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AIR HYGIENE FOUNDATION OF AMERICA, INC 1935

FOUNDATION FACTS

This news-letter is issued monthly to member companies and trade associations affiliated with Air Hygiene Foundation. Its purpose is to report Foundation news and activities. Air Hygiene Foundation is a partnership of industry and science organized to protect the health of the 15 million workmen in heavy industry.

Vol. 2 February 23, 1940 No. 2

Watch for Report on Sick Absenteeism

The Foundation's report on sick absenteeism will be mailed to you soon. Please examine closely and see forms in the back of the bulletin for recording lost time through illness. The Foundation asks your cooperation in tabulating sick absences in your organization. Remember, your company may be suffering huge "hidden" losses through sickness. Dr. A.J. Lanza, Chairman of the Foundation's Medical Committee, shows that the average male worker loses 8 plus days per year through illness. The average woman worker loses 12 days. The whole purpose of this study is to help you reduce your sickness costs. The whole success of the undertaking depends upon your collaboration. Interested members will be asked to fill in and return a coupon which will be found on the last page of the bulletin. Upon receipt of this coupon, additional information as to procedure will be sent.

United Mine Workers Urge Compensation Revisions

The annual meeting of the United Mine Workers of America at Columbus, Ohio, last month strongly urged:

1. Liberalization of compensation laws; 2. Compensation for occupational diseases; 3. A universal compulsory system of state insurance funds. Secretary Kennedy of the U.M.W. also proposed a federal compensation law "based upon the premise of uniformity in rates." He claimed such a law would benefit coal operators.

Legal Bulletins Available

Surplus copies of the Foundation's Legal Bulletin No. 1 are available. This bulletin was issued in six separate publications, or parts. Each part analyzes the occupational disease laws in a number of states, so that the six parts cover the 48 states. Two supplements have been issued this far, bringing the material up to date as of about January 1, 1939 The legislative changes made during the past year are not included. Nevertheless, these reports are obviously of great value. Surplus copies will be sold to member companies desiring the material at 35 cents per copy or $2.00 for the complete set of 8 bulletins.

News Notes

The current issue of MANAGEMENT RECORD, publication of the National Industrial Conference Board, contains a comprehensive statement of the work of the Foundation. INDUSTRIAL MEDICINE is publishing the reports presented at the Foundation's annual meeting. The current issue contains Dr. Lanza's report on sick absenteeism. Others will follow in succeeding issues.

Industrial hygiene surveys are as important for plants as physical examinations for individuals. The Foundation conducts such surveys for members. The work is done at bare cost.

PLAINTIFF'S EXHIBIT LHP-136

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Air Hygiene Foundation,
4400 Fifth Ave., Pittsburgh, Pa.
February 23, 1940.

DIGEST OF INDUSTRIAL HYGIENE
Literature--News--Developments

News Items:

88. Judicial Review in Workmen's Compensation Cases.
The Wisconsin Supreme Court, in an early case, stated that in any close-drawn issue the Industrial Commission's decision should always be favorable to the injured employee (or his dependents) rather than to the employer (or his insurance company). The Court stated this rule for the guidance of the Commission, pointing out that the Workmen's Compensation Act should always be construed broadly so as to extend rather than restrict its general purposes and objectives through decisions of the Industrial Commission.

89. The New England Health Institute will be held in Hartford, Connecticut, the entire week of April 15-19, 1940. The Institute is sponsored by a large number of distinguished organizations -- the U.S. Public Health Service, U.S. Children's Bureau, all of the New England State Departments of Health, Massachusetts Institute of Technology, Yale and Harvard Universities and many other medical and public health organizations. A varied and interesting program has been arranged with the section on Industrial Hygiene, R.R. Sayers, Chairman, perhaps of most interest to our readers. For further information, address State Department of Health, Hartford, Connecticut.

90. Occupation and Health. Supplement published biannually. International Labour Office, Geneva (1939).
In an effort to keep the two volume Encyclopedia of Industrial Hygiene (Occupation and Health) up to advancing knowledge and practice, the International Labour Office has decided to publish a Supplement. This takes the form, not of a new volume, but of a series of brochures, issued biannually on a loose-leaf plan and adapted for filing and preservation. Each article devoted to a given occupation, process, substance, or health hazard, will be published separately to facilitate binding in alphabetical order or replacement by newer articles. Subscription rate for 500 pages is $5.00. The contents of the current supplements are as follows: Acetone and Homologues; Avian Tuberculosis; Chloroprene; Dioxan; Ethylene Glycol; Ethylene Oxide; Graphite; Navvies' Disease; Occupational Tumours: (1) Introduction, (2) Experimental Research, (3) Respiratory System, (5) Bladder, (6) Bones; and Seleniuretted Hydrogen.

Papers on Dust, Dust Diseases and General Industrial Hygiene.

91. The Accident Barometer. Statistical Bureau, National Safety Council, National Safety News, 41, 28-29 (January 1940).
As a direct reflection of the increase in industrial activity, both the occupational injury and death rates rose in October. However, the ten months' rates were still below last year.

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92. Disabling Morbidity among Industrial Workers, Third Quarter and First Nine Months of 1939. W.M. Gafafer. U.S. Public Health Reports, 55, 1-3 (January 5, 1940).
The frequencies of sickness and nonindustrial injuries for the first nine months of 1938 and 1939 compared with the experience recorded for the third quarters of the same years show that the unfavorable sickness rate for 1939 is due principally to the excessive rate for influenza and grippe. Diseases of the skin show a slight decrease for the third quarter of 1939 as compared with the same quarter in 1938. One serious defect these statistics have, from the viewpoint of the industrial hygienist, is that the definition of "diseases of the skin" does not include sunburn, poisoning by organic substances, or the mycoses.

93. Modern Change House on Gogebic Iron Range. D.S. Young. Min. Congress J., 25, 20-23 (August 1939).
Features of a new building and equipment at the Eureka mine of the Castile Mining Company, incorporating the latest designs to insure the maximum comfort of miners in changing clothes. Separate rooms are provided for clean and dirty clothes; the underground garments being exposed to drying and aeration by being suspended from the ceiling on specially designed hooks. Laundry equipment is provided for washing dirty clothing, also showers and a clean clothes locker room.

