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WEST VIRGINIA PLANS TWO DAY PROGRAM

Outstanding speakers have accepted the invitation to participate in a program planned for the Industrial Hygiene Section of the annual meeting of the West Virginia Public Health Association, May 27 and 28. The meetings to be held in the Pritchard Hotel, Huntington, W. Va., will be presided over by Mr. J. J. Bloomfield, Assistant Chief, Industrial Hygiene Division, USPHS.

The speakers and their subjects follow:

May 27, 1948—2 p. m.

"The Place of In-Plant Medical Services in an Industrial Health Program," A. G. Kammer, M. D., Medical Director, Carbide and Carbon Chemicals Corp., South Charleston, W. Va.

"The Contribution of the Community Public Health Program to Industrial Health," Milton I. Roemer, M. D., Director, Monongalia County Health Department, Morgantown, W. Va.

"Essentials of In-Plant Nursing Services," Miss Dorothy Crawford, R. N. American Viscose Corp., Nitro, W. Va.

"Industrial Hygiene Program of the West Virginia State Department of Health," Mr. Paul D. Halley, Industrial Hygienist in Charge, Bureau of Industrial Hygiene, West Virginia State Department of Health.

May 28, 1948—2 p. m.

"The Role of Codes in the Prevention of Industrial Health Hazards," Mr. Theodore Waters, Chairman, Legal Committee, Industrial Hygiene Foundation, Pittsburgh, Pa.

"The Place of Aluminum Therapy in Silicosis Control," Elmer F. Herring, M. D., Medical Consultant to the Pottery Industry, East Liverpool, Ohio.

"Health Problems in the Glass Industry," Mr. W. G. Hazard, Owens-Illinois Glass Co., Toledo, Ohio.

"Control of Dust in Coal Mines," Mr. C. W. Owings, U. S. Bureau of Mines, Washington, D. C.

BOSTON HEALTH CONFERENCE TALKS IN BRIEF

An Appraisal of Field Instruments

A. N. Setterlind¹

Very few industrial hygiene field instruments fulfill the qualifications with regard to portability, reliability, and sensitivity. Practically every commercial instrument is in need of improvements. Very few have been altered in design since first they were introduced. The majority are bulky, heavy, and difficult to manipulate, or develop defects in the mechanical construction, requiring excessive maintenance and modification for proper use.

The question of weight of an instrument is a very important one which few designers seem to have realized. The existing instruments should be redesigned with emphasis on portability and should conform to the following limits of weight:

Instruments intended for stationary use, that is for sampling with the aid of a hose.....	20
Instruments to be carried around neck.....	10
Instruments to be held in hand....	2

A serious fault with most of the present-day indicating instruments is the lack of sensitivity. To be of maximum usefulness an instrument should be capable of a sensitivity of 1 to 2 percent of the M. A. C. value of the contaminant for which it was designed. Preferably it should have a double scale, the sensitivity of the two being in the ratio of 10 to 1.

COVER PICTURE—Counseling employees in health education is one of the responsibilities of industrial nurses in many plants. Planned programs to improve the health of the workers have been carefully tested and found extremely valuable to the employer and the employee.

In addition to fulfilling the requirements of portability and sensitivity, the instruments need more careful application of sound engineering principles which in the last analysis takes the form of simplicity and proper selection of mechanical devices to insure smooth operation and stable performance.

The need for better indicating instruments is great. Particularly is this true about organic vapors, the determination of which has always presented difficulties. With most of the M. A. C. values around 200 parts per million and below, the need for sensitivity is especially urgent.

Brucellosis in Industry

Carl F. Jordan, M. D.²

Brucellosis is transmissible to a man from infected animals (cows, hogs, sheep, goats) through the use of unpasteurized dairy products and through direct contact with farm animals. Discussion is based on epidemiologic investigation and on a series of 2,400 case reports assembled during the period 1940-46 through interest and courtesy of Iowa physicians.

Disregarding 25 percent of the patients concerned who give no history of contact with animals, attention is directed to the larger number (75 percent in Iowa) who give the history of direct contact with livestock prior to onset of symptoms. Illness in this group is closely associated with the occupation of the individuals concerned.

Occupations of brucellosis patients in the contact group include farm workers, packinghouse employees, veterinarians, stock dealers, dairymen, and locker and rendering plant workers. Special consideration is given to the meat-packing industry and to control and preventive measures.

¹ Division of Industrial Hygiene, Illinois.
² State Department of Health, Iowa.
³ New England Baptist Hospital, Boston.
⁴ Yale Medical School.

Industrial Problem in Diabetes Mellitus

Albert A. Hornor, M. D.³

A man who has learned to keep his diabetes under control is well above the average in dependability. People with diabetes mellitus lose less time on account of upper respiratory infection. Patients with diabetes are not more prone to accidents than the average, and recover with usual promptness. The increased expectation of life enjoyed by patients who take insulin and avoid complications increases the responsibility of the entire medical profession to prevent as many complications as possible. Physicians who are in a position to supervise the health of industrial workers have a great opportunity to help those who have diabetes. The prejudice that trauma may lead to diabetes has proved to be erroneous. It is important for industry not to be frightened by the employee who is discovered to have diabetes mellitus when he is being treated for a broken bone or some other traumatic condition.

It is important for physicians working in the industrial field to recognize what they can do to prevent diabetes, particularly by preventing obesity. The fact that a man or woman has diabetes mellitus should not be a barrier to his or her employment.

Auditory Trauma From Excessive Noise

Norton Canfield, M. D.⁴

The tolerance of the human being for noise is well recognized and falls within certain limits. It varies for different sound frequencies which can be measured in terms of physical pressure. Pathologic studies of temporal bones containing the inner ear mechanism have been made by a number of authorities, and the microscopic sections show the morphologic changes in the ear cells which take place following excessive exposure to noise. The studies have

(Continued on page 6)

AIR FLOW MEASURING INSTRUMENTS

Engineering Section, Industrial Hygiene Division, USPHS

Indirect Measuring Instruments*

Hot Wire Anemometer

This instrument consists of an electrically heated wire of constant resistance which forms one arm of a wheatstone bridge. The other resistances of this electrical circuit are arranged so that when the bridge circuit is in balance, the temperature of the hot wire is at its desired value. Changes in the speed of air past the hot wire necessitate changes in the heating current to restore the wire temperature to its former value. Such changes in the amount of heating current are directly related to the speed of the air past the hot wire by means of a calibration formula. This device is one of the earliest employing the principle of heat transmission from a hot body to a cooler fluid in which it is immersed for velocity measurements. It is useful over a wide range of air speeds and provides precise information when corrections for air temperatures are made. Other instruments of more simple and durable qualities have relegated this device to laboratory use.

Heated-Thermometer Anemometer

The principle of operation of this device depends upon the transmission of heat from a hot body to the cooler fluid in which it is immersed. Two mercury-in-glass thermometers, one of which is electrically heated from an external source, constitute the instrument. A calibration formula expressing the relationship between the velocity of the air stream; the heat input to the hot thermometer; and the temperature gradient between the hot thermometer and cooler air stream is provided with each thermometer pair. Readings are

taken when dynamic equilibrium is attained and the thermometer indications are stable. The device is accurate over a wide range of air velocities and can be used to measure very low air movement. Connections for thermometer stem immersion are necessary for precise work. Careful handling of the glass thermometers is necessary. Sources of intense heat radiation introduce errors in thermometric measurements.

