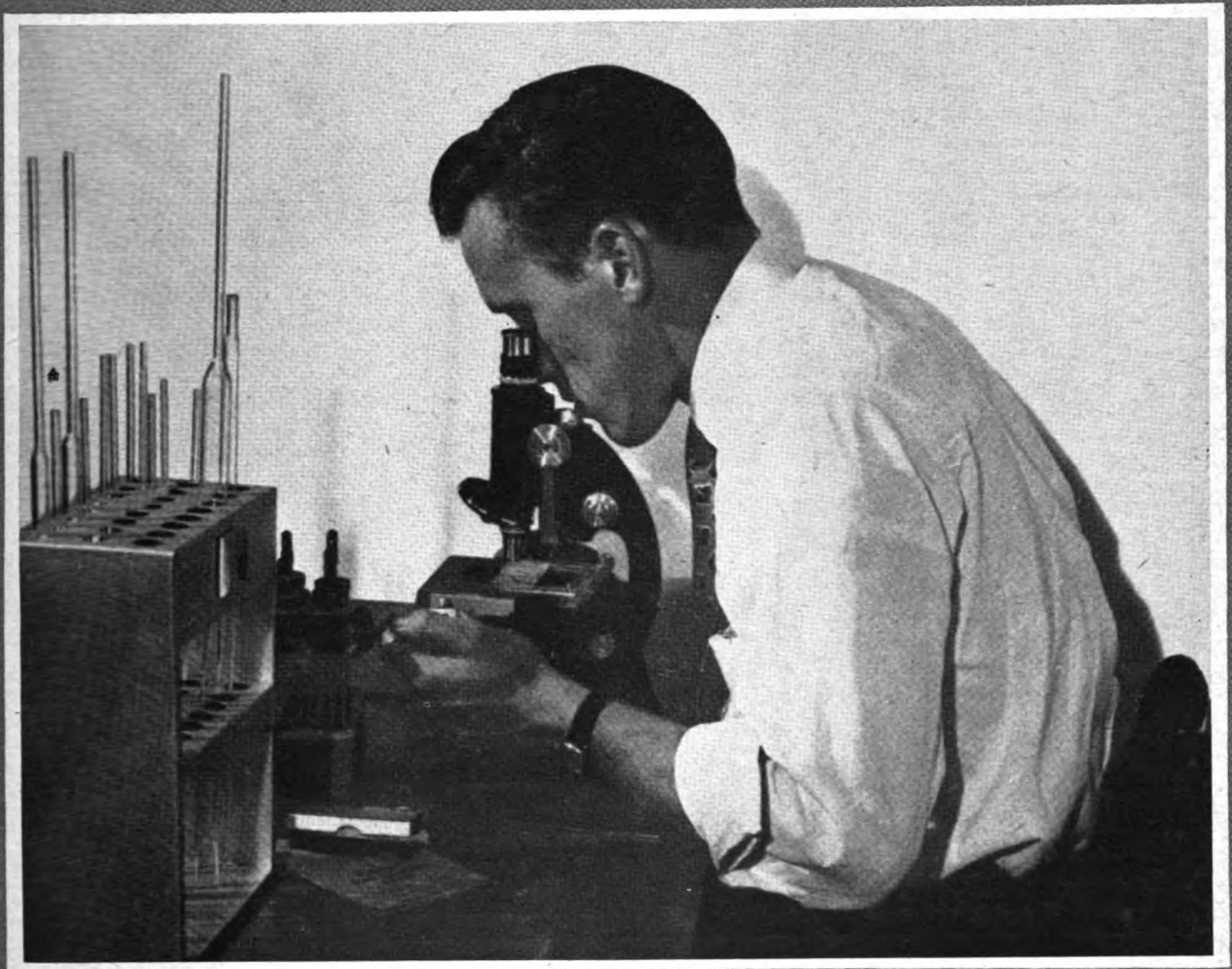


The **Industrial Hygiene**
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FEBRUARY 1950

FEDERAL SECURITY AGENCY

Public Health Service

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INDUSTRIAL HYGIENE NEWSLETTER

Volume 10

February 1950

Number 2

Issued monthly by
FEDERAL SECURITY AGENCY
Public Health Service
Industrial Hygiene Division



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This publication is free to persons engaged in industrial hygiene in governmental agencies (Federal, State, or Local). For sale by Superintendent of Documents, Government Printing Office, Washington 25, D. C. Rates—\$1 a year (Domestic); \$1.25 (Foreign).

Statements made in this publication by authors who are not members of the Division of Industrial Hygiene do not necessarily represent the viewpoint of the USPHS.

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Approved March 29, 1946, by Director, Bureau of the Budget, as required by Rule 42 of the Joint Committee on Printing

PLANT MANAGERS HELP ARKANSAS NURSES ORGANIZE

Industrial nurses of Arkansas have shown their interest in improved plant programs by forming an Industrial Section of the Arkansas Nurses Association. This group was officially organized at a conference for industrial nurses held in Little Rock on October 13 and 14, 1949.

The conference was made possible through the joint efforts of individual industrial nurses and plant managers, the Industrial Hygiene Division of the USPHS, Arkansas State Nurses Association, and the Arkansas State Health Department, Division of Public Health Nursing and Division of Industrial Hygiene.

Letters of invitation were sent to all industrial nurses by the Division of Public Health Nursing and letters from the Division of Industrial Hygiene were sent to managers of all plants employing industrial nurses. These letters stressed that the basic purpose of the conference was the improvement of plant nursing service. Management was encouraged to express the approval of its medical program by having the plant nurse attend.

One of the biggest needs brought out at the conference was that of adequate medical interest and supervision of the plant medical programs. One phase of the proposed activities of this group will be an attempt to create the necessary interest of physicians and plant managers. This approach will be accomplished through the efforts of individual nurses, the Section as a group, educational information and the Arkansas Medical Association. Additional organization plans and objectives were established at a meeting which coincided with the annual meeting of the Arkansas Public Health Association.

COVER PICTURE—Richard I. Chamberlain, engineer for the Division of Occupational Hygiene, Massachusetts Department of Labor and Industries, using a dust counting apparatus. All photographs in this issue were submitted by the Division of Occupational Hygiene, Massachusetts Department of Labor and Industries.

Physicians, Nurses, Engineers and Chemists Combine Efforts to Protect Massachusetts Workers on Their Jobs*

The Commonwealth of Massachusetts, while very compact (approximately 160 miles long and 45 miles wide), is one of the leading industrial States, ranking sixth in establishments and wage earners and eighth in value added by manufacture. Of its 1,750,000 workers, 700,000 are engaged in manufacturing in over 10,000 establishments. Some idea of the diversity of its industries can be gleaned from the fact that the Massachusetts Development and Industrial Commission recently issued a list of 94 industries which were most important in the Commonwealth.

Such diversity of industry means a healthy economy, but it also presents an almost limitless variety of occupations which must be investigated by the industrial hygienist. The statistics quoted above also indicate that Massachusetts industrial plants for the most part are small. Thus the great majority of such plants cannot afford the services of industrial hygienists and must look to governmental or other agencies for assistance when industrial hygiene problems arise.

History of Division Shows Progress

In Massachusetts the problems of industrial health have been within the province of the Department of Labor and Industries since its establishment

in 1912. Prior to that the regulatory power was exercised by the inspectors of the State police. Regulations concerning the care of employees taken ill or injured, as well as those pertaining to sanitation, were adopted in 1907, and transferred to the Department of Labor and Industries in 1912.

In addition, four of the inspectors in the department were industrial health inspectors who "were qualified by training and experience in matters relating to health and sanitation." Three of these inspectors were physicians, and the other was a graduate bacteriologist.

Upon the recommendation of the Special Industrial Disease Commission, the Division of Occupational Hygiene was established in 1934. The duties of this division are of three classifications: (1) To investigate conditions of employment relative to hazards to health, to determine the degree of such hazards, and to investigate methods of control of such hazards; (2) to assist the department in formulating rules and regulations regarding industrial health and safety; and (3) to promote education in the field of industrial health and safety.

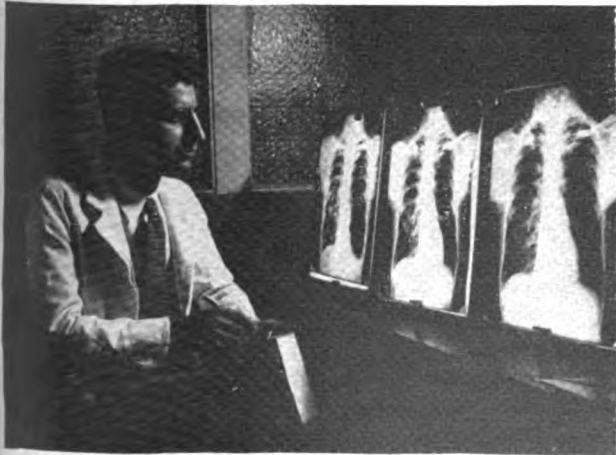
*All Massachusetts articles were contributed by the staff of the Division of Occupational Hygiene, Massachusetts Department of Labor and Industries.

