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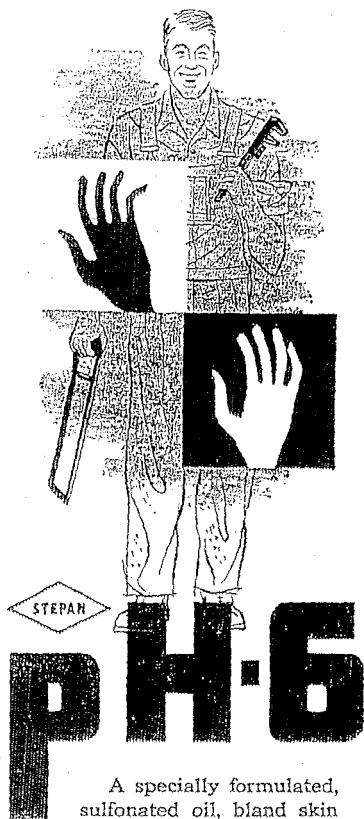
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DOCUMENT DESCRIPTION: NSC - National Safety News - Industrial Health - Abstracts of Current Literature on Industrial Hygiene, Medicine & Nursing

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MSC-21

Industrial Health

Abstracts of current literature on Industrial
Hygiene, Medicine, and Nursing

By F. A. VAN ATTA, Industrial Department, NSC

Dyestuffs and Tumors

The incidence of bladder tumors in a dyestuffs factory by T. S. Scott. The British Journal of Industrial Medicine 9:127-132 (April 1952).

Sixty-six cases of bladder tumor in a dyestuffs plant are reported. These have occurred in the manufacture of benzidine since 1918 and of Beta-naphthylamine from 1920 to 1950. The normal working force was 55 in benzidine manufacture with a total of 198 exposed in the total period of manufacture and 55 in Beta-naphthylamine manufacture with a total of 129 exposed.

Prior to 1938 when the first cases of bladder tumor in the works were discovered the operations were carried on in the open to a large extent. Since then they have been under local exhaust ventilation.

Of the 66 cases, there were 30 (23 in the manufacturing section and 7 in the color plant section) whose exposure was to benzidine only and who had never been exposed to Beta-naphthylamine. Benzidine is therefore considered to be industrially as dangerous a carcinogen as Beta-naphthylamine.

Fifteen of these cases are attributed to exposure only to Beta-naphthylamine and the others are mixed exposures. Some of the cases were due to exposure to Alpha-naphthylamine but Beta-naphthylamine as an impurity cannot be eliminated as a cause of bladder tumors in these cases.

No cases have been traced which can be attributed to aniline, in spite of a longer period of manufacture and longer periods of exposure of the individuals with numbers of men engaged in its manufacture which are comparable with those engaged in benzidine and Beta-naphthylamine manufacture.

The shortest period of exposure, excluding one doubtful case, was 4 years and the longest was 32 years, with an average of 16 years for all tumor cases. There was no appreciable difference between the period of exposure prior to developing tumors between the benzidine, Beta-naphthylamine, and mixed exposures.

There have recently been great technical improvements in the plant with the object of preventing any contact between the operator and the carcinogenic compound. The men who work in the plant are carefully selected with pre-employment examination, with consideration of age, family history and previous health. It is felt that men under the age of 30 should not be employed in these processes and an attempt is made to get men over the age of 40.

Lung Disease

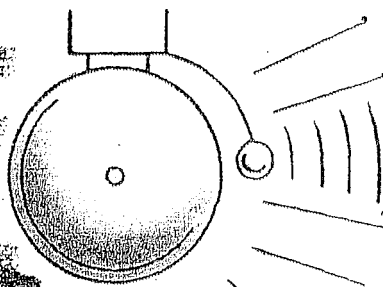
Dust Sampling and Lung Disease. C. N. Davies. The British Journal of Industrial Medicine 9:120-126 (April 1952).

Selective dust sampling, which only fine particles are selected, often offers better prospects of correlation with incidence of disease than the assessment of total concentration weight, because the coarser particles are deposited in the high bronchial tubes from which they are excreted, while only small numbers of particles reach the alveoli. Application of this principle in relation to the nature of the airborne dust is discussed.