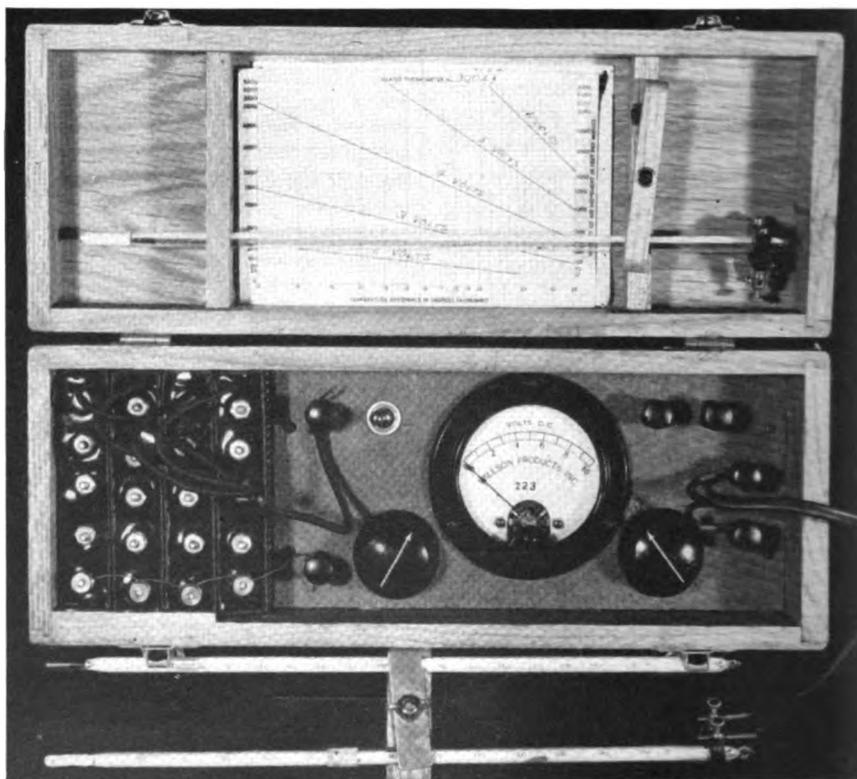
Kata-Thermometer

This instrument consists of an alcohol-in-glass thermometer designed with an over size well of liquid at the bottom of the stem and a somewhat smaller reservoir at the top. The principle of heat transmission from a hot body to a cooler fluid is embodied in the operation of the device. Each thermometer is

equipped with a calibration curve expressing the relation between the time elapsed for the liquid level to fall between two marks etched on the connecting stem and the speed of air passing the device. In practice the level of the liquid is raised from the lower well to the upper reservoir by heat of the hands or other suitable means. Each instrument is useful only over a small range of air velocities, but can be obtained for any one desired range. Accuracy depends somewhat on skill in measuring the elapsed time of fall of liquid between the marks. Sources of heat radiation introduce errors in the measurement.

Pitot-static Tube

A pitot-static tube consists of two metallic tubes, one for indicating the sum of the static and kinetic pressures



HEATED THERMOMETER AND CONTROL BOX

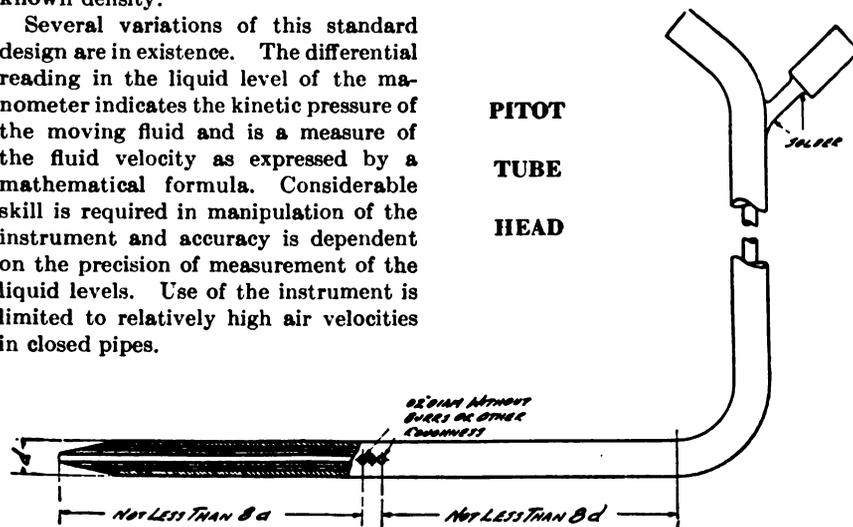
*Direct measuring instruments were discussed in the February 1948 issue of the INDUSTRIAL HYGIENE NEWSLETTER.

at a point within a fluid, and the other for indicating only the static pressure. In construction, the total pressure tube is located concentrically within the static pressure tube with the annular opening sealed off at the leading end. Small holes are located around the circumference of the outer tube near the leading end, which is bent at right angles to the main body of the instrument in a smooth curve. A closed connection is made by suitable means between the upper ends of the concentric tubes and the two legs of a glass tube (manometer) containing a liquid of known density.

Several variations of this standard design are in existence. The differential reading in the liquid level of the manometer indicates the kinetic pressure of the moving fluid and is a measure of the fluid velocity as expressed by a mathematical formula. Considerable skill is required in manipulation of the instrument and accuracy is dependent on the precision of measurement of the liquid levels. Use of the instrument is limited to relatively high air velocities in closed pipes.

Static Pressure Tube

This simple device consists of a manometer containing a liquid of known density, and employs a short length of rubber tubing connected to one leg to facilitate measurement of static pressure. It is especially useful for measuring air velocities at air-intake openings. A smooth, drilled hole in the wall of the nearest section of straight duct connected to the opening and a knowledge of hood entry coefficients are

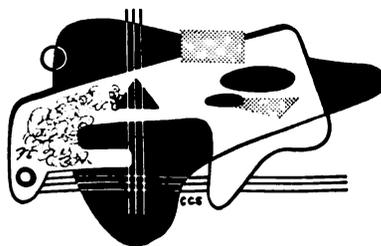


- 6 -

Impact Tube

This device consists of a single tube bent at right angles with one end connected to a leg of a manometer. It can measure either total pressure or static pressure depending upon the direction in which the tip end is pointed. The velocity pressure of the moving fluid can be obtained by making the two appropriate measurements and combining the results algebraically. Its accuracy is less than that of the pitot-static tube because of the impracticality of obtaining the two appropriate measurements at the same point within the fluid. A special and useful application is for measuring the velocity pressure at the discharge end of a closed pipe where the static pressure is negligible. The formula relating the velocity pressure to the air speed is the same as that applied to the pitot-static tube.

all that are required for such measurements. The air velocity in the duct is related to the pressure so measured by a well-known formula. Where entry coefficients are unknown, but other instruments are available for measuring air velocity, static pressures coinciding with such velocities can be used as criteria for routine testing of air velocity requirements. Simplicity, rapidity of testing, and reasonable accuracy are important features of the device.



ADVICE SOUGHT ON RESTAURANT VENTILATION

In recent months, the Industrial Hygiene Section of the St. Louis Health Division has been called on by inspectors of the Food Control Section to give engineering consultation on problems of inadequate ventilation encountered in restaurants. The majority of these requests have been forthcoming because of the recently inaugurated and enforced restaurant grading ordinance. One of the requirements for a grade A rating under the provisions of this ordinance is that the walls and ceilings of the restaurant shall be free of moisture condensation.

Most requests for assistance have arisen as a direct result of moisture condensation on walls and ceilings preventing a restaurant from being rated grade A. However, other requests have been based on conditions having no bearing on the rating obtained, such as kitchen smoke and odors entering rooms where food is served or consumed only. In all cases, regardless of the actual condition responsible for the inadequate ventilation, the advice of the industrial hygiene engineer has been eagerly accepted by the proprietor after the food control inspector has informed him of the services available.

In the majority of cases it has been found that wall or window exhaust fans are being used to remove smoke, steam, and grease vapors created by normal kitchen operations. The almost unanimous opinion of restaurant operators of this type of installation was that the larger and faster the fan used the better the ventilation would be. The final solution was not always so simple, although some of the action advised included the installation of such units.