Thus the work of this division is primarily investigative and in no sense is it regulative or enforcing. From a modest beginning with a director, chemist, engineer and clerk, the division has added assistants to the above personnel, as well as physicians and nurses. To do competent work in this field, it has been found necessary to provide a complete modern laboratory with many specialized instruments.

Division Cooperates With Other Agencies

Excellent working procedures have been established with the sister division—Industrial Safety. Each safety inspector is kept fully informed of industrial hygiene activities in his district, as well as of industrial hygiene developments of general interest. Approximately one-sixth of the division's investigations are requested by the safety inspectors.

The two divisions have joint responsibility for the drafting of rules and regulations governing industrial health and safety. In recent years they have developed rules and regulations for the prevention of anthrax and for the labeling of receptacles containing benzol and carbon tetrachloride, and have been working for the past 5 years toward revision of the rules and regulations for lighting industrial establishments.



Dr. Clarence C. Maloof studies X-ray plates for industrial pulmonary disorders.



Mr. Benjamin P. W. Ruotolo samples air for lead at battery plate separating operation.

The Division of Occupational Hygiene maintains close relations with the divisions in the Department of Public Health comprising the environmental sanitation section. Monthly meetings of the staffs of these divisions are held, and all personnel are informed of new developments in the field of each division. In addition, the engineers of the Division of Occupational Hygiene have done considerable work with the sanitary engineers in problems of atmospheric pollution.

Educational Work Important

Educational work in the field of industrial health and safety has taken two forms—one the presentation of talks before various special groups, and the other the publishing of bulletins and papers on industrial hygiene topics. Members of the staff have lectured at Tufts, Northeastern, Massachusetts Institute of Technology, Harvard, Worcester Polytechnic Institute, and the University of Massachusetts. The nursing section has done considerable educational work, details of which are to be found under the discussion of nursing activities.

Currently members of the staff are working with the faculty of the University of Massachusetts toward presenting a series of lectures to engineering students to acquaint them with problems in industrial hygiene in order that they may be prepared when they enter industry to attack such problems or know where to look for assistance in the solution of such problems.

The Division of Occupational Hygiene is responsible for the Session of Industrial Health held by the Massachusetts Safety Council at its annual meetings. Related series of lectures have also been presented at the various medical schools by the physicians of the staff. In addition, many talks are given to groups of safety engineers, nurses and other persons interested in industrial health.

Visual Aids Available

As a means of illustrating such talks, the division has accumulated a rather complete catalog of lantern slides which are extremely useful in illustrating various procedures used in the field and in the laboratory for evaluating health hazards, as well as illustrating proper methods of control of such haz-

ards. A fairly comprehensive set of slides of chest X-rays has been accumulated by the physicians to illustrate lung changes caused by various industrial pneumoconioses and pneumonitic diseases. In addition, slides of charts for emphasizing certain features of industrial hygiene programs and their organization have been secured.

Photographic studies have been made in various plants, with the result that over 600 pictures have been taken to illustrate various features of industrial hygiene activities. In many cases such illustrations have been found invaluable in demonstrating to plant management suitable types of control equipment for hazardous processes.

Many Publications Distributed

Since its inception, the division has published over 500 bulletins and papers dealing primarily with problems of industrial hygiene. Currently recommended safe practice data sheets are being prepared in several series, these sheets being designed primarily for safety engineers, nurses, personnel managers, or other persons responsible in industrial plants for the health and safety of workers. These sheets include chemical, physical, mineral, and infection hazards, ventilation means of control, and lists of respiratory protective equipment. They have been well received by labor inspectors, safety engineers, and personnel managers.

The division maintains a small but rather complete library, the material in which is concerned chiefly with industrial hygiene matters, but also contains sufficient references to other scientific material to enable the technical staff adequately to perform its duties. A system of classification was originally developed by one of the division's engineers, with the assistance of a librarian from the Boston Public Library. This classification system has since been adopted by some other industrial hygiene units and by certain units of the Medical Corps of the United States Navy.

The most important duty of the division is the investigation of conditions of employment with regard to industrial health hazards and their evaluation. The following sections indicate how such problems are attacked by the various sections of the division.

Physicians' Work Reaches Into Many Fields

Physicians on the staff work in cooperation with the chemists and engineers in evaluating health hazards; they determine the etiology of occupational diseases; and they set up control programs to prevent illness in workers from toxic substances.

The medical program embodies six features:

To make medical studies.—The most important studies include lead and benzol poisoning, pneumoconioses and dermatitis. Histories are taken and blood counts are done as indicated. In some instances chest X-rays are scrutinized.

To follow up suspected industrial disease by obtaining clinical records.—This often necessitates a close working relation with hospitals, private physicians, insurance companies and other agencies of the State.

To make surveys of industrial disease hazards.—Invariably these surveys are made jointly with either the engineers or chemists. An example of this is a survey recently completed of the X-ray shoe-fitting machines.

To compile records of clinical data and catalog according to diagnosis of industrial disease.—An important phase of this work is the follow-up of cases of possible industrial origin found through the various tuberculosis mass surveys.

To organize medical control programs for small industries having severe hazards.—This medical service is obtained from local doctors whom the medical section confers with frequently for educational purposes. Examples of this work include an instrument manufacturing concern having a mercury hazard where the medical section has assisted in the development of a medical control program, and a machinery manufacturing concern having a cadmium hazard where the medical section was instrumental in developing a medical control program.

In the battery manufacturing plants where there are severe hazards, the five largest now have medical programs. Four of the other plants are smaller, employing only one to three men. These have no medical program as yet and it does not seem that such a program

would be practical for such small plants. As a result of such work, one metal smelting plant has medical services.

To develop possible facilities for diagnosis, teaching and research of matters pertaining to industrial disease.—Through the work of the consulting physician and a committee of persons interested in this work, a grant was secured from the National Institutes of Health of the United States Public Health Service, to provide two full-time beds at the Massachusetts General Hospital to study clinical aspects of occupational disease. By so doing, it is planned to develop diagnostic criteria for better relating occupational etiology with consequent clinical syndromes; to investigate pathogenesis of worker illness; and where possible to work out better methods of treatment of industrial diseases.

This service is available to the ill worker without charge to him and will provide material for both investigation of industrial disease and for teaching purposes. This is probably one of the most important steps that has been taken in recent years. All the sections of this division work in cooperation with its consulting physicians and the group at the Massachusetts General Hospital.

Gradually the interest and need for this project, felt certain to exist, have been expressed in calls for consultation service leading to cases appropriate for study under the conditions of this grant. It is impossible to say how much this

work will expand, although the present plan is to keep the project small, correlated with the teaching of medical students and house officers as an important function. Below follows a résumé of the case material seen and studied thus far as an index of the character of the activities:

Benzol Intoxication

Four cases—consultation advice was given as to etiologic correlation between benzol in work history and blood dyscrasias. These cases are of great teaching value, and there was opportunity so to use them.

One case was admitted to the ward for bone marrow and liver function studies where worker-patient gives a complex story of chemical exposures in his work as dye chemist in the artificial-leather industry. His hematologic picture is bizarre and requires further study.

Beryllium Disease

One case of chronic beryllium intoxication has been thoroughly studied as part of a project to learn more of the clinical evidence for the systemic effects of beryllium and to develop differential diagnostic criteria to distinguish beryllium disease from Boeck's sarcoid. Punch biopsy of the liver, study of the electrophoretic curve of the blood serum, as well as the more usual biochemical studies were performed. It is planned to submit two cases of active Boeck's sarcoid to this same clinical scrutiny.

Cyanide Effect

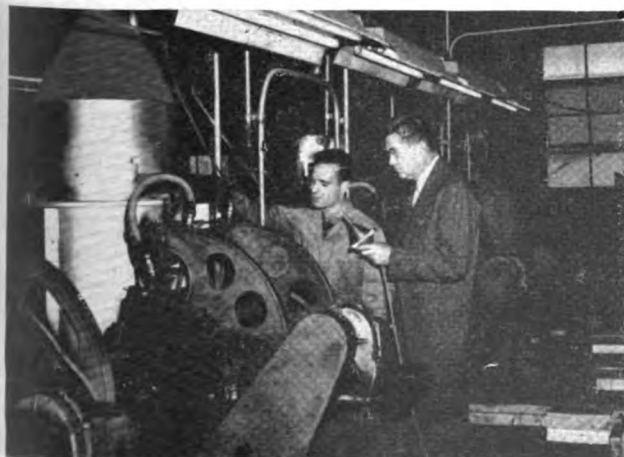
Two cases of what appear to be "cyanide goiter" occurring in workers exposed to cyanide salts in the case hardening industry were reviewed. Both cases have been studied by the Thyroid Clinic of the Massachusetts General Hospital, but much consultation time has been spent with the clinic by the division's consulting physician.