94. Reports of Committees and Resolutions, Sixth National Conference on Labor Legislation. U.S. Dept. of Labor, Labor Standards Bulletin No. 35-A, Washington, D.C. (1939).
The committee which reviewed the recommendations of earlier conferences dealing with industrial health, safety, and workmen's compensation reaffirmed the need for compulsory compensation laws, covering occupational injuries of all types including diseases; insurance in an exclusive State fund; coverage of all industries and all employers regardless of size of establishment; informal and non-technical procedures. New items added by the committee and from the floor included recommendations that medical boards should not have the final say on occupational disease claims; that the management and personnel of the State funds should be nonpolitical; where workmen's compensation is administered outside of the agency making factory inspections, that the two agencies should exchange information gathered by each. The Secretary of Labor was requested to appoint a committee to inquire into and report to next year's conference upon preemployment physical examinations. An amendment to Senator Wagner's Health Program bill was asked, for the purpose of making funds available to State labor departments (on an equal basis with State departments of health) for the promotion and control of industrial hygiene.

95. Industrial Hygiene for the Smaller Plant. G.S. Everts. J.Am.Public Health Assoc., 30, 17-21 (January 1940).
A discussion of the difficult problem of providing industrial hygiene service for the small plant. As a rule, unless an acute occupational disease presents itself, no interest is taken in industrial disease problems by these factories. The average physician has little interest in industrial work largely, the author feels, due to defects in his medical training. It may be that this lack will be taken care of by post-graduate training which is being sponsored by organizations such as the Council on Industrial Health of the American Medical Association. For the great number of small plants with no medical supervision or, at best, only part-time service, the solution is hindered, as are so many problems of public health, by the barriers of medical ethics.

NIOSH Publications Available
CDC Publications Available

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96. A Preliminary Report on Living, Working and Health Conditions in the Tri-State Mining Area, (Missouri, Oklahoma and Kansas). The Tri-State Survey Committee, Inc., 100 Fifth Avenue, New York City, 38 pp. (1939).
A report based on investigations made by the National Committee For People's Rights on conditions in the Tri-State Mining Area. The material presented is derived from two sources: field material, collected by the joint efforts of a trained social investigator and a photographer; and analyses of previous reports on conditions in the Tri-State Area.

97. Potential Health Hazards and Welfare Facilities in Iowa Industries. Iowa State Dept. of Health, Iowa Public Health Bulletin, December, 1939.
A preliminary survey of Iowa industrial plants in which information was collected from a representative sample of workers engaged in mining, manufacturing and mechanical industries and the laundry and dry cleaning service groups. The data are presented in tables showing where potential occupational disease hazards were found. There is a large number of exposures to various harmful materials and a definite lack of industrial welfare service, indicating a need for industrial hygiene work, especially for smaller plants.

98. Role of Engineer in Air Sanitation: General Survey. E.B. Phelps. Proc. Am. Soc. Civ. Engrs., 65, 1475 (November 1939).
In his studies of methods of air sanitation, the engineer must know the possibilities of good engineering practice and combine with this a knowledge of the physical, chemical, bacteriologic, physiologic, and toxicologic properties of the special types of impurities with which he has to deal. This constitutes a much broadened definition of engineering and will require, as in the case of water supplies and food sanitation, cooperative effort among specialists; but it is to the public health engineer that the future must look for guidance and responsible control.

99. Medical and Health Programs in Industry. Studies in Personnel Policy No. 17. National Industrial Conference Board, Inc. December, 1939.
A survey of the industrial medical and health services in 301 plants employing a total of 621,041 workers. Over one-third of these establishments employ less than 500 workers, and about two-thirds employ less than 1,000. As has long been suspected, most small plants provide only a minimum of first-aid or emergency medical service. In 88% of the plants there is a medical department under medical or lay supervision. In over 75%, there is either a physician or nurse, or both employed on regular or part-time basis. In 84%, pre-employment examinations are given, in 5.6% a brief physical inspection by a lay attendant, and 10% provide no physical inspection of any kind. Periodic physical examinations are required or encouraged in over 70% of the companies. Techniques of examinations, follow-up work, educational and preventive measures all differ widely. The average cost per capita of medical care in 165 plants is $6.12. In small plants both per capita and compensation costs greatly exceed that of large organizations. Among the benefits obtained through plant medical departments were: (1) reduction of lost time; (2) increased efficiency; (3) better employee health and morale; and (4) reductions in compensation and insurance costs. (Inquiries concerning this report should be directed to the National Industrial Conference Board, 247 Park Avenue, New York, N. Y.)

100. The Industrial Nurse. J.H. Chivers. Industrial Medicine, 9, 29-31 (January 1940).
A general discussion of the problems of medical service to industry, with special reference to the smaller plants. The author has a high opinion of the industrial nurse and feels that her place in the industrial medical department is indispensable. She can do much to aid and expedite the doctor's work, and because of contacts with the workmen can be definitely helpful in diplomatically fostering a

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more stable employer-employee relationship. The duties and requirements of the visiting nurse are briefly mentioned.

101. Large Plants and Small Have a Health Job to Do. H.C. Beaver. Factory Man. & Main., 98, 72-73 (February 1940).
The success of the health program in industry depends on the cooperation of three groups -- the employee, the professional staff of doctors and engineers, and the management. The last few years have seen great impetus given to the movement among manufacturers to conserve health. The per capita expenditure for medical work in industry has increased from 88 cents in 1915 to over $6.00 at the present time. The returns are improved personal health and morale of employees, improved and steadier production, better employee relations, and lower compensation insurance premiums.