Most common of the reasons for inadequate ventilation was the existence of inappropriate sources of air intake. Open windows, doors, dish-conveyor elevator shafts, and the like, caused short circuiting of the air currents set up by the exhaust fans. The air would enter these inappropriate openings closest to the fans and pass only a short distance through the kitchen without materially affecting the steam and smoke created in other portions of the

(Continued on page 6)

Noise—

(Continued from page 3)

been made by audiometric testing before death and following proper preparation of the temporal bone sections the cellular contents can be examined with a microscope. Experimental animals have been subjected to sound levels above known tolerance and the ears of these animals have also been examined microscopically.

The other evidences for excessive noise to which the human is exposed are found in hearing surveys of people who have been exposed in noisy industries. There is now general agreement that some industries are noisy enough to produce hearing loss in exposed individuals.

There are a number of unsolved questions in regard to industrial noise and it now seems that a fairly logical outline for further investigation can be provided.

After recognition that the problem does exist in industry and may be brought into line with other preventive measures, proper examination of the hearing should be made a part of the preemployment physical examination. This can be done easily with modern equipment and a hearing threshold for each individual can thereby be established.

Recording of the noise level to which the workers are exposed, protection of the worker by the possible use of ear defenders, elimination of the noise at the source, and proper construction of rooms in which noise is generated are a few other solutions to the noise problem.

Selection of workers who are susceptible to hearing damage is a topic which has been subjected to experimental attention. It now seems that with a certain preexisting hearing loss of an obstructive type, hearing may not be further damaged by exposure to noise. Periodic testing of the men during exposure may reveal those who will be permanently damaged later if continued in that noise level environment.

The practicability of application of some of these principles is well recognized. It may not be possible to overcome all of the existing conditions in industry which have contributed to this problem but industry has a responsibility in the rehabilitation of the men found among employees who have had

enough permanent hearing loss to interfere with their social life. Rehabilitation of the deaf is so definitely established by the fine work done in the services during the war that this should constitute a large part of the program for those who have already lost a part of their necessary hearing.

“The Role of Oral Health in Industrial Hygiene”

J. J. Bloomfield⁵

Make known your experiences and findings in industrial oral health, J. J. Bloomfield, Assistant Chief of the Industrial Hygiene Division, urged the members of the American Association of Industrial Dentists assembled in conference in Boston.

Pointing to the lack of specific scientific data relating oral disease to industrial processes, Mr. Bloomfield told the group that the need for industrial oral health services would have to be substantiated in black and white before they could come into their own as an integral part of in-plant health services.

The Public Health Service has assigned industrial oral health its rightful place by including oral examinations in all field surveys, Mr. Bloomfield asserted. With the anticipated completion of an industrial oral health laboratory in Bethesda, the division hopes to undertake comprehensive studies in oral pathosis due to occupational exposure.

“We look to you, however, to augment our findings with your observations,” Mr. Bloomfield said. “You are in a particularly favorable position to make detailed studies of the toxicity of the operations in your plants and the oral manifestations of harmful exposures.”

Emphasizing the importance of thorough oral examinations, Mr. Bloomfield pointed to the possibility that, under close scrutiny, the tissues of the oral cavity may well act as extremely sensitive primary detectors of physical and pathological damage to other parts of the body. Atmospheric contaminants are often reflected first in the oral cavity, he said. Mr. Bloomfield pointed out that oral examinations might make another contribution by helping to determine more accurate maximum allowable concentrations.

⁵ USPHS.

New York Helps Workers Buy Food Wisely

The New York State Food Commission is presenting an educational and informational program to help consumers keep food budgets down, keep their health and vigor up, and still help provide enough food to at least prevent starvation abroad. Its nutritionists have prepared a series of leaflets, two of which are entitled “What Does Johnny Eat?” and “A Short Guide to Wise Eating.” Sample copies may be obtained through Dr. Leonard Greenburg, executive director, Division of Industrial Hygiene and Safety Standards, New York Department of Labor, 80 Centre Street, New York 13, N. Y.



Restaurant Ventilation—

(Continued from page 5)

kitchen. A simple explanation of the principle of air currents and assurance that the opening and closing of the front door as customers passed through it would adequately make up the air being exhausted by the fan was all that was necessary to convince the restaurant proprietor that all these inappropriate openings should be closed.

Maintaining this constant flow of air currents from the front of the restaurant to the rear exhaust fan insured a safeguard against large amounts of steam and smoke being free to pass into all portions of the restaurants or to condense on walls and ceilings.

Where necessary, the installation of hoods, baffles, or duct work was recommended to control more thoroughly the smoke and steam at its source. This type of installation was not actually designed for the restaurant, but a thorough explanation was given as to why the installation would be of value.

—John Schilling, St. Louis.

INDUSTRIAL TOXICOLOGY

L. T. Fairhall, USPHS

TETRACHLOROETHYLENE

Tetrachloroethylene, perchloroethylene, carbon dichloride, or ethylene tetrachloride, $\text{Cl}_2\text{C}=\text{CCl}_2$, is a colorless noninflammable liquid with a faint, ethereal odor. It boils at 121°C ., and solidifies at about -22°C . The density D_{25}^{25} is 1.610, and the index of refraction n_{20}^{20} is 1.5018. Its vapor pressure at 20°C . is 58.5 millimeters of mercury, and its evaporation rate is 28 on the basis of an evaporation rate for ether of 100. It has been extensively used as a dry-cleaning agent since its introduction in the trade in 1934 and as a degreasing substance in industry.

Although tetrachloroethylene has been stated to be but slightly toxic (1, 2), it should not be regarded as harmless. It is undoubtedly true that its toxicity is in general less than that of carbon tetrachloride (3) and chloroform. However, Barsoun and Saad (4) showed that when administered by subcutaneous injection tetrachloroethylene proved to be more toxic than carbon tetrachloride. As a narcotic agent tetrachloroethylene is about 2.8 times as powerful as carbon tetrachloride. In common with other halogenated hydrocarbons, it would be anticipated that tetrachloroethylene would act as a metabolic poison and would have a definite toxic effect on the liver and kidneys. Lamson and his associates (5), however, found no pathological changes, excepting a slight and not abnormal fatty metamorphosis of the liver, in animals receiving 0.3 to 25 milliliters per kilogram of body weight. The initial symptoms of large doses are stupor, dizziness, excessive perspiration, nausea and vomiting. The inhalation effects are much less marked than those produced by oral administration.

In spite of the fact that the toxicity of tetrachloroethylene is less than that of carbon tetrachloride and that no well-authenticated fatalities have occurred in industry in this country,

reasonable precaution should be observed in handling the material in quantity where excessive exposure may occur. Morse and Goldberg (6), upon investigating 108 degreasing units, found that the general average atmospheric concentrations were 96 p. p. m. for the ventilated tank of the condensing type; 135 p. p. m. for the nonventilated condensing tank; and 221 p. p. m. for the nonventilated, noncondensing units. They made recommendations for the design of these tanks, their operation and location.

Crowley and his associates (7) have more recently surveyed degreasing installations where this solvent is in use and found that tetrachloroethylene in the breathing zone of the operator averaged 180 p. p. m. while work was being put in and 484 p. p. m. while work was being removed from the tanks. They recommend for safe operation that this type of tank be used only when equipped with condenser and local exhaust ventilation and that all other generally accepted standards for safe degreaser operation be observed. The threshold limit value for tetrachloroethylene in air accepted by the American Conference of Governmental Industrial Hygienists in 1947 was 100 parts per million.

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32 FOUR MEN DIE IN SEWAGE SYSTEMS IN TEXAS

Within 25 days four lives were lost by workers in sewage systems of Hidalgo County, Tex. A complete report of the disasters is published in the March issue of *Sewage Works Journal*. Details of the second accident are of interest to industrial hygienists because it occurred in an industrial plant.

A drainage well was being used to dispose of the sewage and industrial waste from a local citrus packing shed by discharging the waste into a subterranean gravel stratum. The well was not carrying off waste water fast enough, and attempts were being made to unplug the well. The cistern was emptied from the surface first by using hand lines and buckets. Upon emptying the cistern, a man was instructed to enter the cistern and pour in Sani-Flush, then come out immediately afterwards. The man did not come out; he collapsed. When a second man entered with a rope tied about his waist, he took the line attached to his body and tied it around the body of the first man before losing consciousness.