Lead Intoxication

Following the suggestions of Kety in 1943, that lead intoxication might be successfully treated with sodium citrate, studies were made of two patients treated by this method by following lead excretion by daily urinalysis of 24-hour specimens. A control period without sodium citrate has been included. Bone marrow aspiration, fragility studies (done by the Thorndike Memorial group), and encephalography have also been done on these men. It is hoped that more appropriate cases will be found to extend this work.

Organic Phosphate Exposures

Two workers have been seen in the Out-Patient Department, with symptoms following exposure to TEPP and parathion. These are extremely toxic materials used in their work as agricultural sprayers. The cases are of great interest because the materials have just appeared and at least one of them is known to have caused deaths.



Chief of Laboratory Hervey B. Elkins checks exposure of worker to lead during grid casting operation by means of filter paper apparatus.



Miss Gertrude J. Hornung, R. N., reviews records with industrial nurse Louise Fiske, R. N., of Ginn & Co., Cambridge, during plant visit.

Pneumoconiosis

Two cases—diagnostic problems—have been studied in the out-patient service.

One case—a problem in the relation of a late silica exposure to progression of a preexisting emphysema with pneumothorax and a bronchopleural fistula—was studied in the hospital. The patient will be back for further study.

One case is currently under study with a tentative diagnosis of byssinosis by local health authorities after a long period under suspicion as an acid-fast infection. This case studied in part in the Out-Patient Department will be more intensively studied in the hospital. Operative plans are being made for a lung biopsy.

Tetryl

One case of illness following tetryl exposure has been studied in the ward, with particular interest in damage to liver and lung. This case is one of a series being studied.

Thioglycolic Acid Exposures

Three hairdressers exposed to thioglycolic acid—under suspicion as able to produce systemic effects as well as local skin irritation—have been studied, one in the hospital. Interest continues in this subject at the Massachusetts General Hospital because of a hairdresser with aplastic anemia, believed to be of chemical origin, who has been followed carefully for the past two years.

Research Studies Increase in Volume

The medical section of the Division of Occupational Hygiene has been giving more time to research. During the past year, with the cooperation of the chemical section, studies have been carried out concerning coproporphyrin excretion in workers, with special emphasis on those workers dealing with lead. Methods have been set up so that this excretion can be studied both qualitatively and quantitatively.

From these studies, it has been found that the test for coproporphyrinuria is a good aid in the diagnosis and prevention of early lead poisoning, and it is believed that this test should be utilized as part of the periodic screening test performed on lead workers. An article concerning this study will be published in the near future in the *Archives of Industrial Hygiene and Occupational Medicine*.

Chemists Pioneer In Laboratory Procedures

The chemists on the division staff evaluate hazards to health in industrial environments where toxic materials are present. The carrying out of this function routinely involves numerous analyses of industrial products, especially for toxic solvents, and many more determinations of dust and fume concentrations in the atmosphere. This work has involved a total of 80 atmospheric contaminants which have been determined in industrial establishments at one time or another.

Several extensive studies of individual substances have been made, including benzene in the artificial leather and shoe industries, methanol in the wood heel covering industry, mercury in the hat industry and in processes involving the use of liquid mercury, lead, carbon tetrachloride, chlorinated naphthalene, butanol and nitropropane in various types of establishments. These studies have resulted in important contributions to our knowledge of permissible concentrations of benzene, carbon tetrachloride, butanol and nitropropane.

The evaluation of exposure to toxic substances by means of urinalyses has been a feature of the work of the chemical section. While this work is primarily for the purpose of measuring the exposure of workers on the job, such analyses have been made in very many cases at the request of physicians as an aid to diagnosis, especially where there is a possibility of lead or mercury poisoning.

Among the original contributions of this section are the development of methods for the determination of halogenated hydrocarbons, trinitrotoluene, methyl cellosolve, and 2-nitropropane in air, the specific gravity adjustment for urine analyses, and studies of the composition of nitrous fumes. It is one of the few industrial hygiene laboratories in this country that has successfully employed the Stock method for mercury in urine and has determined microgram amounts of beryllium in the atmosphere by chemical methods.

One of the problems encountered by the chemical section which is peculiar to Massachusetts is the necessity of analyzing mixtures containing solvents for their benzene content in order to determine whether or not there is a violation

of the benzene labeling law. This had necessitated the development of techniques for determining benzene in concentrations of the order of 1 percent in solvent mixtures.

The original techniques employed for the determination of atmospheric contaminants have, for the most part, been replaced by methods which are possibly not necessarily more accurate but rather more convenient. Thus, lead, which was formerly determined by the Fairhall method, is now analyzed by the dithizone procedure. Benzene, formerly absorbed in nitrating acid and determined by the Smyth procedure, is now absorbed on silica gel and determined by a modified Schrenk method.

Carbon tetrachloride and trichloroethylene which were formerly absorbed in amyl acetate and burned, are now absorbed on silica gel and determined by a hydrolysis method. Carbon monoxide, formerly determined by the carbon monoxide indicator, is now usually detected by NBS color tubes. Naphtha, which was formerly absorbed on activated charcoal, is now determined by the Davis combustible gas indicator.

The procedures of the chemical section are gradually being put in standard form and mimeographed. A total of 37 such procedures are available for distribution to interested laboratories.

Engineers Work in Laboratory and Industries

The engineers divide their time between field work and laboratory duties.

The field work covers the many diversified industries and occupations in the Commonwealth. The engineers are responsible for certain types of plant surveys and studies of industrial processes for potential hazards which may affect the health of the workers. Recommendations for the control of hazards by engineering methods are submitted and followed through, based on the evaluation of conditions existing in the working environment. Various aspects of the hazardous working environment are studied in cooperation with the division's doctors and chemists.

To reduce or eliminate a hazard by proper engineering methods, it is necessary for the engineers to first develop basic information by suitable measure-

ments. Measurements are made in the study of such hazards as dusty atmospheres, physically injurious heat, humidity and air motion, X-rays and radioactivity, noise and inadequate illumination. The most modern equipment available is used for these measurements.

Radiation

Since its inception, the engineering section has been asked to investigate a number of unusual and frequently heretofore unsolved problems which have resolved themselves into special projects. Field surveys of the use of radioactivity and X-radiation have presented several interesting problems. Besides the use of radium in research and the luminous dial painting industry, radium is being used in many Massachusetts plants to eliminate static electricity.

This division has an understanding with the producer manufacturing these eliminators, whereby the division is informed of all purchasers in order to evaluate radiation exposure to employees during both use and storage of this equipment. For example, the American Telephone & Telegraph Co. on installing these devices on their teletypewriters took the initiative and called on the Division of Occupational Hygiene for approval.¹

In the near future the engineers will conduct a joint survey in conjunction with the Division of Sanitary Engineering of the Department of Public Health of users of radioisotopes in Massachusetts.

Recently a joint survey with the above-mentioned department was completed on the use of X-ray shoe-fitting machines in retail shoe and department stores.² We have also surveyed the potential danger from the use of X-rays in the chest X-ray mobile units sponsored by the State Division of Tuberculosis and Sanatoria, and a program of proper precautions in the use of this equipment was recommended to this State agency.

Atmospheric Pollution

The engineering section has also been called upon as consultants to investigate problems of atmospheric pollution, in-

volving atmospheric contamination by dusts, soot, and smoke. A survey to determine the degree of sootfall was recently made for a city located in the Southern Connecticut Valley.³

Special Studies

Probably one of the most interesting studies was made during the construction of the city tunnel of the Hultman aqueduct, Boston's most modern water supply system. This investigation involved studies of dust concentrations during the rock drilling operations, chemical studies of noxious gases during blasting in cooperation with the chemical section, and also ventilation measurements.⁴ Incidents which have affected the health of the workers due to unsafe working practices have been reported.⁵

Special ventilation studies in battery plants have resulted in the original design of equipment not only to reduce the serious health hazard from lead to a minimum, but also to improve production methods.⁶

The diversified functions of the engineering section also require that a good portion of the time be spent in the laboratory on various problems. Plans for the proposed installation of new ventilation equipment or changes in existing equipment are submitted to the engineers for critical examination and comment. Where plans are not submitted, the engineers will design and draft suitable drawings, based on the field studies made at the scene of the operation.

