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INDUSTRIAL HYGIENE

Current News of Official Industrial Hygiene Activities



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NATIONAL DEFENSE

Investigations of Health Hazards in Government-Owned Contract-Operated Ordnance Plants

During September, the War Department certified 36 Government-owned contract-operated ordnance plants to the Division of Industrial Hygiene, National Institute of Health, for immediate investigation. Arrangements have been completed for four arsenal crews to make medical and engineering studies in these plants. It is estimated that approximately 1 year will be required to complete these studies. The first study was begun on October 13, in the Elwood Ordnance Plant, Joliet, Illinois.

Analysis of State Industrial Hygiene Budgets Shows Increase in Appropriations and Number of Personnel

Thirty-four States, the Territory of Hawaii, and the Philippine Islands now provide industrial hygiene services. Of the 52,000,000 workers enumerated in the 1940 Census, 47,000,000 live in these States.

An analysis of the State industrial hygiene budgets shows that the total appropriation for carrying on industrial hygiene programs is slightly more than \$1,000,000 for the 1942 fiscal year, an increase of approximately \$250,000 over the 1941 fiscal year. With reference to the source of these funds, it is interesting to note that although the Federal Government is assisting the States by lending them personnel and equipment, there has been practically no increase in the proportion of these appropriations which is accounted for by the money allotted by the Federal Government to the States. In fact, if one excludes the money spent by the Federal Government for personnel and equipment lent to States in connection with the defense program, there has been a slight increase in the State appropriations. In other words, State and local governments are slowly but gradually assuming financial responsibility for industrial hygiene activities.

The number of individuals employed in official industrial hygiene bureaus has also increased during the current fiscal year. There are now 318 persons employed in State and local industrial hygiene bureaus, as compared with 208 for the 1941 fiscal year. Of the 110 additional persons, only 26 are personnel on loan from the Public Health Service.

Engineers, chemists, and nurses account for the greatest increase. Seven States now employ industrial nursing consultants, and several other States contemplate doing so. Although the Public Health Service has advocated the employment of physicians in those States which now have no medical control programs, there has been only a slight increase

NATIONAL DEFENSE

in the number of physicians in these agencies, an increase from 37 physicians last year to 43 this year.

In conclusion, it can be stated that State and local governments are becoming more and more aware of their responsibilities in industrial hygiene, and that the day is not far off when every one of the 48 States and of the Territories will provide full-time industrial hygiene services. As it is, official industrial hygiene services are now available to almost the entire labor force of this country.

The amount of money appropriated for an activity does not necessarily indicate the extent of accomplishment, of course. As soon as all the State and local industrial hygiene bureaus have submitted their annual reports, their actual accomplishments will be analyzed.

Priorities

Several State industrial hygiene bureaus have been informed by the management of plants in which these bureaus have recommended the installation of industrial ventilation systems for the control of hazardous working environments that considerable difficulty is being experienced in obtaining the necessary materials because of priorities. The impact of this development on industrial health conservation is obvious, and therefore the following procedure is suggested in order to insure as prompt delivery as possible of the necessary materials.

The management of plants in which priorities materials are required for control equipment should file an application with the Division of Priorities, Office of Production Management, Washington, D. C., on Form PD-1. This form may be obtained from the offices of the Contract Distribution Division, Office of Production Management, which are located throughout the country in the various Federal Reserve Bank buildings. In addition, it would be helpful if the State industrial hygiene bureau would prepare a written statement, on the importance of obtaining the required materials, which the plant management could attach to its application.

Of interest with reference to priorities for equipment for defense laboratories engaged in scientific research is the fact that the Office of Production Management has entered into an arrangement with the National Academy of Sciences, under which the Division of Priorities will have the benefit of the advice of the Academy with respect to all applications which it may receive.

NATIONAL DEFENSE

Conservation of Eyesight Suggested As A Way to Improve Production for Defense

The attention of the Public Health Service has been called to the fact that a number of expert mechanics now employed by private industries in producing dies and other machinery are handicapped in their work owing to lack of proper eyeglasses. Apparently their failure to be so equipped is due to lack of appreciation of their visual limitations and of any requirement on the part of the companies that they be properly equipped with lenses. The establishment by these companies of reasonable standards for vision would help to solve the problem. State industrial hygiene bureaus are in a position to urge the establishment of such standards and to assist in developing them.

