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INDUSTRIAL HYGIENE FOUNDATION OF AMERICA
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# THE ECONOMICS OF INDUSTRIAL HEALTH

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As a trustee of the Industrial Hygiene Foundation, it is only natural, I suppose, that I should be quite enthusiastic about its aims and its accomplishments during its twenty years of service to industry. To me, the Foundation exemplifies what is being done by privately supported institutions to improve the health of the nation.

When I use the word "health," I do not restrict it to its physiological sense. My concept of it is much broader than that. And I am sure yours is too. Nowadays when we speak of health, we do not think only about diseases and injuries that afflict mankind. Equally important are the mental well-being and the personal dignity of man and the members of his family.

Throughout the ages man's well-being has been his chief concern. Since the dawn of civilization, man has sought protection against common ailments and dreaded epidemics. But for the most part, man's efforts were individual and inspired by his instinct for self-preservation. Neither the ruling classes nor private groups paid much attention to the health of the community.

Our world is many thousands of years removed from primitive man who first sought shelter in a cave and who later relied on a fanatical medicine man to cure his physical and mental ills. And yet, in many regions of the globe, millions of people exist under conditions not too unlike those of primitive man. Poverty, ignorance and superstitions prevail. Disease is rampant. The death rate is high. In many areas, human life is considered cheap and expendable. It is a burden to be cast off.

## The Most Effective Approach

It is only in our Western civilization that real progress has been made. And the greatest progress has been recorded in the United States and Canada. Perhaps there is a definite reason for this. Ours is the middle approach. We do not leave the problem of the nation's health entirely to the government. We do not leave it entirely to private groups. Nor do we neglect it or merely pay lip service to it. Through experience, we have found our way to be quite effective.

Other countries may not agree with the way the nation's health is handled in the United States and Canada. In this connection, I

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The man's application for a second
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## Welfare

t y promotes the well-being of the in-
our so-called cradle-to-grave security
vernment. Directly we in industry are

interested in the employee from the day of employment to retirement. And that covers a good measure of the span of life of most of us. As you all know, industry does this through carefully planned programs based on maintaining a sound mind in a sound body. We need only refer to a few statistics to realize how the nation's health has improved through the combined efforts of state, industry and private groups. In 1909 the life expectancy of the industrial population was 46 years. For the general population it was 52 years. In 1954 the life expectancy of the industrial population was nearly 70 years or an increase of 24 years. And for the general population the life expectancy was also about 70 in 1954, an increase of only 18 years. There are truly significant figures. They show that the life expectancy of the general population has increased roughly a third during the last 45 years. And they show that the life expectancy of the industrial population has increased more than a half in this period.

These advances have been due to a considerable extent to the amazing achievements of our modern scientists.

The figures also show the important part played by industry in improving the health of the nation. It has done so because industry today is directed by enlightened professional managers who realize their obligations and responsibilities to their employees, customers, stockholders and the public.

This concern for the individual's welfare, of course, is a relatively modern idea. At the start of the Industrial Revolution 200 years ago, no one gave a thought to man's health or his dignity. All too frequently employees were looked upon as mere chattels or commodities. Men, women and children were transplanted from homes to factories and mines. Sweatshop conditions prevailed.

What little progress there was could hardly be detected. For example, what was considered a milestone in industrial relations occurred in 1842, almost a century after the start of the Industrial Revolution. At that time Massachusetts passed a law forbidding children under 12 years of age from working more than 10 hours a day in manufacturing establishments. I mention this merely to point out that the capitalism of a century ago is a far cry from the progressive capitalism existing in the United States and Canada today.

Admittedly, early capitalism was primitive, crude and, on occasion, inhuman and ruthless. Very little, if any, thought was given to the health, working conditions and general welfare of the employees. Nor was any thought given to the effect on the community of fumes, polluted streams, environmental and occupational health hazards and other nuisances of the factory and mine.

Amazing progress has been made in eliminating such conditions

But past evils are difficult to live down. Even in this enlightened era of ours the memory of former wrongs still haunts the word capitalism.

Those who would undermine our system of private enterprise still build up their strawmen or tilt at fictitious windmills as they continue to hurl their reckless charges about the exploitation of the common man. Fortunately they are fast becoming a woefully weak minority. The falsity of their claims is too apparent. Industry has shocked and stunned them by its amazing strides.