102. Physical Examinations in the Iron and Steel Industry. American Iron and Steel Institute, New York City (January 1940).
This study and report was undertaken with the sponsorship of the Industrial Relations Committee of the American Iron and Steel Institute for the purpose of ascertaining what is being done in the matter of physical examinations in a representative sample of the Industry. Personal visits were made to 18 various-sized companies, widely distributed geographically, during the late summer of 1939. No definite conclusions or recommendations are offered but a brief summary of the data is given in the form of charts. Physical examinations of all new applicants for work are made by the plant's physician in all 18 of the companies. Eleven of the companies recognize only 1 grade of applicant, two recognize 3 different grades and two classify into 4 grades. Of the defects temporarily accepted by some companies pending treatment or correction, defects of vision heads the list as it also does the causes for rejection. However, of the defects most commonly found, hernia is most frequent. (These are three separate categories.) One large company states that the number of rejections of new applicants does not exceed 5%. Among the 13 companies, only 3 of the smaller do not have any program of re-examination. Three have programs covering all of their mill workers (at varying periods; 1-3 years) and 12 companies re-examine certain occupations where there may exist unusual hazard to health or body, such as transportation workers, those with exposures to silica, lead, benzol, etc. X-rays are made of all employees in three companies and eight others make the test where there is evidence or suspicion of disease; four make them of certain groups and four do not make or require these tests. The average figure for absenteeism of about 6 days for all employees is misleading since it does not include the many days lost through cases which lasted less than seven days (these figures were taken from sick benefit records).

103. Gastro-intestinal Diseases among Steel Workers. F.E.H. Day. Can. Pub. Health Journal, 30, 555 (November 1939).
The importance of this problem is demonstrated by the fact that during 1938 a steel plant employing 3200, had 2377 days of lost time due to gastro-intestinal disease in contrast with 946 lost days for respiratory illnesses and 881 days by cardiovascular diseases. The changing weekly shift is undoubtedly an important factor in the prevalence of gastric and intestinal disorders. There were no peptic ulcers as far as is known among 75 women employees (office workers) but there were 80 men with positive x-ray diagnoses of ulcer and one death from a perforation. The author believes this figure to be extremely low, as postmortem observations show scars of ulcers in about 10% of the cases. The author wonders what influence a regulated mid-shift meal would have on the incidence of these conditions.

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104. Statistical Research on the Frequency of Gastric Ulcers under Different Occupational Conditions. R. Duesberg and W. Weiss. Arbeitsschutz, pp. 272-275 (1939). (German).
A previous publication by the senior author showed that pyloric ulcer is more common in men who do strenuous work and do not have an adequate mid-day lunch period. A statistical analysis of this material now reveals that among the above-mentioned workmen, the percentage of gastric ulcers is 2.5% as compared with 0.3% among clerks and officials.

105. Industrial Hernia and Its Control. L.H. Frechtling. National Safety News, 41, 34 (January 1940).
Hernias may be divided into two types as to etiology: traumatic and occupational. The first type is relatively rare, including those produced by violence and by weakness of the abdominal wall. The common or industrial type far outnumbers the others. It is said that in this country one person in every thirty has a hernia. The estimation has been made that the individual with a hernia is only good for 25% of his possible efficiency. Physical examination, personal history, presence of tuberculosis, diabetes or syphilis, and proper placement of the worker are all important factors in the prevention of hernia. In the writer's opinion, control by mechanical means should only be considered as a temporary measure. There is also a discussion of the problem of hernia in compensation cases.

106. Health and Safety. C.M. Fellman. Min. & Metall., 21, 24 (January 1940).
A general review of accomplishments in safety and health protection work for the year 1939. The author discusses the progress made in the prevention of silicosis, improvement in respirators, self-contained oxygen apparatus, ventilation, etc.

107. A Small Foundry's Health Program. P.E. Rentschler. National Safety News, 40, 82 (October 1939).
Experience in a system of physical examination, x-rays and serology of a small industrial plant. A program of education insured full cooperation and interest on the part of the employees. Such enthusiasm developed that the families of employees were brought into the meetings for health education.

108. Industrial Lighting Problems. Eng. & Boiler House Rev., 53, 312 (December 1939). (British).
The difficulties of maintaining proper lighting conditions together with effective "black-out" practice is discussed. The necessity of constructing light traps at entrances and exits is stressed.

109. Silicosis and Type III Pneumococcus Pneumonia: An Experimental Study. A. J. Vorwald, A.B. Delahant and M. Dworski. J.Ind.Hyg. & Toxicol., 22, 64-74 (February 1940).
Conjecture as to effect of silicosis on pulmonary infections other than tuberculosis led to these investigations. In vitro, silica has no effect on the growth or morphology of this organism. No unusual susceptibility to this organism was seen in silicotic animals and the disease seemed to run its natural course. Silicotic nodules were unchanged by the action of pneumococci and no influence on the immune reactions to Type III were observed. It might even be stated, conclude the authors, that the presence of silicosis increases the resistance of rabbits to Type III, if length of life be taken as an index of resistance.

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110. The Prevention of Silicosis: Experimental Investigations on the Action of Certain Non-Siliceous Dusts and Silica in the Origin and Development of Silicosis. C. Naeslund. J.Ind.Hyg. & Toxicol., 22, 1-30 (January 1940).
An investigation into the problems of obtaining practical methods for the prevention of silicosis by the inhalation of harmless dusts and to discover the existence of dusts which might increase the toxicity of silica. The non-siliceous dusts tested were coal, soda, calcium hydroxide, aluminum hydroxide, metallic aluminum, iron oxides and magnesium oxides. The siliceous dusts included quartz, colloidal and amorphous silica, also leptite, cement and glass. Comparative subcutaneous tests were made to determine the differential effects of the dusts before proceeding with the inhalation tests. It was found that the chemically indifferent dusts, such as coal and glass, do not have any apparent effect on the silicotic process. Silicosis and anthracosis appear to develop quite independently and with no sign of mutual collaboration. Alkaline dusts produced irritation and necrosis in the lungs with very slight fibrotic response, and no sign of effect on toxicity of the silicon. These latter dusts produced marked susceptibility to pulmonary infections and may account for deaths from "acute silicosis" in human beings who have inhaled quartz and alkaline dusts. The author found that pure metallic aluminum considerably retarded the rise of silicosis and also had an inhibitive effect on the development of fibrotic reactions. Iron and magnesium dust also possess a very slight inhibitory action on silica. The additon of cement dust brought about a slight decrease in the effect of silica but appeared to increase the risk of pulmonary infection with fatal issue at a relatively early stage (like other alkaline dusts).