Recent work on the retention of dust in the human alveoli has been examined with an intention of finding a suitable acceptance test for a sampling apparatus. For particles of unit density, the minimum alveolar retention is between 50 per cent and 60 per cent.

—To be published

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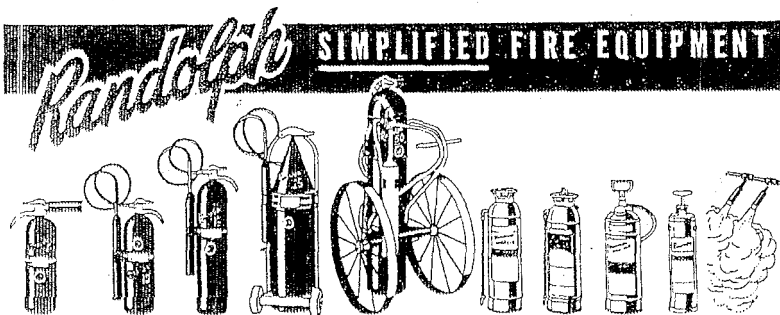


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Industrial Health

—From page 48

dust inhaled and occurs between 1.5 microns and 2 microns diameter. About 30 per cent of the 5 micron diameter particles are retained.

It is possible that when coal dust is inhaled the proportion which is retained in the alveoli is greater than in the case of rock dust or quartz dust.

Minimum alveolar retention occurs at 0.25 to 0.3 microns diameter. The smaller particles are more completely deposited than these of 0.25 to 0.3 microns because they are more readily brought into contact with the lung tissue by Brownian motion.

Alveolar retention from 0.3 microns to 2 microns diameter depends on the ratio of tidal air to frequency of respiration and does not change rapidly with rate of working. Upper lung retention varies with minute volume, however, and is therefore sensitive to muscular activity.

Selection of particles for sampling by an elutriator designed to accept 50 per cent of the particles at 5 microns diameter (unit density) should give a good approach to an alveolar sample. Variation of the density or shape of the particles will affect alveolar retention and elutriation in the same way since both depend upon the sedimentation rate of the particles. That a single selector will give constant performance with all dust clouds.

Group Medical Service

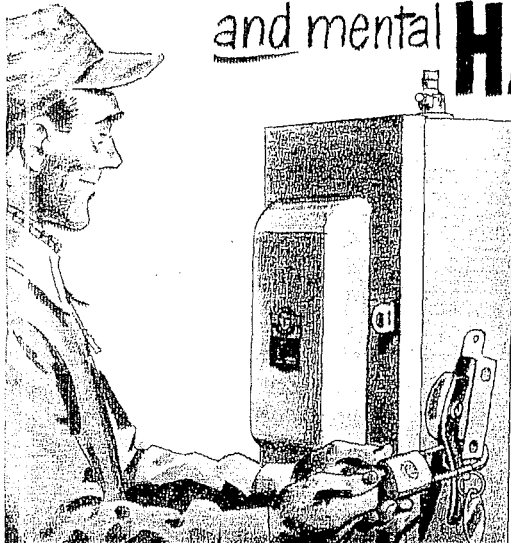
A Group Medical Service for Small Plants Pays Dividends, by Ellsworth Grant. Occupational Health 12121-12 (August, 1952).

THE ALLEN MANUFACTURING COMPANY has had an employment averaging between 600 and 650 since 1941. In 1941, the company had installed a dispensary with a full-time nurse in charge. The necessary medical service was provided by a local doctor in his office. Pre-employment examinations and some other preventive medical practices were begun at that time.

The management over the next few years recognized several

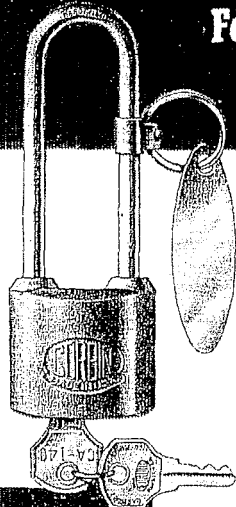
—To page 1

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For our purpose it is important to know that our body is involved when we anticipate fear. A medical team was looking in vain for bugs causing an unknown intestinal disease among soldiers, who were preparing themselves to land on one of the enemy islands. The disease disappeared after the soldiers had landed and the battle had started. The tension of fearful anticipation had caused this common psychosomatic reaction.