Plans are tailored to fit the job, although occasionally general designs are submitted as a guide to construction of suitable ventilating systems or other methods used in the control of occupational health hazards.

After the engineers have obtained samples of atmospheric dust, the concentration is determined in the laboratory by standard dust counting procedures. Crystalline substances or materials obtained in the field or sent in by various agencies are subjected by the engineers to X-ray diffraction for analysis as to their composition.

The engineers in cooperation with the

United States Public Health Service made an intensive and detailed survey of all the active iron and steel foundries in Massachusetts, this State having been selected because it has a typical cross-section of the foundry industry in this area.

The acquisition of new sound measuring equipment will result in a special study of noise in textile mills, drop-forge plants and the like. This survey will be performed in conjunction with the medical section and will include intensity of sound and hearing loss to the employees.

In addition to the many operations discussed above, the engineers are required to maintain, repair and occasionally fabricate the instruments used in their industrial hygiene work. A portion of the laboratory time is given to conferences with the division chemists and doctors, factory inspectors, insurance company representatives and occasionally plant employees and union labor officials.

Nurses Help Industries Build Sound Health Programs for Workers

The nursing consultants work under the direction of the physician in the division, assisting new and inexperienced graduate nurses in developing health programs for industry.

The nursing consultant has helped organized groups of industrial nurses to arrive at a consensus on principles for guidance in the duties and responsibilities of nurses. Plant nurses complained of substandard wages, humiliating personnel practices, and insecurity pending V-day, but the consultants were unable to solve these personnel-practice problems since they lay outside the jurisdiction of the Division of Occupational Hygiene.

However, in 1946 considerable assistance was rendered to the New England Association of Industrial Nurses, in working with its Committee for Recommendations of Personnel Practices for Nurses in Industry. Questionnaires were sent out to nearly all manufacturing, utility and mercantile establishments in the Commonwealth, and the returns were analyzed and tabulated in this office.

This occasion marked the first time

¹ *Ibid.*, November 1949.

² *Ibid.*, October 1948.

³ *Ibid.*, February 1949.

⁴ *Ibid.*, April 1949.

⁵ *Ibid.*, September 1949.

¹ *Industrial Hygiene Newsletter*, October 1949.

² *Ibid.*, August 1949.

that the nursing consultant worked with the five branches of NEINA in Massachusetts on a single project. In 1949, the branches voted to create a State-wide organization which will be of inestimable help to the nursing consultant.

The end-results of the work of the Personnel Practices Committee were accepted and published by the Massachusetts State Nurses Association and subsequently made available to all interested parties, including training schools for student nurses. Thus an "authority" was established to which nurse and management could turn in case of need.

The nursing consultant also turned to her out-of-State colleagues for assistance. A meeting of regional consultant nurses from official agencies was held in the State House in January 1947 to discuss program planning and techniques for problem-solving. This conference was very valuable for the nurses, and they met again in January 1950.

Workshop Arranged for Nurses

Two projects of major significance were launched in 1947 and early 1948. With the cooperation of the Boston College School of Nursing and a representative committee from the community, a 10-day workshop for industrial nurses was arranged. Its chief purpose was to provide a pilot study in adult education, directed to the needs of *experienced* nurses in industry. The division's nurse brought to this committee her experience gained in visiting plant nurses over a period of 3 years, and she served as librarian and monitor during the workshop period, as well as secretary of a subcommittee for compiling the proceedings for publication. The achievement of the workshop has brought commendation from nearly every State in the Union, particularly from university schools of nursing which are seeking to provide a suitable curriculum leading to a baccalaureate and master's degree in industrial nursing.

Health Programs Evaluated

The second major project grew out of a recognized need for the evaluation of health programs in industry. An attempt was made to determine the adequacy of industrial health programs throughout the Commonwealth, and

thus to locate specific weaknesses. Accordingly, a suitable industrial health questionnaire was drawn up, and a covering letter urged employers of 100 or more workers in manufacturing and service industries to cooperate. Of the some 1,200 questionnaires mailed, 53 percent were filled out and returned—a valid sample indeed.

Upon analysis of the data collected, it was found that compared with recent studies elsewhere, Massachusetts standards are high. In other words, provided we have adopted an acceptable norm for comparison, it can be said that the official and voluntary agencies and enlightened management have made Massachusetts a reasonably safe place in which to work.

In the current fiscal year 1950, projects for advancing the education of the industrial nurse are under way, consisting of new courses of study on the college level and 1-day institutes in Boston and Fitchburg. Also, advisory services are being given to the committees on education for the five industrial nursing clubs.

Revamping the content of a routine plant nursing visit is being considered on the basis of utilizing the best teaching methods and the best counseling techniques. The constant aim of the nursing consultants is to raise the level of professional nursing in industry, and coordinating it with that of enlightened management, with the end result a healthier, happier worker.

CANCER PAMPHLETS AVAILABLE

The first five in a new series of cancer pamphlets have been issued by the National Cancer Institute, PHS. They are:

No. 1. *Cancer: What to Know, What to Do About It.*

No. 2. *Cancer of the Breast.*

No. 3. *Cancer of the Female Reproductive Organs.*

No. 4. *Cancer of the Digestive Tract.*

No. 5. *Cancer of the Mouth and Respiratory Tract.*

For single copies of these leaflets write to National Cancer Institute, Bethesda 14, Md. Larger quantities are available from Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., at \$1.50 per 100.

FORD ESTABLISHES HUMAN ENGINEERING RESEARCH CENTER

In David Guy Powers' new book, *Live a New Life*, he says: "Henry Ford 2d, president of the Ford Motor Co., recently established a research and engineering center estimated to cost 50 million dollars.

"A vast part of this center is to be devoted to human engineering. I asked Henry Ford exactly what he had in mind.

"He said: 'There is a vast area in which we are only beginning to make significant progress—what we might call the field of human engineering. Machines alone do not give us mass production. Mass production is achieved by both machines and men.

'And while we have gone a very long way toward perfecting our mechanical operations we have not successfully written into our equations the complex factor that represents man, the human element.

'This is one of the many important problems we hope to tackle at our new research center. We need to know more about "the human equation" in making things as well as the "human equation" in buying things.'

MICHIGAN OFFERS SHORT COURSE IN AIR POLLUTION

The University of Michigan School of Public Health will offer an inservice training course in air pollution February 6, 7, and 8. The course is designed especially for the benefit of air pollution control public officials, industrial chemists, engineers and management, health officers and physicians of industrial communities, industrial hygiene personnel, and sanitary engineers.

General subjects to be covered in the lectures and discussions are contaminants, factors involved in pollution and correction, air-cleaning devices, and pollution and controls. Many specialists in these fields are scheduled to speak, and following each session a panel discussion will be held.

Applications for enrollment should be sent to the School of Public Health, University of Michigan, Ann Arbor, Mich. The enrollment fee is \$5.

DETECTION OF INDUSTRIAL DERMATOSES

By Paul C. Campbell, Jr., M. D., USPHS

Since industrial dermatoses comprise over 60 percent of all illnesses of occupational origin, their detection and control is an important phase of a broad industrial hygiene program. The protective creams and cleansers that flood the industrial market give some idea of the importance commercially of occupational dermatitis.

Although the over-all number of workers afflicted by these skin conditions is relatively small, the percentage may be as high as 10 to 15 percent in certain industries. So the problem is a very real one, and the dermatologist finds that he has to cope with skin diseases, most of which are of occupational origin.

All dermatologists, of course, have common problems in this field. Depending on what facilities are available, each of us will determine his own approach to a particular situation in a particular factory.

The dermatologist in the Public Health Service has an advantage in the detection of industrial dermatoses. Since his work is an integral part of a comprehensive program, he has available to him all the resources of the Division of Industrial Hygiene with its multiple specialist staff. Frequently, the initial clue to the actual cause of an outbreak of dermatitis is discovered by an industrial hygiene engineer in an environmental survey of a plant.

When there is reason to suspect the presence of such hazards, the dermatologist is automatically included in the survey team at the outset of the investigation. Or a consultant nurse who has visited a plant may bring back information hinting at dermatological hazards. Although the Public Health Service dermatologist generally makes a routine study alone, he can always draw upon the assistance of the engineers, chemists, and other professional personnel.

Aside from the benefits of this teamwork, the dermatologist in government and the dermatologist in private practice should follow the same basic pattern in the detection of industrial dermatoses.

A certain amount of training is likewise required for anyone who seeks to work in this specialized field, regardless

of his position. The first obvious requirement for the investigator is to have a sufficient knowledge of dermatology to enable him to distinguish between contact dermatitis and such ordinary skin diseases as psoriasis, urticaria, impetigo, pityriasis rosea, and other disorders.