The first man was removed and a third man went into the cistern, merely holding his breath. The latter tied a rope around the second man so that he could be removed. The third man experienced respiratory difficulty. The first and third men were given artificial respiration and resuscitated and were then taken to the hospital. The first and second men died; the third recovered.

It is possible that when the Sani-Flush was poured in the casing of the drainage well, it may have disturbed the equilibrium of the gas present in the gravel stratum and caused it to escape. The atmosphere may have been toxic or deficient in oxygen. Gas from the settling basin could have entered the drainage well cistern by way of the connection pipe.

The following recommendations were made for prevention of such types of accidents:

- (1) Both sewage department supervisory personnel and workers and local firemen and policemen should be thoroughly informed as to the hazards involved when working in and about sewage system installations.

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STATE AND LOCAL NEWS



LOS ANGELES, CALIF.

Methyl Bromide—The use of methyl bromide for fumigation of various food products and raw materials for vitamin preparations is on the increase. As a result, more requests are being received from the California Division of Industrial Safety for studies of vapor exposures at these operations.

In one recent study, the crude fumigating chamber was set in a dead corner, with the access door of the chamber very close to the air intake of a circulating drying oven. Excessive amounts of methyl bromide were charged into the chamber and dangerous concentrations of vapor escaped through the poorly fitting access door. Even on the day after charging, appreciable vapor was leaking through the door.

No method was provided for removing methyl bromide vapors before workers entered the chamber. Opening of an adjacent "fire exit," which is locked much of the time, merely aggravated conditions by carrying the toxic vapors to the workers.

The fumigating equipment itself was in poor condition, allowing much liquid to leak out through valves and gauges. A number of recommendations were made for control.

Wrong-Way Blower—Another request from the Division of Industrial Safety concerned a plant in which lead fishing sinkers are cast. A canopy exhaust hood was set over the lead pot but the blower was not turned on. When asked for the reason, the worker stated that it caused too much "blowing." The blower was turned on and air measurements soon showed that it was running in reverse; instead of exhausting lead fume, it was blowing air over the lead pot and disseminating the fume.

Air samples showed excessive quantities of lead dust and fume throughout the operating area. It was recommended that the blower be connected properly to act as an exhaust, and that housekeeping be improved to eliminate airborne lead from that

source. This case demonstrates the principle that the mere presence of a blower system does not indicate efficient operation or that the blower fan is running the right way.

MASSACHUSETTS

Survey—The Massachusetts Division of Occupational Hygiene is currently making a comprehensive survey of the health and safety services available in all Massachusetts industrial plants employing 100 or more workers. Questionnaires sent out to over 1,100 firms, together with an appropriate letter explaining the purpose of this study, have already begun to come in. These returns when analyzed will be the first appraisal by this division of such pertinent information as type and number of plant health and medical personnel, medical facilities, potentially hazardous operations, plant health and medical services for employees, and welfare provisions.

A Healthy Place to Work—An interesting help wanted advertisement has been noted in the February *Granite Cutters' Journal*. A California granite firm recruits personnel by offering, among other advantages, "well-equipped plant with dust collectors." Apparently, sound industrial hygiene practices are used as a selling point to attract workers to jobs where a hazard to health might exist.

Talk—Mrs. Sarah E. Almeida, R. N., of this division spoke before a luncheon meeting of the Quincy Visiting Nurse Association on February 16. A plea was made for better health services in industry. Statistics on the health status of industrial workers were cited from a national survey as well as from a recent study of medical services available in Quincy.

Personal—Two members of the staff are scheduled to give talks before the Massachusetts Public Health Association which is to meet on June 16, 17, and 18 at the University of Massachusetts in Amherst. This meeting is being held this year in conjunction

with the New England Health Institute. Engineer Harold Bavley will discuss "Atmospheric pollution by smoke, dust and gases," while Director John B. Skinner will talk on "Control of offensive trades" from the industrial health viewpoint.

Conference—The Massachusetts divisions concerned with promoting environmental sanitation, namely, the Division of Food and Drugs, the Division of Sanitary Engineering and the Division of Local Health Administration of the Department of Public Health, and also the Division of Occupational Hygiene of the Department of Labor and Industries, are continuing the monthly meetings inaugurated last year. With a view toward promoting better understanding of one another's work, each division last year presented a broad outline of its functions, while this year more complete details of the different programs are covered.

DETROIT, MICHIGAN

Health Education—The Health Institute of the UAW-CIO, Wayne University and the Detroit Community Fund are jointly presenting a course on occupational diseases. The first lecture was given at Wayne University on March 18, 1948. Dr. Ira Avrin, formerly with the USPHS and the Detroit Bureau of Industrial Hygiene is conducting the classes with the cooperation of experts from special fields.

Meetings—The annual meeting of the Michigan Safety Council is to be held at the Book Cadillac Hotel, Detroit, May 18, 1948. The following talks are scheduled for the Industrial Hygiene Section: Carbon Monoxide and its Control; Degreasing Solvents; and Use of Aluminum Therapy in the Prevention and Treatment of Silicosis.

The following panel discussions are also scheduled: Team Work in Medical Nursing and Safety Services for the Small Plant; and Food Sanitation.

At the meeting of the Michigan Industrial Hygiene Society held on March 3, Mr. Theodore F. Hatch, Research Director for the Industrial Hygiene

Foundation, Pittsburgh, and president of the American Industrial Hygiene Association spoke on professional growth in industrial hygiene.

MINNESOTA

Sanitation—R. E. Bales, engineer with the Division of Industrial Health, is cooperating with other department engineers in a study of the environmental sanitation in State institutions.

The division aided a local concern in the study of the vapor concentration associated with the operation of dry cleaning machines which they manufacture.

Nurses—The sixth annual meeting of the State's industrial nurses for continuation study courses in industrial nursing has been scheduled for May 13, 14, and 15 at the University of Minnesota's Center for Continuation Study.

Working with the School of Public Health at the University of Minnesota and with nurses in industry, Miss Genevieve Anderson, the industrial nursing consultant of the Division of Industrial Health, assisted with setting up field training programs in industrial nursing. A group of 22 public health nursing students last year secured industrial nursing field experience. The length of experience varied from 4 to 6 weeks, in most cases being 6 weeks.

The health services of 12 commercial and industrial establishments cooperated in the educational program, the agencies participating including heavy and light industries, department stores, a bank, and a Federal Government unit. Each student obtained her major experience in length of time at one industrial health service. Then to obtain a picture of the variety of problems arising because of the type of the industry and the varying types of health services that have evolved to meet these problems, she was sent to an establishment with a health service offering a distinct contrast for her minor in-plant service.

MISSOURI

Education—The health commissioner has undertaken the organization of a course in public health at St. Louis University Medical School. The instructors for this course will be various members of the staff of the Health Division. The chief of the section assisted the health commissioner in

outlining the various subjects to be presented under the headings of industrial hygiene and environmental sanitation. Discussions assigned to the Industrial Hygiene Section include industrial hygiene, industrial safety, air pollution control, heating, ventilating, illumination, and noise control. These presentations will be made to the sophomore class.

PENNSYLVANIA

Carbon Monoxide—Engineers of the bureau have assisted the Pennsylvania State Highway Department in evaluating the possible carbon monoxide hazard incident to the operation of gasoline-burning automobile heaters. Further study is in progress.

X-ray—The portable chest X-ray equipment of the bureau is now being used at the Frankford Arsenal, Philadelphia, where 3,400 civilian employees are receiving this service.

Lectures—Dr. Joseph Shilen, director of the bureau, lectured to senior medical students at the University of Pittsburgh on the subject of "Occupational Disease and the Activities of the Bureau of Industrial Hygiene." Dr. Shilen supplemented his lecture with slides, some depicting occupational hazards and others illustrating the bureau's portable chest X-ray equipment in action in industry.