111. Stone Dust in Mines as it Affects Silicosis. C.S. Chubb and T.A.J. Braithwaite. Iron & Coal Trades Rev., 139, 417 (November 24, 1939).
The authors briefly state certain facts about silicosis and consider the various sources of stone dust in a coal mine, methods of combating the dust hazard, and ways and various means of determining the concentration of dust.

112. On the Free and Combined Silica in Silicotic Lungs. G.E. & M.J. Youngberg. Proc. Soc. Exp. Biol. & Med., 43, 146-148 (January 1940).
This is the data and results on 14 silicotic lungs obtained from autopsies. Free silica varies greatly both in actual concentration and in per cent of total silica; concentrations range from 0.086% to 1.296% of the dry lung; as a part of the total silica, the free silica ranges from 3.25% to 91%. Total silica was determined by gravimetric hydrofluoric acid method.

113. Observation of a Fatal Case of Silicosis without Tuberculosis. F. Naville, R. Herrmann and R. Andeond. Arch.mal.prof., 2, 464-470 (1939). (French).
A fatal case of silicosis caused by sandblasting. A marked pleuritic thickening of the upper left lobe is striking.

114. Silicosis and the Analyst. F.S. Fowweather. Analyst, 64, 779-787 (November 1939).
Where pathological evidence is doubtful, chemical analysis of the lungs may possibly help to clarify the issue but it can never be a deciding factor in the diagnosis of silicosis after death. The relation between fibrosis and the silica-content of lungs is far from close. While in general the most fibrotic part was found to contain more silica than the less fibrotic portion, great differences between degrees of fibrosis were found where differences in silica content were small, and vice versa. Comparing the lungs of different individuals in different occupations this lack of correlation was often very striking.

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115. Use of the Interferometer for Two Component Mixtures. G.C. Harrold and L.E. Gordon. J.Ind.Hyg. & Toxicol., 21, 491-497 (December 1939).
The interferometer may be used in industrial hygiene to quantitatively determine any gas or vapor having a refractivity sufficiently different from that of air. A limiting factor has been that there is no available refractivity for certain substances. The authors have devised a method for the calibration of the interferometer and have constructed charts for high and low concentrations of the various contaminants. It will aid in making more accurate routine air analyses for toxic vapors having a sufficient spread in refractivities.

116. The Percentages of Particles of Different Sizes Removed from Dust-Laden Air by Breathing. A.M. Van Wijk and H.S. Patterson. J.Ind.Hyg. & Toxicol., 22, 31-35 (January 1940).
Results of an investigation into the fractions of particles of various sizes removed from dusty air by breathing. For this purpose, the authors devised an apparatus using thermal precipitators as sampling instruments. They found that 25% of the 0.2 micron size and 80% of the 2 micron particles were removed. The percentage removal between these two sizes is nearly proportional to the square root of their size. Above the size of 3 microns, the percentage removal increases slowly until at the 5 micron size almost 95% of the particles are removed. These conclusions are based on the results obtained using three subjects for breathing tests.

117. Separation and Collection of Suspended Material from Gases. O.M. Faber. Staub, 9, 119-124 (1939). (German).
A discussion of the deficiency of present methods. The author believes washing methods are preferable to filters. Methyl alcohol, with a surface tension less than water, is recommended. With wash bottles containing water and others containing methyl alcohol, he was able to retain all of the dust in air. A quantitative precipitation is possible if one bottle contains methyl alcohol vapor.

118. Determination of Quartz (Free Silica) in Refractory Clays. L.J. Trostel and D.J. Wynne. J.Am.Cer.Soc., 23, 18-22 (January 1940).
A modified chemical method is described, in which the sample is strongly fluxed with potassium pyrosulfate in a vitreous silica crucible. This procedure is more efficacious than boiling in concentrated sulfuric acid to dissolve a wide range of aluminum silicate minerals and the highly aluminous or diasporitic clays. The silica, combined with the clay minerals, is liberated as silicic acid and is subsequently dissolved in hot sodium hydroxide solution. The quartz remains as a residue. A determination may be completed in 8 hours or so and no special apparatus or reagents are required. The prescribed temperatures, however, must be closely followed. The maximum quartz that will be found in clays is probably 50%. The net error in this case would be minus 0.15%. In a clay containing about 25% quartz, the errors are practically balanced. For clays containing 10% or less quartz, the net error would be plus 0.13%. The method has been applied only to the more common unfired refractory clays. Its value for high-temperature forms of crystalline silica and fired fireclay products remains to be studied.

119. Dust Count Techniques in Tri-State Mines. H.C. Chellson. Eng.Min.Journal, 140, 29-33 (December 1939).
The first investigation of silicosis was made in the Tri-State region in 1913. Interest in this subject has continued, with surveys, precautionary measures, and clinics being supported and encouraged by various industrial, governmental, insurance and social groups. A summary of survey methods, dust count records, and recommendations is given.

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120. Air Sampling of Asbestos Dust. J.W. Fehnel. Industrial Medicine, Ind. Hyg. Sec., 1, 5-7 (January 1940).
The author finds that the impinger and electrostatic methods of sampling agree in the determination of total asbestos dust concentration but that the latter method does entrap more fibers. Although there are reports in the literature of fibers as long as 360 microns in the lungs of asbestos workers, the author found that 50% of the dust collected was less than 2.5 microns in the longest dimension and 97% were less than 10 microns. These samples were obtained in plants where asbestos textiles were manufactured.

121. Factory Dust Control. P.C. Ziemke. Mill & Factory, 25, 73 (September 1939).
A satisfactory program for the prevention of silicosis in the majority of dusty industries will include physical supervision and education, alternation of men at dusty and non-dusty work, segregation of dusty processes, local exhaust ventilation, masks or helmets or both, and finally plant cleanliness and a determination on the part of those responsible to keep down dust.

