

the New Orleans meeting, to establish a section on personal hygiene. It was impossible to do so; there weren't enough members of the American Public Health Association interested to get such a section going.

Sanitarians, hygienists, the world over, are telling us today that our great flaw is in personal hygiene and that industrial health is but a grouping, a massing, of the personal hygiene of the employees.

CHAIRMAN WINSLOW: I wonder if Dr. Redden wouldn't say something about the points Dr. Evans made in regard to the methods of health instruction.

Dr. W. R. REIDEN (New York City): I think we are all impressed with the fact that, in the case of accidents, they are dramatic because of law. The people who are paying the damages are willing to do anything to prevent accidents. Industrialists are not so convinced that sickness falls within the scope of their activities and it is harder to sell this matter of sickness prevention, medical service, nursing service, for the sick, because sickness is drab. To be sick is just to be out of the game. If a man has lost an eye, he has something to show, but this matter of sickness is drab.

The matter of personal hygiene, cleanliness, environmental hygiene, and sanitation, to my mind, does carry over into the home. That is one of the significant things about industrial health and hygiene. Now, you know the psychologists tell us that it is impossible to train the older person, the older man, that you can't change his habits. But, I can say this: that if you put a supervisor over a lavatory and make every person whose work is handling food wash his hands when he comes out, he is going to wash his hands. I have seen it work in the American Cigar Company in the last few years.

If it pays to put out clean products and train men to be hygienic and clean, if they are spending eight hours a day in an industry, that type of thing is going to carry over into the home, and looking at it from the reverse point of view which Dr. Evans presented, that carry-over into the home is going to help the health officer in his whole problem of building up health.

Now, sickness costs about \$15,000,000,000 a year, in all its ramifications. The figures I give you come from the Russell Sage Foundation which knows something about that phase of figures. Sickness is the cause of poverty. Now, even as drab as sickness in industry happens to be today, an industry will pay for proper preventive measures if they are profitable. And if you lose 260,000,000 days a year because of sickness, as Dr. Lanza formerly of the Metropolitan has quoted a number of times, if you can show the industrialist that industrial health work decreases labor turnover, that it increases production, that it decreases absenteeism because of sickness, he will pay for this matter of medical and nursing service and education, because he has the money to do it. If you go out to the general public and say, do all these things, they will do about as they please. I believe those of us who are interested in industrial hygiene can convince the industrialist that a good health service and proper education in the ordinary factors of health and hygiene will pay.

Dr. O. E. STEWART (Crystal City, Mo.): I am interested in this phase of industrial health, but I do think this: that before any real constructive measures can be accomplished along that line, the medical officer in charge should be given some authority. During the Spanish-American War, I believe we had about 60,000 soldiers at Chattanooga, with about 20,000 cases of typhoid fever, with a medical department without any authority. I believe our record in the late war was quite an improvement, due to the fact that the medical officer was given some authority to do something.

If I have a criticism to make, it is to say that one of the factors that is interfering with the development of this program is that the medical officer in industry today hasn't any authority. He can make recommendations, but the actual carrying out of his policies is up to the industry itself, and until that situation is changed, I feel confident that you are going to have difficulty in producing the results that you would like to see in industry.

CHAIRMAN WINSLOW: I should have announced at the beginning of the meeting the appointment of a Nominating Committee to nominate at the end of this session

officers for the coming year. I will ask Dr. V. S. Cheney, Dr. W. R. Redden, and Dr. Rudolph Engel if they will be good enough to serve.

The next speaker I haven't known personally as long as I have known Dr. Evans, but we have all known his organization. I think I am right in saying that the International Harvester Company and the U. S. Steel Company were the two pioneers in recognizing the responsibility of the employer toward the employee, by the creation of compensation schemes before any legal compensation schemes were thought of in the United States, and it is a pleasure to have a paper by the very able representative of the former company, Dr. J. A. Britton.

Health Services in Industry: Equipment, Personnel and Cost

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Any consideration of health service for industrial employees should include a review of the development and growth of that work in the past, the accepted standards of such service at the present time, and the probable future developments.

The real beginning of this work dates back to the middle of the nineteenth century. This first effort took the form of a hospital built to serve the employees of certain textile mills. Coincident with the development of the railroads, special industrial health services saw their real beginning. Strange as it may seem, other industries did not follow the lead of the railroads until much later.