Mr. J. F. Mellor, Jr., assistant director of the bureau, talked on "The Role of the Safety Engineer in an Industrial Health Program" before a Federal area safety conference held at the New Cumberland Quartermaster's Depot. The address was illustrated by slides showing occupational hazards.

An article entitled "Dental Relations in a State Industrial Hygiene Program," by Dr. E. R. Aston, dental consultant, Pennsylvania Bureau of Industrial Hygiene, appeared in a recent issue of *Industrial Medicine*.



Sewage System—

(Continued from page 7)

(2) No worker should enter any confined place or enclosed place of a sewage system unless it is proved safe for entry.

(3) Pump wells, sewer manholes, wet wells, or other enclosed or low places should be properly ventilated and then tested for toxic gases, explosive gases and oxygen deficiency before entry. Persons doing the testing should wear proper protective equipment. Equipment such as hydrogen sulfide detectors, oxygen deficiency lamps, and explosion meters can be used for this purpose. When this equipment is not available, canaries or mice in small cages could be used by placing them in the area in question and observing their action. Nonspark tools should also be used by the workers.

(4) Protective equipment, such as self-contained oxygen masks and blower type, air-supplied hose masks should only be used when entry must be made in any area which has not been proved safe for entry. Whenever a man must enter a confined place or dangerous area, he should have a life line tied to him and one or more men attending him so that they may remove him from the area in the event difficulty is encountered. Only Bureau of Mines approved-type respiratory safety equipment should be used in this type of work.

(5) A blower of sufficient capacity to provide complete change of air every 2 minutes should be used when men are working in manholes, wet wells, or other closed places. Again, it should be made certain that the atmosphere in the working area is safe for entry even though this equipment is being used. The intake of this blower should be so located that only fresh, clean, safe air is conveyed to the working area.

(6) Pump rooms and pipe galleries in which oxygen-deficient air or toxic gases could accumulate should be ventilated at all times by means of mechanical blowers. These blowers should provide an air change which would keep the area safe for entry at all times.

(7) When entering a sludge digestion chamber to do repair work, self-contained oxygen masks or supplied air respirators of the blower type should be used.

OPPORTUNITY FOR LEADERSHIP FOR NURSES IN INDUSTRY

J. E. Neiderhauser*

The progress in the field of industrial nursing which has been made in the 53 years since the first industrial nurse was employed has been such as to gain the growing confidence of industrial management.

With the general caliber of nurses attracted to the industrial nursing field, and with their past record of accomplishment, it is not surprising that this group of women has caught a vision of opportunity for service beyond those responsibilities ordinarily required in their profession.

The Nurse—A Friend

There are two types of leadership. There is that type in which the leader must of necessity openly lead his followers toward a given objective. His position of leadership is very apparent, for he is required to be out in front of those whom he leads. But there is a second type of leadership, where the leader does not lead the band or twirl the baton.

This is the type of leadership in which the leader is never in the forefront, does not seek the spotlight, does the best job of leading when he works behind the scenes, and whose objective is to multiply himself, his ideals and his thinking in the minds of others by stimulation, suggestion, and example.

The position of the industrial nurse in the factory organization is a staff position in which the nurse has no line authority over any employees other than those on her own immediate staff. It follows, then, that her opportunity for leadership lies in accomplishing its objective by working behind the scenes.

We are interested in a specific type of opportunity that comes only to you because you are an industrial nurse. Those whom you contact in our factories in the practice of your profession are not just "ships that pass in the night." You are associated with many employees, your patients, every day over a period of many years.

*Manager of Industrial Relations, Continental Can Co., Inc., New York. Speech delivered at Industrial Health Conference, Boston, Mass., April 2, 1948.

I have frequently called the foreman's attention to his leadership responsibilities. I have pointed out that those who work under his direction are under his influence, subject to his whims and fancies, to his likes and dislikes, for more hours of their working lives than they are under the influence of any other human being.

No clergyman has any greater opportunity for leadership. The clergyman, at best, has his congregation before him for an hour once a week. The foreman has 40 hours of opportunity each week to offer leadership to those who report to him. You in industrial nursing have a very similar opportunity, but, in addition, you have a very real advantage.

The employee is directly responsible to his foreman for the satisfactory performance of his job. The foreman has line authority which includes the responsibility for discipline or possible discharge. You, on the other hand, are in the advantageous position of one whose sole motive is always one of personal helpfulness to each individual.

Where the foreman must be both friend and "boss" to his workmen, the workman looks upon the industrial nurse only as his friend. Those of you with long experience in industrial nursing know how true this is. You know of the opportunities you have had to counsel, guide and help as a friend.

Management's Goal

You have undoubtedly sensed the fact that you are in a position where there are greater opportunities for the exercise of leadership than you may have had in the past. You have no doubt also sensed the fact that industrial management in many cases needs a little education if these opportunities for leadership are to be fully realized.

My first conclusion is that if we are to utilize fully your leadership abilities management must first have an objective. Management must know, and the nurse must know just what, in working more closely together, they hope to accomplish.

Some years ago a leading industrialist said: "For many years we put our entire emphasis on quality. We lived quality, we talked quality, we sold quality. But in recent years we have put our emphasis on building men, and now we find that we make more goods of better quality and sell more of them."

In our own company we have prefaced our statement of policies governing employees relations with the following: "We in Continental must strive constantly to develop better qualified, better satisfied men and women, proud of their association with the company and secure in the knowledge that day in and day out they will receive fair and forthright consideration both as employees and as individuals."

In short, our objective is to build men and women. However, we have put the prime responsibility for leadership in this direction on the shoulders of our industrial relations personnel whose responsibility it is to see that our policies are made a living reality all the way through the line of organization.

What we have overlooked, in my opinion, is the extent to which the industrial nurse can make a contribution to this end, a contribution which no other individual in the organization is in a position to make.

Let us not forget that the purpose of business is profits. This is not as selfish as it may sound, for without profits, and I mean reasonable profits, there is no business. Without business, there are no factories. Without factories, there are no employees. And without employees, we need no industrial nurses. I repeat, this is not selfish, for, in the absence of a successfully operated business, the maximum in substantial earnings and job security for the worker can never be attained.

Management's Responsibility

I would like to feel that I am presenting these suggestions to each of you personally, as I might do if I actually represented the management of the particular company with which each of you is connected. How can the industrial nurse contribute to this job

of building men and women through the exercise of her leadership opportunities?

Before I point out any of the human relations problems with which every industrial management is confronted and ask your assistance in their solution, I must first acknowledge that we in industrial management have been standing in a Leaning Tower of Pisa, from which vantage point we have looked far into the distant future, but could not see the ground at our very feet.

We have not specifically asked for your assistance for the simple reason that we have not always fully appreciated the potential value of such assistance. Now that we are asking for your help we must see to it that we do not interfere with your regular professional service to our employees.

We must give you sufficient clerical assistance to relieve you of much time-consuming detail connected with record-keeping, reports, accident analyses, and workmen's compensation. We must provide you with the additional tools you will need to meet intelligently the leadership opportunities which present themselves.

You should be brought into those conferences with operating department heads where general personnel and morale problems are discussed. It is important that you participate in conferences pertaining to the formulation and interpretation of company policies affecting human relations. Where for some reason, you are prevented from attending such conferences, we should see that you are at all times kept informed of problems discussed and action taken.

You must be given an opportunity to understand fully your company's philosophy on union relations, and to familiarize yourself thoroughly with the provisions of the union contract. Here it will be of particular importance that you understand the grievance and seniority provisions of the contract. It is in connection with these two provisions more than any other provisions of the contract that the employee will unburden himself to you.

If you do not already understand the issues involved we should help you to better understand them. We must see to it that you clearly understand your own company's financial structure and its earnings position. Such knowledge

is definitely necessary if you are to have opportunity to clear up misconceptions and misunderstanding resulting from misinformation.

It should be apparent to you that there are some things which management must first undertake before we can suggest to you that you undertake the behind-the-scenes leadership of which we are sure you are capable.