122. Ore Concentration and Milling (Dust Control). E.W. Engelmann. Min. & Metall., 21, 36-38 (January 1940).
In a general discussion of ore concentration and milling, the author discusses recent developments in dust control measures taken in this industry.

123. The Removal of Silica Dust from Large Castings Three Crane Size. P.S. Tanner, Occupational Hazards, 2, 8-10, 23 (February 1940).
A discussion of the difficulties of dust control in the shake-out of large castings weighing from 200,000 to 350,000 pounds and necessitating the use of three cranes. A plan was devised to take care of the unusual problems due to the size of the castings utilizing roof ventilators, isolation and periods when few workmen are about. It was not found that a ventilating system of this type resulted in an increase in the number of cases of colds and pneumonia.

124. Requirements for Dust Control in Stone Cutting. T. Hatch and W.B. Harris. New York State Dept. of Labor, Industrial Bulletin, 18, 379-381 (December 1939).
Basic studies into the problem of dust control in stone cutting have revealed that this hazard can be effectively controlled. Local exhaust ventilation is the usual method of elimination employing special designs to provide for the flexibility of movement required by this type of work. Wetting may be effective in certain operations. An outline of recommended standards of design for hoods and other parts of the exhaust system is given and a list of operations where wetting has been found to be an effective method of dust control.

125. Violations of Safety Orders. Workmen's Compensation Statistics, Industrial Commission of Wisconsin. December 22, 1939.
The Workmen's Compensation Law gives some weight to the "negligence" factor in that it provides that compensation indemnity and death benefits shall be increased by 15% where the injury was caused by the employer's failure to comply with safety orders of the Industrial Commission or the State Safety Statute. Similarly the Legislature has provided that compensation shall be reduced by 15% where the injury was caused by the employee's failure to use safety devices provided by the employer -- or by failure to obey reasonable safety rules established and enforced by the employer -- or because of intoxication. During the 17-year period, 1922 to 1938, there were 6,405 injury cases where it was found that injury was due to "negligence" of the employer. The increased indemnity paid in these cases totaled over $465,000 or an average of $27,000 annually. There were nearly 100 cases where the injury was found to be due to "negligence" of the employee -- the resulting reductions averaged less than $400 a year.

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126. Origin of Silicosis Claims. Ohio Industrial Commission Monitor, 13, 16 (January 1940).
The Silicosis amendment to the Occupational Disease act of Ohio became effective July 31, 1937. An analysis shows that of the 330 silicosis claims since then, 111 have been allowed, 165 disallowed and 54 are still pending. A study as to their source reveals that 59 cases or 53.1% originated in foundries, 14 in steel, 32 in iron and 13 in non-ferrous plants. Forty-two or 37.9% were in the ceramic industries, distributed as follows: building brick and tile 1, enamels 2, firebrick 2, floor and wall tile 8, glass house refractories 3, insulating brick 3, insulators 1, silica sand and diatomaceous earth 2, stoneware products 2, and tableware 14. Eight or 7.2% were in cut stone plants, 6 in monument works and 1 each in quarries and building stone. There was 1 case in polishing and buffing of iron and steel and one grinding knives on a sandstone wheel.

127. Occupational Disease Coverage. R.C. Starr. National Safety News, 41, 17 (January 1940).
A summary of the current trends in occupational disease legislation. See Abstract No. 786, November 1939 Bulletin.

128. Pyrophyllite Dust -- Its Effect and Control. M.F. Trice. American Institute of Mining & Metallurgical Engineers, Tech. Pub. No. 1179 (February 1940).
Pyrophyllite is used commercially to fill cloth, paper and roofing materials; as an extender for paints and as a surfacer for cardboard; in the production of electrical and other porcelains; in the manufacture of talcum powder, as a filler in storage batteries and for dusting tire molds, to prevent sticking.
Its silica content varies from 10 to 35% and has been shown to produce a dense fibrosis of the lungs. This is a report of the clinical findings, of the dust surveys made and of the control methods which were instituted. Counts were reduced from as high as three billion to 10 million.

129. Wool Sensitivity in Woolen Industry. J. Am. Med. Assoc., (Queries & Minor Notes) 113, 2260 (December 16, 1939).
Avoidance of or minimizing contact with virgin wool and hyposensitization are the only two methods that can be used in wool sensitive cases. The former is preferable to the latter. It is difficult to decrease the amount of wool dust in wool manufacturing establishments. No successful means of dealing with sensitive workers who are compelled to remain in the industry are known.

130. Testing and Design of Respiratory Protective Devices. H.H. Schrenk. U.S. Bureau of Mines, Information Circular No. 7086 (September 1939).
The test apparatus, test procedures, and approval requirements of dust respirators are described in detail. A description of the design and operating principles of the various types of respiratory equipment is given; also in some detail the requirements for masks for protection against carbon monoxide.

131. Welding Shops Require Exhaust Ventilating Systems. H.S. Card. Sheet Metal Industries, 13, 928 (July 1939).
The larger production of fumes and smoke which have resulted from the increased use of heavily coated electrodes has resulted in an investigation of this suspected hazard with findings that are predominantly negative. However, since cleaner atmospheres contribute greatly to efficiency in workers, special measures of exhaust ventilation have been adopted. A discussion of various methods is given.

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132. On the Hygiene of Bomb-proof Shelters. C.L. Schwartz. Gesundheits Ingenieur, 62, 569-71 (September 23, 1939). (German).
A report from the Hamburg Institute of Hygiene reviewing methods of maintaining hygienic air temperatures and humidity conditions in anti-aircraft protection shelters, taking into account effects of gas attacks.

133. Experimental Basis of Injury by Light Metals. W. Bufe and H. Gissel. Dtsch. Ztschr. f. Chir., 252, 224-234 (1939). (German).
Histological examination has revealed that vacuoles are formed in the inflamed tissue around small splinters of light metals, especially those of aluminum and duralumin. Whereas heavy metals have a germicidal effect in nutrient agar, light metals have no such effect. These facts explain the unusual course of inflammation in lesions caused by light metals.

Papers on Industrial Poisons, Cancer, Dermatitis, etc.