To be sure, industry's awakening was a slow one. Fifty years ago a few leaders in industry attempted to improve the health and working conditions of employees. But it was just an attempt. The few efforts that were made were crude and isolated. And precious little financial support was offered It is not surprising that progress was slow. Then the public's voice was heard. The public's growing concern for the health of the employee was forcibly brought to the attention of industry. There were just too many occupational diseases, too many tragedies in the mines, mills and factories. And to the great credit of industry, the problems were recognized.

Industry no longer considered an employee to be a mere chattel or commodity to be put on the block and auctioned off to the highest bidder. His dignity as a human being was acknowledged.

Public-spirited men of wealth endowed research institutions to probe into occupational hazards and diseases and to develop methods and procedures to improve the health of the individual, of the employee in industry and conditions in the community.

Progressive-minded companies established medical clinics. They pushed ahead with health and safety programs. The programs were, and still are, based on taking care of the physical and mental well-being of employees, helping and protecting the consumer and promoting the common good.

## From Defensive to Offensive

In the early days, of course, industrial medicine was essentially on the defensive. For the most part its programs were confined to treating injuries and diseases. But in recent years industrial medicine has taken the offensive. Its programs are positive. They are directed at the preventing disease and maintaining good health.

In its sincere concern for employees, industry has truly covered the field. Its entire resources have been mobilized to this end. The talents of engineers, doctors, scientists, chemists and personnel men have all been enlisted in the cause. Through the efforts of industry,

occupational diseases, accidents and other causes of absenteeism have been reduced amazingly.

It has been said that each year about a half a billion man days are lost to industry. But of these, only 10 per cent are due to occupational causes. The problem of industry, therefore, is not only to try to reduce occupational absenteeism. Our job is to work with other health organizations in our economy to reduce the nonoccupational causes of absenteeism.

Obviously, such an undertaking requires a vast expenditure of funds. Statistics on this point are not readily available But in a survey made in 1951 by the National Association of Manufacturers, it is interesting to note that almost 1,600 companies spent many millions a year on health services.

Multiply this figure by the thousands of other companies not surveyed and I am sure you will agree with me that modern industry is doing its best to promote the well-being of its employees.

We in industry realize that as good citizens it is part of our obligation to society to help improve the health of the nation as well as the community. Obviously it is also good business, for healthier employees mean less absenteeism and more productivity.

Johns-Manville, of course, is but one of many companies that has established health and safety programs.

In the thirty-two years that I have been with Johns-Manville, I have observed the increasing interest in and the progress made by our company in the field of occupational health. And our records show that as long ago as 1895 we established a clinic with a doctor serving part time at our Asbestos Mine in Quebec.

## One Company's Program

Today our program is typical of those in American industry. I mention it only because naturally I am more familiar with it. Johns-Manville's program includes a physical examination when employed; continuing preventive health measures and periodic examinations; control of occupational hazards; immediate on-the-job medical care; safety precautions; accident and health insurance; hospitalization; group life insurance; vacations; a pension plan; and plant staffs of medical, industrial hygiene and safety personnel coordinated by a headquarters health department.

In past years Johns-Manville has sponsored independent research on various raw materials and finished products at private research institutions throughout the country. For example, the Industrial Hy-

giene Foundation is currently investigating the properties of one of our newer products.

All of these features of our program are based on keeping the employee in good mental and physical health. They enable him to be more useful to himself, his family, his company and his community.

## Responsibility to the Consuming Public

As with the rest of industry, we are also aware of our responsibilities to the consuming public. Today, the products of industry are designed to promote the health and comfort of the public. Industry is constantly striving to bring about more pleasant living through improved products at better values to the consumer. Moreover, every effort is made nowadays to protect the consumer with safer products and better methods of handling them.

Years ago industrial research was unconcerned about problems of health and safety that might be involved in a product. When the product was developed, it was put on the market. Today our industrial research organizations probe into every health hazard. And every safeguard is insisted upon before the product is marketed to the consumer.

A number of companies have established research organizations and laboratories for the sole purpose of eliminating health hazards that might injure the consumer. Some companies have granted fellowships for this specific purpose.

And industry has inspired, to a very great extent, the movement to label properly certain types of products that might harm the consumer if he were not forewarned.