What is my purpose in giving you this outline? In war practice we have found out that it is possible to convey something of the simple knowledge to the person suffering from panic reactions. It is helpful to the victim to know that what has reduced him to childhood's level is part of a universal pattern of defensive behavior we all have to overcome. In understanding this, he grows less afraid and ashamed of his own fear, and will become more able to accept his duties with more and better controlled behavior.

Experience during the last war has convinced me that a well organized civil defense is able to check panic. In order to accomplish this, it is essential to understand the variety of fear and panic reactions, particularly those which are most deceiving, because they are hidden.

Everywhere in the country we are mobilizing our physical resources; who is mobilizing emotional resources? My plan is that we in our medical profession think not only in terms of physical protection and physical first aid, but also of mental aid. Here, many psychological educational problems are involved. However, in recognizing and studying these problems, our goal is for their control and solution, and fear and panic lose their grim aspects.

Industrial Health

—From page 52

advantages to the system. The most important ones were the doctor's lack of knowledge of industrial conditions, the compensation law, and employee psychology and the inconvenience of sending employees or applicants to the doctor's office. The doctor

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naturally more interested in his private practice than in his part-time industrial employment.

As a result of these conditions, this company with several other manufacturers in Hartford began discussing with local physicians, the Connecticut Manufacturers Association, the Connecticut State Bureau of Industrial Hygiene and the Connecticut Medical Society, the possibility of establishing some kind of group medical service. Eventually, they decided to co-operatively employ a trained industrial physician and divide his time among the plants according to the individual need. Each plant was required to provide its own dispensary with necessary instruments and supplies and at least one full-time registered nurse. The service covered approximately 3,000 employees in six companies at the start in 1946.

The arrangement was that the doctor was to visit each plant daily or, at least, every other day. Since his itinerary is quite standardized, he can be reached within a few minutes at any time and can reach any one of the companies within a very few minutes. He is made responsible for professional policy of the medical department.

The medical policy is expressed primarily in standing orders administered by the nurses who are really the key to an industrial medical assistant. The well chosen and well trained nurse will maintain professional standards of care and at the same time, keep the medical service functioning with minimum expense and minimum production delay.

As the group medical service has matured in the last six years, it has become primarily preventive in purpose. Occupational injuries have become comparatively infrequent, lost time injuries have declined from 3.8 per hundred employees in 1946 to 0 in 1951. Emergencies are rare and the medical department concentrates on preventing lost time and on making employees healthier and safer at work. It works to improve plant sanitation and nutrition and to cooperate with the safety director in eliminating hazards and carrying on various health building activities. —Next page

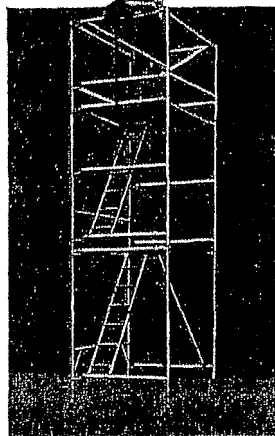
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FOLD-A-WAY Scaffold stands freely yet will not "fold under" while being erected; upper folding sections stand with only two sprockets in position. Base dimensions: 4' 6" x 6'. Sections fold to compact, 6 1/2"-thick package. Approved by Underwriters' Laboratories Inc. Sectional Aluminum Scaffolds or sectional components for upper sections of FOLD-A-WAY Scaffold also available.