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NURSING SERVICES IN INDUSTRY

Program for the Promotion of Part-time Nursing Services in Small Plants

On October 16, 1941, the Committee on the Development of Industrial Hygiene in Local Areas, of the National Conference of Governmental Industrial Hygienists, sponsored a meeting in Atlantic City, New Jersey, for the purpose of developing a plan whereby the services of local public health nursing agencies, such as the visiting nurse associations, could be made available to small plants which are unable to afford the services of a full-time nurse but which could profitably utilize the services of such associations. The meeting was attended by about 35 persons, among whom were representatives from the Conference, four visiting nurse associations, the National Organization for Public Health Nursing, five State industrial hygiene bureaus, the Subcommittee on Industrial Health and Medicine, the Division of Industrial Hygiene of the National Institute of Health, and two insurance companies.

At this meeting, the various aspects of the problem were discussed, and specific action was proposed. It was pointed out that in the United States, 95 percent of the industrial plants are plants employing 250 workers or less, and that 44.5 percent of the total labor force are employed in plants of this size. Only a very small percentage of these plants provide either full-time or part-time nursing services for their employees.

As a result of the increasing interest in industrial hygiene, particularly because of the national defense program, visiting nurse associations have realized the need for part-time nursing services

-4-

NURSING SERVICES IN INDUSTRY

in small plants in their communities and have become interested in offering their services to such plants. Although some visiting nurse associations have provided such services to a limited extent since 1903, these services have not been widely or fully developed. Public health nursing organizations and industrial hygienists therefore considered it essential, in order to further such a program, that (1) visiting nurse associations must be well prepared to provide the necessary services, and (2) that the most efficient method for establishing contact between the associations and the industries needing nursing services should be developed.

With regard to the first point, a number of visiting nurse associations already have the necessary preparation and are successfully providing services to industry. In addition, the National Organization for Public Health Nursing is developing an outline for a staff education program which visiting nurse associations may use in preparing their staffs to render such services. On the whole, the persons attending the meeting agreed that visiting nurse associations are in a position to offer their services to industry.

With regard to the promotion of these services, it was agreed that the most feasible plan would be for the State and local industrial hygiene bureaus to assume the leadership. These bureaus can acquaint industry with the necessity and value of providing nursing services for employees, and they can also keep visiting nurse associations informed as to the needs of particular plants in the community. It was emphasized that although the promotion of the program should be carried on by the official industrial hygiene agency rather than by the nursing association, the associations should inform these agencies as to the services which they are prepared to offer and, furthermore, should work in close cooperation with the State and local medical societies.

It was also pointed out that in areas where there are no visiting nurse associations, the State or local industrial hygiene bureau should encourage the "unit" or "team" system of providing medical and nursing services in small plants, that is, the system whereby one physician and one or more nurses divide their time among several small plants.

Because the visiting nurse associations have shown such great interest in providing services to small industries, particularly those now participating in the defense program, it was agreed at this meeting that State industrial hygiene bureaus should hold similar meetings in the near future in order to develop specific

NURSING SERVICES IN INDUSTRY

programs for their respective States. It was further agreed that another national meeting should be held after a year had elapsed in order to evaluate the progress which has been made.

A complete report of the meeting in Atlantic City will be given by the Committee on the Development of Industrial Hygiene in Local Areas at the fifth annual meeting of the National Conference of Governmental Industrial Hygienists which will be held in April 1942. At that time, the program and the progress which has been made in the interim will be discussed in detail.