Secondly, he must have a fair knowledge of chemistry. The third essential requirement is a knowledge of industrial processes. This can be acquired best by actual investigations in factories. The investigator would also do well to benefit from the wealth of data provided by previous studies on irritating properties of chemicals and common skin hazards in well known industries.

Secure Cooperation

Then, as is true of any project, the next step in studying skin hazards is to sell the idea of a general dermatological survey of the plant to the management. The dermatologist called in as a private consultant by a company may not have that concern. The Government or a practicing dermatologist interested in investigating the skin hazards in a certain industry must first convince management of the desirability of such a study. Labor, too, must be assured that the study will be impartial and that they may have a copy of the final report.

Once the way is paved for the study, the investigator has a number of sources of information in the plant which he must utilize. The first is the plant superintendent, who may be able to tell of dermatitis cases that have come to his attention. Any change in raw materials and processes used must be checked to determine if there has been any change which might have resulted in an exposure predisposing to dermatitis.

The superintendent, or another designated person, can then conduct the investigation through the plant, explaining the various processes at each stage of manufacture. For an intelligent understanding of the situation, the investigator must be thoroughly familiar with all the raw materials used in the plant and the end products as well as the vari-

ous processes involved in manufacture.

The housekeeping in the different departments should be checked to see if adequate cleanliness is maintained. Eating, locker, washing, and toilet facilities should also be scrutinized.

Special note should be made of safeguards, such as exhaust ventilation, and the use of protective clothing, such as aprons, gloves, boots, and respirators. At the same time, the investigator must not overlook the condition of work clothes, to see if they are clean or soiled, since oil or solvent impregnated clothing is conducive to dermatitis.

The plant inspection will also afford him an opportunity to interview workers and to take notes on those showing symptoms of dermatitis or who indicate that they had previously been afflicted. A quick examination for skin lesions can be made of the hands and faces of the workers at their working positions.

Consult with Physician

After this initial reconnaissance, the plant physician and nurses are consulted. An attempt to correlate the plant dispensary records with the personal notation of findings throughout the plant will better enable the investigator to determine how many cases of dermatitis are reported to the medical department and how many are diagnosed as of industrial origin.

A review of the records for the preceding several years may also point significantly to certain departments where the concentration of dermatitis appears to be highest. A special study may then be made of the processes and materials in those areas.

Examine Individuals

At the end of the inspection, the workers found to be suffering from dermatitis are called into the dispensary. They are completely disrobed in private so that any conditions which would otherwise be overlooked may be brought to light. A complete history is then filled out on a special form. In addition to the usual particulars, such as name, sex, age, and color, the history should in-

clude a detailed description of the worker's occupation and the chemicals and materials with which he comes in contact.

A summary of his previous occupations should also be given, and a notation made as to when he began his present job and when the symptoms first manifested themselves. A detailed description of the lesions and their locations is entered on the card.

If a patch test is made, full data, including the chemicals used, duration of the test, and reactions, are to be added to the record. When the diagnosis is made, it should be recorded on the chart and the actual irritant named.

In order to provide complete information, a section on "remarks" should incorporate other significant comments, such as any complications that may have set in and the treatment advised, as, for instance, change of occupation or use of protective ointments.

Make Patch Tests

The purpose of patch testing, if it is to be performed, must be thoroughly understood by both management and the workers and their consent obtained. It may be necessary to clarify erroneous impressions and to reassure the workers that the dermatitis is not an infection or blood poisoning and that it is not contagious.

In no case should an attempt be made to persuade a reluctant worker to be patch-tested. Under such circumstances he would be likely to blame the patch test for any subsequent illness that he might have.

The patch test itself must be comprehensive; otherwise, it will defeat its purpose. Patch tests should be performed with all the materials handled by the affected workers. Patch tests should not be done with primary irritants unless they are diluted so that they will not cause irritation on normal skin. When the industry purchases its raw materials under a trade name and does not know their chemical components, it is necessary to trace them to their original source of manufacture to learn their composition.

These methods of investigation when carefully carried out have never yet failed to disclose the skin hazards in an industry under investigation, nor to dis-

cover the actual chemical causing a particular outbreak of occupational dermatitis.

Reference

Schwartz, Tulipan, and Peck: Occupational Diseases of the Skin, 2d ed. (1947), Lea & Febiger, Philadelphia.

TOOTH REMOVAL AIDS IN DIAGNOSIS OF BRUCELLOSIS



Dr. C. W. Newman, chief of the dental service in the Veterans' Administration Hospital in Indianapolis, has written an interesting case report titled

"Removal of Impacted Molar Assists in Diagnosis of Brucellosis." The article appeared in the *Journal of the American Dental Association* for December 1949. A brief abstract and comment follow:

A meat inspector was admitted to a veterans' hospital for treatment of iritis of the right eye. Repeated routine blood-agglutination tests yielded positive reactions for *Brucella abortus* in the dilution 1:5120. Two blood cultures gave negative results. The physical and other laboratory findings were considered nonsignificant.

A positive blood-agglutination reaction for *Brucella* is not considered conclusively diagnostic of active infection, for this finding may be observed during convalescence from the disease, or following a recent exposure to infective material. An agglutination titer has been reported many times in packing-house workers, livestock breeders, and veterinarians who have never exhibited clinical manifestations of the disease. It is generally considered that isolation of the causative organism is necessary to establish a diagnosis of active infection of brucellosis.

The eye consultant stated that, in his opinion, the iritis was an allergic phenomenon dependent upon a systemic brucellar infection. As roentgenograms

of the oral cavity revealed the presence of an area of infection around the impacted upper right third molar, this tooth, together with an accompanying follicular cyst, was surgically removed. The gelatinous exudate from this cyst was cultured and the organism of *Br. abortus* was isolated.

Streptomycin and sulfadiazine were administered and the patient rapidly recovered.

In this case, positive diagnosis of active infection depended upon the isolation of the causative agent from the exudate of the follicular cyst. Dr. Newman believes this to be the first recorded instance of the isolation of the *Brucella* organism from this site. Perhaps focal brucellar lesions, dentally located, should be added to the list of previously reported localized brucellar infections, and that oral surgery may be necessary to effect a cure.

(The above case report takes on added significance in the light of the fact that brucellosis in the United States is now recognized as a major public health problem. In 1927, only 60 cases of the disease were reported in this country. But in 1947, this number had increased to more than 6,000. Moreover, it is now estimated that there are over 40,000 active cases annually, and that about 5 percent of the cattle in the United States are infected.¹—J. W. Fridl, D. D. S., USPHS.)

USPHS PERSONNEL NEWS

Miss Ruth Kahl, consultant nurse for the Division of Industrial Hygiene, has been appointed to the field station in Salt Lake City where she can give more frequent service to the industrial nursing consultants in the western area.

Dr. F. H. Goldman has resigned from active duty with the Public Health Service to accept a position as industrial hygienist with the Bureau of Public Health Engineering, District of Columbia Health Department. The pending move of all laboratory personnel in the Division of Industrial Hygiene, PHS, to Cincinnati, Ohio, was Dr. Goldman's reason for making the change.

¹ Anon.: Brucellosis, *J. A. M. A. (Government Services, Public Health Service)*, 141: 929, (Nov. 26) 1949.

TEXAS CONFERENCE DRAWS LARGE CROWD

Several hundred persons attended the 2-day Industrial Health Conference held at Houston, Tex. Speakers on the program were national leaders in their respective fields. The keynote address was made by Manfred Bowditch, director of Health and Safety, Lead Industries Association, who spoke on the subject, "Industrial Health Programs Pay Dividends."

Mr. Bowditch impressed upon his audience the difficulty of evaluating an industrial health program from statistics alone, but stated that real dividends are obtained from such programs. The reasons for the lag of industrial health behind industrial technology are (1) the concept of industrial medicine as little more than traumatic surgery which is partly the fault of medical teaching, and (2) the relatively low earnings of industrial physicians. The difficulty of fitting industrial medical instruction into already overcrowded curriculum in medical schools is recognized. He mentioned the advances made in industrial medicine and industrial health, namely, the cooperation of management and labor, the formation of a national advisory committee on industrial health, and the work of some State and local industrial health services.

Brandt Speaks on Engineering Control

Allen D. Brandt, industrial hygienist with the Bethlehem Steel Co., discussed common health hazards and means for their control. To eliminate the source of contamination or to reduce the amount, Dr. Brandt suggested changes in building and equipment design, alteration and maintenance of present layouts, substitution of less-toxic materials in processes, changes in process or operation, and improvement of house-keeping.

Who Pays the Bill?