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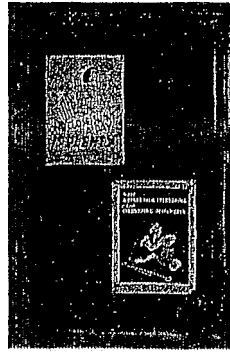
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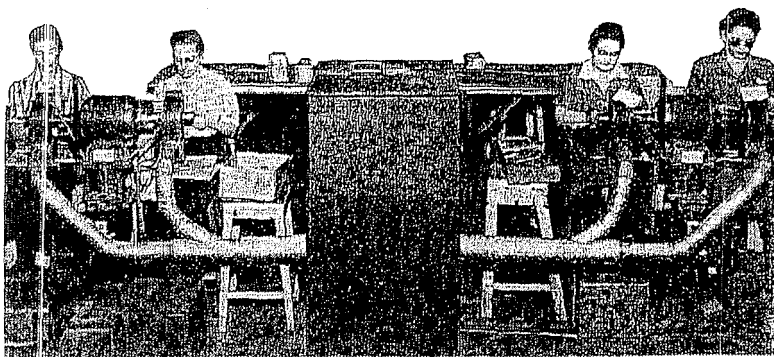


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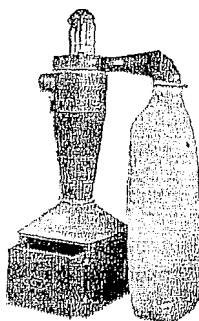
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The personnel areas in which the medical service is valuable to management is continuously increasing. Such services as pre-employment examinations, rehabilitation services and health education and counselling are now well established. With the increasing emphasis on pension plans, the medical department will be depended upon more and more for advice and assistance in handling retirement matters, particularly in a company such as this which has a selective rather than a compulsory retirement policy and the industrial physician will be called upon to give management the most objective advice possible as to whether an older employee might be allowed to continue work for another year or should be pensioned at once. For this reason annual physical examinations are required of employees after age of 65.

The medical department gets considerable share in the credit for a separation rate of 1.6 per cent monthly as compared to 2 per cent monthly for other Hartford manufacturing plants. The per employee annual cost of the medical service has averaged just under \$20.00 and in one year alone, the Workmen's Compensation premium was lowered enough to pay for the doctor's service and all medical supplies purchased. The cost of the medical service represents about a fifth the total expenditures of the Industrial Relations Department. The company calculates that the cost has been recovered twice over in direct savings in lower insurance payments and higher production. In addition, there are indirect savings which are not measurable, but are certainly of importance.

Economics of Hygiene

How Industrial Hygiene Can Reduce Industry's Costs, by Andrew Fletcher, Engineering and Mining Journal, 96-100 (June, 1952).

MR. FLETCHER defines industrial hygiene as the improvement of working and living conditions including safety, for the worker and his family. He maintains that the country's first line of defense is the health of its citizens, especially the health of the worker.

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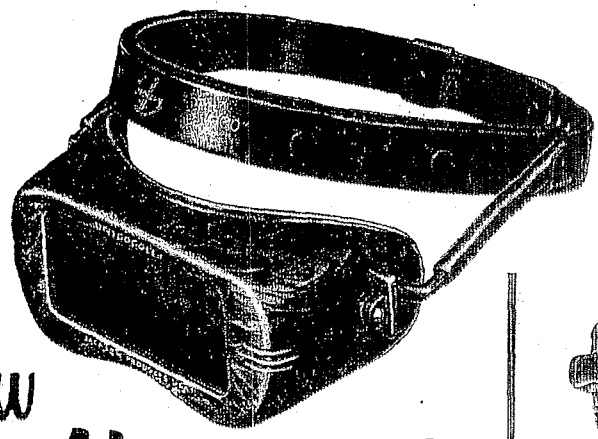
industry. In the mining opera-
tions of the St. Joseph Lead Com-
pany, the output per underground
man has been increased approxi-
mately 50 per cent in the past
several years. This is attributed
less than half to improvements in
equipment and more than half to
improved health and morale.

The industrial hygiene program
of the St. Joseph Lead Company
started thirty years ago with the
idea of improving conditions so
that the best men in the company
would not move on to more attrac-
tive fields. The developments have
been gradual with continuously
better control measures adopted
through education of both man-
agement and labor.

One of their primary beliefs is
that every man is proud of what
he knows and likes to show it off
for other men. Consequently,
when any tests are made under-
ground, the employees in the area
are told what is being tested for
and why and what the physio-
logical effect may be. They are
then shown the results which are
discussed with them.

