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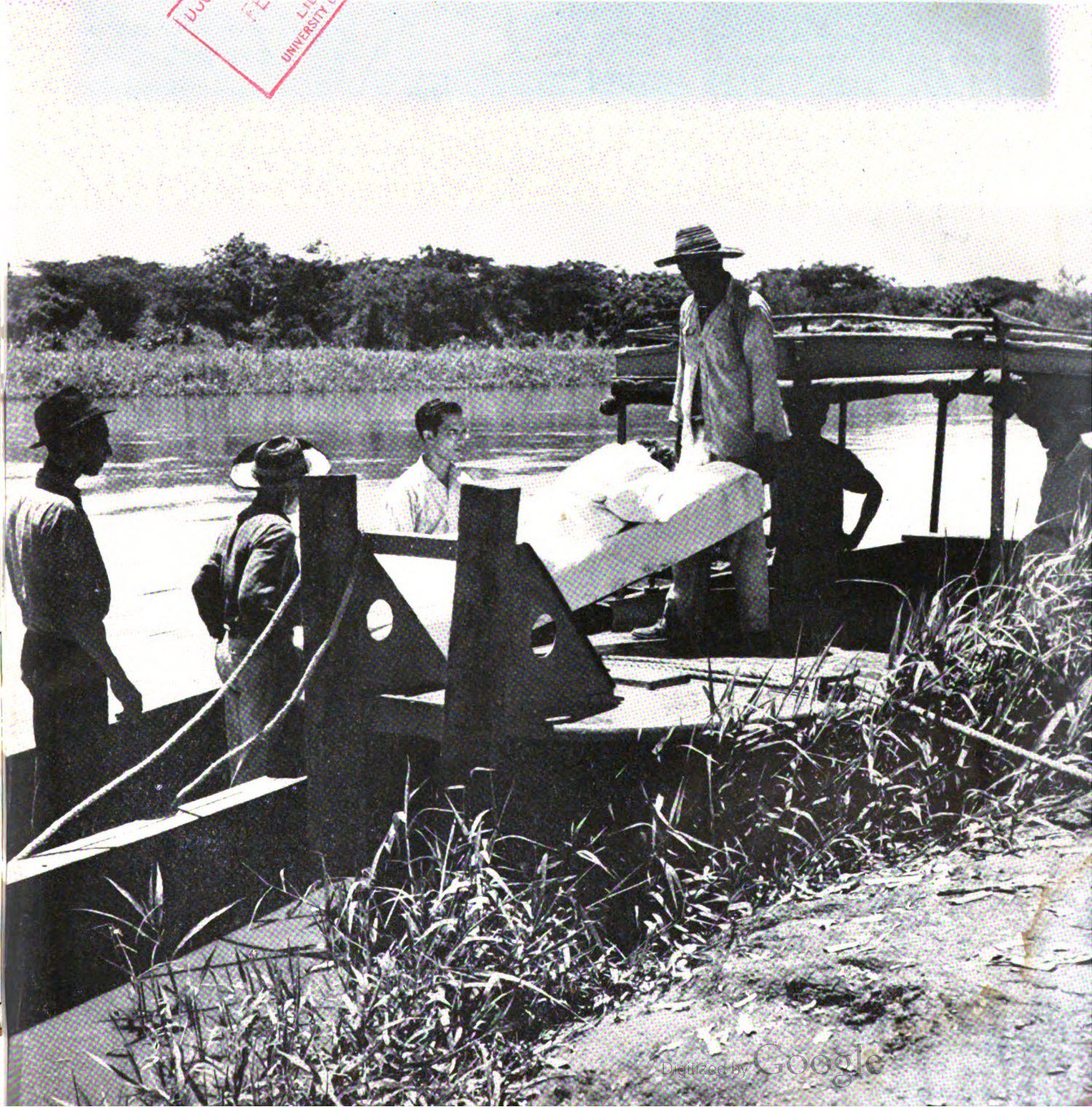
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Occupational health

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What Industry Expects of the Official Industrial Hygiene Agencies

By Louis E. Newman

THERE is no substitute for competent people sincerely trying to do a job well, whether the job is a public one or a private one. It is important that the job be a useful one and that those trying to do it be sufficiently free of political or other pressure to make unbiased recommendations. So, in setting down what industry expects of its official industrial hygiene agencies, let's discuss the need for such agencies, what is expected of them, and how they might better be able to perform their tasks.

Need

Most of us will accept as a fact that there is a need for public agencies of industrial hygiene. Management in private industry has the prime responsibility for preserving the health and safety of its workers, but often through ignorance, and sometimes through carelessness, it is unaware of job environments that adversely affect the health, productivity, or morale of its workers. Often, too, those most needing advice in industrial hygiene are least aware of their need for advice.

Major examples of mass occurrences of occupational diseases in various industries were the famous radium painting cases in the watch industry at the time of the First World War; the cases of beryllium poisoning in the fluorescent lamp industry following the Second World War; and the cases of silicosis in the mining and foundry industries that have required persistent attention over many years. Within the past 10 years, many of the larger industries have been developing their own industrial hygiene services, and it seems likely that this trend will continue.

COVER PICTURE

Health services in industry range from first aid to complete medical care for workers in such isolated areas as the Bay of Cartagena in Colombia where the Standard Oil Company (N. J.) maintains a pumping station. This stretcher case is headed for the company hospital by way of dugout, launch, and amphibious plane. Photograph by courtesy of Standard Oil Co.

Such services, however, require highly trained men and are too costly for many small industries. In these smaller industries, unable to provide their own industrial hygiene services, exists the greatest need for public industrial hygiene agencies.

Another type of need sometimes arises when management and employees differ on the degree of a hazard and earnestly seek the advice of a competent unbiased third party. Public hygiene agencies can be a valuable source of such advice, and should set standards to serve as guides. The agency thus can sometimes serve as arbitrator, even though its efforts are fact-finding rather than judicial. Afterwards, its report will provide an official record of its findings.

Sometimes the result of a check of suspected toxicological conditions turns up a totally unexpected answer. In a recent case, for example, two second-shift welders had become ill and carbon monoxide seemed to be the cause. Tests were made early the following morning, but no carbon monoxide was found and all control devices were working satisfactorily. The industrial hygienists' report concluded with this laconic statement: "A possible solution was found when it was learned that the two men had cooked and eaten a bucket of clams over the heating unit."

What Is Expected

Responsibility for acceptable industrial health, hygiene and safety rests on the shoulders of operating management. Public agencies should be available to operating management and to its employees for advice and counsel, but responsibility for correction should remain with operating management. However, if the official agency has a record of unbiased advice from competent staffs its recommendations will soon gather the force of law.

Presented before Industrial Hygiene Section of American Public Health Association at its 1952 meeting in Cleveland, Ohio.

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An example comes to mind of a tragic accident in which a man was burned to death while removing accumulations of paint with a highly flammable cleaner. His clothes became saturated and he struck a spark with a protruding nail in the heel of his shoe that set fire to his clothing. The resulting burns caused his death. The plant management sought advice on absolute prevention of a future accident of this sort.

Complete protective asbestos clothing with oxygen mask would provide absolute protection from a similar accident occurring in the future, but it is unlikely that any industrial hygienist would recommend so extreme a remedy. Actually, a much less flammable cleaner was found, better ventilation was easily available, and the worker was provided with boots. This solution is economical, safe, and more acceptable to the worker than that of wearing an asbestos suit. Public agencies must make recommendations that are not only technically sound, but economically sound if they are to hold the confidence of industry.

So far, much stress has been placed on competent staffs giving unbiased advice. The reason for this is that a public agency of industrial hygiene has a responsibility to labor, to management, and to the general public. These are equal responsibilities.

In most States, industrial hygiene is part of the department of public health. In New York, Massachusetts, and Illinois, industrial hygiene is administered by the labor department. Industrial hygiene overlaps areas in the fields of public health, safety, and industrial relations. Note, however, that the significant point is not in what department the work is done, but that the staff should be free to give unbiased advice.

Bearing in mind that public hygiene agencies can achieve their objective better by giving sound technical advice in a persuasive manner, rather than by acting the role of a regulatory body, certain standards of service become of special importance, such as the following:

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Organization of Occupational Health Services in Small Plants

A speech by Seward E. Miller, M. D., presented at the European Seminar on Occupational Health

IN fostering the development of occupational health services in American industry, we have been faced with a curious phenomenon. We have developed the scientific techniques for rendering services to protect, improve, and maintain the health of the worker. We have demonstrated that such services reduce sickness absenteeism, improve employee morale and efficiency, increase productivity, and lower compensation rates.

We have been able to show also that the cost is more than offset by the direct and indirect savings that result, to say nothing of the human values. Despite the proved benefits of such programs, however, there has not been widespread development of in-plant health services. While many of the larger industries have established such programs, there is a notable lack of health services in the small plants, which employ 70 percent of the Nation's workers.