In about 1912 the general consideration of the importance of health as related to efficiency of employees in industrial establishments began to be more or less commonly discussed. This was about the same time that the anti-tuberculosis organizations began their intensive drives for the purpose of securing proper care for those who had tuberculosis and for preventing the spread of this disease. It was also about this time that the community's attention was focused on the lack of any systematic provision for the care of those who had been injured while engaged in factory work. The question of responsibility for disease and injury in industrial establishments was aggressively and persistently argued.

Out of all of this discussion came the desire, on the part of those in the management of industry who were sincerely interested in trying to meet their own problems, to know the degree of responsibility which industry had for those safety and health conditions which were known to be unsatisfactory. It became evident that, in order to determine with any degree of accuracy the cause of disabilities which developed among industrial employees, it was first necessary to know the condition of health and the physical defects of those who went into industry. Thus began physical examination as a part of the regular routine of employment.

It was only a short time before it became the policy of most industrial establishments to make adequate provision for surgical service for those who were injured while working. The problem of disability because of illness, however, has never been as simple as that of industrial injury and there was a wide difference of opinion as to what should be and what could be done.

During the past twenty years the managements of various industrial establishments of this country have tried out and are still carrying on many different types of health service. These types vary all the way from the simplest and most superficial, and hence the least expensive, to the most elaborate and complete service that can be devised. In a great many of the smaller industrial units and practically all of the larger industrial units provision is made for a more or less complete physical examination of all prospective employees. Some of the larger establishments offer or require a subsequent complete physical checkup once a year. The great majority of industrial or-

organizations do not attempt to treat the sick employee where it is evident that he has a condition which prevents him from working. Most industries provide a first-aid station where minor ailments, such as headaches, slight colds, etc., can be treated. In quite a large number of places the medical staff is sufficient to be used as advisors and consultants as to the kind of medical service needed and how to obtain such service in the community. In the industrial organization whose activity necessitates maintaining workmen and their families in an isolated community, such as at a saw mill or coal mine, it has been the practice for some time to furnish complete medical service for the whole community. In some such places the medical service is very elaborate and very well carried out; in others it is not so elaborate and consists of only those things which are fundamentally essential. In a few places in this country the managements of large industrial establishments have seen fit to provide complete medical and surgical service for employees and their families, irrespective of the possibilities of the community for such service.

At the present time, then, medical service in industry varies all the way from the simplest rudiments to the most elaborate. The personnel of such service varies all the way from a first-aid boy or a practical nurse to complete community service requiring physicians and surgeons, doctors trained in the various specialties, nurses, dietitians, technicians and hospitals completely equipped, even to the ambulance. The cost of such service varies from a few cents to twenty-eight or thirty dollars per employee per year.

Accidental injury is one of the recognized hazards of industry and is accepted as an item in the cost of production. Sickness, however, is not usually a hazard of industry. For this reason, general or unlimited medical service cannot be considered a legitimate item in the cost of production. A direct relation between sickness disability and occupation is the exception and not the rule. The loss on account of sickness disability, however, is a burden both on the employee and on the industry in which he is employed.

While there have been and are at the present time the two extremes in industrial medical service—the most meager and the most elaborate—it is believed that the generally accepted policy for the future will be a plan of cooperation by the individual, the industry and the community. While a company should not be asked to assume and should not accept the responsibility of furnishing free medical service to employees, or even undertake supervision of the care and treatment of sick employees, the importance of sickness disability as an economic problem for both the employee and the employer has convinced the thoughtful business manager that it is of mutual advantage to establish certain provisions which ordinarily can be expected to reduce the frequency and average length of disability and the economic loss due to sickness.

Of course it is understood that any disability which is primarily due to occupation is as much the responsibility of the industry as an industrial accident, but there are very few occupations which need to have a definite deleterious effect on the employee. With few exceptions, health hazards in industry can be removed. The industrial medical department of the future will not have assumed its full job until every condition in industry which is known to have a deleterious effect on health is under control or removed. This applies to general sanitation, ventilation, temperature, lighting, building and maintaining of adequate sanitary toilets, wash rooms, lockers, shower baths and elimination of harmful dust and fumes. Modern development in painting means a constant alertness on the part of the medical personnel to protect employees against the injurious effects of pigment dusts and solvents. The use of a new metal brings with it new problems, such as, for example, chromium plating. The ever increasing use of gasoline and oil engines makes it necessary to protect employees against carbon monoxide and other fumes. And so the list continues. The big job, the unescapable responsibility, lies in constant, aggressive effort to understand and control not only the hazards that are old and well known but the new ones which are constantly developing.

