today and, consequently, are also represented through special sections or divisions in international organizations such as ILO and WHO (1, 2). The last international congresses were organized in 1938 in Frankfurt, Germany; in 1948 in London; in 1951 in Lisbon; in 1954 in Naples, Italy; and in 1957 in Helsinki (3).

Doctors Alice Hamilton (4), A. Lanza, R. Legge, and R. R. Sayers should be given special mention among the participants from the U.S.A. during the early days of our activities because of their pioneer work in occupational health—and from other countries Sir Thomas Legge and E. T. A. Merewether from U.K.; P. Maxel from France; Fr. Koelsch and L. Teleky from Germany; and L. Carozzi from Italy, for fifty years Secretary-General and now Honorary President.

The congresses on occupational health have, as already mentioned, developed from the small meetings of 50 years ago to the very large congresses of today—some may regard them as being too large—and this has called for other activities of this organization between the international congresses.

A few committees were organized in 1937 to study such special problems as uniform records of sick absence, maximum allowable concentrations of toxic substances, and occupational lung diseases from textile dust. Expert knowledge has been collected, and reports have been and will be prepared. The worldwide expert knowledge represented within our organization may be well utilized in this way, collecting and evaluating experiences from different countries on difficult and important occupational health problems. This activity is carried out in close contact with the official international organizations active in this field—such as ILO, WHO, and ISSA—in order to avoid overlapping.

The Permanent Committee and International Association on Occupational Health will thus promote the development of occupational health and "establish permanent

links between experts in different countries," according to our Constitution (Art. 16), by organizing international congresses every three years as well as by organizing small working groups or committees and studying and reporting on special problems.

In order to promote occupational health, it is of great importance to try to find out the *trends of development* and to visualize the *problems of the near future*.

Concerning occupational hazards, the approach to the prevention of accidents and occupational diseases has changed considerably during the last decades. *Accident prevention* now starts at the stage of design of machines and working processes, which is emphasized also in the legislation of many countries, as in Sweden. An accident is considered as being caused not by one single error, but by a combination of many factors in relation to the working processes, the working environment, and the human being (5). It is important to include the human approach in the prevention of accidents, and experiences gained from many countries—as for instance, the U.S.A.—have been of great value in showing the importance of safety education, especially information of new employees, and of establishing a permanent safety attitude, especially among workers and foremen. Regular information to employees on safety—such as the *Five-Minute Safety Talks for Foremen* (6) issued by the National Safety Council, U.S.A.—may serve as a guide in creating a safety attitude. Concerning recent experiences on occupational diseases, such medical preventive measures as regular health examinations and preplacement health examinations have been further developed during the last twenty years. Recent studies have increased our knowledge considerably concerning the mechanism of occupational diseases from inhalation of dust and aerosols, as was shown at the symposiums in Oxford, April, 1960 (7) and in Milan, June, 1960. The main progress in prevention has, however, taken place in the field of industrial hygiene. Technical methods have been developed and industrial hygiene surveys make it possible to evaluate occupational hazards and the technical prevention of inhalation of dusts, gases, and vapors and to control the efficiency of its application, including the human factor. The results of prevention can be studied in the changing occupational distribution of occupational diseases. Lead intoxication, for instance, has in many countries disappeared among printers, painters, and workers in porcelain factories as a result of prevention. The occupational distribution of this occupational disease has, however, shown that while prevention has been successful in some industries or industrial processes, the hazards may arise when new working processes are developed, as in producing or repairing storage batteries or among workers welding and cutting in lead-painted material in shipyards. Lead intoxication is a good example of the fact that even if an occupational disease may disappear in some occupations, it may appear in others.

The development of new techniques or new industrial processes may cause new occupational health hazards. The last few decades have shown that some industrial processes have created occupational health problems which will call for special preventive measures, such as the handling of certain beryllium compounds or of isocyanate plastics and ethoxylated resins and the peaceful use of atomic energy. It is of the greatest importance that occupational health research is closely following the development of new techniques and that an occupational health program is included already at the planning stage—that is, when new industries or working processes are developed.

The *general health of the worker*, of which accidents and occupational diseases are only a minor part, has attracted the interest of occupational health more and more during the last decades. Much experience has been collected on how *health services in industry* or other places of employment should best be organized. Experience from all

over the world shows that it is possible and relatively easy to organize health services in large industries, but that many practical difficulties arise in organizing health services in small industries or other places of employment with few workers. Progress in health services for groups of small industries have been reported from the building industry, Paris, France; ENPI, Italy; Leiden, Netherlands; Slough, U.K. (8); and Hartford, Connecticut, U.S.A. (9). The problem of occupational health services, a worldwide problem, has also been studied by the WHO at its seminars on occupational health in Leiden, 1952; Milan, 1953 (10); London, 1957 (11); and Calcutta, 1958; and ILO has in 1959 passed a recommendation on "Health services in places of employment."

The increasing mechanization and automation of industry will cause a shift in the demands of the job from the physical to the mental side. Heavy physical work is becoming less and less usual as a result of mechanization and the application of human engineering (ergonomics) adjusting work to the limits and the capacities of the human body. In the same time the mental demands of work will increase and the high degree of mechanisation will create a new kind of demand on the worker, about which we will need more information. Such work may include observation of instrument panels, where for a long time — weeks and months — nothing will happen, but then suddenly the worker will have to be very active, receive and evaluate a great deal of information in a short time, and make right and very responsible decisions at the right time. This stage of readiness with very little activity during long periods in between will call for special selection of workers from the medical point of view and will call for studies on this new strain on the human body. Many studies on automation specially considering the health aspects have also been carried out recently (12, 13).

