

IV. Qualifications and Training of Personnel

A. ADMINISTRATIVE INDUSTRIAL HYGIENIST

The necessary qualifications of a director of industrial hygiene have been previously described⁴ and the educational qualifications of industrial hygienists discussed.⁵ The qualifications here given for an industrial hygiene administrator represent a personal opinion guided by these previous descriptions, and modified by observation and experience.

The director of an industrial hygiene unit must have at least a bachelor's degree from a recognized school, and his basic education should be in science or medicine and should include chemistry, toxicology, and engineering. He should have at least five years' training in industrial hygiene with an official health organization, or a well-staffed and diversified industrial group, including experience in the evaluation and control of exposures to atmospheric contaminants. If he has an M.D. or a Ph.D. from a recognized school and his education included a good representation of such subjects as biochemistry, chemical engineering, mechanical engineering, ventilation, materia medica, pharmacology, physiology, and toxicology, the experience requirement may be reduced to three years.

He should be able to understand and discuss all phases of industrial hygiene and toxicology and be interested in public health and industrial relations. He should be able to set up systems for keeping records of results achieved and for planning future activities. He should be an avid reader and should devise a systematic bibliography of references covering the field of his interests and activities. He should be able to locate the cause of cases of industrial ill health presented by a physician, to make comprehensive analyses of health conditions in industries, to draw adequate conclusions, and to prepare clear and informative reports for publication. He must have tact, courage of his convictions, and good judgment and must be able to address a group. He must do sufficient field work to keep the viewpoint of the man in the field, and it is necessary that he maintain a wide, personal acquaintance with the men active in promoting industrial health. He should support and attend public meetings where current problems in the field are discussed.

B. INDUSTRIAL HYGIENIST

An industrial hygienist should be able to determine the necessity of making specific studies of industrial conditions; to conduct or supervise surveys; to recognize and evaluate harmful conditions; to develop control measures for all adverse situations; to prepare comprehensive reports of findings, with control recommendations; and to present verbally to management, to plant physicians, and to maintenance, production, and safety engineers the necessity and value of control measures.

He should have at least a bachelor's degree from a recognized school, or

⁴ R. R. Sayers and J. J. Bloomfield, *Am. J. Pub. Health*, 26, 1087 (1936).

⁵ C. D. Selby, H. F. Vaughan, L. D. Bristol, P. Drinker, T. L. Hazlett, and P. A. Neal, *Am. J. Pub. Health*, 31, 728 (1941).

equivalent training and experience. It is desirable that his basic education and training should include chemistry, toxicology, mechanical engineering, and the principles of illumination, ventilation, and air conditioning. He should be interested in public health and have at least one year's study in a school of industrial hygiene, or a year of supervised training with a unit of industrial hygiene that included field surveys.

C. OTHER PERSONNEL

The other persons who may be found in the well-staffed units include specialists whose chief qualifications or interests are in some particular part of the field, such as the industrial toxicologist, industrial hygiene physician, industrial hygiene engineer, industrial hygiene chemist, ventilation engineer, analytical chemist, statistician, nurse, technicians, and stenographers. The qualifications and interests of the persons comprising this personnel necessarily will vary widely. While on the one hand the interests of some may cover the entire field, the interests of others may be very specific. As an example, a man with the basic education of a mechanical engineer may be classified as a ventilation engineer, an industrial hygiene engineer, or an industrial hygienist, depending upon the scope of his activities and interests in the field of industrial health. The same applies to the physician, the chemist, the toxicologist, the physicist, and possibly others. Each may start as a specialist and by association, experience, and study develop interest in and knowledge of the entire field, in which case he may properly lay claim to the title of *industrial hygienist*; if he wishes to retain identity with his earlier and basic profession, he may then use that term as a prefix and call himself engineer, physician, or chemist industrial hygienist.

The term "industrial hygiene engineer" has been used freely and loosely in the past to apply to every individual, not holding a degree in medicine, who aligned himself with, or, in some instances, expressed a desire to align with some industrial hygiene unit. It made little difference whether the individual had ever studied or been associated with any engineering activities so long as he could make some kind of evaluation of atmospheric contamination. Such a man can more properly be called a technician or scientific aide. Unsuccessful attempts have been made to impose the term "sanitarian" upon persons engaged in industrial hygiene work. The connotation of the word suggests dealings with the water supply, sewage, and waste disposal. Although this may be an important part of industrial hygiene, it is not all of it, and therefore the term is not appropriately inclusive and could properly apply only to a specialist in the field, industrial hygiene sanitarian.

The term "etiologist" has been suggested as being more specific and meaningful than "industrial hygienist," but this word applies only to the investigation into causes of disease and carries no implication of ability to devise and apply correct control measures. Since the industrial hygiene survey report that does not include suggestions or recommendations for the control of any unhealthy conditions found has a disappointingly flat flavor, the *industrial hygienist* must be more than an etiologist.