The obvious conclusion to which we have been forced is that, while scientifically we have made great strides, economically and socially we have not kept pace in developing practicable means for the small plant to provide health services. This period therefore finds us reorienting our thinking. We have recognized that we need to find common denominators or catalytic agents to band small plants together in groups for the economic and efficient provision of health services.

Elements of Programs

Occupational health programs currently are defined as services provided by industry to protect, improve, and maintain the health of the worker at

Dr. Miller is chief of the Division of Occupational Health, Public Health Service, Federal Security Agency, Washington 25, D. C. The seminar was conducted by the World Health Organization at Leyden, Netherlands in December 1952.

the highest possible level. As such, these services, in their fullest sense, extend beyond the prevention and control of occupational diseases. The present broad concept of an occupational health program is largely the result of a growing recognition of the influence of non-



Seward E. Miller, M.D.

occupational illness on the capabilities of the employee. Nonoccupational disability in the United States is responsible for 90 percent of total sickness absenteeism, which annually accounts for a loss of 400 to 500 million man-days. Roughly, this is equivalent to 2 million workers off the job every day.

According to one recent estimate, in 1949 the wage loss alone due to total and partial disability probably exceeded 21 billion dollars. Obviously, the full extent of this loss to both employer and employee cannot be measured, since absenteeism represents only a portion of it. Like the iceberg to which it is sometimes compared, ill health goes far beneath the surface, and only the visible portion can be measured.

Any realistic attempt to reduce sickness absenteeism must therefore transcend the purely occupational causes. Accordingly, the U. S. Public Health Service and other governmental agencies, the Council on Industrial Health of the American Medical Association,

the Industrial Medical Association, the American College of Surgeons, and other organizations concerned with occupational health have recognized certain services as basic to an adequate in-plant health program. These elements have been identified as:

(1) Proper job placement and appraisal of physical limitations through preplacement, periodic, and postillness physical examinations.

(2) Treatment of occupational illnesses and injuries.

(3) Care for minor nonoccupational disorders to keep the worker on the job, with referral to private physicians for further care.

(4) Advice on employee's health problems and health education on such subjects as the importance of an adequate diet in maintaining health and efficiency, the advisability of seeking early treatment for illness, and the necessity for proper rest and recreation.

(5) Utilization of community public health programs, such as mass X-ray and other health surveys, to discover and guide individuals with incipient and progressive illness, such as tuberculosis, diabetes, and cancer.

(6) Assistance to management in the prevention and control of health and safety hazards.

(7) Maintenance of adequate records and analysis of health experience.

These functions apply equally to plants of all sizes. They remain constant, the variable factors being the amount of services needed for specified size and age groups, the methods of providing services, and the services available in the community.

Other Essential Factors

In addition to the provision of these basic services, four other factors have been found essential to the effective operation of in-plant health programs in small, as well as large, plants.

First of all, the primary aim of such programs must be to benefit the employee, although indirectly management also benefits. A program conceived and pursued wholly in management's inter-

est is shortsighted and will never become fully effective.

A second essential is that the program have management-labor interest and support. The medical department must have assured status and be directly responsible to top management. While it may function effectively as a unit in the personnel department, its chances of success are vastly improved by the increased stature of reporting directly to top management.

Of necessity, close relationship must exist with the employment officer, the entire personnel division, the safety staff, and the plant foremen. Their understanding and active cooperation must also be sought. The workers should not only know the purposes and principles of the plant health program but also should have an opportunity to participate in it, either through labor-management health and safety committees or by other means.

Third, the medical personnel must be interested and competent in developing an effective industrial health program. The plant physician must concern himself with the preventive aspects of the program. He must be able to bring the services of the health department and the voluntary health agencies into the plant and refer the worker to all medical facilities and services available in the community. Moreover, to operate efficiently, the plant physician must have the confidence of, and free exchange of medical information with hospitals, clinics, the health department, and his fellow practitioners in the community.

The fourth requisite is that the medical service come into the plant. If a physician visits the plant at irregular intervals, there is no opportunity for him to learn about the particular problems affecting employee health or for the employees to have free access to him and to gain a feeling of confidence in him.

The services and factors that I have outlined represent a blueprint for a successful in-plant health program. In the case of some of the larger industries, improvements and refinements have been made on this blueprint. Some of the more progressive large plants provide much more comprehensive programs, including, for example, rehabilitation services and research. As the number of employees in the plant

decreases, however, the programs show a marked decline in content and coverage.

From the Businessman's Viewpoint

A multitude of reasons have been advanced by small-business men for the absence of health services in their plants. These reasons may be reduced to three difficulties:

(1) Improper understanding of the need for and advantages of in-plant health services.

(2) Belief that the cost is prohibitive.

(3) Lack of information and help on how to secure these services.

One of the greatest problems is to get the small-business man to realize the loss that he is suffering daily from interrupted production due to sickness and accidents, the cost of replacing an employee, decreased efficiency, delayed deliveries, canceled orders, loss of customer good will, and lowered employee morale. Too often, the small plant employer has so many tasks to perform personally that he overlooks accident and health problems or believes he has solved them by purchasing workmen's compensation insurance and perhaps some form of sick benefit insurance.

Occupational health services have an added importance to the small plant because it has more health and safety hazards. The accident frequency rate alone is two and one-half times as great in small plants as in large ones. However, the small plant employer fails to realize these facts and to see the need for establishing in-plant health services. Also, since his personnel and cost account records are not as complete as those of larger plants, he may lack actual proof of his losses from sickness absenteeism.

When a small plant employer has become aware of the value of an occupational health program, frequently he is frustrated by the difficulty he encounters in finding methods of providing services. Since the per capita cost of such services increases as the number of employees decreases, the small plant employer finds it too costly to experiment individually.

Acquaint the Physician With the Plant

Because of these difficulties, in-plant health services in the United States either are completely lacking in small plants or fall far short of optimal requirements. By far the greatest num-

ber of small plants that provide any type of occupational health services make use of physicians who do not come into the plant except on call. The major responsibility of these physicians with regard to the plant is to provide medical attention to the injured worker occasionally at the plant but generally in their own offices, clinics, or hospitals.

One objectionable feature of the on-call arrangement is that the physician's service is usually limited to emergency care. Since he does not visit the plant periodically, he does not become acquainted with the special health problems in the plants which he serves. His service to industry is quite incidental to his other work, and he has little incentive to become interested in the preventive aspects which are the most significant in an industrial health program.

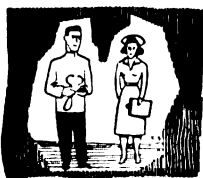
In general, there are two satisfactory methods by which the small plant can arrange for health services—either through the individual or by the group approach. In the individual approach, the plant management arranges with a physician for his full- or part-time services and for part- or full-time nursing services, depending upon such variables as the number of employees, the geographical location, the number of shifts to be covered, the work hazards, and the extent of services to be rendered.

In the group approach, several small industries share the part- or full-time services of a physician and sometimes the full-time services of a nurse. Each plant may establish its dispensary with facilities to accommodate all anticipated needs, or the group may build a centrally located health clinic with each plant maintaining at least a first aid room. In the latter instance, all emergencies, examinations, and major problems would be referred to the central clinic. Whatever approach is decided upon, however, it is essential for the success of the service *that the doctor and nurse spend regularly scheduled time in each plant.*

One excellent example of the group approach is the sharing by several plants of the services of a full-time physician, who spends a varying number of hours in each plant, depending upon the size of the plants, the hazards involved, and other factors. Under such

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HEALTH RECORDS OF EMPLOYEES POINT WAY TO RESEARCH IN PREVENTIVE MEDICINE



The preplacement examination is valuable in detecting and reporting conditions which, although no impediment to the performance

of the desired duties, might later be the basis for unjust disability claims against the company, either as a primary or aggravating injury, if not noted beforehand. In addition, evaluation of such defects at the outset is important in assigning the workers to tasks most suitable.

For example, of a total of 132 workers given preplacement examinations, 60 were found fully qualified for all types of work. Of the 72 others, 47 showed conditions calling for periodic reexamination because of the likelihood that some treatment or adjustment of employment might be necessary in the future. The remaining 25, each of whom had some condition which needed immediate medical correction, were hired with the understanding that they were being allowed 6 months' time to correct the fault or place themselves under proper medical supervision.

This latter action was taken in keeping with the recognition that industry should assume some of the social burden of employing persons whose health is below standard, provided that (1) at the time of the preplacement examination, the condition found is such that with reasonable care the worker can control or correct it, and (2) the work assigned will not aggravate the condition.