The next most important service of the medical department in industry is its personal relation to the employees. Unless the relation is right, unless there is a sympathetic understanding, a mutual desire for helpfulness in the solution of the various health problems, the medical department may fail in this very important function.

Applicants are examined for employment, not merely for the purpose of determining who shall be excluded for employment but to make sure that their physical ability is equal to the requirements of the job for which they are being hired. Statistics have shown that there are very few individuals who are physically perfect; in fact, most individuals have one or more relatively important physical defects. If these conditions are known and properly evaluated, fewer mistakes are made in placement in industry.

The man who has a major handicap, but who is well placed in industry, pays many times in the effort of placing him. He knows he has been well placed. He knows that it is difficult for him to get a job. He sticks to his job. He is a good workman, and he is a loyal employee. Don't just pass him up. Try to think of a place for him when you meet such a man, because it may make all the difference in the world to him and he may return many times the value of the time you have spent on him.

Likewise, the periodic physical examination is not intended to find out how many men should be dropped from employment, but to discover those things which lead to serious disability and to help the individual plan to prevent or cure these conditions. It happens not infrequently that a man who has worked steadily on some particular job for a number of years develops some organic disease of heart or kidney or some other organ which may mean the loss of his job, total disability and death unless something is done early in the development of the disease to retard or prevent its progress. The old human machine wears out after a while. In most individuals some organ wears out faster than the others, and the human machine, just as the inanimate machine, needs adjustments from time to time if we wish to keep the whole machine working.

The next important function of the medical service in industry is its relation to the community. I do not think it needs any argument to convince the average thinking man that it is a mistake for any industry or branch of industry to assume the normal medical functions of the community. A company hospital can never be as generally satisfactory to the average employee as a well-run community hospital. The company doctor cannot assume the functions of the ordinary community health department. He can, however, cooperate with the community health department with great benefit to both the community health department and the industry. The fact remains that industry cannot be separated from the community in which it exists. Cooperation between industry and the community is the logical relation. While this applies to all of the different contacts between industry and the community, it is especially true of the relation to the control of health problems and general health service.

There are no set rules or plans for medical service which apply to industrial groups of various sizes and variously situated. Generally speaking, the equipment of an industrial medical department must be compatible with the dignity of the service and the importance of privacy in the relation between the doctor and the individual employee. Medical service in industry had best not be undertaken unless it is good medical service—good in the sense that it must be modern and thorough. The industrial physician must be even more careful in guarding against mistakes than the average practitioner. He must use the ordinary equipment accepted as necessary in making diagnoses—where x-ray is indicated he must use x-ray; where blood examinations are indicated these must be made.

It is just too bad to have an employee go to a company physician for advice or direction, and then to have an inexcusable mistake made in the estimation of the case because the ordinary procedures were not followed in making the diagnosis. It might easily happen that this particular contact is the only important one that this individual

has had with the management of the company. He judges his company by the service he gets from this contact. If a mistake is made it is unforgivable.

The whole idea of an effective health service in industry is closely tied up with that of the community. Hence, it is particularly desirable that the staff of the medical department in an industrial establishment maintain its contacts with the community hospitals, the community health department, the community medical associations and other community health activities. In order to do this it seems very desirable that the doctors who are doing this work in industry should devote part of their time to their regular work in the community. In other words, the industrial physician should be employed on a part-time basis, maintaining his relation to the industry and also to the community.

The ideal medical service in industry, then, will assume those functions which definitely belong to industry and will actively cooperate with the community on general health problems.

The organization of the medical staff and the program of its work should include:

1. Examination of all new employees.
2. Periodic re-examination of all employees.
3. Regular inspection of all working conditions—ventilation, lighting, temperature variation, general sanitary conditions and cleanliness—and special supervision of all known conditions where there is a health hazard.
4. Consultation and advice for any employee on personal health problems.
5. Active cooperation in community health activities.

The cost of a well organized, competent medical department which can regularly and satisfactorily carry on all these functions will not be an impossible burden on industry. If industry does less it is not carrying its full share.

CHAIRMAN WINSLOW: The broad social importance of this problem has been very forcibly impressed on me lately in connection with the work on the Committee on the Cost of Medical Care. As you may know, that is a national committee of fifty physicians and laymen who have engaged in a five-year study of the economics of medicine. These studies have revealed astonishing lacks in our community machinery, and have revealed the fact that from a quarter, under the most favorable conditions, to 50 per cent, under the least favorable conditions of those needing medical care, receive no medical attention whatever; that those who do receive medical attention receive it often in an incoordinated and unsatisfactory way; that there are enormous wastes; that, for example, of the something like two billion and a half dollars spent for the care of sickness, between one-quarter and one-third is spent for drugs and medicines, nearly all of which are useless, and many of which are harmful, as contrasted with that in a well organized health service, where the cost of drugs and medicines falls to one per cent. Of course, that is an abnormal wage group, but there is considerable gap between one per cent and 25 and 50 per cent.