Areas for Leadership

In a presentation such as this we can only outline a few of the broad areas in which you can exercise leadership, assuming, of course, that management so desires, and that you are willing to assume further responsibilities beyond those ordinarily included in the practice of your profession.

I am more concerned that you and management see together the fields of opportunity not yet fully explored than to attempt to define too specifically all the problems in connection with which these opportunities occur. I can only mention a few. Undoubtedly some of you have already been given every possible opportunity by your management and have availed yourselves of such opportunities.

First, the problem of accident prevention. One of the greatest hindrances to effective accident prevention is the difficulty in getting at the real cause of accidents. This difficulty arises from two sources. Too few of us are sufficiently analytical to follow an effective method in uncovering the facts. The investigation usually involves several individuals, any one of whom may be responsible for the accident.

Human nature being what it is, it is not always easy to uncover the fact. Your assistance to the personnel manager in such investigations should be extremely helpful, for you are not involved in direct responsibility for the accident and your very training has developed the analytical ability necessary to determine underlying causes.

Another problem is that of counseling. This opens up a tremendous field. Personally, I have discouraged the use of counselors as such. It has always seemed to me that if the foreman, the personnel manager, and the industrial nurse are collaborating, the services of a professional counselor should not be required.

Involved in counseling are personal problems not related directly to the employee's work and personal problems arising out of his work relationships. Here it is very important that we do not attempt to replace the foreman in the discharge of his direct responsibilities. But, in your contacts with the worker, you have an opportunity which the foreman does not always have to really get to the bottom of an individual's personal problems.

If the problem involves one of work relationships, and you are thoroughly familiar with company policies and with the union contract provisions, it is possible for you either to straighten out the employee's thinking or to bring to management's attention cases where it appears that supervision may not be properly interpreting company policy, and thus enable management to make its own investigation.

I am sure your own good judgment would indicate the necessity of your making no direct commitment to the employee which might unfavorably reflect on any foreman's operation of his department.

On the other hand, management is familiar with, and must respect, the ethics of your profession, and you must never be called upon to divulge any confidence, or the source of any information which violates such professional ethics.

A further problem is the control of absenteeism and turnover. We should see to it that in the induction of the new employee he is given immediate opportunity to meet you personally, and that you are given opportunity to indicate your interest in him and in his adjustment and progress.

I am convinced that both absenteeism and turnover could be materially reduced if a more understanding and sympathetic approach were to be made in diagnosing individual cases.

There is also the problem of appraising employee attitudes. Formal surveys of employee attitudes are very tricky. Many times they do not properly reflect the real attitudes of employees towards their work, their work conditions, their company and its policies. You are in an exceptional position to form an intelligent opinion of employee attitudes from your day-to-day contacts.

(Continued on page 12)

Leadership for Nurses—

(Continued from page 11)

By this time you are probably asking yourself, "What else is there for me to do when I have nothing else to do and can't sleep." We have not begun to meet our opportunity and our responsibilities in the development of an industrial health program.

We also need your suggestions in planning a sound program where both your professional skill and knowledge as a teacher could be utilized in giving leadership to a preventive medical program and health service to employees in the plant. The results of such a program should result in decreased absenteeism and turn-over.

And finally, there remains, particularly in smaller communities, your opportunity to participate in any general program planned to improve the general health conditions of the community, all of which reflect upon the general health of employees.

In all of this we do not suggest in any way that you replace the personnel manager. We believe there is a very real opportunity for you to augment more fully the work of the personnel manager. With good teamwork and cooperation and the most carefully planned collaboration you can add greatly to the general effectiveness of the personnel program. The personnel manager himself is too often tagged as "a management man." You are a friend.

Opportunities for Leadership

If you are interested in leadership opportunities beyond the routine professional duties as an industrial nurse, it will be necessary for you to devote some time in preparation and study outside of the hours of the regular workday.

In many instances the industrial nurse will not have full leadership opportunities unless she takes the initiative with her own management. It may be necessary for you in your own particular company to ask for the opportunity and for the time to demonstrate that you can make a contribution beyond the somewhat circumscribed area in which many of you may now be engaged.

Leadership is exacting, and successful leadership comes to those with a pur-

pose. Leadership has a price ticket. In fact, more than one. If we want good health the price ticket is clean and careful living. If we want friends the price ticket is, along with other things, kindness, thoughtfulness, and consideration of others. If we want the confidence of others in ourselves, we must ourselves establish a record of reliability and dependability.

The exacting requirements of leadership, the personal sacrifice of time to meet out-of-the-ordinary requirements of the job, the necessity of working behind the scenes without seeking the spotlight, the stern personal requirements of leadership, all of these things will become burdensome and annoying to anyone who cannot find his deepest satisfaction in serving others. All of these exacting requirements are price tickets.

To you industrial nurses who have chosen a profession of service to others, this is obvious. In your position as industrial nurse, the opportunities for leadership in helping to build men and women in industry are opportunities beyond the strict requirements of your profession. They are challenging opportunities. And I believe industrial management needs the kind of leadership which you are so capable of giving.

GRADUATE NURSES STUDY CLINICAL METHODS

During the past year 10 Simmons College students who are taking post-graduate work in industrial health have been assigned to the Simplex Hospital for 4-week periods of practical training in organizing and carrying on industrial health departments. These students were, respectively, graduates of 10 different nursing schools, maintained by leading hospitals.

The list includes Faulkner, Quincy City, Peter Bent Brigham, and New England Deaconess Hospitals of the Greater Boston area; St. Joseph's of Lowell, the Clinton Hospital, the King's County Hospital and the Bellevue Hospital of New York. Students came also from Mound Park Training School of St. Petersburg, Fla., and from the University of Pittsburgh.

Miss Catherine Dempsey (supervising nurse) receives many letters of ap-

preciation from the students. One wrote recently, "My month's instruction in industrial nursing has proved invaluable. Since my return to Portland as a visiting nurse, I have had to set up and organize an industrial health department on a part-time basis. All your suggestions have been most helpful."—*The Simplex Pennant*, Simplex Wire & Cable Co., Cambridge, Mass.

My People and I

Ruby Bringle, R. N.¹

I am under the impression that the first nurse to go into industrial work, in 1895, is still alive. Her longevity is proof of her stupendous staying powers, or of a tremendous interest in her work. Certainly it is not an indication of a life of ease and simplicity. That is not the lot of an industrial nurse. Some of the idealistic concepts of industrial nursing which I held upon entering the field, some 20 years ago, have long since been discarded, but there have been many compensations, the most valued of which is the heart-warming relationship between my people and me which has developed over the years.

The procession is unending, ever-changing, colorful, and never dull. There is so much more involved than routine first-aid work that any nurse who has had a real taste of industrial nursing does not retire to private duty with its one patient at a time, or to hospital work and flustered relatives.

One of the important duties of the industrial nurse is to impress on her prospective patients the importance of first-aid attention to all injuries, no matter how trivial they seem. Most people are inclined to scoff at small injuries, to "laugh them off." Early in my nursing career I had a patient, long since gone from the employ of my company, whose influence in having small injuries brought to my attention promptly is still felt. Helen stuck a pin in her thumb and while it hurt rather badly for a moment, she did not report the injury. It was not until the thumb was swollen, red, and throbbing that she came to the dispensary for treatment.

(Continued on page 16)

¹This article was taken from a talk given by Miss Bringle at the meeting of the Industrial Nursing Section, District 1, Tennessee State Nurses Association, Memphis, Tennessee, November 17, 1947.

RECOMMENDED READING

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This article lists existing and proposed particle accelerators such as cyclotrons, synchrotrons, and betatrons, giving the locations and operators.

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Moore, E. H.: Industrial workers in retirement. *Sociol. and Social Research*, 32: 691-696 (January-February), 1948. Abs. in *Digest of Neurology and Psychiatry*, 16: 153 (March), 1948.

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BOOK REVIEWS

Industrial Health Engineering, Allen D. Brandt. John Wiley & Sons, New York, \$6.50.