With employees at work, the preventive medical program's next step was to determine the precise medical problems they pose in their distinct occupational environment. Accurate recording and careful analysis of work time lost from all medical causes can provide this basic information.

During one year, there were 6,092 man-workdays lost from all medical causes in a group of 1,478 employees. Analysis showed that only 4 percent of this lost time was due to occupational injuries or illnesses, including many

"Among the 10 most prevalent diseases found in an analysis of nonoccupational causes of illness, the six chronic diseases caused more illness than the four acute." This statement was made by Dr. Max N. Howard and Dr. Arthur E. Hoag in a report entitled "Value and Operation of an Industrial Medical Program" prepared for the New York County Medical Society. Part of the report is presented here through the courtesy of New York's *Industrial Bulletin*, September 1952, in which the report was condensed into an article.

hernias which, in the medical officials' opinion, were not causally related to the work, although they were treated under compensation.

Nonoccupational injuries sustained away from the plant accounted for 6.7 percent of the lost time, and the remaining 89.3 percent of the lost time was found due to acute and chronic nonoccupational illnesses.

Since the goal of industrial medicine is the improvement and maintenance of the health of employees so that all are at the jobs all of the business time and working at maximum efficiency, this analysis points up the necessity for the medical department to concentrate its most vigorous efforts on the non-occupational group of diseases. Such a program marks a definite departure from past custom, wherein concentration has been predominantly on compensation cases.

Further analysis of nonoccupational causes of illness which led to loss of working time revealed that 1,051 lost workdays—more than one-fifth of the total—stemmed from common colds which attacked 416, almost one-third of all the workers. All of the illnesses found were divided into two categories; the acute, which were either self-limited in duration or responsive to specific treatment, and the chronic, which persist over a long period, with or without periods of relief. Among the 10 most

prevalent diseases found in the analysis, the 6 chronic caused more illness and more loss of time than the 4 acute even though the common cold is included among the latter.

These findings point up the next step in the preventive medical program, the twofold one of seeking measures to lessen the incidence of the common cold and contending with the problem of disabling conditions which accompany the aging process in man. Both of these are primarily tasks for research bodies, but an industrial medical department can contribute much to both causes through its own efforts.

In meeting the problem of chronic diseases particularly, detection of such disorders early enough to institute measures of control can be achieved by periodic health examinations of the apparently well employee. The results of one such group of examinations provided extremely startling information. Of a group of 462 workers examined, only 37, or 8 percent, were rated as healthy persons. At least one defect calling for active treatment was found in each of 347, or 75 percent of the total group, and in the remaining 78, or 17 percent, abnormalities were discovered which, although not requiring immediate treatment, warranted frequent future observation.

In the course of the examinations of the 462 employees, a total of 1,089 different diagnoses were made. These findings were divided into three categories as follows: (1) Diseases of which the individual employee was aware but about which the medical department had no previous knowledge; (2) conditions which presented symptoms but for which the patients had never before been examined or given a diagnosis; and (3) diseases of which the employee in question had no knowledge until informed by the medical department. Of the total of 1,089 different diagnoses, 318 fell in the first category, 389 in the second, and 382 in the third.

The majority of the disorders or conditions thus brought to light were of a minor nature, but there were several more serious ones including one case

of intestinal cancer, one of cancer of the breast, three of skin cancer, several of peptic ulcer, and three of diabetes. A number of psychoneuroses were also noted. In every case, prompt action was taken to place the individual under immediate and proper care.

Concerning employees with diagnosis falling into the first category, even though an employee may be under proper medical care it is important for the medical department to know of his disease so that it may see that he remains under the necessary surveillance. One employee, for instance, who had been told many years before that he had diabetes and had received treatment for it had after several years of well-being, complacently discontinued both medical supervision and dietary therapy. The medical department's examination revealed considerable sugar both in his blood and his urine, a condition which made possible sudden coma which would have been particularly hazardous both to himself and his neighbors on the job.

The value of periodic examinations was underscored also in another instance where a worker, a hearty individual who considered himself in the best of health, allowed a roentgenogram taken of his lungs only because the apparatus was on the spot and it was on the company's time. A condition was found which eventually necessitated an operation. It cost the company 3 months of sick leave at full pay, but had the condition not been detected in time the cost to the man and his family, as well as to the company, might have been measured in terms of his life.

The major importance of nonoccupational illness in the activities of a medical department also shows up in the analysis of cases dealt with by such a department. During one year, the 1,478 employees made a total of 12,527 visits to the medical department, of which 15 percent—less than 2,000—involved compensation cases. The remaining 85 percent of the visits involved the care of nonoccupational illnesses, including general medical complaints, periodic physical revisits and checkups of employees returning to work after illness.

These records also tend to stress the necessity for industrial medicine to place greater emphasis on prevention, detection, and supervision of the more

prevalent and more pressing nonoccupational diseases rather than on compensation medicine, if a positive and progressive program of achievement is to be maintained.

Dermatitis in Industry Requires Constant Vigilance, Physician Tells AIHA Group

SKIN diseases still represent the number one problem in industry, Dr. Donald Birmingham, chief dermatologist of the Division of Occupational Health, U. S. Public Health Service, told a meeting of the Washington-Baltimore section of the American Industrial Hygiene Association on December 3, 1952.

"Approximately 30 percent of dermatitis in industry is caused by petroleum and its products, and alkalis," Dr. Birmingham said. In addition to numerous other chemicals used in industry that are skin irritants, there are daily being introduced many new chemicals which can cause dermatitis. The increasing use of radioactive materials is also presenting another skin hazard.

"Only a small percentage of skin disease in industry is due to allergy," Dr. Birmingham said. "Most of it is due to exposure to materials known as primary irritants, and thus anyone can be affected."

Skin disease in industry can be controlled by the practice of personal and environmental hygienic measures, such as frequent washing, the use of protective clothing, and the use of engineering methods to control dust, Dr. Birmingham indicated. As a result, the problem of dermatitis is of much less significance in the big industrial establishments that carry out preventive programs. It is in the small plants, where 70 percent of the Nation's workers are employed, that the problem remains serious. The small plants usually do not provide personal and environmental programs, nor do they have medical and nursing facilities for proper diagnosis and treatment.

Dr. Birmingham emphasized that dermatitis need not be the scourge of industry. "The essence of the prevention of skin disease," he said, "is cleanliness, carried out through personal and environmental hygiene."

Dr. Birmingham spoke at the Johns Hopkins University Faculty Club. He is a member of the Division of Occupational Health Field Headquarters at Cincinnati, Ohio.

The membership of the American Industrial Hygiene Association consists of physicians, engineers, chemists, and other professional personnel engaged in occupational health work.

Winifred Devlin Conducts Nurses' Seminars in Hawaii

TO help nurses cope with the increasingly complex job of nursing in industry, a seminar on organization and administration of nursing services was held at Queens Hospital in Honolulu from January 12 through January 23. Miss Winifred Devlin, industrial nursing consultant for the Public Health Service, conducted the seminar at the request of the Territorial Department of Health.

The seminar was planned for staff and supervisory nurses employed by industry who, because of the nature and location of their work, have limited opportunities for group study. However, public health nurses who have a special interest in occupational health also attended the meetings.

The seminar was sponsored by the Honolulu Chamber of Commerce, reflecting the growing importance that industry attaches to improving and maintaining the health of its workers. Cosponsors were the Territorial Department of Health and the U. S. Public Health Service. Plans were made for a second seminar to be offered in Maui from January 26 to January 30.

Since the seminar was intended primarily for nurses employed in industry, the sessions were held in the evenings. During the day, at the request of the various nurses, Miss Devlin visited the plants and consulted with the staffs.

Mr. F. A. Schramm, chief of the Bureau of Industrial Hygiene, reports that Hawaiian industries in general compare favorably with those on the mainland of the United States and in some respects are more advanced in the provision of health services to their workers. The industries have worked very closely with the bureau in assuring a safe working environment and in establishing health services.

CONTRIBUTIONS TO WORKER HEALTH

Abstracts of Panel Talks Presented at the
Annual Meeting of the Industrial Hygiene Foundation

Medical Aspects by **H. W. Lawrence, M. D.**

A WELL-ADMINISTERED industrial health program can make definite contributions to employee health. We no longer think of industrial health in a limited sense of care for injuries and occupational diseases but, rather, as a broad endeavor to create an environment in which both accidents and illnesses are reduced as much as possible.

Categories into which the medical phases of industrial health naturally fall are: (1) the treatment of injuries and illnesses of occupational origin, (2) administration, (3) industrial hygiene or preventive medicine, and (4) health maintenance. The more successful our administration of the last three categories, the less attention will need to be directed to the first. It is recognized that not all companies are consistent in giving attention to all of these categories and a few do only what is necessary to comply with the law.

Emphasis must be placed upon prevention as the cornerstone of the industrial health structure. Only in this way can the industrial physician achieve a positive result.