134. Problems in Safe Handling of Solvents. I. Mellan. Occupational Hazards, 2, 16-17, 38-40 (February 1940).
Comparative lists of chlorinated solvents are given, arranged according to relative toxicity. Those which produce only a light narcosis are listed separately from the group which produce fatal poisoning. The author suggests that concentrations of benzene as low as 1600 p.p.m. give rise to cases of light poisoning; this is much higher than the permissible limit of 100 p.p.m. or less which is usually accepted. Toluene, the polymethylene derivatives, the anesthetics, alcohols, esters, ketones, ethers and glycols are also discussed.

135. Solvents in Photogravure. E. Wagner. Druck. u. Werberkunst. No. 4, 140 (1939). (German).
A description of the effects of benzene, toluene and xylene upon the skin, blood, central nervous system and internal organs.

136. The Use of Lead-Containing Spray Dyes in the Leather and Artificial Leather Industries. K. Humperdinck. Arbeitsschutz, 270-271 (1939). (German).
Several cases of lead poisoning stimulated an analysis of the dyes used in artificial leather work. The paint showed about 3.5% of lead, while there was about 25% in the yellow and brown pigments.

137. Myelotoxicosis from Benzene. Clinical and Hematological Study of 10 Cases of Occupational Benzene Poisoning. M. Lamy, P. Kissel and L. Jerquin. Sang, 13, 467-488 (1939). (French).
A report on benzene exposure in shoe workers. There had been a chronic exposure for a number of years but with the introduction of a new adhesive containing 80% benzene, there was a sudden appearance of symptoms. In every case, there was anemia, decrease in erythrocyte count, hemorrhage, increase in bleeding time, fall in number of platelets and leucocytes, especially granulocytes. Improvement was slow and there were relapses. There was fever in the cases which progressed. The fatal cases showed changes not only in the bone marrow but also in the liver. In three fatal cases, the bone marrow aplasia was almost complete. Vitamin E was without effect but blood transfusions gave good results.

138. Hematological Research on Experimental Poisoning by Trinitrotoluene. M. Bizzari. Folia. Med., 24, 801-828 (1939). (Italian).
The author believes he can differentiate between the blood changes caused by the nitrogen tetroxide group (polycythemia) and those resulting from toluene (anisocytosis, leucopenia, etc.).

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UNLIMITED AUTHS

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139. The Acute Vapor Toxicity of Allyl Chloride. E.M. Adams, H.C. Spencer and D.D. Irish. J. Ind. Hyg. & Toxicol., 22, 79-86 (February 1940).
This compound appears to be one of the most toxic of the halogenated hydrocarbons, having a strong irritant action. Animals exposed to as little as 10 mg. per liter showed irritation of the mucous membranes after a short exposure. Microscopic examination revealed lesions in the lung and kidney but only slight changes in the liver. Death seemed to result from lung injury, though kidney damage may have been a factor in prolonged exposures at low concentrations.

140. Comparative Physiological Effects of Pure, Commercial and Crude Benzenes. H.H. Schrenk, W.P. Yant, S.J. Pearce and R.R. Sayers. J.Ind.Hyg. & Toxicol., 22, 53-63 (February 1940).
Comparative study made on various grades of benzene. Effort was also made to determine whether the entity known as benzene poisoning is due to pure benzene or impurities occurring in it. Crude benzene seems to produce the least physiological action. The pure and commercial types have about the same effect, the one affecting guinea pigs more pronouncedly, the other having a greater effect on dogs. The conclusion reached was that the animals' response is characteristic of benzene poisoning; that it is due to the benzene content and not to impurities.

141. Experimental Studies on the Toxic Effect of Trichlorethylene. P. Lane, P. Dervillee and C. Nun. Arch. Mal. prof., 2, 454-463 (1939). (French).
No internal changes were observed in experiments where trichlorethylene was introduced by the skin or mucous routes, but by ingestion or inhalation, over a period of time, they found hepatic and renal changes. The acute action affect the nervous centers.

142. Injury by Asplit. E. Schrader and W. Rösgen. Münch. med. Wchnschr., 86, 1239-1241 (1939). (German).
Asplit, a mixture of phenol-formaldehyde resin, quartz dust, paratoluene sulfochloride and kaolin used for making or lining vessels for acids and alkalies. The workers most often affected are those who heat the substance and they show various symptoms. There have been itchy eruptions of the skin, irritations of the respiratory mucous membranes, gastro-intestinal disturbances, nervous symptoms, convulsions and subjective heart troubles.

143. Carbon Disulfide Poisoning of the Nervous System. C. Baumann. Ztschr. f. d. ges. Neurol. u. Psychiat., 166, 568-580 (1939). (German).
The author is interested in the differentiation of acute and chronic carbon disulfide poisoning. He describes a case of the acute type with disturbances of sensibility and mobility of the right half of the body and concludes that this was caused by injury to one-half of the cerebellum. In experimental poisoning in animals, he found in chronic poisoning large parts of the gray matter changed, not only the cortex but also the basal ganglia and the medulla oblongata. In the animal acutely poisoned, the Purkinje cellules of the cerebellum were markedly affected.

144. Subacute Yellow Atrophy of the Liver due to "Solvent." L.E. Braunstein. J.Am. Med. Assoc., 114, 136-138 (January 13, 1940).
Petroleum derivatives usually have a toxic effect on the central and peripheral nervous systems ranging from mild neuritis to coma with death. This is, however, a report of a case of subacute yellow atrophy of the liver due to exposure to "Stoddard's solvent" commonly used in the dry-cleaning industry. Tests on the particular solvent used failed to reveal impurities or other compounds.

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INDUSTRIAL HYGIENE DIGEST

145. Chlorinated Naphthalenes in Industrial Medicine. F.B. Flinn. Arch. mal. prof. 2, 433-439 (1939). (French).
Workmen exposed to these substances show symptoms of hepatic disturbances. Fatal cases die with signs of toxic jaundice. The author reports the results of morphologic and chemical examination of the blood and of the autopsy. Animal experiments show that the exposure produces acute yellow atrophy of the liver.