Progress Report on the Study of the Duties of Nurses in Industry

At the American Public Health Association's annual meeting which was held in Atlantic City, New Jersey, on October 14-17, the Public Health Nursing Section of the Association heard a progress report by its Committee to Study Duties of Nurses in Industry. The committee presented the results of a preliminary survey of the duties of 235 nurses in 109 establishments employing 232,500 workers. The results may be summarized as follows:

1. Nurses have written standing orders in 81 percent of the 85 establishments with physician serving part time or on call.
2. Nurses assist with physical examinations, chiefly of women, in 67 percent of the 60 establishments with a preemployment examination program.
3. Nurses give some assistance with chest X-rays and laboratory tests such as urinalyses, and blood counts in 32 percent of the 53 establishments offering this type of service to the employees.
4. Nurses are on night duty in 35 percent of the 81 plants working a night shift.
5. Plant nurses make home visits to employees in 54 percent of the 52 plants with this service.
6. There are nursing supervisors in 69 percent of the 20 plants employing 3 or more nurses.
7. Nurses in 32 plants reported they follow up on defects of employees to some extent.

NURSING SERVICES IN INDUSTRY

8. Nurses in 23 plants reported that workers come to them concerning social service problems.
9. Accident records are available to the nurse for reference in all of the plants surveyed; sickness records in 72 percent of the 87 establishments maintaining such records; physical examination records in 93 percent of the 60 establishments with a preemployment physical examination program.
10. Nurses submit daily, monthly, or annual reports in all but 4 of the establishments surveyed.
11. Nurses make out compensation reports in 59 percent of the establishments surveyed.
12. Nurses receive clerical assistance with records and reports in 41 percent of the establishments. In 12 percent, they do clerical work outside of the medical department.
13. Nurses assist with plant inspections in 55 percent of the plants surveyed.

Other activities in which nurses in industry engage include: participation in Red Cross classes, safety meetings, accident investigations, and recreational activities; supervision or training of first-aid workers; inspection, management, or dietary assistance in plant lunchrooms; and educational activities such as talks, care of bulletin boards, and distribution of literature.

On the basis of this report, the Public Health Nursing Section voted to continue the study and authorized the committee to appoint an advisory committee to be composed of representatives of each of the industrial nurses' groups or clubs throughout the United States.

The Section also approved the committee's recommendation that the State departments of health with their divisions of industrial hygiene and/or public health nursing be asked to assume the responsibility for the collection of the data in the respective States, and that the Division of Industrial Hygiene, National Institute of Health, U. S. Public Health Service, be asked to assume the responsibility for the tabulation and analysis of the collected data and the printing of a final report.

GENERAL

Cadmium Poisoning From Food

During the past year, numerous cases of cadmium poisoning have come to the attention of the U. S. Public Health Service. These cases have arisen from the contamination of food or drink with dissolved cadmium salts, owing to the preparation or storage of food or drink in cadmium-plated containers. Since metallic cadmium dissolves in the acids normally present in certain foodstuffs, a poisonous cadmium compound is formed. When this compound is ingested it causes acute poisoning very similar to so-called "food poisoning." The symptoms noted are pronounced nausea, vomiting, diarrhea, abdominal pains or discomfort, and general weakness.

Prior to 1941, a total of 20 cases of cadmium poisoning, due to the ingestion of cadmium, had been reported in the literature. Since January 1941, 315 cases of poisoning definitely have been caused by cadmium.

Owing to the greatly increased technical use of cadmium in the manufacture or repair of various types of containers and the increasing use of cadmium for plating, the possibility of such containers being used for food purposes is apparent. Several instances have occurred where cooking utensils have been repaired and unsuspectingly plated with cadmium which have later caused acute illness.

It is also possible that cases of cadmium poisoning have been mistaken for food poisoning owing to the similarity of the symptomatology of cadmium poisoning to that of ordinary so-called "food poisoning."

For these reasons the public should be warned against the use of cadmium-plated utensils for food purposes.

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EDUCATION

Industrial Hygiene Radio Program, "Men and Machines," Now Available

Transcriptions of an industrial hygiene radio program, entitled "Men and Machines," are now available for loan to State and local health departments for release over local broadcasting stations as a program of the State or local health agency.