As one of the first books to appear on this facet of industrial hygiene a valuable contribution has been made to the field. Some disagreement among his fellow-workers will be found to his statement that (p. 55) "local exhaust ventilation is probably the most important single method of preventing industrial atmospheric pollution." This approach is not unexpected since Dr. Brandt is basically a ventilation engineer.

The book assembles for the first time many valuable data that until now have been scattered throughout the literature. As a working manual in industrial health engineering its value would be considerably enhanced if each activity and responsibility were to be presented as completely as the portions dealing with ventilation. The subjects of sampling and principles of control could be expanded profitably and the engineering aspects of abnormal air pressures, vibration, fatigue, biologic agents, and odors might well have been included.

The Bureau of the Census of the United States Department of Commerce has announced publication of the *Statistical Abstract of the United States, 1947*, sixty-eighth edition.

The book, containing over 1,000 pages and as many tables, is divided into 32 sections. Sections of interest to industrial hygienists include those carrying the following titles: Area and Population, Vital Statistics (including Health and Medical Care), Labor Force, Social Security and Related Programs, Mining and Mineral Products, and Manufactures.

The volume, bound in buckram, may be purchased from the Superintendent of Documents, United States Government Printing Office, Washington 25, D. C., for \$2.75.

Industrial Job Placement of Persons With Inactive Tuberculosis, National Tuberculosis Association, 1790 Broadway, New York 19, N. Y., 1947.

This pamphlet was written as a guide for employment managers and personnel directors but it will also be helpful to physicians and nurses employed by industry.

It stresses the value of teamwork by management and the medical department. If the industrial physician is familiar with the actual working conditions of the plant, he can give wise counsel for selecting the proper type of job for each individual with arrested tuberculosis.

With the right kind of work and with adequate medical guidance and supervision, the worker will have some protection against a possible breakdown and usually he will be a loyal employee who will render a high quality of service.

INFORMATION PLEASE

Information is requested by J. B. Gisclard, assistant industrial hygienist. American Cyanamid Co., 30 Rockefeller Plaza, New York 20, N. Y., on pertinent data on polarographic procedures as applied to laboratory analyses in industrial hygiene. Mr. Gisclard is attempting to classify and correlate these data. Anyone who has devised new methods or modified existing ones is invited to cooperate in this project. Such a compilation should be extremely valuable to other investigators also.

MEDICAL CARE IN CONSOLIDATED EDISON

By

Dr. John J. Wittmer

Assistant Vice President

In the Consolidated Edison Co. we have always recognized as a fact that an employee must be physically fit, and must remain so, if he is to perform his duties in an efficient and satisfactory manner. We have always believed that it is to the employer's and employees' mutual interests to provide some assistance beyond the payment of sick pay, so that the employee may safeguard his health, may recover as quickly as possible should he become ill, and thereby lose no unnecessary time from absence due to illness.

As long ago as 1902 management realized that the only real solution to the problem lay in a company-sponsored medical care program. In June of that year the foundation of such a plan was laid when we initiated a rather limited but efficient district doctor service, and the plan progressed a step further in 1916 when we opened our first dispensary on the company's premises. Our original intention was that dispensary service be limited to the pre-employment examination of applicants. However, once the word "got around" that a dispensary was available, demand for the services of the dispensary doctor grew very rapidly. He was called upon to give emergency treatment, render first aid, and to administer to many other medical needs in addition to his examination of prospective employees.

The need for a comprehensive medical program became increasingly apparent. We engaged additional doctors and nurses and organized other dispensaries at strategic locations having large concentrations of employees, to provide the much needed "on the premises" medical care. By 1929 our medical services had expanded so greatly as to warrant coordination of all such activities under the unified command of a medical director. Additional services and benefits were added in the years which followed, until today our medical department is equipped to care for practically every medical and surgical need of our employees.

The Industrial Hygiene Division, USPHS, has invited the medical directors of seven industrial medical care programs to write brief reviews of their programs for the INDUSTRIAL HYGIENE NEWSLETTER. The increasing number of requests for such information, as well as the increasing attention being given to medical care programs in industry, prompted the idea.

The seven programs chosen have two common features: They offer eligible recipients a high quality of medical service, and they originated as labor or management or labor-management sponsored plans. They use differing techniques, however, to achieve their objectives.

A presentation of Blue Cross, medical society and cash-indemnity plans (commercial health insurance) has purposely been omitted from this series. Considerable time and space have already been devoted elsewhere to these plans and none of them is confined to an industrial group insofar as origin and management of the plan are concerned.

The following article is the first in the series. The other six will be published in subsequent issues. Comments from readers are invited.

Services Available

Perhaps the most important phase of the program is our "on the premises" service. On the theory that there are very tangible advantages to be gained from having adequate medical facilities available at the employee's work location, we have arranged our program to make these facilities as complete as possible. We have established six medical bureaus, located in principal properties in the four largest boroughs of New York City. At these "medical centers" it is possible for our employees to obtain any of the following services:

Clinical care which is provided by a staff of competent physicians and nurses. Here it is possible for an employee who requires medical advice or treatment, to make an appointment to see the doctor of his choice. Preventive medicine in the nature of cold shots, flu, and hay fever injections are administered when required.

Laboratory tests such as fluoroscopic examinations, cardiograms, and metabolism tests are provided on the premises when prescribed by the examining physician.

Pharmaceutical service is available in five of the six medical bureaus, where registered pharmacists compound medicines which have been prescribed for our employees by company or private physicians. However, proprietary preparations or patent medicines are not supplied under this free service. No drugs are used in the compounding of prescriptions which are not approved by the Council of Pharmacy and Chemicals of the American Medical Association.

Specialists in the fields of internal medicine, eye, ear, nose, throat, and skin are available for consultation and treatment whenever such service is required.

Dental care may be had at our General Office Medical Bureau. A dentist and dental hygienist are available for emergency treatment, prophylactic care and denture work.

In addition to these extensive "on the premises" services we provide X-rays and other laboratory tests when prescribed by a company or private physician, through the cooperation of private laboratories. The services of specialists in the fields of allergy, thoracic diseases, cardiology, urology, peripheral vascular diseases, neurology, psychiatry, and neuro-surgery are available for office consultations and treatment when requested by a company doctor.

We provide unlimited hospital private ward care in any one of 23 affiliated hospitals in the 4 boroughs served by Consolidated Edison System companies. We do not assume responsibility for employees who are confined in unaffiliated hospitals unless ordered by a company physician. Excluded from coverage under our plan are any cases which involve treatment of tuberculosis, mental conditions, pregnancy, operations for cosmetic reasons, or drug addiction. If an employee selects semi-private or private room care instead of private ward service which we provide, he may be reimbursed to the extent of \$4 a day for the duration of his hospital stay.

Free ambulance service is available to employees residing in the boroughs of Manhattan, Bronx, Brooklyn, and Queens and may be obtained through a company physician or the Medical Bureau.

Employees who are recuperating from a serious illness or operation may, at the direction of a company physician, obtain convalescent care at a private convalescent institution in Westchester County. For such service an employee pays a nominal fee of \$1 per day with the company paying the balance of the cost.

When an employee becomes ill at home and requires the attention of a doctor he may request the services of any one of our district doctors by simply calling his supervisor any time between the hours of 8:30 a. m. and 5:15 p. m. Once the first visit is made, the district doctor's relationship with the employee in that particular illness is the same as exists between any patient and his private physician. He may ask that the employee report progress or visit him at his office and, conversely, the employee may feel free to call him for special advice when necessary.

The final item in this comprehensive program is dental service which includes prophylactic treatment, filling of teeth with silver, porcelain, cement, alloy or amalgam, extraction of teeth not to include surgery, and X-rays. All company dentists are available at their private offices and appointments, usually after the employee's working hours, are made through our General Office Medical Bureau. Dentures are provided after the employee has been a member of the Mutual Aid Society for at least 2 years. Partial dentures are given when four or more molars (excluding wisdom teeth) are missing or an unbalanced bite exists. Oral surgery is not covered by the plan and when required must be paid for by the employee.