One result of the programs is
indicated in the fact that in 1918
the labor turnover was 250 per
cent per year, that is 250 men em-
ployed every year to keep 100 on
the job at a direct cost of about
1.5 million dollars per year to
keep their working force of 5,000
employees. In 1951, the rate of
turnover had been reduced to
about 8 per cent. This 1951 turn-
over is made up of 5 per cent for
mining and milling and 34 per
cent for one smelter which had
to be closed down in the winter.

One direct result of the health
and safety program is shown in
the compensation results. In 1920
through 1926 the average cost
was approximately \$2.47 per one
hundred dollars of payroll and
about 17c per hundred dollars of
payroll for health and safety ac-
tivities. In 1951, the accident cost
was about 68c per hundred dollars
of payroll and the health and
safety department expense, 55c
per hundred dollars of payroll.
This is a direct saving of \$1.41 per
hundred dollars of payroll in spite
of a one-third increase in compen-
sation rates in the same period.
This represents a direct saving of
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JACKSON UNIGOGGLE type WR-60, shown at left, has some eyecup and choice of lens shades, but is held against the face by an adjustable, elastic headband.



Goggle fits cheeks and forehead snugly, gently, with wide rim for comfort



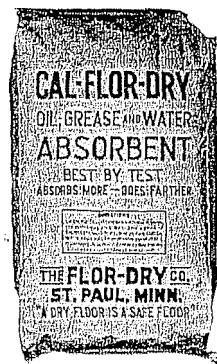
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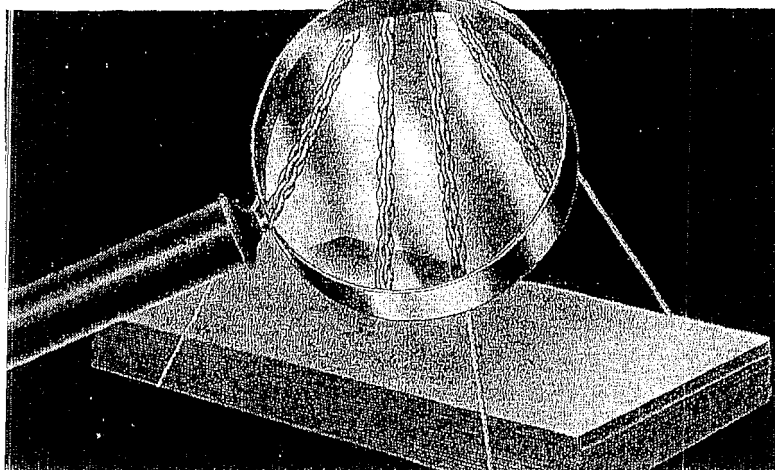
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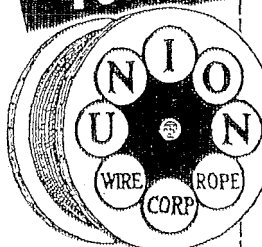
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the Southeast Missouri division alone.

In addition to the direct results to the company, the improvements in working and living conditions in the mines and smelters have resulted in direct changes in the working and living habits of the workmen which have been carried over into their home, resulting in increased care to provide healthful and sanitary living conditions.

The company has found it useful to assist the employees in these projects and the direct result has been a decrease in sickness absenteeism to less than 4 per cent of workable shifts. With the present payroll of approximately 5,000, the direct saving to the company is about \$150,000.00 per year for each one per cent reduction in sickness absenteeism.

While the company recognizes that there are other values which may be equally or more important, these direct reductions in costs and consequent increases in profits are sufficient reason for maintaining the programs if there were no other considerations.

Safety Is Personal

—From page 70

to be present in a mine during a terrible gas explosion in which many of his friends were killed or seriously injured, and in which he was personally responsible for saving 22 men.

Peter learned at an early age that he liked working underground, but as a result of this unfortunate experience he decided to leave the coal mines. When he came to America and learned of gypsum mines in which there was almost no hazard of gas explosions, he decided this was the place for him.

But a gypsum mine, too, has hazards, particularly in 1906 when the generally accepted method was to dig a hole in the ground and branch out in all directions without the use of props. Those were dangerous times, but from the beginning, Peter recalled the experience in Germany and considered every hazard and took steps to safeguard himself and his crew.

The Oakfield operation is a thin-veined mine, with sections