

D. THE COMBINED INDUSTRIAL HYGIENE AND MEDICAL SURVEY

The combined industrial hygiene and medical survey is the most comprehensive of all industrial hygiene surveys and, depending upon the extent of the study, it usually requires from a few days to a few weeks or even months to complete. In addition to studies of environment and cursory observations of workmen as mentioned previously, this kind of investigation includes studies of individual workmen by medical technicians and physicians; it may include hematological, bacteriological, and parasitological studies as well as physical, x-ray, and other special medical examinations. The interpretation and evaluation of medical information belong in the field of medicine and require the services of physicians qualified by training in each of the above respective fields, or a physician who is closely associated with qualified men in each field upon whose knowledge he can draw. Likewise, engineering findings and recommendations should be handled by someone thoroughly familiar with the principles involved. The purpose of this combined survey may be to determine the exposure to atmospheric contaminants and any detectably adverse effects upon any of the exposed workmen that such contaminants may have caused; its major goal may be either evaluation or control. The scope may range from a single contaminant in a single plant up to a combination of contaminants throughout an industry. The study may evolve from the discovery of unexplained illness among workmen or from the known presence of contaminants in a workroom atmosphere that have, or are suspected of having, little-known or ill-defined, adverse effects.

Accepted maximum safe limits for atmospheric contaminants, notably those for benzene, carbon monoxide, lead, mercury, and silica-bearing dusts, have been set by comprehensive studies of this nature. Needless to say, any such standard "safe limit" is no more accurate than the method employed for air analysis and the concentration data recorded, regardless of how many qualified specialists evaluated the pathology found among workmen. For that reason, in all reports proposing safe working standards the methods of analysis should be explained and substantiated. Later and more dependable, or more sensitive, methods of analysis may throw more light upon the picture and show an accepted figure to be erroneous.

Combined industrial hygiene and medical surveys offer excellent opportunities for public health research regarding adult health, at least the health of employed adults; and statistics for special groups are often more readily obtained in industry than from other sources. All special conditions obtaining in the industry studied must never be lost sight of, as they might have a bearing upon any general conclusions drawn from the statistics.

III. The Industrial Hygiene Unit

The industrial hygiene unit may vary from the simplest and least pretentious one-man unit to the most elaborate and inclusive unit, represented by the United

States Public Health Service, which in its Division of Industrial Hygiene at the National Institutes of Health³ has included a staff of over 200 persons (see also pages 7-8). It is obvious that the small unit is limited in its scope and, therefore, it is going to accomplish much toward the preservation of health in industry, it must necessarily exert its efforts mainly in preliminary and investigational surveys, with almost no time for pure research.

The National Institutes of Health, however, in 1943 had a *Research Section* that conducted laboratory research into numerous industrial hygiene problems, a *Dermatoses Investigations Section* to study the occurrence and prevention of occupational skin diseases, and a *States Relations Section*. Medical, engineering, and statistical units served as a source of supply of personnel to the sections: they recruited, trained, and assigned persons to sections for duty. Certain independent studies in the nature of services and research investigations also were carried on. As evidenced by the scope of the publications of this organization, industrial hygiene can be extended to influence practically all branches of community, adult health. All hygiene divisions are in a position to distribute educational information of great benefit in the promotion of industrial health.

State and city industrial hygiene units vary in the number of their personnel from over a score down to one or two men. They conduct research to a much smaller extent than the United States Public Health Service, and more recently have expended a considerable proportion of their time in conducting investigational surveys, although in their initial programs a large part of their efforts was spent on inspection surveys dealing with potentialities. The industrial expansion of 1942, 1943, and 1944 with the influx into many fields of relatively inexperienced management, as well as workmen, created an unprecedented demand for investigational surveys in order to minimize losses in man-hours due to ill health resulting from exposure to harmful materials.

There are several types of consultants and several organizations engaged in some form of industrial hygiene practice, ranging from those of an essentially statistical and educational nature to those devoted almost entirely to investigational surveys. The Industrial Hygiene Foundation may be mentioned as an organization having a general, educational, and investigational interest; whereas the industrial hygiene units of insurance companies are principally engaged in investigational surveys and individual control programs. While all industrial hygiene units in private industry have environmental evaluation and control as their primary objective, their activities vary considerably with the type and size of the industry and the viewpoint of management. In the larger and more progressive industries there is opportunity for a well-balanced and well-staffed unit with specialists in the different sciences represented, each having a chance to carry on research within his particular field.

³ J. T. Bloomfield, in W. N. Gafafer, ed., *Manual of Industrial Hygiene*. Saunders, Philadelphia, 1943.