The terms *industrial health*, *preventive medicine*, and *industrial hygiene* have sufficiently similar connotations so that we need not discuss the differences here. In many companies industrial hygiene is part and parcel of the medical department and includes sanitation and the control of all industrial exposures.

The primary responsibility of the physician includes (1) physical examinations; (2) diagnosis; (3) evaluation of the individual's ability to do the work to which he is assigned; (4) the early detection of evidence of harmful exposures; (5) health counseling; (6) treatment of occupational injuries and diseases; (7) recommendation of hygienic measures to be employed in the presence of certain exposures; (8) rehabilitation; (9) medical records; and (10) statistical studies.

Dr. Lawrence is medical director of the Proctor and Gamble Company, Ivorydale, Ohio.



The health program starts with the preemployment examination. It is continued by means of periodic health examination, case finding, health education, dental hygiene, mental hygiene, and advice on nutrition and other matters of medical importance. It is necessary that we think in terms of the group, the individual and the environment. In order to keep all these factors at their optimum, we have had to develop new skills and new viewpoints.

The importance of diagnosis is apparent when we realize that early signs and symptoms may be potential danger signals. Such information can form the basis for preventive action by the engineer, the chemist and the industrial hygienist. Health examinations should be sufficiently complete to determine whether or not abnormalities are of occupational origin. It is not safe to assume that the environment is free of hazard and that physical abnormalities are therefore nonoccupational in nature.

In the early days of industrial medicine the program consisted mainly of traumatic or reconstructive surgery. With the application of our knowledge of preventive medicine, toxicology, and safety procedures, the role of the surgeon, while still important, has declined. In the same way, if we succeed in what we are trying to do, the internist's activity should become less and less. We welcome their aid but every case of dermatitis or silicosis or heavy metal poisoning is an indication that we have failed in our preventive work.

In spite of our best success in prevention, new problems will constantly appear. There is nothing static about industrial health.

We must concern ourselves, too, with the health of the employee outside of

the industrial environment. I think this is true because unfavorable influences in the nonworking environment reflect themselves in the sickness and disability plans of industry. The passage of nonoccupational disability laws in several states will force us to give more attention to this phase.

Approach to Maximum **Industrial Health**

(1) The physician has an obligation to coordinate the many phases of industrial health.

(2) Examination procedures must be complete and thorough enough to detect illness in its early stage.

(3) The physician must cooperate with all other disciplines.

(4) Attention must be given to the degenerative diseases as well as to those which may arise from environmental exposure.

(5) Statistical studies should include (a) comparisons between exposed and nonexposed workers; (b) study of workers exposed to specific hazards; and (c) analysis of absenteeism to determine the incidence of various illnesses.

(6) Physicians who are trained and interested in industrial medicine must be recruited into industry.

Engineering Aspects by **W. G. Hazard**

For his text, the engineer in industrial hygiene may well use the wise words spoken here seven years ago by Mr. Charles F. Kettering. "The better the working conditions, the better the mental attitude of the individual, and, therefore, the better the work." That statement summarized the reason for the existence of the industrial hygiene engineer.

It is not generally realized how close to the heart of the man in the shop working conditions really are. In a recent checkup, several hundred new employees were asked, "From your point of view, what do you think makes a good job?" Most frequent reply was

Mr. Hazard is with the Industrial Relations Division, Owens-Illinois Glass Company, Toledo 1, Ohio.

that the employee had to "like the work"; second, that he wanted a "capable and understanding supervisor"; and third, "good working conditions." Seventh on the list was pay.

How does the engineer help a plant get better working conditions? In the beginning, his work was preventive in nature. His first appeal was for sanitation; next came good housekeeping; and then occupational disease control. His activities in the first two fields have led to great improvements, but there is yet much to be done. Occupational disease control still takes up much of his time. He should know the chemical ingredients of every material used in his plant, especially where new materials, intermediates or end products are used. He must also learn the effects of those materials on the men exposed to them.

But this alone is not enough. In cooperation with the chemist, he should take air samples at the various work places in order to know the concentrations of dusts, fumes, gases, and vapors that may be present. If dangerous conditions exist, the engineer sets out to correct them. He suggests a less toxic material, a less dangerous process, enclosure of the process, local exhaust ventilation, or, in special instances, general ventilation. If none of these applies, he asks that approved respirators adapted to the particular conditions be worn.

Control of community air and stream pollution is another activity to which the industrial hygiene engineers are giving much time, often to the restriction of in-plant activities. It is of concern to neighbors of the plant, and may have been too long neglected by industry.

Atomic energy, which needs unique precautions and special instrumentation, has engendered a new branch of industrial hygiene known as health physics, which involves engineering control.

In addition to these duties, which are preventive, the engineer today contributes to the well being of people in a constructive way. Industrial hygiene goes far beyond the prevention of occupational disease. As an example, the factories of the so-called "hot" industries are deluxe structures compared with the shedlike quarters of some decades ago; but, in spite of roof ventila-

tors, man-cooling wind, mechanized operations, drinking fountains and salt tablets, the heat is still troublesome, leading to poor work, rising labor turnover, and falling production.

An industrial hygiene group, this Foundation, saw that men in such factories were harrassed by radiant heat, which was unaffected by the ventilating systems. Five years ago a research program was begun. From it came knowledge of how to devise and apply radiant heat shields, which have greatly improved the environment.

Noise is another example. The Foundation, as you know, was recently set up as a national clearing house on the noise problem.

Less spectacular are lighting and color and their effect on the individual. Then there's the almost untrod field of how to fit the modern machine, with its vast power and intricate controls, to the man, rather than the man to the machine.

How should the engineer carry out these duties in practice? His job first is always to get the unbiased facts. He must work through the foremen and other supervisors, always telling them what he's doing and what he finds. Directly or indirectly, he must see that the man on the job knows its hazards and how it has been made safe. He must always seek the suggestions of those who work on the job, respecting the individual and his opinion. He must cooperate with the safety director, medical director, nurse, designing engineers, maintenance people and the research staff. He must see that these groups always keep in mind the people who do the work and use the equipment.

Thus, the industrial hygiene engineer professionally stands between management and the employee, but helping both.

Chemical Aspects by W. R. Bradley

Only a few short years ago the term *industrial hygiene* had not been coined and the diagnosis of human illness was not associated particularly with one's occupation.

In some instances, even though it was observed that life was shortened and that persons occasionally became physi-

cally unfit for further employment in the space of only a few years, there was little attention given as to why these things were so. Mainly, environmental contaminants in the work place were regarded as nuisances—something to be endured—a part of one's job—the expected and obvious part of life in the factory.

The story of the recognition of industrial illness is now familiar to most of us, but there still remains a large group apparently unaware that harmful substances may be encountered in industry that might enter the body through the lungs or the mouth or might be absorbed through the skin. It is well demonstrated today that the industrial physician can diagnose and treat occupational illness, that the industrial hygienist can recognize and evaluate the exposure in industry, that the toxicologist can demonstrate any harmful properties in raw materials, intermediates and the finished product, and that the engineer can apply environmental control measures that will prevent employee exposure.

With this team of health scientists now available to industry, it appears that industry may turn to them for answers to such questions as: Do we have harmful substances in our plant? Might our employees become ill from using and handling our raw materials and products?

Usually, the first questions asked in determining the cause of an industrial illness go to the industrial hygiene chemist. It is necessary to know to what substance or substances the employee has been exposed. Also, information is needed as to the amount of those substances.

Wherever is found the headquarters for industrial hygiene, there nearly always is found a chemical laboratory around which revolves the work of the entire industrial hygiene group. Sound reasons for establishing industrial hygiene laboratories separate from public health laboratories are generally recognized. New techniques and equipment need to be developed for accurately obtaining samples of workplace air that might contain micro quantities of contaminants; and the need exists for accurate and precise analysis of these substances in this micro or trace analytical field. A new type of laboratory has thus been formed that made use of

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apparatus and instruments from the field of physics as well as from analytical and biological chemistry.

The problems of determining whether or not an industrial plant contributes to atmospheric pollution are, quite naturally, turned over to the industrial hygiene chemist. We must know what our problem is and how much of a problem we have before any attempt can be made toward its solution. The chemist determines what substances may leave the vats, kettles, mixers or other industrial equipment to become a part of the employee environment. Applying the same techniques, he can sample and analyze a substance escaping the industrial processes through vent stacks into the outdoor air.

In a current air pollution investigation in one State, the industrial plant management is being asked to list the nature of substances and the quantities escaping all vent stacks in the plant. In examining the stack effluents this plant made an interesting discovery, tracing for the first time a mysterious loss in yield. Immediate steps were taken to salvage a valuable product which was being lost through the process vent stack and into the atmosphere.

