INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASES

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Food and Industrial Workers.—Many working women, particularly young girls, rush to work each morning without eating anything. This is a bad practice. Eating a "brought" lunch in a workroom is also to be discouraged as it may expose the food to a dusty atmosphere, to germs of disease and to flies which remain after the food is cleared away. Lunch should be eaten in a modern factory cafeteria or in a clean restaurant. The food is commonly clean and well cooked. Also, to go to a cafeteria induces most people to wash their hands; it promotes fellowship, it gives valuable recreation; and it tends to make one cheerful. Meat for sedentary workers is inadvisable at lunch as are sweets except in small amounts. A bowl of soup with crackers or bread, fruits, vegetables and salads are more satisfactory. Pies and sweets satisfy more quickly, but leave one hungry and feeling faint before the day is over.—N. Y. State Dept. of Health, *Health News,* (May) 1923.

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Morbidity Studies an Aid in Preventing Illness Among Miners.—That the maintenance of health among workers has an appreciable financial value has been known for a number of years to mine operators and managers. Knowledge of the following items is requisite for intelligent work along this line: (1) The health hazards existing in the industry as a whole and the specific hazard in the individual mine; (2) the physical condition of applicants for employment as well as that of the old employees. This can be determined only by systematic physical examination of all applicants and of regular employees at intervals of at least once a year thereafter; and (3) all cases of sickness that occur among the workers. Mortality statistics are probably the most easily available indices as to the hazards of industry. A study of such statistics among the coal miners of Indiana for the years 1916–1920, inclusive, is demonstrated as an example. A lead smelter has reduced to a remarkable degree the yearly incidence of lead poisoning by intelligent action based on information furnished by its physical examinations and sickness records, and analysis of records of the various plant processes. The sickness record of an employee is a dependable measure of his health, provided that illness of short duration be recorded, even though some "diagnoses" consist of the statement of symptoms only. The U. S. Public Health Service, in coöperation with the U. S. Bureau of Mines, is prepared to assist companies which wish to inaugurate a system of morbidity records by sending a representative to confer with the company and to help devise a plan of records. The report is illustrated with tables and a model record card.—R. R. Sayers, Rep. of Investig., *U. S. Bureau of Mines,* Serial No. 2453, (March) 1923.

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Lead Absorption from Upper Respiratory Passages.—Carefully worked out experiments on dogs and cats proved that these animals absorb quite rapidly pulverized lead carbonate from their upper respiratory passages. During the experiment, animals were kept alive 24 to 36 hours and the average amount of lead absorbed, in terms of metallic lead, was approximately 22 mg., which is far in excess of the minimal toxic dose. Since in these experiments the animals were subjected to a sudden exposure to a relatively large amount of lead dust with the exposure limited to the upper respiratory passages down to the larynx conditions found in industry were not reproduced. However, the results of the investigation demonstrated that absorption, in industry, of lead salts by the upper respiratory passages would seem to be a definite possibility.—H. L. Blumgart, *J. Ind. Hyg.,* V, 5:153, (Sept.) 1923.

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Hydrogen Cyanide as a Fumigator.—Fumigation by hydrogen cyanide (hydrocyanic acid) must be considered a hazardous occupation. While hydrogen cyanide is a powerful agent for the destruction of insect pests, rats and vermin, it is not a disinfectant and is not used for disinfection of houses or clothing after infectious fevers. It has the disadvantage of being dangerous to the lives of all persons engaged in the work of fumigation. However, fatal accidents are held to be due chiefly to lack of precaution or to careless-

ness of the operators. The steps employed in the fumigation of a ship can be divided into three stages: (1) The ship is inspected and the details of the fumigation planned. All openings are then closed, and the generating plant placed in position. (2) The plant is charged and the gas generated, when the vessel is left under fumigation. (3) The ship is opened up and allowed to ventilate, tests being made to determine when she is free from gas. To prevent accidents, two precautions are necessary: (a) The employment of only trained personnel, and (b) the use of effective respirators. The addition of a lachrymatory substance to the gas to warn of its presence is now being tried out. If accident occurs, artificial respiration should be employed at once without waiting for other means of assistance. Attention is called to the fact that in sublethal concentrations this gas gives no warning symptoms. —P. G. Stock and G. W. N. Williams, *Lancet* (Editorial), No. 5230:1149, (Nov. 24) 1923.

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Sanitary Regulations for Canneries.—In addition to 11 other sanitary regulations governing the operation of canneries the Board of Directors of The National Canners Association at their meeting at Washington, May 24, approved the following rules: (1) All canneries shall be properly lighted and ventilated. When natural light and ventilation are insufficient, provision shall be made to supply sufficient light and ventilation, artificially. (2) The walls and ceilings of workrooms shall be thoroughly cleaned and coated with light-colored paint or other suitable material. (3) Floors of wash rooms shall be kept clean. They shall be so constructed as to insure proper drainage and to prevent the accumulation of dirt. (4) Gratings or slatted floors shall be provided in places where overflow or splashing is unavoidable. (5) All washers, scalders, blanchers, and holding tanks shall be provided with a continuous water supply and an overflow, and shall be emptied and cleaned once each day, or as much oftener as is necessary to prevent souring or insanitary conditions.—*Nation's Health,* V, No. 10:746, (Oct. 15) 1923.