## Health and Safety Outgrowth of Free Enterprise System

All of these things not only help the individual employee and consumer, but the community at large. Modern plants, in which nuisances and health hazards are reduced to a minimum, are the order of the day. And in their construction, every consideration is given to healthful and safe working conditions.

Now how has this come about?

In my opinion, it is the natural result of the free enterprise system directed by enlightened men of modern management who are aware of the fact that employees are first of all human beings, not mere commodities to be exploited. Under our system, modern management has had the freedom to progress. It has not been shackled by the totalitarian state or dictator.

And modern management has been able to finance these costly projects through the profits of the free enterprise system.

As a result, industry has not only established its own health and safety programs. It has also fostered independent research in occupational health and has benefited through the by-products of this research.

All of these efforts are reflected in lower turnover, less absenteeism, and reduced production costs. At the same time, the employee's health is better, his morale is higher. He and his family live longer and more happily.

But despite our amazing progress, there is still a great deal to be done. Many problems have hardly been touched. Some are too big, too baffling, and too complex for one company to finance or to study. All of them however have a direct bearing on the nation's health.

A tremendous job lies ahead of us.

We must solve the tragic riddles of cancer, cerebral palsy, muscular dystrophy, alcoholism. The common cold still exacts an astronomical toll of absenteeism in industry. We have much to learn about mental health and rehabilitation. And in a nerve-wracked world, we must redouble our efforts to further improve working conditions through noise abatement, the use of appropriate color schemes and other devices to promote the well-being of the industrial employee.

## Continued Cooperation Needed

I have merely mentioned a few problems that cry out for a solution. These problems call for further cooperation of management, labor and the government, all working together right down to the man at the machine.

For we all realize that no asset is more vital to a nation than the health of its people. It affects a nation's happiness, its social welfare, its industrial productivity, its moral fibre, its future growth and its prosperity.

There is no doubt in my mind that the job, no matter how gigantic it may seem, can be done. And it can be done within the spirit and the framework of free and enlightened enterprise.

conform to the rule of ordinary care. In my view, the cost of an intentional injury or damage should be borne by the industry as a cost of doing business, much as is the purchase of a piece of land for a new factory site. If such insurance were made available, it strikes me that it would impair in some measure at least the sanction which should impel each human to respond to his duties not to gain by the violation of the rights of another.

MODERATOR DORSETT: You have gone over that pretty well. Is there anybody in the audience who would like to comment on that?

MR. WATERS: I would like to answer his comment with another question, Mr. Moderator. What is the nature of the restrictions that are contained in insurance policies to which you refer in this question?

MR. DAILY: Well, by definition of occurrence as we now find it presently used by the major insurance carriers, it excludes coverage for liability growing out of an intentional wrong.

MR. WATERS: Well, is there any monetary limitation of liability? There is a monetary limitation of liability contained in all such policies, isn't that correct?

MR. DAILY: Well, yes, I don't know of any insurance company that writes an unlimited policy, do you?

MODERATOR DORSETT: No.

UNIDENTIFIED SPEAKER: I would like to ask Mr. Daily to give an example of an intentional wrong.

MR. DAILY: Well, if an industry runs a paper mill and pollutes the stream beside it and knows that it is by that pollution injuring the value of the property along the stream and continues to pollute, it is intentionally damaging the riparian owners or the people who own land next to the stream.

MODERATOR DORSETT: We will go on to the next question. This is addressed to Mr. Daily and Mr. Jackson. "What is the proper function of the insurance carrier as respects pollution control in an insured industry?" Mr. Daily.

MR. DAILY: I do not believe that industry can, by insuring its liability, divest itself of full responsibility for proper pollution control. The carrier should, if it undertakes to provide such coverage—and it shouldn't undertake to provide it unless it can do these things—give every aid and assistance to management. It should provide

for standards and techniques. It should assist in setting up controls. It should provide the know-how. In short, it should provide the theory of control so to speak, but the duties of application must ever remain with management.

The moment management fastens on the notion either consciously or unconsciously that because insurance is in the picture it is not responsible, that is, that its responsibility has shifted to the carrier, the battle of control is 50 per cent lost.

Should the carrier accept such an untenable position, it will be required to attempt the frequently impossible task of seeking action from persons not within its control, and even though the employees of management are sympathetic and cooperative, the carrier cannot from a cost standpoint provide the constant attention and supervision which such a controlled program requires.