146. Apparatus and Methods for Testing the Toxicity of Vapors. D.D. Irish and E.M. Adams. Ind. Med., Ind. Hyg. Sec., 1, 1-5 (January 1940).
A description, with designs and photographs, of the devices and methods used by the authors for maintaining controlled concentrations of a vapor in air for the purposes of testing its toxicity. They discuss supply of air and vapor to be tested, metering, mixing, exposure chambers, exhaust systems, sampling and analytical methods, and the subject of control animals. Such toxicological experiments are the sole basis for many of the accepted permissible limits. Upon them are based the plans which will permit of their safe manufacture or use in industry.

147. Termite Spray and Orthodichlorobenzene. J. Am. Med. Assoc., (Queries & Minor Notes) 113, 2082 (December 2, 1939).
Ortho-dichlorobenzene is the usual agent contained in these sprays. Care should be taken to avoid skin contact with this substance and in applying it to the closed space under a building, the operator should not remain too long exposed to the vapors.

148. Lead Content of Urine and its Relation to Clinical Diagnosis of Lead Poisoning. J. F. Reith and C.P. van Dijk.Netherland. Tidjschr. v. Geneesk. 83, 1584-1591 (1939). (Dutch).
The normal ingestion of lead is estimated to be 250-500 micrograms per day which is mostly eliminated in the feces. Although the urinary elimination of lead is regarded to be the best indicator of the severity of lead poisoning, it is hampered by the lack of agreement on the normal lead content of the urine. Therefore, the authors studied urine of 102 normal persons. Using the dithizone method, they found that in 98% of the cases the value for lead was below 50 micrograms. Bismuth is a possible source of error as it reacts with diphenylthiocarbazol almost like lead.

149. Lead Poisoning and Carbon Monoxide Poisoning Cases Settled, 1933-1938. Workmen's Compensation Statistics, Industrial Commission of Wisconsin. December 15, 1939.
For the six year period, 1933-1938, the table shows 74 cases of industrial lead poisoning which cost $57,093 or an average of $772 per case for indemnity and medical aid benefits. It also reports 131 cases of industrial carbon monoxide poisoning which cost $35,682 or an average of $272 per case. A majority of the lead poisoning cases were due to the absorption of lead from ordinary commercial paints. Most of the carbon monoxide cases involved automobile mechanics or drivers of trucks and other vehicles with closed cabs.

150. Experimental Study on Ingestion of Lead Compounds. R.A. Kehoe. J.Am.Med.Assoc., 114, 438 (February 3, 1940).
Two human subjects were used: one ingested 2 mg. of soluble lead daily for six months, the other 1 mg. for a period of thirty months. Neither had any symptoms of plumbism, even of the vague type, nor did they show any of the blood changes. The results are highly significant in connection with the hygienic problem of human lead ingestion with food and beverages and in relation to the diagnosis of lead intoxication.

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UNIVERSITY MICROFILMS

151. Lead Poisoning and Parkinsonism. J.Am.Med. Assoc., (Queries & Minor Notes) 114, 79 (January 6, 1940).
There is no known relationship between lead poisoning and the Parkinson syndrome. Although chronic lead poisoning causes a severe encephalopathy, no cases of parkinsonism have been described. Manganese is one of the metals known to cause a parkinsonian-like state.

152. Detection of Early Lead Injury by Observing the Skin Vessels. H. Otto and G. Hahn. Ztschr. f. klin. Med., 136, 61-76 (1939). (German).
Using the capillary microscope, the spasmodic effect of lead was demonstrated in the capillaries and arterioles. The observations are of the utmost importance in the study of the pathology of lead poisoning (high blood pressure, kidney disease) since it is the authors' opinion that the capillary changes are irreversible and gradually pass over into an arteriocapillary fibrosis.

153. Studies on the Detoxication Mechanism. I. The Ability of the Apple or its Constituents to Counteract the Toxic Effects of Lead and Arsenic. Ira A. Manville, Francis J. Roithel, Paul M. Yamada, T.W. Spencer and John R. Richardson. J. Ind. Hyg. & Toxicol., 22, 36-47 (January 1940).
Test animals were fed controlled diets containing known amounts of lead arsenate and apple supplements. It was found that as the proportion of apple to lead increased, greater protection against the toxic effects of lead (weight loss, death) was observed. The animals receiving the highest proportion of apple to lead showed no signs of toxicity and there was 100% survival. Although lead arsenate was the material used, the conclusion drawn is that protection is afforded against the toxic effects of lead by the apple.

154. Cancer from Lubricating Oils. A. Touraine and H. Bour. Rev. med. franc., 20, 285-292 (1939). (French).
The occurrence, clinical symptoms and medico-legal aspects of cancer from lubricating oils is very completely reviewed.

155. Non-Irritating but Adequate Cleansing of the Skin (Satina). H. Ruf. Munch. med. Wchnschr., 86, 1385-1387 (1939). (German).
To overcome the disadvantages of the usual alkali soaps, new types have been produced, the basic compounds of which are fat-alcohol-sulfonates or sulphonated oils, combined with condensation products of fatty acids. Another type, of which "Satina" is an example, is made from condensation products of protein.

156. Contact Dermatitis from Opium Derivatives with Special Reference to Occupational Aspects. J.W. Jordan and E.D. Osborne. J. Am. Med. Assoc., 113, 1955-1957 (November 25, 1939).
A report of three cases of dermatitis in nurses and one in a worker with morphine. In two of the nurses, the condition spread to other parts of the body. It may remain localized, however, and resemble ringworm or other types of contact dermatitis. One woman was very sensitive to dilutions as high as 1:1,000,000.

157. Anthrax and its Treatment with Immune Serum in Bulgaria. W. Batschwaroff. Deutsch. Med. Wchnschr., 65, 1343-1346 (1939). (German).
Out of a population of about 6,250,000, between 800-1000 cases of anthrax develop in Bulgaria. Nearly 3000 animals die of it each year. The mortality experienced by the author using a treatment of fractionated doses of serum was 4.3% of 346 men treated. The amount of serum used was 50-400 cc., although in some cases, it was as high as 900 cc.