Transcriptions of "Men and Machines" should be ordered from: The Radio Script and Transcription Exchange, U. S. Office of Education, Washington, D. C. The Informational Section, Division of Sanitary

-8-

EDUCATION

Reports and Statistics, U. S. Public Health Service, Washington, D. C. also takes orders for the transcriptions. Borrowers are required to pay the shipping expenses.

Motion-Picture Films of the Bureau of Mines

The Bureau of Mines, United States Department of the Interior, has a large number of motion-picture films available for loan to educational institutions, engineering and scientific societies, and other responsible organizations. Several of these films, such as "Carbon Monoxide: The Unseen Danger," would be of direct interest to industrial hygienists, and many of the films which show manufacturing processes and other operations in industry would be of general interest. A booklet which describes each film and the conditions under which the films are lent may be obtained from Louis F. Perry, Supervising Engineer, Graphic Section, Bureau of Mines Experiment Station, 4800 Forbes Street, Pittsburgh, Pennsylvania.

Michigan Training Programs

Under the sponsorship of the U. S. Office of Education, the University of Michigan is offering courses in the Engineering, Science, and Management Defense Training Program. The courses, which began on October 13, will continue for 8 weeks. One of the courses, "Air Sanitation in Industry," is being presented by Mr. William N. Witheridge, Chief Industrial Hygienist, Bureau of Industrial Hygiene, Detroit Department of Health. The subjects to be covered in this course include: types and sources of air contamination; effect on workers' health; identification and measurement of contaminants; and remedial measures for dusts, fumes, gases, noise, odors, heat, humidity, and radiations.

The Michigan Department of Labor and Industry recently conducted a 2-week training school for their factory inspectors staff which numbers approximately twenty-five members. One entire day was devoted to the health phases of industrial employment. Members of the Bureau of Industrial Hygiene, Michigan Department of Health, conducted this special health session with the intent of developing a cooperative program and thus eliminating duplication of effort.

PERSONNEL NEWS

Texas

Dr. Carl A. Nau, formerly the Director of the Texas Division of Industrial Hygiene, is now Professor of Physiology and Preventive Medicine, and head of this department, at the University of Texas Medical School, Galveston, Texas.

St. Louis, Missouri

Mr. John Buxell, formerly Chief Engineer of the Industrial Hygiene Service, City of St. Louis Health Division, has been appointed as Sanitary Engineer, Chief of the Sanitary Section and Acting Chief of the Food Control Section of the St. Louis Health Division. The Industrial Hygiene Service has been transferred to the Sanitary Section, and Mr. Buxell will continue to partially direct its activities. The Industrial Hygiene Service also has lost the services of Mr. W. J. Klasing, Industrial Hygiene Engineer, who recently was called to active duty in the U. S. Army. Neither Mr. Buxell nor Mr. Klasing have been replaced so far.

Ohio

Miss Catherine Denning, formerly associated with the Nursing Bureau of the Metropolitan Life Insurance Company, recently was appointed Industrial Hygiene Consultant in the Ohio Department of Health.

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NEW PUBLICATIONS

Clara Gives Benzol the Run Around. Workers' Health Series--No. 4. Federal Security Agency, U. S. Public Health Service. Washington: Gov. Print. Off. (1941).

This pamphlet is written and designed for the information of the 30,000 American workers whose jobs call for the use of benzol in some form and of the thousands more who are employed to manufacture this valuable solvent. The symptoms of benzol poisoning, both acute and chronic, are described. Ways to prevent benzol poisoning and warnings for workers are listed. Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 5¢ each, \$1 per 100, or \$7.50 per 1,000.

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-10-

NEW PUBLICATIONS

The Public Health Administrator's Responsibility in the Field of Occupational Disease Legislation. J. J. Bloomfield and W. M. Gafafer. Pub. Health Repts. 56, 2033-2041 (Oct. 17) 1941.

The opportunities and responsibilities which public health administrators have in the development, enactment, and administration of occupational disease legislation are discussed. Examples of certain procedures are given by citing the study of the nature and prevalence of occupational diseases in Utah industries which was made by the U. S. Public Health Service in cooperation with Utah State agencies.