The industrial toxicologist is also a member of the health team. Through his work with animals, it is possible for him to reveal which substances, and in what amounts, may be harmful to employees if inhaled, absorbed through the skin, or taken by mouth. Also, he determines just how they produce illness within the body. In these studies, the chemist and the toxicologist work together with the same instruments to capture micro quantities of airborne substances. The same techniques used for analyzing the quantity of material to which men are exposed are necessary in animal toxicological work. The industrial physician is dependent upon the information that comes from the laboratory of the toxicologist as well as that supplied by the chemist.

An important function of the toxicologist is to determine if industrial products will in any way affect the health or well being of the ultimate consumer. As a result of such studies, precautions for use and handling may be given to consumers when necessary.

A good question to ask ourselves is 'When was the last industrial hygiene

survey made in our plant?' No longer does the theory apply that what you don't know won't hurt you. A better theory is, let us determine if any industrial procedures exist that may result in occupational illness.

There is another preventive step in which the industrial chemist and toxicologist take a very active part. When the members of the health team are gathered together to go over the blueprints of an industrial plant design for a new manufacturing process or when changes in an existing process are being considered, it is possible for them to point out the places where environmental control measures will be needed. This phase of the preventive program is one where good health maintenance may be designed in the blueprint stage of industrial expansion.

Legal Aspects by Theodore C. Waters, Jr.

My fellow speakers on this panel representing the medical, chemical, and engineering professions have discussed their respective responsibilities for the protection of the health of those employed in our industrial processes.

Of necessity, the medical, chemical, and engineering departments must coordinate their activities in order to properly protect the health of employees. In the event that these departments fail to discharge their responsibilities, the legal department is presented with lawsuits taking the following forms: (1) Common law damage actions; (2) claims for compensation under the Workmen's Compensation Statutes; and (3) criminal prosecution for violation of State health laws.

In order to recover in common law damage action, the employee must show that the employer was negligent in failing to warn him of dangers, or in failing to provide the employee with a safe place to work, and safe tools with which to work. Although the injured employee bears the burden of showing negligence, these actions are attractive because the employer's liability is unlimited. Assuming the employer has failed to comply with the provisions of an industrial hygiene code, suit is filed, and the case proceeds to trial in a court

Mr. Waters is with Mullikin, Stockbridge, and Waters, Baltimore, Md.

of law before a jury for the determination of the employer's liability and the evaluation of disability in terms of a jury verdict. In view of the dangerous nature of this type of litigation, it should be management's objective to avoid such suits. This result can be accomplished only by effective teamwork between the medical, chemical and engineering departments.

Assuming that the claim is compensable under the compensation statute, the employer is deprived of the following common law defenses: (1) Assumption of the risk; (2) contributory negligence; and (3) negligence of the claimant's fellow servant. On the other hand, the employer's liability is limited to the amount prescribed by statute.

Where the employer has a valid defense in either case, the legal department is dependent upon the medical, chemical, and engineering departments for testimony developing the defense. The principal questions involved in such claims are medical, namely, the fact of injury, and the evaluation of disability.

The third type of litigation is criminal prosecution of the employer for violation of State health laws or regulations. Although indeed rare, these prosecutions are embarrassing, and can be avoided only by vigilant observance of the health laws by the medical, chemical and engineering departments. The statutes generally make violations a misdemeanor, and impose a fine for each day the violation continues.

The legal department, with the assistance of the doctor, chemist, and engineer, assumes ultimate responsibility for the defense of claims and suits brought by the employee. In discharging this responsibility, the lawyer must be familiar with statutes and laws which are operative in his State; he must be conversant with appellate decisions affecting the liability of the employer; and, finally, he must keep in touch with proposed legislative changes which bear upon this liability to the end that workable legislation may be achieved.

The first line of defense, then, lies in the ingenuity and resourcefulness of the medical, chemical, and engineering departments. Once this line is breached, the lawyer, with the doctor, chemist, and engineer at his elbow, undertakes the task of defending the claim.

Chamber of Commerce and University Sponsor Industrial Health Series

SEEKING higher levels of medical care for industrial workers, the Chamber of Commerce of Greater Philadelphia and the University of Pennsylvania will unite in sponsorship of a new course in industrial medicine at the university. Open to all firms, business concerns, and individuals with related interests in the Philadelphia area, the course will be conducted by medical authorities.

As the first step in a health betterment program to broaden and stimulate industrial medical research in the Nation's third largest city, the sponsors have announced a special series of 12 lectures and discussion periods. They will start February 18, 1953, and continue until May 6, one lecture being given Wednesday afternoon of each week during the 3-month period.

Competent authorities in the field of industrial medical services, together with recognized leaders in the medical profession, will comprise the list of speakers for the lecture course. For example, at the opening lecture on February 18, S. Wyman Rolph, president, The Electric Storage Battery Company, Philadelphia, will discuss industrial medical services from the viewpoint of management, and Dr. Lemuel C. McGee, medical director, Hercules Powder Company, Wilmington, Del., and visiting professor of industrial medicine at the University of Pennsylvania, will talk about industrial medical services from the viewpoint of the industrial physician.

Significant subjects of vital import in the solution of industrial health problems have been listed for the course. They include such topics as occupational diseases due to dust, gases, and fumes, industrial solvents, exposure to lead, adequate in-plant medical services, rehabilitation of the injured, employability of cardiacs, status of industrial nurses, radiologic aspects, psychiatry, the role of the industrial physician in accident prevention and problems of retirement.

The course is open to physicians, nurses, safety engineers, management personnel, and any other interested persons. The subscription fee of \$100

is payable in advance either by the individual participant or the organization to which he belongs. Applications for enrollment, payments, and any queries should be addressed to: Dr. John P. Hubbard, Department of Public Health and Preventive Medicine, University of Pennsylvania School of Medicine, Philadelphia 4, Pa.

Bibliography for Dentists Prepared by Public Health Service

An annotated bibliography, entitled *Oral Manifestations of Occupational Origin*, has been prepared under the supervision of Dr. F. J. Walters of the Division of Occupational Health, PHS. Copies are available without cost from the Division offices in Washington 25, D. C.

The purpose of the compilation was to bring together sources of information on oral conditions associated with occupations so that it would be more readily available to dentists and other interested persons.

The articles are arranged in groups according to category of exposure, namely: acids, bacteria, dusts, gases, inorganic substances, metals, organic compounds, and physical factors. Articles referring to several types of exposure are classified under General Review. Occupational cancer has been placed in a separate category. The types of exposure within each category are listed alphabetically.

Industrial Ventilation Conference Planned for Lansing, Mich., Feb. 16-19

The Second Annual Industrial Ventilation Conference will be held at the Kellogg Center on the Michigan State College campus February 16-19. This short course is devoted to the teaching of the practical application of exhaust systems for the control of industrial contaminants.

Talks and demonstrations by experienced men on such subjects as duct design, fans, and selecting air tempering units will comprise the bulk of the program, but also of importance will be the classroom sessions. Divided into small groups, those attending will have the opportunity to work out spe-

cial problems, aided by an experienced engineer.

In cooperation with the School of Engineering of the Michigan State College, the Division of Industrial Health, Michigan Department of Health, is sponsoring the course.

For full details, write to K. E. Robinson, Consulting Ventilation Supervisor, Division of Industrial Health, Michigan Department of Health, Old Dewitt Road, Lansing 4, Mich.

Management Aids for Small Businesses Available Free

Information useful to small businesses has been prepared in condensed form and is available for free distribution from the Small Defense Plants Administration. In the first series, titled *Management Aids for Small Businesses*, the following headings are typical examples of the subjects discussed: How small plants can sell to the Federal Government; How the small plant can analyze old and new markets; Adequate production control; Is your labor turnover cost too high; Incentive techniques for use in small businesses; Reducing accident costs by use of safety committees. The October 1952 issue in this series is on small plant health and medical programs, written by Margaret C. Klem and Margaret F. McKiever of the Division of Occupational Health, Public Health Service.

A second series, called *Small Business Management* series, offers for its initial publication a pamphlet entitled "An Employee Suggestion System for the Small Plant." Others in this group are called, "150 Questions for a Prospective Manufacturer" and "Human Factors in Management of Small Manufacturing Plants."

Another series of publications, *Production Notes*, provides information on such subjects as the following: Metal finishing by barrel tumbling; Thread rolling lubricants; Blast cleaning, sand and shot; Fungicide manufacturing materials; Molybdenum-disulfide as a lubricant.

Any plant that wants to receive these publications should write to one of the field offices or to the Washington, D. C., office of the Small Defense Plants Administration, 1337 E Street, NW.



Aitken, A. P.: The need for adequate aftercare in complete rehabilitation of the disabled. Reprinted from *Surgery, Gynecology and Obstetrics*, **95**: 317-320 (September) 1952. Reprints are available from the Division of Occupational Health, U. S. Public Health Service, Washington 25, D. C.