Extent of Employee Coverage

Because of a rather unique and unusual method of financing, certain of our employees are entitled to all the services enumerated above, while others are limited to specific benefits. Let me first make one point clear. That is, that any active employee of the company, whether he be the top man or the lowliest

laborer, may obtain those services which are available at the company's Medical Bureaus. This means that some 27,000 employees can avail themselves of such services as clinical care, certain laboratory tests, pharmaceutical service, and emergency dental care. These same Medical Bureau services are also available to our 3,700 retired employees.

To participate in those benefits which are available only outside of our Medical Bureaus, employees must be members of the Mutual Aid Society. Of the 27,000 active employees on our pay rolls, 25,800 are eligible for membership in the society and as of the end of 1947, 95 percent, or 24,500, were so enrolled. It is this latter group who may make unlimited use of all medical facilities and benefits.

Administration and Personnel

It is obvious from our recital of the various phases of this program that cohesive effort is required to make it operate efficiently for the mutual benefit of both company and employees. Executive guidance of an administrative and medical nature is rendered by a physician, the assistant vice president in charge of industrial relations. Direct supervision of the program is entrusted to an administrative staff of three physicians who, in addition to their high professional standing are experienced in the field of industrial medicine and thoroughly familiar with personnel and medical department problems.

To staff our six Medical Bureaus we require the service of 19 part-time general medical doctors assisted by 17 full-time nurses who, in addition to being registered, have been selected for their industrial nursing experience. With this staff it is possible to provide adequate medical care at all six Medical Bureaus during the hours of 8:30 a. m. to 5:15 p. m. daily, Monday to Friday, inclusive. In addition, 14 specialists in the fields of internal medicine, eye, ear, nose, throat, and skin, are available on a part-time basis when recommended by a general medical doctor. As we said before, one dentist is available in our General Office Medical Bureau and is assisted by a full-time dental hygienist. To complete our "on the premises" service, we have 2 physiotherapists, one full-time and one part-time, one pharmacist-in-charge and 8 phar-

macists, all of whom are engaged on a full-time basis to staff our five pharmacies. Part-time medical personnel spend, on the average, about 4 hours per day, 5 days per week on the company's premises serving and treating our employees.

As to "off the premises" medical service, 22 consultants and specialists are on-call whenever a need for their services arises. Thirty-three district doctors are at the "call" of employees who may be confined to their homes by illness and in need of medical attention. To care for their dental requirements, 44 district dentists are currently carried on the company pay rolls.

In addition to this staff of 160 odd trained professional personnel we require the services of 26 employees to handle the numerous stenographic and clerical details incidental to such an ambitious program. These employees are assigned to either the Personnel or Medical Department pay rolls and devote their full time to duties directly connected with the medical program.

Cost of Program

During the year 1947, operation of the medical department cost \$1,100,000, or an average annual cost of \$40.75 per employee. To finance this program the company contributed 65 percent or \$715,000, with the employees making up the balance of \$385,000. In this connection, it might be well at this time to explain briefly the method of financing to which we referred earlier in this discussion.

As we said before, there are approximately 24,500 members in the Mutual Aid Society of the Consolidated Edison Co. These employee-members contribute one percent per week for each \$1.80 of their basic weekly salary to a sick benefit fund maintained by the society. (Employees in salary brackets over \$57 per week make a proportionately larger contribution.) The company matches this contribution, dollar for dollar, and the fund thus realized is used for the payment of sick benefits to employees who exhaust the company-sustained sickness allowance of one week's pay for each year of service.

The Mutual Aid Society also maintains a sick benefit reserve fund which, at the beginning of each calendar year, is the equivalent of \$4 per member.

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Medical Care—

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After sick benefits are paid and necessary adjustments to the reserve fund made, the balance of the joint employee-employer contribution is credited to the company to defray the operating expenses of the medical department. The net medical cost, or deficit, which remains after this Mutual Aid Society credit is applied, is borne by the company. In other words, the company's share of the credit plus the net medical cost which is paid by the company represents approximately 65 percent of the gross medical cost.

Dependency Coverage

There is one point which, I feel, should be considered before we conclude this discussion of medical care, and that is the extent to which we provide for the dependents of our employees. In this connection, let me point out that our program has been designed and contribution rates established to operate solely as a service to and for the benefit of our employees. Dependents are excluded from participation in any of the services which have been enumerated. However, they may avail themselves of our oxygen therapy service and blood bank. Oxygen, with equipment necessary to administer it and whole blood are available to members of an employee's family at no cost whenever required. Any hospital cost incident to blood transfusion must be borne by the family.

Employees who desire hospital and surgical coverage for members of their family may obtain this protection through the Associated Hospital Service Blue Cross Plan. In this connection, we make possible the payment of membership dues through pay-roll deductions.

Effect on Employee Health

In conclusion, we feel that our efforts through the years to develop a medical care program which would provide our employees with every possible benefit have not been fruitless. Serious illnesses due to tuberculosis and those due to toxic poisoning have been greatly reduced. Our doctors no longer find the deplorable cases of neglect of teeth and eyes and the degenerative conditions due to infected tonsils or other foci

of infection which were prevalent in the days when employees were forced to provide their own medical and dental care. Availability of our extensive medical facilities for the prevention and cure of illness has developed in our employees a "better look into it" attitude. When they feel a cold coming on or a particular pain or ache persists, they will visit the Medical Bureau for diagnosis or treatment. This may not always prevent absenteeism but it generally will prevent the condition from becoming serious and, as such, the occasion of a prolonged absence. We are proud to say that as a result our absenteeism rate is well below the national average.



My People and I—

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She was away from work for weeks and during that time came regularly for dressings. Because of Helen's failure to report the injury promptly I felt that it would be highly beneficial to the other workers if she were allowed to visit in the plant, although such visiting, as a rule, should not be encouraged. Accordingly when she came to the plant hospital she was urged to go to her floor to see her friends. Naturally, the story of the pin was repeated on each visit. It was observed that following these visits persons suffering small injuries came to my office because the girls on her floor thought of Helen and told those on other floors. Now, many years later, when people no longer actually remember her, they still remember that there was a girl who almost lost her thumb.

I never knew my first patient. He was a man engaged in construction work who came out at the wrong end of an argument with an elevator which was

coming down when he looked into the shaft to see if it was coming up. There was very little I could do for him after that. I have known my other patients very well, black and white, young and old, new employees scared to death of what the doctor's examination may uncover, and old ones wanting help in all kinds of trouble. The new employee may find the plant a good place in which to work if the nurse inspires confidence by an attitude of accepting him as one of the plant family, able to do his job well. She may just as easily frighten the new employee and make it hard from the beginning for the foreman to institute an effective training program.

An industrial nurse is a liaison officer between the employer and employee in all matters relating to health. Since she cannot be everywhere, then she must make friends with all of her people. Then employees will report to the nurse all conditions that may adversely affect the general health and well-being of the workers. The nurse, in turn, can bring such situations to the attention of the employer so that proper corrective measures may be taken. And the nurse is in a position to wield a big stick in matters of this kind. It is important to make inquiry of the alert employee as to whether an unsatisfactory situation has been corrected. In this way more and better friends are made—and that's important.

If, in her industrial work the nurse does not have the friendship of the employees—and that means the little girl who runs errands and who comes in with the cramps as well as the executive who went to a party the night before—then she had better resign. Industrial nursing is not her field. But if the nurse can walk down a corridor and be greeted with cheer and friendliness; if she can satisfy her employers that those who go home ill are not malingering; and if she can convince the employees that they are sufficiently ill, that home, bed, and a doctor are indicated; if employees unhesitatingly accept the nurse's opinion about matters medical; if she can feel a continued interest in every patient as a human being; and if she can still enjoy herself at the job, then definitely the nurse is in the right place. And she will know it too as I do. After 20 years, I still love my people and my job.