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UNDER ARMS

158. Dry Ice (Carbon Dioxide). National Safety Council. Industrial Data Sheet No. D-Chem. 11. Reprints may be obtained from The National Safety Council, 20 N. Wacker Drive, Chicago, Ill.
A serious hazard encountered with the use of large quantities of dry ice is that of suffocation due to deficiency of oxygen. For this reason, ventilation must be provided for in the storage of dry ice especially where it is handled in pits. It may also cause serious "burns" or frost-bite on contact with the skin.

159. Industrial Dermatosis. E.G. Bagnulo. Industrial Medicine, 9, 23-25 (January 1940).
A discussion of the causes, (especially those of chemical origin) diagnosis, prevention and treatment of industrial skin affections. The author feels that more instruction of workers should be provided by employers and insurance companies. The preventive aspects of these diseases needs much more emphasis.

160. Toxicity of Chlorates. J.Am.Med.Assoc., (Queries & Minor Notes), 114, 347 (January 27, 1940).
Damaged skin is readily irritated by high concentrations of chlorate solutions. On the unbroken skin, chlorates act as oxidizers and dessicators. Inhalation of the dust is undesirable and repeated skin contact may result in a dermatitis. If appreciable quantities are absorbed, vomiting, gastro-enteritis, diarrhea, methamoglobinuria, hepatitis, nephritis, anemia, cyanosis and other manifestations may occur.

161. Effects of 3:4-Benzopyrene on Human Skin. G.B. Cottini and G.B. Mazzone. Am. J. of Cancer, 37, 173-328 (October 1939). Abstr. in J.Am.Med.Assoc., 114, 87 (January 6, 1940).
Daily cutaneous applications to human subjects of a 1% solution of benzopyrene in benzene for variable periods resulted in definite manifestations localized to the treated areas. Erythema, pigmentation, desquamation, the formation of verrucae and infiltration developed in chronologic order. Pigmentary and verrucous lesions were the most commonly observed changes. It would seem to be safe to conclude that benzopyrene, if applied to the human skin for extended periods, would be carcinogenic.

162. Etiology and Pathogenesis of Occupational Skin Diseases, Based upon Observations of 1,000 Workers with Skin Diseases. C. Flandin and H. Rabeau. Arch.mal.prof., 2, 247-259 (1939). (French).
Contrary to some writers, these authors maintain that the skin test is by far the best method of detecting sensitivity, even though it is laborious. Desensitization rarely succeeds. A detailed description is given of the method of skin testing. Negative results must be evaluated cautiously. Predisposing factors such as soaps, degreasing substances, climate and season may be present.

163. Minimizing Cutting Oil Skin Infections. J.T. Beard. Occupational Hazards, 2, 27-30 (February 1940).
A discussion of the necessary precautions for the prevention of skin infections by cutting oil. It may act as a carrier for organisms already in the surface of the skin as well as those which may contaminate the oil. The presence of sulphides in the oil, by increasing the acidity, may provide a medium for the growth of germs. Oil should be filtered and sterilized before re-use.

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164. Fetal Carbon Dioxide Poisoning in a Grain Silo. Ronicke. Arbeitsschutz, pp. 262-265 (1939). (German).
After entering a silo, a workman became unconscious. Although a rope was put around him, the upper part of his body fell through the back of a ladder and it was impossible to pull him out. Directly above the corn stored in the silo, the carbon dioxide content was 4%.

165. Carbon Monoxide and Hypertonia. M. Stamuler and G.W. Parade. Klin. Wchnschr., 18, 1049-1050 (1939). (German).
Autopsy report of a man, 48 years old, who six years previously had a blood pressure of 225/140 and had a constant exposure to low concentrations of carbon monoxide. Postmortem examination revealed an old yellow centre of softening at the periphery of the internal capsule and lenticular nucleus. There was also present a remarkable hypertrophy of the adrenal medulla. In the authors' opinion, carbon monoxide caused an excessive secretion of adrenalin, leading to an endocrine hypertonia. It is also possible that the brain changes had chronically stimulated the adrenal gland.

166. Severe Carbon Monoxide Poisoning with Prolonged Coma. E.B. Sanger and W.L. Gilliland. J.Am.Med.Assoc., 114, 324 (January 27, 1940).
Description of a very severe case of carbon monoxide poisoning resulting in varying degrees of coma for twelve days. After the coma the patient revealed transitory but marked symptoms of acute psychosis with parkinsonism. There was a severe peripheral polyneuritis followed by permanent paralysis of the muscles of the right foot. Except for the paralysis, the patient made a complete recovery, mentally and physically.

167. Disturbance of Sugar Metabolism after Acute Carbon Monoxide Poisoning. S. Moeschlin. Acta Med. Scand., 102, 140 (September 23, 1939). Abstr. in J. Am. Med. Assoc., 113, 2194 (December 9, 1939).
The investigation was stimulated by the observation of glycosuria after carbon monoxide poisoning. In 57% of the cases the blood sugar was noticeably increased; however, there was no correlation between the severity of the intoxication and the degree of increase in sugar content of the blood. Leucocytosis is more frequent than hyperglycemia. The author believes that the sugar disturbance is due to central impairment but is undecided whether it is direct toxic action or due to hypoxemia.

168. Parkinsonian Syndrome from Electrical Injury: Two Cases. M.H. Weinberg. Journal Nervous & Mental Diseases, 90, 738 (December 1939). Abstr.in J.Am.Med.Assoc., 114, 527 (February 10, 1940).
One of these cases was injured while using the telephone, resulting in deafness of the left side and athetosis. The other was diagnosed as having hemiplegia of the right side with parkinsonism due to a lesion involving the left basal ganglion and internal capsule as result of electrical injury. The author warns that there is a too ready tendency to diagnose functional disease in such cases.

169. Statistics on Human Anthrax in Germany in 1937. Reichsgesundheitsbl., 14, 729-732 (1939). (German).
A report of 7 fatal cases out of a total of 78. Of the 595 cases from 1931-1937, only eleven were internal; this type is always fatal. The external type was only fatal in 10.3% of the cases.