Anon.: Chemical laboratories. Safe Practices Pamphlet No. 60. *National Safety News* (Published by National Safety Council, 425 North Michigan Avenue, Chicago 11, Ill.) (October) 1952.

Anon.: Group medicine—big companies back plan to build centers, offer annual care, hospitalization for under \$100. *Business Week*. (November 1) 1952. pp. 122-123.

Anon.: Is off-the-job safety any of your business? *Factory Management and Maintenance*, **110**: 146-149 (Oct.) 1952.

Bennet, Jean, Davis, W. D., and Shales, Otto: Colorimetric method for estimation of methionine in blood and urine. *Journal of Laboratory and Clinical Medicine*, **37**: 820 (May) 1951.

Byers, D. H. and Keenan, R. G.: Rapid analytical method for air pollution surveys. *Archives of Industrial Hygiene and Occupational Medicine*, **6**: 226-230 (Sept.) 1952.

Dautrebande, L.: *Aspects Nouveaux de la Lutte contre Les Poussieres*. Librairie de L'Association des Industriels de Belgique. 110 pp. with 67 figures (1952).

Drabkin, D. L.: Metabolism of the hemin chromoproteins. *Physiological Reviews*, **31**: 345 (Oct.) 1951.

Hodge, H. C., Maynard, H. J., and Blanchet, A. J.: Chronic oral toxicity of methoxychlor. *Journal of Pharmacology and Experimental Therapeutics*, **104**: 60 (1952).

Kolthoff, I. M. and Lingane J. J.: *Polarography*, Volumes 1 and 2. Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y.

Mayers, M. R.: Occupational disease diagnosis. *Monthly Review* (N. Y.

State Department of Labor) **31**: 45-48 (Dec.) 1952.

McAtee, O. B.: Industrial mental hygiene and its relationship to insurance medicine. *The Insurance Index*, **14**: 79-81, (April) 1952.

Moskowitz, Samuel and Shapiro, Harry: Fatal exposure to methylene chloride vapor. *Monthly Review* (N. Y. State Department of Labor) **31**: 41-44 (Nov.) 1952.

Munoz, F. J. and Charipper, H. A.: *The Microscope and Its Use*. Chemical Publishing Company, Inc., Brooklyn, N. Y. (1943).

Mushett, C. W., Kelley, K. L., et al.: Antidotal efficacy of vitamin B₁₂ (hydroxo-cobalamin) in experimental cyanide poisoning. *Proceedings of the Society for Experimental Biology and Medicine*, **81**: 234 (Oct.) 1952.

Pollack, Jerome: The Kaiser-Fraser—UAW-CIO social security program, an experiment in health security and industrial democracy. *Industrial and Labor Relations Review* (October) 1952. pp. 94-109.

Smart, R. H. and Anderson, W. N.: Pneumoconiosis due to diatomaceous earth—clinical and X-ray aspects. *Industrial Medicine and Surgery*, **21**: 509 (1952).

Tanner, J. M.: Fallacy of per-weight and per-surface area standards and their relation to spurious correlation. *Journal of Applied Physiology*, **2**: 1 (1949).

Tuckman, Jacob, and Lorge, Irving: Retirement practices in business and industry. *Journal of Gerontology*, **7**: 77-86 (January) 1952.

List of Occupational Health Films May Be Procured From PHS

Interest has steadily increased in occupational health films as an aid in protecting and improving the health of the worker. Many requests for a list of films on occupational health subjects stimulated the preparation of such a list, now available without cost from the Division of Occupational Health, Public Health Service, Federal Security Agency, Washington 25, D. C. The title of the publication is *Occupational Health and Related Motion Pictures, Film Strips, and Slides*.

No attempt has been made by the

Division to evaluate the content or presentation of the films, and annotations were derived from catalogue descriptions. About 100 films are listed under approximately 30 subject headings.

A. S. A. Revises Lighting Standards

New standards for safe industrial lighting have been developed by the American Standards Association and printed in a publication called *American Standard Practice for Industrial Lighting*, All. 1-1952. The new standard reflects recent progress in lighting application and the development of new techniques and concepts.

Underlying philosophy of the publication is the bearing of lighting on safety. The environment of a plant, it is stated, should be designed to match and to compensate for the limitations of human capability. The purposes of industrial lighting are said to "help provide a safe working environment, to provide efficient and comfortable seeing as an aid to all types of industrial operations, and to aid in the conservation of vision and energy."

Copies are available for 50 cents each from the American Standards Association, 70 East 45 St., New York, 17, N. Y. or the Illuminating Engineering Society, 1860 Broadway, New York 23, N. Y.

William P. Yant Elected to Post in Safety Council

Dr. William P. Yant, director of research and development for Mine Safety Appliances Company, Pittsburgh, has been elected vice president for industry of the National Safety Council, and chairman of that organization's Industrial Conference.

Dr. Yant, a member of many technical societies, was the first president of the American Industrial Hygiene Association. In 1947 he received the association's award for outstanding service in industrial hygiene. He was chairman of the steering committee for the President's U. S. Technical Conference to study air pollution in 1950, and is presently serving on the Advisory Committee to the Public Health Service on Occupational Health.

What Industry Expects— (Continued from page 18)

Availability.—Special care should be taken to see that when called upon for advice it is given speedily, or the request for advice is turned down. Speed, quality, and quantity should be in proper balance. Service, however, can be overdone, so judgment should be exercised in expanding the size of the agency's staff.

Perhaps a staff can be expected to operate best when it is so overloaded with requests for its services that it must use careful discrimination to choose only those projects that most need its help. Then it will not be tempted to write long reports on queries that might better be answered in a sentence or two.

Uniformity.—Special care should be taken to see that public agencies, State and Federal, interchange information with the objective not only of keeping informed, but also of promoting uniformity of advice. The official agencies should provide or accept uniform standards. These should apply particularly to such things as threshold limits, sampling methods, and ventilation design.

The current situation where the threshold limit recommended by one State may vary by several hundred percent from those of another State is confusing. It is hard to understand, for example, why a concentration of 250 parts per million of alcohol is harmful in Kentucky but not in California. The threshold limit values recommended yearly by the American Conference of Governmental Industrial Hygienists is an excellent example of a step in the right direction.

Accuracy.—Special care should be taken to see that a fair, mature evaluation of conditions is made. This evaluation should be based on sufficient technical data, or on years of mellowed experience with similar problems. Industry realizes that the current state of knowledge often makes accurate evaluation impossible with the result that the industrial hygienist leans toward the safe side. This is as it should be; but the lean should be 10°, not 180°.

Clarity.—Special care should be used to make recommendations in language understandable to a layman. Industrial hygiene is a new field with terms

and concepts unfamiliar to the layman who often must use the hygienist's report as a basis for action. In a recent report, for example, the average lead concentration given was 0.14 mg. per cubic meter of air. This was followed by a statement that the MAC (and this was not defined in the report as meaning Maximum Allowable Concentration) for lead was 0.15 mg. per cubic meter. Even though the lead concentration was less than the stated limit the report recommended an exhaust ventilation system.

Later, in the same report, a carbon monoxide concentration was given as 200 ppm (and this was not defined as meaning parts per million by volume). Then the report gave the maximum allowable concentration for carbon monoxide as 100 but approved the condition.

The report did not make clear why a lead concentration that appeared to be within safe limits was unsafe, whereas a carbon monoxide concentration that appeared outside of safe limits was all right. After some inquiry, it developed that the lead concentration represented a continuous exposure that would probably increase in time; the carbon monoxide was a very short, infrequent exposure. The conclusions and recommendations of the report were valid, but it took a skilled hygienist to interpret the report. The best report in the world is valueless if the man who must use it can't understand it.

Practicality.—Special care should be taken to see that recommendations are sensible, practical, and economical. Industry must make a profit to survive, and unnecessarily expensive control measures can seriously hamper obtaining a fair profit. In one small industry, for example, an air agitated chromic acid tank (not a plating tank) was producing an excessive amount of chromic acid mist.

The inspector recommended an exhaust system which would have cost the owner between six and seven hundred dollars. The owner of this small business was financially hard-pressed at the time and explained his predicament to the inspector. The inspector then suggested trying plastic bubbles such as are used on plating tanks. These were obtained at a cost of about \$20 and are giving adequate control.

Control measures are often an unex-

pected expense that may work a hardship on a business. Special care should be used to see that recommendations make sense from an economic standpoint.

Palatability.—Special care should be taken to see that recommendations are couched in persuasive language. Much important advice will be resisted if care isn't taken to be sure that the advice fits the case and is understood by the participants.