MR. JACKSON: I would concur entirely with Mr. Daily. It is management's responsibility.

MODERATOR DORSETT: This question is addressed to Mr. Hemeon and Mr. Jackson. "Are there any important new engineering developments respecting dust collection for avoiding air pollution nuisances? What procedure should be followed by a company in the selection of the most suitable dust collector?" Mr. Hemeon.

MR. HEMEON: In the sense of discovery of a new principle such as electrostatic precipitation and the like, no, there are none. I do, however, want to emphasize a point which seems to me to be frequently overlooked. We have in existence now adequate equipment for controlling any dust air pollution problems that exist. The problems are economic problems. More particularly, I think it unfortunate that there is such a general lack of interest in attempts to measure and to rate the relative importance of different emissions in a community. Since the air pollution problem is such a vast one, it is most logical to adopt the philosophy of first things first and, therefore, to seek methods and procedures to define what requires primary attention first, what is second, and so on.

There is an additional point of importance. One prime illustration of what to me is a fundamental error in consideration of air pollution due to particulate matter is one that I emphasized in the paper I gave at one of the Foundation's meetings a few years ago, and a point which I would like to reemphasize now, and that is this: The almost universal tendency to rate emissions from stacks on the basis of what they look like to the man on the street as he walks by and not only that, but to the engineer in the plant as he walks through

the plant. There are many many communities where the nuisance due to dust fall of relatively coarse particles depositing by gravity on surfaces is the nuisance of importance, and yet we find ourselves universally allowing almost any untrained person to rate the relative importance of emissions in terms of how much fumes or smoke or dust *appears* to be coming out of the chimney. Our progress is going to be very seriously impaired unless we modify that viewpoint.

MODERATOR DORSETT: Mr. Jackson.

MR. JACKSON: There are many engineering approaches to dust collection. There are many problems in determining what is the right method of dust collection, for a given situation, particularly when you think in the terms of the types of dust with which we are confronted. A micron is 125 thousandths of an inch, and it is not at all unusual to find industrial dust in terms of hundredths of a micron. When we visualize that we have particles that size to contend with, we realize that the matter of dust control and dust collection is no longer a job that can be turned over to the plant tinsmith. All of the engineering skills, knowledge of all of the most recent developments in collection equipment design are needed to insure adequate control. The control of dust and other air pollutants is a job for an expert. If you do not have a qualified staff of your own, make sure that the consulting organization has had ample and successful experience.

MODERATOR DORSETT: Let's take up the next question. "What is the responsibility of the manufacturer to the industrial consumer in identifying the toxic constituent or potential of the product?" That is addressed to Mr. Jackson and Mr. Gresh.

MR. JACKSON: I think the manufacturer has a very definite responsibility to identify to his industrial consumer the constituents of his products. Insofar as our own industrial health program is concerned, I have found little difficulty in obtaining such information. In general, manufacturers permit an exchange of data quite adequate to enable the consumer to properly control whatever exposures might be potentially harmful.

MR. GRESH: I go along with that with perhaps a few additional remarks, and that is that if the manufacturer, and I believe this is required by the Manufacturing Chemists' Association who have very expensive and elaborate labeling codes, puts on a label the degree of hazard of the chemical or the toxic material, what it contains and what the antidote might be, he has, to a large degree, satisfied the requirements of industry or management.

I know within our own company, our medical department has

gone a step farther by introducing a labeling code. This is for the further breakdown of chemicals into smaller lots and again it lists the toxic materials and the antidotes. That is as far, I believe, as one can go.

MODERATOR DORSETT: One more question. "What are the qualifications for an expert in industrial hygiene engineering?" That is a good one. Mr. Hemeon.

MR. HEMEON: I will say that it all depends on what your definition of expert is. I think the lawyers present can tell us what it means when it comes to compensation hearings. There is also the definition involving degree. Certainly there are a very great number of men who are not known who have published or appeared on programs who have as good a knowledge of certain subjects as men who are labeled as experts. I think it turns on your definition of the term.

MR. WATERS: On behalf of the Engineering and Legal Committees, I wish to thank you members for the interest that you have shown in this particular session, and on our behalf, I would like to thank the Moderator and the participants in the panel for the excellent presentation that they have made of the subjects which we have been discussing.