In a talk entitled "Management's Responsibility for Prepaid Medical and Hospital Plans," Ross Garrett of Ross Garrett & Associates, Chicago, Ill., said that neither industry nor government should take full responsibility for the Nation's medical care. Instead, it

should be a cooperative enterprise with final responsibility remaining with the individual. Management's minimum possible responsibility is as the collection agency for either a governmental or nongovernmental prepay medical and hospital plan. Management was first to develop and apply the principles of prepay hospital plans; therefore, management can best assume its responsibility by continuing to participate as advisory groups to such plans. Mr. Garrett concluded by saying, "Cooperation is not a sentiment, it is an economic necessity."

Nurses Must Listen and Observe

F. Ruth Kahl, senior nurse officer, USPHS, spoke on the nurse's role in the industrial health program. She said that aside from the nurse's primary job of taking care of the workers when they need care because of an accident or illness, she also serves as a listening post for many other problems which may affect the employee's full attention to his job. The industrial nurse often helps solve family difficulties.

The physical examination program offers the nurse an opportunity for preventive work. On her tours through the plant she may observe the physical capabilities of the men and women for the jobs they hold. Miss Kahl emphasized the importance of keeping accurate records of all nursing care and the value of monthly and annual reports.

State Medical Board a Necessity

J. Dewey Dorsett, general manager, Association of Casualty and Surety Companies, spoke on "Employer's Liability for Occupational Diseases." Mr. Dorsett explained the merits of an occupational disease schedule as compared with the broad coverage for occupational disease compensation. He mentioned the difficulties that other States have encountered from the use of too broad definitions of occupational disease, and emphasized the value of a medical board to pass on controversial medical issues.

Sterner Urges More Training

Dr. James H. Sterner said in his address on "Industrial Medicine in an Atomic Era" that the use of atomic energy for power, medical, and industrial purposes is based upon the continued aid of industrial medicine. Likely advances of atomic energy and the application that may be made to industrial processes must be considered in order to anticipate and control the hazards involved.

Dr. Sterner enumerated experiences at Hanford, the plutonium manufacturing plant, as follows: "In the past 50 years only a few pounds of radium have been isolated. Yet one of these piles generates radiation equivalent to hundreds of tons of radium. In 1945 the average exposure of all workers at Hanford was 0.9 of a roentgen; in 1948 it was only a third of this value. The average of the ten workmen with the greatest exposures in any one year was only 2 roentgens. This is only one-seventh of the conservative annual permissible dose."

Dr. Sterner concluded with the following statements: "The immediate and obvious solution is in further training of the industrial medical and safety forces now working in industry. It will be difficult to supply such training because of the widely varied needs. Nor will the job be easy for those of you who elect to enter this field. The situation must be met, however, if we are to safeguard the comfort, health, and lives of our industrial population."

NEW HAMPSHIRE NURSES NAME NEW OFFICERS

The New Hampshire Industrial Nurses' Association elected the following officers for the new year: President, Mrs. Queenie Labrecque, R. N.; vice president, Miss Eunice Owens, R. N.; secretary, Miss Irma Taylor, R. N.; treasurer, Mrs. Hazel Downing, R. N.; and directors, Mrs. Esther Parker, R. N., and Mrs. Lillian Solloway, R. N.

S. CAROLINA NURSES HELP SMALL PLANTS PROTECT WORKERS

During the past year the consultant nurses of the S. Carolina Division of Industrial Health have been in contact with the industrial plants in their respective areas to promote, stimulate, and initiate health services. They also helped expand and improve the services already existing.



New plants have been visited to acquaint them with the services available from this division and from the State board of health through the local County health department. Mimeographed lists of these services have been left at the plants for future reference.

As the majority of the industrial plants in this State are too small to justify an in-plant medical department closer cooperation with and use of existing community resources have been urged. The fact that industrial health is a very important phase of public health has been emphasized. Even for the smallest plants, education, preplacement examinations, correction of defects, annual chest X-ray and adequate first-aid service were urged.

Some plants have established oral hygiene clinics as a service to their employees' children. The Dental Health Division's recently established mobile units have been set up in industrial areas for this service. Each year we see the growth of public health and preventive medical care in the industrial population.

Much time was spent in educational activities. Talks on industrial nursing have been given to student nurses in the hospitals outlining programs and the necessary qualifications and opportunities in this field. A radio talk on industrial nursing was given over different stations in the State.

Assistance of the consultant nurses has been secured in developing health programs, selecting films and assembling exhibits on various health subjects for community and professional meetings. Educational materials have been assembled, recommended, and distributed for the use of nurses in industry.

There has been some curtailment both in production and employment in recent months of this fiscal year. At present there are 136 nurses employed in 96 industrial plants. Of this total 20 registered nurses were added during the past year. There are 9 nursing services using experienced or practical nurses. A small number of plants have discontinued nursing programs as part of their curtailment procedure. There has been an increase in the use of mechanical visual screening and also in the establishment of dental programs.

During this period 20 additional plants have established preemployment physical examinations. A number of other plants have required those already employed to undergo a physical examination. This has brought about much needed medical care and placement in jobs better suited to the physical condition of the worker.

N. Y. NURSES HELP PROMOTE NUTRITION PROGRAM IN PLANT

Selling the importance of good industrial nutrition, particularly to small plants, continues to be one of the important activities of the Division of Industrial Hygiene and Safety Standards in New York State.

Experience has shown that the industrial nursing consultant can greatly assist the nutritionist in promoting this program because of her close association with the work of the plant nurse. The plant nurse who is in the plant every day is in a peculiarly strategic position to promote and follow the program, provided her interest has been captured and she undertakes responsibility for the nutrition program. This includes not only nutrition education but the development of adequate feeding facilities and the improvement of those already operative in her plant.

The industrial nutritionist of this Division is always available, as a consultant, on specific plant problems as they arise. During the past year, for example, increased food costs in many plants so greatly increased cafeteria deficits as to threaten their very existence. This has provided an unusual opportunity for the nutritionist to give practical guidance to cafeteria managers in ways and means of reducing these deficits.

In one plant the manager changed the menus and a different measurement of portions was served. Better inventories, record-keeping and cost-accounting systems, suggested by the nutritionist, reduced food losses to management from \$2,000 per month to \$500 per month. In this case the savings were sufficient to save the cafeteria for the plant. In another plant suggestions for improving the appearance of the cafeteria as well as the food reduced the costs by increasing patronage.—
Article contributed by the Division of Industrial Hygiene and Safety Standards, New State York Department of Labor.

SMALL PLANT WORKER SUBJECT OF TALKS AT NURSES' MEETING

"How to meet the health and welfare of the worker in the small plant," was the subject of an interesting round-table discussion at the thirty-fourth annual conference of the New England Industrial Nurses Association.

Panel members for the discussion were Mrs. Mary Delehanty, R. N., president. AAIN, chief nurse, Equitable Life Assurance Society, New York; Miss Marjorie Wilbur, R. N., Rhode Island Industrial Hygiene Department; and Dr. Charles L. Farrell, industrial physician. Management was represented by Mr. Curtis Callinson, Grinnell Corp., and by the moderator, Mr. Geoffrey Mason, Newman Crosby Steel Co., Pawtucket, R. I.

At the opening meeting Miss Anna McMahon, R. N., chief nurse, St. Regis Paper Co., Bucksport, Maine, told of her trip as official representative of the NENA to the International Congress of Nurses in Sweden.

Mr. George Reama, vice president American Screw Co., Providence, was the main speaker at the evening banquet. His topic was "Where Industrial Health Fits Into the Management Program."

At the final meeting on Sunday morning, Dr. John E. Donley, director, Rhode Island Curative Center, spoke on the need of prompt and proper rehabilitation of the injured worker and on helping adjust the misfit in industry.—
Constance Fleming, R. N., president, Rhode Island Industrial Nurses' Association.

Some Public Relations Aspects of Industrial Wastes

By G. Edward Pendray *

The idea that clean air, clean streams and good appearance are important in industrial communities is a relatively new one in this country. Though industries in some parts of Europe have long been regulated in this respect, in this country there has been a tendency to view industrial smoke and fumes with mingled feelings of tolerant pride and reluctant enthusiasm. For while nobody likes smoke and soot on his hands and the back of his neck, this kind of dirt has long been associated in mill and factory towns with prosperity and good business.

Right here in Pittsburgh it used to be said that smoke was a good sign—the darker the day the bigger the pay roll. Clear air was an omen of unemployment and breadlines. Now Pittsburghers are finding that it isn't necessarily so—you can have clean air and good business too, but at a cost. Many cities, communities and industries have not as yet reached the Pittsburgh stage of thinking.