Tact.—Special care should be taken to conduct an investigation in a manner to allay needless fears. While representatives of a public agency are working in a plant they should remember that the employees are curious and possibly suspicious. It may take only a careless word, even if said in a joking manner, to excite or worry the employees. Representatives from a public agency coming into a plant have a special responsibility to try to improve relations between the employees and their management.

Balance.—Special care should be taken to see that the minimum unit set up has proper balance in the fields of medicine, engineering, and chemistry. Later, other more specialized fields can be added such as health physics, biostatistics, nutrition, and others. Because of the group skills required, it is desirable that the agency have all of its members located sufficiently near each other to promote close communication and cooperation.

How To Accomplish Objectives

Clearly defined areas of responsibility help assure that jobs that need doing are done, and that large areas are not overlooked. To this end, Federal and State agencies should avoid unnecessary overlap by agreeing on their relative areas of responsibility. It is recommended, for example, that Federal agencies concern themselves primarily with mass studies of industries and groups; with the broad research into the pathology and toxicity of things beyond the facilities and scope of the State agencies; with establishing standards for guidance of State and other agencies; and with correlating the activities of different States where correlation is necessary.

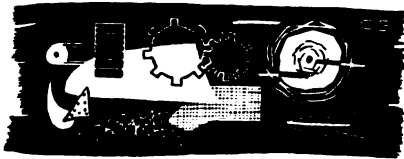
The State agencies should provide services for evaluating hazards; should give advice on corrective measures; and

should provide a consulting service to their State industries. This service should be available to management or labor and discretion should be used in seeing that the results are given to those who properly should see them. It is not in the public interest for results to be hidden from any truly interested party. Even though the agency is supported by general taxes there may be cases where it would be desirable to provide certain inspection services at a fee.

Local agencies may be desirable in the largest cities, particularly where there are many small industries, none of which can afford industrial hygienists.

All industrial hygiene agencies can provide important liaison with other agencies in the public health field such as the Veterans Administration, Department of Agriculture, Food and Drug Administration, and others.

Competent, unbiased, public hygiene agencies that are sincerely trying to help industry provide better conditions for its workers are desirable and will receive industry's admiration and support.



From the Industrial Hygienist's Viewpoint—

A Speech by Henry N. Doyle

WHAT do the official occupational health agencies expect of labor and management?

From both labor and management we expect a sense of fair play! Our responsibility is to the American public, whether they be employers or employees. We expect mutual professional respect. The occupational health specialist is a career scientist in government regardless of the level of employment. He cannot be antilabor or antimanagement and expect to do his job.

Mr. Doyle is an engineer with the Division of Occupational Health, U. S. Public Health Service, Washington 25, D. C. This article is a part of a speech given by Mr. Doyle on a panel program of the 1952 annual meeting of the A. P. H. A. A fuller version of this speech will be printed in the *American Journal of Public Health*.

From labor we expect a better understanding of the aims of occupational health. Our program is not meant to be an instrument for securing increased pay because of so-called extra hazardous duty. We wish to provide a healthful working environment, and it is our contention that every job can be made a healthy one. However, the occupational health specialist must be the judge of the seriousness of an exposure and the needed corrective measures.

We cannot request management to spend thousands of dollars to over-correct certain operations because Bill Jones thinks it is still too hot, too dusty, or is troubled with an odor which he thinks will make him ill. Bill Jones may well be a problem in human relations and, as such, he would be unhappy in almost any working environment. We expect labor to realize that industrial hygiene is preventive medicine and not a medical care program.

We seek labor's cooperation in carrying out occupational health studies. Their participation is necessary if these studies are to be successful, if we are to find out how the worker reacts to certain industrial conditions, and to determine what effect the environment has on health. Such studies are basic. Labor need have no fear that the information will be used to their detriment. It will be held in the strictest confidence.

When adverse conditions are found, every effort will be made to have management correct them as quickly as possible. We expect labor to share responsibility for a healthful working environment and to use with discretion the facilities provided for them by management. Showers are not provided for esthetic purposes, nor are workers asked to wear respirators and special clothing, or to use protective creams for punitive reasons.

The unions also could make better use of their opportunities for health education. We expect labor to be a part of the community, to demand minimum community health services where they do not exist. Unions should find out what health services are provided by the community for its residents and participate in these programs. Union health and safety committees are of invaluable assistance in solving industrial health problems.

Above all, when there is a health problem, labor should have no hesitancy in seeking the service of the local occupational health unit. These agencies will treat the problem with all the merit and confidence that it deserves.

We expect management to be receptive, not suspicious and defensive. The occupational health specialist is not there to persecute but to assist. The problem may have come to his attention by request, by referral of an employee or the union, through occupational disease reports, or through knowledge of conditions in other plants with common production units. We expect management's cooperation in industry-wide studies. Only through such studies have we been able to solve numerous occupational health problems. These solutions have not only provided safe operating procedures but frequently have also contributed to increased production.

We expect management to receive our scientific reports with open minds. Should there be doubt as to the wisdom of some recommendations, constructive effort should be made to look for other means to accomplish the same result. In the case of complete disagreement, management is privileged and urged to seek the advice of private consultants.

Management is urged to develop its own occupational health programs as rapidly as possible. We seek a free exchange of information between industry and Government on occupational health matters. Slow progress will be made if the informational track is on a one-way street. We urge that industry develop the same attitude about occupational health that it did about industrial accidents some years ago. Above all, industry should bring health problems to the attention of their State or local occupational health service. There is no reason why knowledge of industrial diseases should be suppressed when there is no reluctance in reporting industrial accidents.

These thoughts are not meant to be critical but, rather, to illustrate some of the problems that the industrial hygienist has in dealing with labor and management.

Occupational health should and can be a common meeting ground for labor, management, and Government. With our joint efforts and a mutual understanding, this can truly be the golden era of industrial medicine.

Health Services—

(Continued from page 20)

an arrangement, each plant has its own medical facility and one or more full-time registered graduate nurses who are under the direction of the physician.

Utilize Fully the Nurse's Abilities

Where small plants have set up their own dispensaries, they are most frequently staffed by a nurse who is employed full or part-time to provide care under the direction of a physician who is on call or who serves in the plant part time. The type of nursing services provided varies considerably and depends to a large extent on the amount of time spent by the nurse in the plant and the opportunity afforded her to become familiar with plant operations and the employees.

Effective nursing service in industry, however, extends beyond the employment of a nurse, whether on a part- or full-time basis. It depends a great deal on the way the nurse's time is used at the plant. Too often, the nurse is used for other than nursing activities. For example, a recent time study by the U. S. Public Health Service of nursing services in 12 small manufacturing plants revealed that 22 percent of all nursing time was spent on such non-nursing activities as housekeeping, maintenance of the health unit, and general health service clerical work.

Time spent on nonnursing activities is wasteful of the nurse's professional training and prevents her from making a maximum contribution to the in-plant health program. Such time can be utilized to better advantage in developing the preventive aspects of the program, such as counseling and health education, and in familiarizing herself with the health resources of the community. For the most efficient professional utilization of her time, the nurse needs medical guidance and fuller understanding by management of the potentialities of her job, as well as a greater awareness on her own part of the scope of her duties.

The forces which combine to promote in-plant health services in the United States vary tremendously with each community. They depend on the interest, initiative, and leadership assumed by the local medical society, the cham-

ber of commerce, the labor organizations, the health department, and the voluntary health agencies.

At this point Dr. Miller explained the organization of several cooperative health programs, namely those at Williamsport, Pa., Hartford, Conn., New Haven, Conn., Atlanta, Ga., Birmingham, Ala., Portland, Oreg., St. Louis, Mo., New York, N. Y., and Philadelphia, Pa. He also discussed a number of labor union plans as well as medical care health insurance.

Governmental Occupational Health Services

The further growth of in-plant health programs depends largely on the development of organizational and administrative techniques to bring health services to the small plant, where the bulk of American labor is employed.

For help in the solution of this problem, small plants may properly look to governmental agencies concerned with occupational health. With a few exceptions, however, these agencies have rarely rendered any significant contributions in providing or arranging for in-plant health services for workers in small plants. Occupational health activities of governmental health and labor departments in the past have been rather sharply limited to industrial hygiene services.

Efforts have been concentrated on numerous field investigations to identify and control occupational diseases and on continuous research to determine the toxicity of and to establish maximum allowable concentrations for various chemical agents. Thus far, governmental services for plants have been almost exclusively environmental in character—protecting the worker against the hazards inherent in his work environment. Nonetheless, since the establishment of in-plant health services is an integral part of any effort to protect and improve the worker's health, governmental agencies have a real responsibility to foster such programs.

At present, 44 States, including the District of Columbia, are performing some type of function in the occupational health field. With the exception of a few States in which the organizational units for carrying out these activities are located in State labor departments, these units are established in State health departments as well as in some local health departments.