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Health Service for 16,000 Employees.—The Endicott-Johnson Corporation have gradually developed an extensive health service for their 16,000 workers and dependent members of workers' families. This service consists of three medical centers in as many communities. The medical staff consists of 27 full-time physicians, including one general surgeon, one refractionist, two nose and throat specialists, one pediatrician, three full-time dentists, two pharmacists, one masseur, one X-ray technician, and a nursing staff of 51 trained nurses with the necessary clerical and technical attendants. The first contact is through the medical examination of the applicant for employment. He is reëxamined after a period of six months, when, if his physical condition continues good, he is permanently employed and is eligible to join the mutual sick relief insurance at a cost of 20 cents per week, paying 12 dollars a week for 13 weeks. Between 10,000 and 12,000 workers are members of this insurance. A victim of industrial accident or occupational disease receives medical care and full pay for loss of time. If hospital care or surgical operation is required he is transferred to a suitable hospital.—D. C. O'Neill, *Hosp. Management,* XVI, No. 5:77, (November) 1923.

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Mercantile Health Work.—A group of 25 merchants subscribed, some time ago, to a budget, and arranged with the Harvard Medical School to supervise a study of causes and methods of prevention of absence and lost time from illness and injury. It was found that more than half the women who stand at work have foot trouble or strain. In a rubber factory, eyesight was found to be sufficiently defective in one-fourth of women inspectors to prevent their seeing defects in the product. Correction of refractive errors resulted in an improved product which, many times over, paid the expenses of examinations and glasses. The large proportion of labor turnover is chargeable to ill health, and the estimated cost of placing and training a new person is from $50 to $200. The store nurse must be well grounded in medicine and health work and must have a personality which attracts and which inspires confidence. A fairly complete medical service can be organized for about $5 per person per year. A mutual benefit association in which each person pays from one-half to 1 per cent of his wage, a like amount being contributed by the business, is the best scheme for financing the project. This plan is not practicable in the case of a small establishment but a group of small stores with a combined population of 1,000 or more could suc-

cessfully organize such a service.—A. B. Emmons, N. Y. State Dept. of Health, *Health News,* 249, (Oct.) 1923.

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Fumes from Type Machines.—In the printing trade the processes which subject the workers to most dust and which are consequently held to be the most dangerous are melting, polishing, and setting old type. Although pots of type metal are heated to a temperature far below the boiling point and therefore give rise to little danger, fumes arise when the molten metal is stirred or skimmed or when cold pig lead is added. In monotyping rooms and in the use of the linotyping machine products of incomplete combustion may be objectionable. Fume hazards are being eliminated or greatly reduced by the use of modern equipment. Electricity replaces gas in a recently marketed heater. The patented Zenke suction head for monotoype and linotype machines is employed. With the Margach self-feeding device a pig of lead, five or six times the length of the small pig previously used, is fed into the metal pot as fast as the molten lead is used in operation. The addition of the Margach device requires a modication in the arrangement of the Zenke head. —*Nation's Health,* V, No. 11:821, (Nov. 15) 1923.

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Industrial Medical Practice.—Officers of industrial establishments have learned that a higher level of production and efficiency are made possible by keeping employees in good health. Many common maladies which would keep an employee away from his work for days or weeks are being aborted or greatly shortened by prompt diagnosis and treatment by plant physicians. However, industrial physicians should obviously not attend patients outside of the plant itself. To avoid opposition from physicians in private practice, first aid treatment only should be given to patients at the plant. Patients should be instructed to seek their family physicians for further medical attention.—*American Medicine,* XXIX, No. 11:760, (November) 1923.

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Air Conditions in Potteries.—Facts relating to the pottery industry, brought out in a new report of the British Industrial Fatigue Research Board tend to modify considerably certain views concerning air conditions which were previously accepted as almost axiomatic. The ill-effects on health arising from back draughts of vitiated air from drying stoves has long been a problem in the earthenware and china factories. "Great stress has been laid on the high temperatures found in pottery workshops and the inadequacy of their ventilation. The usual systems of drying used in the majority of potteries are not very enlightened or scientific. The old idea seemed to be that the drying should be conducted at a high temperature in a confined space, whereas everyone should know that the first principle in such methods is to pass sufficient volumes of dry air, and not necessarily very hot air, over and among the articles to be dried."—H. M. Vernon and T. Bedford, *Ind. Fatigue Research Board* (G. Brit.), Report No. 18.