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Frequency of Disabling Morbidity by Cause, and Duration, Among Male and Female Industrial Workers During 1940, and by Cause Among Males During the First Quarter of 1941. W. M. Gafafer. Pub. Health Repts. 56, 1848-1852 (Sept. 12) 1941.

This report records the frequency of sickness and nonindustrial injuries causing disability for 8 consecutive calendar days or longer among the male and female memberships of 26 industrial sick benefit organizations for the year 1940, and among the male membership for the first quarter of 1941.

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Dermatitis from Cutting Oils. Louis Schwartz. Pub. Health Repts. 56, 1947-1953 (Oct. 3) 1941.

The action of cutting oils on the skin, the types of dermatitis from cutting oils, prevention, differential diagnosis, and treatment are described.

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The Toxicity and Potential Dangers of Nitrous Fumes. W. F. von Oettingen. Pub. Health Bull. No. 272. Washington: Gov. Print. Office (1941). 34 pp.

A review of the literature.

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-11-

NEW PUBLICATIONS

Industrial Manganese Poisoning. R. H. Flinn, P. A. Neal,
and W. B. Fulton. J. Ind. Hyg. & Toxicol. 23, 374-387
(Oct.) 1941.

This article reports the results of a study of the health hazards in a manganese ore-crushing plant, which was made by the Division of Industrial Hygiene, National Institute of Health, U. S. Public Health Service, and the Industrial Hygiene Division of the Pennsylvania Health Department. The complete report of this study was contained in Public Health Bulletin No. 247, "Chronic Manganese Poisoning in An Ore-Crushing Mill," published in 1940.

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A Study of the Relative Toxicity of the Molecular Components of Lead Arsenate. L. T. Fairhall and J. W. Miller. Pub. Health Repts. 56, 1610-1625 (Aug. 8) 1941. Reprint No. 2302.

This article reports the results of an investigation of the effect of ingestion of lead arsenate, extending over 2 years, which was made on rats in order to determine whether the lead or the arsenic component of the molecule, or whether these components in combination, were chiefly responsible for the toxicity of the substance. Lead arsenate was compared with calcium arsenate on the one hand and lead carbonate on the other.

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Diurnal Variation of Urinary Lead Excretion. S. H. Webster. Pub. Health Repts. 56, 1834-1848 (Sept. 12) 1941.

The results of an investigation to determine the range in composition of urine specimens collected from given individuals during the entire day are presented. Although the chief interest was in the lead content, data about other important urinary constituents, such as phosphorus and arsenic, were also obtained. In addition, the investigation attempted to determine whether any variation in the blood occurred simultaneously with or independently of urine changes.

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Twenty-four-Hour Output of Certain Urinary Constituents in Persons Exposed to Lead Arsenate Spray Residue. S. H. Webster. Pub. Health Repts. 56, 1910-1919 (Sept. 26) 1941.

This article reports the results of an experiment to determine the total daily volume of urine excreted by a considerable number of adult male orchardists and of an analysis of these specimens for lead,

NEW PUBLICATIONS

arsenic, and certain other constituents such as phosphate and calcium.

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The Lead and Arsenic Content of Urines from 46 Persons with No Known Exposure to Lead or Arsenic. S. H. Webster. Pub. Health Repts. 56, 1953-1961 (Oct. 3) 1941.

The results of an investigation to determine urinary lead and arsenic values for children and adults having no known exposure to lead or arsenic and to compare the values with those for similar groups are presented in this article.

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An Electrostatic Method for Collecting Bacteria from Air. C. M. Berry. Pub. Health Repts. 56, 2044-2051 (Oct. 17) 1941.

The application of the electrostatic method to the Hollaender and DallaValle "funnel device" for the bacteriologic examination of air is described. Pertinent structural changes in the "funnel device" for the application of the electrostatic method are given in detail. The results of tests to determine the relative sampling efficiency of this method also are presented.

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News items for publication in INDUSTRIAL HYGIENE should be submitted to Sanitary Engineer J. J. Bloomfield, Division of Industrial Hygiene National Institute of Health, Bethesda, Maryland