Another worldwide problem that is important now and will be still more in the near future is the *occupational health of the aging population*. In many industrialized countries more consideration than before must be taken into account in placing older people in jobs that are best suited to them and considering their changed working capacity. Adjusting work and working environment to the limits and capacities of the human body of higher age groups will have to be encouraged. The older worker has many handicaps — for instance, the capacity of older people to carry out work at constant high speed is generally reduced as well as their adjustment to changes of the working environment and the working process, and the need for illumination for the same work is considerably higher than for younger people. On the other hand, capacity of precision work is preserved up to higher age, and short-term absence and labor turnover are generally much lower in the higher age groups than among young people, as well as experience and responsibility (14, 15, 16).

The rapid industrialization in developing countries is creating many serious occupational health problems. The transfer of large groups of the population from agriculture to industries, and from urban areas to cities, will create many social and socio-medical problems in addition to the already difficult general occupational health problems. The situation in a developing country may be still more serious, as this transfer of population very often occurs in countries with a low standard of living, short expectation of life, high infant mortality, high incidence of diseases (tuberculosis, intestinal parasites, nutritional deficiencies, etc.), and a high incidence of illiteracy. The high accident frequency that often occurs when people without industrial experience are placed into new types of work must be prevented through proper safety education and training. Health aspects must be considered in designing of machines, working processes, and working environment in order to prevent occupational diseases. Improv-

ing the general health of the worker is, however, the most important problem that will arise in these countries in a period of rapid industrialization. Pre-employment health examinations and frequent regular health examinations will be of the greatest value in promoting the health of the increasing industrial population, but, in addition, medical care must be made available in order to follow up the findings of the health examinations. Housing problems will be of great importance during this transfer of population, as will also nutrition. The social adjustment of workers to the new industrial environment may be still more difficult if family groups are split up, and if the workers move alone into bad housing conditions in industrial areas, leaving families behind at the family farm in the village. The level of unemployment that exists in many of these developing countries will make the situation still more difficult.

The obvious financial incentives of management in industrialized countries to introduce industrial health services are reducing the costs for absenteeism and labor turnover, and therefore increasing the quantity and quality of production. These are usually not applicable in developing countries where 10 per cent absences will be easily compensated by employing 10 per cent more people, where labor turnover is so low that it cannot be reduced any further, and where the social responsibility of management to the employees will be the main reason for organizing industrial health services. The situation in developing countries of today is very similar to the industrialization in Western Europe 100 years ago. It is important to understand the great difficulties in developing countries involved in raising the health standard of the general population and to remember that industrial health services only cover a minor section of the population, although this section of the population is very important for raising the living standard of the country. Industrial health services will therefore do pioneer health work in many developing countries, and priority may have to be given to this task of improving the health of this important section of the population. Occupational health, which may be rapidly developing, must be coordinated from the beginning to public health services, and coordination of occupational health and public health has been specially emphasized during the last ten years by WHO and I.L.O.

Industrial health services in developing countries during a period of rapid industrialization will be very different from the traditional occupational health in industrialized countries. (17). The experiences on occupational health available in textbooks usually refer to health services in large industries of industrialized countries with a high standard of living and well-developed public health services and medical-care systems. It is most important to understand that these experiences cannot be copied or directly applied in the developing countries. The experiences from industrialized countries and their industrial health services may be useful, but it is of the greatest importance to create programs for industrial health services, specially adjusted to the conditions of developing countries and their social and sociomedical problems related to transfer of population from agriculture to industry, considering the shortness of available medical personnel and the need for medical care programs. Developing occupational health, and especially industrial health services in the many developing countries of the world now in the stage of rapid industrialization, is one of the most important world problems of occupational health of today. It would be of the greatest value to collect experiences in this field from different countries and to work out principles for industrial health services for developing countries and promote their practical application.

Occupational health is now a well-recognized field of medicine, and postgraduate training programs are in operation in many countries and on an international basis

organized by WHO. Regular international congresses are necessary in order to survey the enormous experience from research and field studies collected all over the world. Studies on occupational health hazards causing accidents and occupational diseases are carried out in many countries by engineers, chemists, physicians, doctors, and nurses. The principles of health services in places of employment have been studied by WHO and laid down in a recommendation by ILO. The practical application in developing countries during periods of rapid industrialization will meet many difficulties and will call for special studies by groups of experts or by international organizations.

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OCCUPATIONAL HEALTH — A WORLD PERSPECTIVE

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I am deeply honored by the invitation to address this distinguished assemblage. Both my past position as Secretary of the United States Department of Health, Education, and Welfare and my long, continuing work in industry have given me a special appreciation of occupational health. I am impressed by its contribution in improving the health and productivity of the men and women who forge our way of life. As industrialization and urbanism gradually extend to the farthest reaches of the globe, I expect occupational health programs to spread and contribute to the progress of these lands.

Only recently the promotion of health throughout the world has been acclaimed by various statesmen as an instrument for securing peace. Because of its strategic placement in the social structure, occupational health can aid materially in the quest. As a requisite to industrial progress, it enables a broadening of economic as well as health opportunity — two indispensable elements in achieving peace and good will.