My organization made a sampling survey of expenditures by 75 leading companies for air and water pollution elimination during the last 2 years. Figures were obtained from 50—two-thirds of the group. These 50 companies have spent, on air and water pollution elimination, a total of somewhat more than \$35,000,000 in the last 2 years, and plan further expenditures of at least \$32,500,000 in the next 2 years.

These figures are a powerful answer to the charge that industry as a whole is dragging its feet in the program to clear the country's air and waters. But they do not represent a drop in the bucket compared to the total investment that would be required to clean up the whole problem to the satisfaction of the more zealous advocates of fresh air and pure water.

Thus industry finds itself confronted with a task of formidable size and seriousness—a problem that is growing increasingly intense as industry and populations grow, and as the country

becomes conscious of the desirability and possibility of clean air and water.

Each situation has its own individual characteristics, and has to be dealt with in its own way. But a number of general observations have emerged that may prove useful.

In the first place, no new plants ought hereafter to be designed or built which do not provide adequate facilities for the control of smoke, fly-ash and the more common gases of combustion. If the processes used in the plant are likely to give rise to any corrosive, poisonous or evil-smelling waste products, whether solid, liquid or gaseous, these should be adequately trapped or neutralized, and suitable disposal arrangements made which will not disturb the community. The cost will be much less if they are built into the new plant than if added later. And the gain in good relations will be enormous.

If the new plant is to be located in an area where the present population is small, do not assume that the population will remain so. Plants attract people, and every plant should be planned with the future community's welfare in view. Forethought at the time of building will save dollars and headaches later.

Second: If you are currently operating a plant that is emitting visible smoke, fly-ash or objectionable gases, or putting noxious materials into nearby waters, assume that you will sooner or later have to clear these up, whether or not any local organized objection has yet appeared. Sooner or later such objection will arise. You may then be in the unhappy position of appearing to be forced to take steps which the community believes you should have taken voluntarily.

If you have such a plant, make engineering and other appropriate studies at once. If the cost of curing the situation is too great to tackle in one bite, break it down into a series of practical steps, and start a 2-, 3- or 5-year plan to eliminate the nuisance. Then tell the community about your program. Don't fail to tell the whole story, including the cost. It is primarily an investment in good public relations, so

you should spend the small extra money and effort needed to get the full benefit.

Third: If an agitation has already been started against your plant, do not stubbornly oppose it, or refuse to discuss it, or speak as though you constantly had legal counsel at your elbow. Legal advice is a good thing to get—a necessity if there are suits or threats of suits. But good community relations can be maintained only through candor, honesty, and willingness to deal openly with common problems—and experienced professional public relations counsel may prove invaluable to you at this point.

If smoke, fly-ash or gases are coming out of your stacks, it is a mistake to deny it. Have the engineering data in mind. Admit what must be admitted. Show what it will cost the company and the community to eliminate the trouble. And if you can't do it all at once, outline honestly what you can do, and how rapidly. Do not exaggerate the costs, and make no promises you do not intend to fulfill. Skill in presenting your story will be needed, and if you can obtain it, enlist professional aid.

Fourth: If you are honestly convinced that your plant is being unjustly accused of air or water pollution when the blame belongs somewhere else, or if the problem is of mysterious or unsettled origin, or if there are real and basic technical reasons why the wishes of the community cannot be complied with except at prohibitive or disastrous cost, be frank to say so, but with facts, reasons, and explanations. It is usually not necessary to point a finger at others. Rather, be willing to help underwrite the cost of an objective technical study of the community's pollution problems by some unbiased agency, agreeing in advance, of course, to undertake your share of the cure when the technical data are all in.

In almost every community of any size, clearing the air of smoke and fumes needs to be a cooperative enterprise. Seldom is any one company or operation the sole offender. Often each individual householder is also contributing a share. When clean-up agitation begins, however, the movement often

*Senior Partner, Pendray & Leibert, New York, N. Y. Excerpts of a speech delivered at the fourteenth annual meeting of the Industrial Hygiene Foundation.

centers on one or two of the principal industrial operations of the town. In such cases, it is quite proper and usually acceptable for management to point out the extensiveness of the problem and suggest the development of a complete community plan, including a technical survey, an estimate of costs, and possibly the drafting of an ordinance to maintain good conditions once they are cleared up.

In this day no company, big, little, or middle-sized, can afford to think of itself as something apart from the people of the communities in which it operates. Their welfare and its welfare are closely bound up together. The people of the community have a perfect right to expect good industrial manners, even though it is obviously impossible in an industrial civilization to have our air and water as pure as they were when the country was inhabited only by the Indians.

RECOMMENDED READING

Davies, C. N.: Inhalation risk and particle size in dust and mist. *Brit. J. Indust. Med.* 6: 245-253 (October) 1949.

Garrad, Jessie: Vital capacity measurements in Cornish tin-miners. *Brit. J. Indust. Med.* 6: 221-229 (October) 1949.

Haller, H. L.: Chemical aspects of some of the newer insecticides. *Bull. N. Y. Acad. Med.* 25: 374-381 (June) 1949. 22 references.

Heppleston, A. G.: Graphite pneumoconiosis. *Lancet* 2: 960 (Nov. 19) 1949.

Lehman, A. J.: The major toxic actions of insecticides. *Bull. N. Y. Acad. Med.* 25: 382-387 (June) 1949.

Petrie, L. M., Biscoff, L., and Kinman, J.: The Griffin plan. *Pub. Health Nursing* 41: 654-655 (Dec.) 1949.

Salmon, V.: Smog and sonics. *Scient. Monthly* 69: 216-221 (October) 1949.

Seifriz, W.: Toxicity and the chemical properties of ions. *Science* 110: 193-196 (August 19) 1949.

Various authors: Discussion of Industrial Accidents and Diseases. 1948 convention of the International Association of Industrial Accident Boards & Commissions. Bull. No. 105, Bureau of Labor Standards, U. S. Department of Labor. U. S. Government Printing Office, Washington, D. C., 1949. 336 pp. Price 60 cents.

Dr. Kehoe Talks on "Occupational Diseases of Executives"

Dr. Robert A Kehoe, medical director, Kettering Laboratory of Applied Physiology, University of Cincinnati, has enumerated the conditions that affect the lives of executives during their work hours. Most executives, he has observed, are approaching middle or later life and are subject to the degenerative diseases, those of wear and tear.

That these diseases are accelerated by the tensions of responsibility is well demonstrated by vital statistics, affirmed Dr. Kehoe. Worry about competition from inside the industry, if it is a large one, and from outside—from companies in the same business—causes serious tensions for a considerable number of people, especially those who do not know how to relax, or play, or read, and those who do not know how to leave their workaday worries at the office.

Dr. Kehoe commented on the unfortunate fact that most executives lead very sedentary lives, that they overeat and often overdrink. Many executives must necessarily travel much of the time which makes it difficult to keep the roots of their emotional and private lives sufficiently well grounded to maintain themselves on a basis of sound social equilibrium.

In conclusion, Dr. Kehoe recommended periodic physical examinations for the entire industrial organization, including its executives. A good industrial doctor will maintain a close relationship with doctors in private practice, and so be in a position to refer the plant employees to the specialists they need. *(This talk was given at the Rocky Mountain Industrial Health Conference.)*



FOR YOUR CALENDAR

Industrial Health Conference
April 22-29, 1950
Hotel Sherman, Chicago, Ill.

Colorado Colleges Cooperate With State Agencies

State colleges and universities can give the citizens of their States many services in addition to their primary function of academic training of young people. That was the theme of the welcoming address delivered by Robert L. Stearns, president of the University of Colorado, to the delegates attending the first annual Rocky Mountain Conference on Industrial Health in Denver recently.

President Stearns recalled that an organization had been created several years ago known as the Colorado Resources Development Council. This council attempted to assess the assets in Colorado, such as water sources, power resources, manufacturing concerns, labor supply, agencies for labor training and those for scientific research, transportation facilities, and available space for new industries. All these are basic to the industrial development of the community, Dr. Stearns said.

"However," he continued, "we are equally concerned with the health and welfare of our people, one of the greatest assets of this or any other community."

Various agencies, notably the University of Colorado School of Mines, and other schools are engaged in research on many industrial problems, such as the extraction of basic chemicals from soft-coal products. Another example is the commercial production of castor beans from which the oil is taken for use in the manufacture of soap, paint, and lubricants.

Dr. Stearns pointed out that there are great opportunities for the utilization of the informed intelligence of the college faculties. The industrial medicine department of the Medical School, University of Colorado, has developed an extensive program and attempts to meet the difficulties with which the industrial world is concerned. The State is concerned in developing young men and women competent in the field of industrial health, and, quoting Dr. Stearns, "You in industry must create the attitude and atmosphere under which these people may work effectively."