Their proximity to the other preventive services in the health department,

such as tuberculosis control, venereal disease control, and chronic disease control, places these units in an advantageous position to funnel these services into industry. They can assist not only in the establishment of in-plant health services but also in the integration of such services with community programs.

The U. S. Public Health Service is attempting to facilitate the job of the State and local units by developing some of the necessary techniques for the provision of health services in small plants. Several projects are being planned, and it is hoped that the data yielded will strengthen our efforts to foster the development of health services in industry, particularly the small plant.

Seward E. Miller Accepts Appointment to WHO-ILO Advisory Panel

At the request of the World Health Organization, Dr. Seward E. Miller recently accepted a 5-year appointment as a special consultant on the joint WHO-ILO Expert Advisory Panel on Social and Occupational Health. Dr. Miller is chief of the Division of Occupational Health, Public Health Service, Washington, D. C.

His first assignment took Dr. Miller to Leyden, Netherlands, where he participated from November 30 to December 9 in a Regional European seminar on occupational health. It was jointly sponsored by the WHO and the International Labor Office. About 50 persons from various European countries attended the seminar which was conducted by 15 consultant lecturers.

Laboratory Courses Scheduled by CDC

A schedule of laboratory refresher training courses to be given by the Communicable Disease Center in 1953 has been announced. Lasting from 1 to 4 weeks, the courses cover a wide range of subjects, such as diagnosis of virus diseases, serology of syphilis, methods in medical mycology, and microbiology for public health nurses.

Information and application forms should be requested from Laboratory Training Services, Communicable Disease Center, U. S. Public Health Service, P. O. Box 185, Chamblee, Ga.

QUESTION and ANSWER

Subject: Dermatitis

QUESTION: In the article entitled "Colombian Workers Making Coffee Bags Suffer Dermatitis," which was printed in the August issue of OCCUPATIONAL HEALTH, you did not say how the workers in the figue plants could protect their hands.

ANSWER: The description of the figue-shredding operation in Mr. Trice's paper suggests that figue plant juice may have a deleterious effect upon the skin of the palms. This effect probably is one of severe dehydration of the skin which could be made worse by handling the tough and no doubt sharp fibers of the plant.

Suggested methods of protection are as follows: (1) Frequent use of mild detergents such as sulfonated oil to remove the juice from the hands; (2) impervious gloves which would eliminate saturated cotton coverings remaining in contact with the hands during the work shift; and (3) safety precautions to avert catching the gloved hand in the shredding machine.

Treatment is of nonspecific nature and should be directed toward keeping the fissured areas of the palms free of infection, and, secondly, using a bland ointment to soften the thickened palmar surfaces.—**Donald J. Birmingham, M. D., Division of Occupational Health Field Headquarters, U. S. Public Health Service, 1014 Broadway, Cincinnati 2, Ohio.**

Subject: X-ray Safety

QUESTION: As a regular reader of OCCUPATIONAL HEALTH and as a safety engineer of many years in the industrial field, my attention focused on the article regarding a film entitled *You Can Be Safe* from X-rays. I have not seen the film, of course, but am interested in the statement about the "man who is harming himself every day because of his carelessness in protecting himself from exposure."

The implication is that the operator may be responsible for his own acts of carelessness; but has management no responsibility for (1) the old equipment which can be dangerous to the operator and failure to have it checked regularly for secondary ray diffusion,

and (2) providing regular and frequent blood tests for X-ray personnel?—**Stephen H. Excell, West 1123 17th Avenue, Spokane 41, Wash.**

ANSWER:

The purpose of this film is to show X-ray technicians how to use photo-fluorographic equipment safely, and this it does in a clear and entertaining manner. There is no intent to deny the responsibility on the part of the employer for the safety of X-ray personnel. However, the technician must assume the responsibility for his own actions when using this equipment.

The employer must provide equipment which is not faulty; it must be installed, shielded and otherwise protected in accordance with good radiological safety practices. Also, a dependable system of routine monitoring of X-ray personnel should be provided by the employer. He can obtain detailed instructions for carrying out his part of the responsibility by consulting his State or city industrial health staff.—**Peter J. Valaer, Occupational Health Field Headquarters, PHS, 1014 Broadway, Cincinnati 2, Ohio.**

Physicians Organize Prepaid Medical Care Plan in Washington

IN Tacoma, Washington, a plan of prepaid medical care for industry was started by the County Medical Society in June 1917, and today the Tacoma plan provides complete medical care for over 30,000 workers.

The only industry in the county having a full-time physician is the Tacoma Smelter, according to Dr. Charles M. McGill, medical director of the smelter and author of an article about the plan which appeared in the September, 1952, issue of *Industrial Medicine and Surgery*. Coauthor with Dr. McGill was Dr. Sherman S. Pinto, medical director of the American Smelting and Refining Corporation in Denver, Colo.

The authors point out that the plan is actuarially sound, as its long record of successful operation testifies. It is a "service"-type plan in which, by agreement, certain medical services are rendered to policyholders. This is in con-

trast to the indemnity or fixed-payment policies widely advocated in many present prepaid medical care plans.

Since 1931 similar health insurance plans sponsored by medical societies have been inaugurated in 21 other counties in Washington State, and all are interrelated with a cooperative group sponsored by the State Medical Association.

Speaking of the plant with which he is associated, Dr. McGill says, "Our smelter is about 5 miles from the center of town where the majority of the physicians have their offices. The Medical Bureau is eager to give our employees the most convenient medical care possible. This is done through an arrangement with the smelter which allows the physician to provide such medical care in the plant dispensary, employee's home, or hospital as the physician or patient feels is indicated.

"The smelter physician, then, can see an employee for either occupational or nonoccupational conditions and can follow the diagnosis with such treatment as is necessary. It should be emphasized again that these employees have a free choice of physicians and are not restricted to the physician at the smelter.

"From experience we know the majority of these employees visit our dispensary, even though many of them concurrently or later go to their own family doctor. Such visits permit medical counseling in the truest sense of the word."

Plans such as this give a tremendous advantage to the industrial physician in his control of occupational diseases, and greatly expand his activities and opportunities in the field of public health and preventive medicine.



Statistical Abstract For Sale at G. P. O.

The seventy-third edition of the *Statistical Abstract** has appeared. The material is presented in 34 sections, and 2 appendixes.

*U. S. Department of Commerce, Bureau of the Census: *Statistical Abstract of the United States, 1952*. 73d ed. U. S. Government Printing Office, Washington 25, D. C., 1952. xvi+1081 pp. Price \$3.25 bound in buckram.

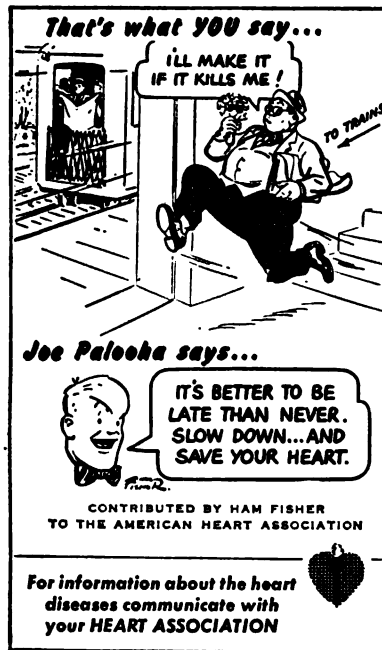
Most People With Heart Disease Can Work

In a broad attack upon misconceptions that keep many capable cardiacs out of jobs, the American Heart Association has launched an intensive three-fold educational drive among heart patients, industrial employers, and physicians to spur the employment of workers with heart disease.

Using the theme, "Most People With Heart Disease Can Work," the association and its affiliates throughout the country began distribution of three booklets.

Aimed directly at the working cardiac, *Facts About Employment and Heart Disease*, points to research studies and everyday experience of large industries to show that many heart patients can work at many kinds of jobs on an equal footing with workers who have no heart disease. The second booklet, *These Hands Are Able*, is intended to promote and assist industrial employment of persons with heart disease by convincing management that the employer has an economic interest in protecting his investment in the skills of his employees who develop heart disease.

The handbook, *Returning Cardiacs to Work*, third in the "cardiac-in-industry package," is a practical guide for the physician. This is believed to be the first time a manual of this kind has been prepared for use by physicians in classifying the heart patient's work potential and limitations. The guide also



contains a list of official, voluntary, and private agencies to which the physician can refer his patients for vocational counseling or retraining.

Facts About Employment and Heart Disease, which was planned primarily to allay the fears of the working cardiacs and their families, was written by Dr. L. J. Goldwater, chairman of the American Heart Association's Cardiac-in-Industry Committee.

All of these booklets may be obtained from affiliated heart associations or from the American Heart Association, 44 East Twenty-third Street, New York 10, N. Y.

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