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Harvester Company's Preventive Health Work.—The International Harvester Company has lately developed a program of "medical extension service" by which it expects to reduce the frequency and severity of sickness and length of disability among employees. An "Employees' Benefit Association" has been organized whose members are paid regular sick benefits in case of illness of over one week's duration, and special provision is made for furnishing sanatorium care for those suffering from tuberculosis. Physical examinations are given all new employees in order that they may be assigned to work for which they are physically fitted, and at the same time protect fellow employees against the possibility of contagious disease. The company has established at its McCormick works a diagnosis station equipped with all modern apparatus. This station is in charge of a competent technician and is capable of furnishing X-ray and fluoroscopic examinations, stomach content and other analyses, bacteriological determinations, etc. The company does not undertake to provide medical attention for employees in whom disease is discovered, because the cost of such attention is not considered to be a proper charge against industry. —*Hosp. Management,* XVI, No. 6:66, (December) 1923.

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Health Service of Laurentide Company.—Systematic physical examination of applicants for work and at regular intervals of old employees is carried out by the Laurentide Company, Grand' Mere, Quebec. Examinees are then classified according to physical fitness as

follows: (1) physically fit for any employment; (2) physically fit for any kind of work but substandard in some respect; (3) physically fit only for specified employment approved of by the company physician, and (4) unfit for any employment. An analysis of the records of the first 1,000 examinees classified them as follows:

Class	*Per cent*	*Totals*
(1) Applicants	.6	
Employees	2.9	3.5
(2) Applicants	17.2	
Employees	49.2	66.4
(3) Applicants	4.5	
Employees	20.1	24.6
(4) Applicants	1.6	
Employees	3.9	5.5

The company physician collaborates with local physicians and is in no sense a competitor. His services, so far as sick employees are concerned, are limited to consultations with the patient's family physician. Under exceptional circumstances the company physician renders assistance in serious accident cases. His duties relate primarily to the problems of preventive medicine and the medical aspects of group insurance. Other subjects taken up by the author are safety service, accident compensation, first aid, plant hospital, organization of safety work, sickness insurance, occupational research, sanitation, and care for district patients.—B. L. Wyatt, *Hosp. Management,* XVI, No. 6:68, (December) 1923.

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The Influence of Atmospheric Conditions on the Health of the Industrial Worker.—Reviewing the report of the New York State Commission on Ventilation, the author observes as follows:

Speaking of the prevalence of respiratory diseases in 5,500 school children in controlled groups, the children in the hotter rooms (average temperature 68° to 69°) showed 18 per cent more absences, owing to respiratory illness, and 70 per cent more respiratory illness among such of them as were actually in attendance. The commission says that this excess of illness was undoubtedly due in chief part to the higher temperature of the air, and they consider that the avoidance of overheating is the primary essential in all systems of ventilation. It seems to the author somewhat doubtful whether the commission is correct in this, and it is possible that the uniformity of temperature and air currents maintained by fan (artificially) ventilated rooms was still more potent a factor. But in any case he thinks they have demonstrated that comparatively small differences in atmospheric conditions may have a considerable effect on health, and especially on the amount of respiratory disease. He next discusses the mortality statistics of industrial workers in various occupations using the data published by the Registrar-General relating to the 1910–12 period. The comparative mortality figure for all males, occupied and retired, between the ages of twenty-five to sixty-five is 790, whilst that of a typical group of outdoor workers, such as agricultural laborers and farm servants, is only 470, or not two-thirds as great. This is due largely to the fact that their mortality from respiratory diseases, such as phthisis, bronchitis, and pneumonia, is only about half as great as in all males. The same is true for another group of typical outdoor workers, engine drivers and stokers. When we pass to the indoor workers we observe an entirely different state of things, rates in some groups such as potters, cotton workers, etc., running up to as high as 1,196. The author takes up each of these groups, particularly stressing overcrowding as well as overheating and underventilating. Very hot and exhaustive work, as in iron and steel manufacture, shows a mortality from bronchitis and pneumonia almost double that of all males. Passing to the group of coal miners we see that their mortality from phthisis was only half as great as that of all males, in spite of the fact that they inhale a vast amount of coal dust, but it is 34 per cent greater from bronchitis. Here he believes overheating followed by exposure and the acquirement of chills are the chief features. The relation of atmospheric conditions to accident frequency is next discussed. The mere reduction of temperature in the mine by the installing of a cooling plant, apparently reduced fatal accidents from 20 to 6 in two comparative 16-month periods. "Poor atmospheric conditions act adversely in still another way, namely, by reducing the working efficiency of the men, and there can be little doubt that any conditions which seriously impair efficiency must tend to injure health as well."—H. M. Vernon, *Jr. State Med.,* XXXI, No. 12: 561, (Dec.) 1923.