In one county in Indiana, the largest single item in the whole bill was 31 per cent for drugs and medicines, services of physicians coming next with 29 per cent.

Now, in studying the efforts that are being made to solve this problem, to provide adequate medical care for groups of people, we find two groups, the industrial groups and the university groups, standing out as the only groups in the community receiving really adequate medical care. Dr. Britton spoke of a few industries. We have found there are over 400 industries that are providing more or less complete medical care for employees and members of their families, and I think in the conclusions of the committee that the recommendation we shall make will be largely influenced and in part built on these remarkable developments of industrial medicine.

I want to ask Dr. Leake if he wants to open the discussion on this paper. The U. S. Public Health Service in the past years has made some of the contributions, not only to the technique of industrial hygiene, but also along the line of giving us information as to standard practices and procedures. After that, I hope very much that some one or more of the nurses who are here will say something about this from the standpoint of industrial nursing.

DR. J. P. LEAKE (Washington, D. C.): I have nothing but admiration for Dr. Britton's presentation. I am sure we all feel, from the way he talked and his modesty in speaking of the authority that he does have, that that authority is well imposed.

The matter, of course, of just how the care of the industrial community, as far as its health is concerned, should be managed is a thing on which my ideas, at least, are not at all crystallized. I have seen that in certain instances the practice, spoken of by Dr. Britton, of having part-time medical service has seemed to be an advantage. We all know other places where it is out of the question to use it with the same efficiency.

If I may be pardoned for digressing, I should like to speak for a moment on the subject that was touched on by Dr. Evans and Dr. Hayhurst—the matter of extending, as we all believe it should be extended to other than communicable diseases, our program for hygiene and health conservation. I just wish to sound one little word of warning, that we tread, if we can, on as certain ground as possible. We have felt, even in regard to infectious diseases, that many things are advocated which perhaps after ten years we may not be so sure of; and in these other fields, too, we may be asking our communities, our industries, and our individuals to do things, arrange for doing things, which perhaps after further light we may not be so sure of. I think we don't want to sell the public any patent medicines.

CHAIRMAN WINSLOW: I am glad Dr. Leake brought out that point. The Visiting Nurses' Association in New Haven last year undertook to make a little study of the things they were teaching in the field of personal hygiene, so they divided themselves up into groups and came to our library and worked very hard on it, one group on diet, another on fresh air, and so on. After about a month, one of them came to me and said, "You know, we are very much puzzled about this. We can trace out the same statements copied from one book to another, but we can't find any of the scientific evidence on which these things are based." And it took them about a month to find us out.

The fact is, Galen, in his six known natural laws, laid down the essentials of personal hygiene as well as we can name them today: food, fresh air, exercise and rest, sleeping and waking, repletion and evacuation, and the passions and phases of the mind. You can't improve on that list today as the basis of personal hygiene. Since Galen's time we have learned a lot about diet, but we don't know very much more about the other five than Galen did, and it does behoove us to be pretty careful. We can make guesses, but most of them are pretty empirical.

CAPTAIN G. R. G. FISHER (Illinois Manufacturers Association): Before Dr. Britton spoke, I was going to raise a question following Dr. Evans' paper, in regard to the small plants where the outstanding hazards are growingly in evidence. While big industry is able to do this and that and compel that this and that be done, what about the small industry where the employee is suffering ineffably from some of these new things? Dr. Britton mentioned monoxide and chromium, and I want to mention cadmium. One of the great medical authorities has spoken of it as a sly poison. It is not what it is doing on the outside; it is what it is doing on the inside.

Usually these plants are run by a man or an organization that hasn't got the means of putting in the proper ventilation and the air ducts and the supplying other things to protect the men, and all the time these poor fellows are suffering from the results of working with these poisons. The compensation companies have been dropping a great many of the plants where these things are going on and nothing is being done to prevent them. For instance, in one concern not long ago, several girls had to be carried home. In going through the plant to make an investigation, they didn't find a man or woman who looked healthy. Every one was pale and showed evidence of the damning processes that are being carried out without anything to help them.

Now, that is a great problem and while big industry takes the lead because it has the right and power and wealth, what about the little plant where the poor laborer