Many States Vote Increased Compensation for Workmen's Illnesses and Injuries; Plants Improve Health Services *

By Theodore C. Waters

During the present year, all of the State Legislatures except four were in session. Countless bills were introduced to amend the workmen's compensation statutes, and the general trend of legislation has been to increase monetary benefits with a broadening of the scope of the statutes to make compensable any and all injuries which may arise out of and in the course of employment. The result has been to place upon employers additional financial burdens with the prospect of a general increase in compensation insurance costs during the coming years.

I do not view this development with deep concern, because management today has awakened to its responsibility for the protection of the health and welfare of employees. The public is demanding that the toll of industrial injuries be reduced, with the result that programs of industrial hygiene have been developed and extended to protect all employees who may be exposed to industrial hazards.

The provisions of the compensation statutes relating to occupational diseases have been amended in important particulars. The State of South Carolina enacted an amendment providing such compensation, effective December 15, 1949, and there are now 23 States, the District of Columbia, Alaska, and Hawaii which provide so-called general coverage for occupational disease injuries, and 17 States wherein schedule coverage is provided.

I want to summarize briefly some of the more important aspects of this legislation which, I believe, will be of interest to members.

FIRST: New Occupational Disease Compensation Laws

(1) South Carolina has enacted a general coverage occupational disease

*Presented here through the courtesy of the Industrial Hygiene Foundation of America, Pittsburgh, Pa. The complete paper appeared in the Foundation's *Transactions* covering the fourteenth annual meeting of 1949. The author is a trustee of the Foundation, and chairman of its legal committee.

statute under which the following features are of particular interest.

(a) Definition of the term "occupational disease." This term is defined to mean a disease arising out of and in the course of employment, which is due to hazards in excess of those ordinarily incident to employment and is peculiar to the occupation in which the employee is engaged. A disease shall be deemed an occupational disease only if caused by a hazard recognized as peculiar to a particular trade, process, occupation or employment as a direct result of continuous exposure to the normal working conditions thereof. Diseases under certain conditions are specifically excluded.

(b) "Disablement" is defined to mean the event of an employee's becoming actually incapacitated, partially or totally, because of an occupational disease, from performing his work in the last occupation in which injuriously exposed to the hazards of such disease; "partial disability" to mean the physical inability to continue work in such occupation only, and "total disability" to mean the physical inability to perform work in any occupation.

(c) No compensation is payable for any pulmonary disease arising out of the inhalation of organic or inorganic dusts unless the claimant shall have been exposed thereto for a period of at least one year, and unless he suffers a total disability therefrom.

SECOND: Important amendments to existing Occupational Disease Compensation Acts

(1) New Jersey has amended its Occupational Disease Compensation Act in the following particulars.

(a) The form of the law has been changed from schedule to general coverage.

(b) Occupational diseases have been defined as follows: "The phrase 'compensable occupational disease' shall include all diseases arising out of and in the course of employment, which are due to causes and conditions which are or were characteristic of or peculiar to a particular trade, occupation, process or

employment, or which diseases are due to the exposure of any employee to a cause thereof arising out of and in the course of his employment."

(c) The law specifically retains the existing provisions applicable to compensation for silicosis and asbestosis which became effective January 1, 1945, including the denial of compensation for partial disability from silicosis.

(2) West Virginia has amended its Occupational Disease Compensation Act in the following particulars.

(a) The form of the law has been changed from schedule to general coverage.

(b) It has established an Occupational Diseases Medical Board to pass upon all medical questions presented by the claim with the right of appeal to the Compensation Commissioner to review the findings.

(c) Existing provisions of the law applicable to compensation for silicosis with the three-stage classification, and differentials of monetary benefits have been retained.

(3) Nevada has amended its Occupational Disease Compensation Act in the following particulars.

(a) The form of the law has been changed from schedule to general coverage.

(b) The act makes compensable "any and all occupational diseases arising out of and in the course of employment."

(c) The terms "disablement" and "total disablement" are used interchangeably in this act and shall be construed to mean the event of becoming physically incapacitated by reason of an occupational disease from performing any work for remuneration or profit.

(4) Delaware has amended its Occupational Disease Compensation Act in the following particulars.

(a) The form of the law has been changed from schedule to general coverage.

(b) The term "compensable occupational diseases" includes "all occupational diseases arising out of and in the course of employment only when

the exposure stated in connection therewith has occurred during the employment and the disability has commenced within 5 months after the termination of such exposure."

(5) Rhode Island has amended its Occupational Disease Compensation Act in the following particulars.

(a) The form of the law has been changed from schedule to general coverage.

(b) The former section of the law, relating to the schedule of compensable diseases, is repealed.

(c) The particular provisions heretofore existing, applicable to silicosis and asbestosis and denial of partial disability therefor, have been eliminated.

(d) The act makes compensable "personal injuries" arising out of and in the course of employment, connected therewith and peculiar thereto, or for death resulting from personal injuries so sustained.

(6) Utah has amended its Occupational Disease Compensation Act in the following particulars.

(a) The form of the law has been changed from schedule to general coverage.

(b) There has been added to the schedule of compensable diseases a new item 28, reading as follows: "(28) Such other diseases or injuries to health which directly arise as a natural incident of the exposure occasioned by the employment, provided however, that such a disease or injury to health shall be compensable only in those instances where it is shown by the employee or his dependents that all of the following named circumstances were present: (1) a direct causal connection between the conditions under which the work is performed and the disease or injury to health; (2) the disease or injury to health can be seen to have followed as a natural incident of the work as a result of the exposure occasioned by the employment; (3) the disease or injury to health can be fairly traced to the employment as the proximate cause; (4) the disease or injury to health is not of a character to which the employee may have had substantial exposure outside of the employment; (5) the disease or injury to health is incidental to the character of the business and not independent of the relation of the employer and employee; and (6) the disease or injury to health must appear to have

had its origin in a risk connected with the employment and to have flowed from that source as a natural consequence, though it need not have been foreseen or expected before discovery. No disease or injury to health shall be found compensable where it is of a character to which the general public is commonly exposed."

THIRD: Amendments to Workmen's Compensation Acts

In view of the fact that some of the State legislatures are still in session, and since it has been impossible to check the final drafts of all State amendments enacted this year, I will not attempt to report the detailed amendments in increasing benefits under the various statutes.

It is the purpose of our committee to prepare and submit to members a summary of these amendments in a report to be issued as of the end of this year.

Of particular interest, however, in the field of health legislation is the New York disability benefits law which has now been enacted and approved by the Governor. The States of California,

New Jersey, and Rhode Island had heretofore enacted health insurance legislation, which was separate and distinct from the workmen's compensation statutes of those States. The New York law is now an amendment to the Workmen's Compensation Act and, by its provisions, its administration is assigned to the department administering compensation law. To me this seems to be a distinct advantage in that it should avoid conflict for awards of both occupational and nonoccupational injuries.

The administration of this law should be carefully followed by representatives of industry because, if successful, I believe that it may well become the pattern for legislation upon this subject in other States.

FOURTH: Second Injury Funds

The States of Indiana enacted a second injury law, making 41 States to have such statutes.¹

¹ The seven States that have not enacted such legislation are Florida, Georgia, Louisiana, Montana, Nevada, New Mexico, and Virginia.

Pennsylvania Builds Mobile Laboratory for Air Pollution Studies

A mobile laboratory will soon be placed in operation by the Pennsylvania Bureau of Industrial Hygiene. This equipment, being specially manufactured for the State, will be used principally by the bureau's division of air pollution control.

The laboratory will be mounted on a suitable truck chassis and will contain complete facilities for chemical analysis of atmospheric samples, various types of sampling equipment, a self-contained source of electrical supply, and instruments for determining meteorological conditions pertinent in the evaluation of air pollution problems.

It is believed that the mobile laboratory will greatly facilitate the work of the division of air pollution control by making it possible to obtain quickly the results of analysis of samples which otherwise would require shipment to one of the bureau's district laboratories.

New Magazine for Nurses Launched by British University

The University of Manchester *Journal for Industrial Nurses* is a new quarterly published by the university as a means of extending its educational facilities to a larger number of industrial nurses. The first issue appeared in March of 1949 and carried appropriate introductory information. In addition, there were two articles relating to the pottery industry which were as informative and interesting to any nurse as to those specifically concerned. Other topics in that issue as well as in the subsequent ones are all interestingly written and of definite value to the industrial nurse.

An unusual fact is noted that thus far the magazine, while very reasonably priced, 8 shillings per year, has only a single page of advertising. The size, 5.5 by 8.5 inches, is most convenient for carrying about, which is a factor of note for the busy nurse who will wish to read every article.—Ruth Kahl, USPHS.