



FOUNDATION FACTS

Foundation Facts is a monthly news-letter issued to industrial concerns holding membership in Industrial Hygiene Foundation. The Foundation is a combined research and service institution to protect the health of workers in industry.

HWBB-0010378

Vol. 3

October, 1941.

No. 10

W. E. C. B.

Dear Mr. Member -

Plan to attend the Foundation's
Sixth Annual Meeting at Mellon
Institute, Pittsburgh, Nov. 12 & 13.

Maximum production demands
maximum precautions.

Defend the Defense Worker!

Sincerely,

Industrial Hygiene Foundation



October, 1941.

Industrial Hygiene Foundation,
4400 Fifth Avenue, Pittsburgh, Pa.

HW88-0010380

DIGEST OF INDUSTRIAL HYGIENE
Literature--News--DevelopmentsNews Items785 Control of Chlorinated Solvents.

Acting upon advices from the Department of Agriculture to the effect that the nation's food supply was facing a serious threat as a result of shortages of certain chemicals used by farmers and food warehouses for fumigation purposes, Donald M. Nelson, Director of Priorities, has placed under rigid control all stocks of chlorinated solvents. These are defined in the order as: carbon tetrachloride, trichlorethylene, perchlorethylene and ethylene dichloride. In cases of shortages of present materials, members are urged to consult with the Foundation before making substitutions. In this way, the use of hazardous materials may be avoided.

786 Priority Troubles.

In recent months, management has found difficulty in obtaining necessary materials for the installation of industrial ventilation systems because of priorities. The results of this difficulty on the health of defense workers is obvious and the following procedure has been suggested by the U.S. Public Health Service. The management of plants in which priorities materials are required for control equipment should file an application with the Division of Priorities, Office of Production Management, Washington, D.C., on Form PD-1. This form may be obtained from the offices of the Contract Distribution Division, Office of Production Management, which are located throughout the country in the various Federal Reserve Bank buildings. In addition, it would be helpful if the industrial hygiene agency would prepare a written statement, on the importance of obtaining the required materials, which the plant management could attach to its application.

787 Recent Experience of a Large Defense Contractor.

Defense plants speeding up production and working three shifts in 24 hours often find an unbalanced accident frequency pattern when comparing one shift with another. The following table is reproduced from a report of a large defense contractor and shows clearly the difference in accident frequency rates between the third shift and others.

<u>Shift</u>	<u>Hours</u>	<u>Accident frequency rate</u>
1	8 a.m.-4 p.m.....	7.96
2	4 p.m.-midnight.....	6.82
3	Midnight-8 a.m.....	15.00

It will be noted in the above table that there is little difference in frequency rates for the shift working from 8 a.m. to 4 p.m., and the one working from 4 p.m. to midnight. From midnight to 8 a.m. the frequency rate shows a decided

increase. Similar reports have also been made from time to time by field representatives who find a variation in "third shift" not only affecting the frequency rate, but lowering production as well. Some of the more obvious factors which suggest themselves as perhaps causing this abnormal condition are: Less skilled employees on the third shift; fatigue due to daytime activities, or in some cases, to a second occupation; less effective supervision on the third shift. Labor Standards. U.S. Dept. of Labor, 4, 67, (July-August, 1941).

788 ASA Considers Defense Standard on Concentration of Cadmium.

The first American Defense Emergency Standard for a toxic dust or gas has just been started through the emergency procedure of the American Standards Association for approval. The emergency standard specifies the permissible concentration of cadmium which may be considered safe for workers. It is now being considered by the Safety Code Correlating Committee of the American Standards Association. If approved by the SCCC, the proposed standard will be submitted to the chairman of the Standards Council as provided in the ASA Defense Emergency Procedure. The proposed emergency standard was developed by the U. S. Public Health Service acting as an Emergency Technical Committee under the ASA Emergency Procedure. Industrial Standardization, 12, 225 (September, 1941).

789 California State Board of Health to Prohibit Use of Mercury in Hattling Industry.

At the July meeting of the California State Board of Health, a resolution was adopted prohibiting the use of mercurial carroting compounds in California hatters' fur cutting and fur felt hat manufacturing plants after December 1, 1941. This action is a direct result of the conference held on May 19, 1941 by the Surgeon General of the United States Public Health Service at which proposed State regulations governing the use of hatters' mercurial carroting solutions were unanimously approved in principle by representatives of The Hat Institute, Inc., The Hatters' Fur Cutters Association, and health and labor officials from a number of States. Other States which have adopted similar regulations are Delaware, Rhode Island, Kentucky, Vermont, Connecticut, and Michigan. Ind. Hyg., Nat'l. Inst. of Health, 1, 5 (September, 1941).

790 Test Toluene Drunkenness.

Danger of defense industry workers getting toluene drunk from inhaling the fumes in their work and causing accidents costly both in manpower and materials may be prevented by a new test announced by Dr. Wolfgang F. VonOettingen, Dr. Paul A. Neal and Dr. Dennis D. Donahue, of the U. S. National Institute of Health, to the American Public Health Association. Toluene poisoning, like alcoholic intoxication, reduces a man's powers of coordination and reaction time and even gives an exhilaration similar to that felt after taking two or three cocktails on an empty stomach, and finally puts him to sleep. The early stages of incoordination and slowed reaction time, which might be fatally dangerous for a man working in a TNT factory, are not recognized by the victim of the poisoning.

A chemical test which gives advance warning of the danger by showing how much toluene the worker is getting into his system has now been worked out by the federal health scientists. It consists in determining the amount of another chemical, hippuric acid, which is excreted. Along with this test the doctor can make a simple test of the worker's coordination, such as asking him to pick up and thread a needle. The victim of insidious toluene poisoning, though he may not appear to be an accident-prone worker, would have trouble even picking up the needle. Exposure for eight hours to as little as two hundred parts per million of toluene produces definite impairment of coordination and reaction time, the federal scientists reported. Higher concentrations, such as may occur under defense-increased industrial activities, may be damaging within three hours exposure. Science News Letter, October 25, 1941.

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Notices of New Books

- 791 Accidental Injuries -- The Medico-Legal Aspects of Workmen's Compensation and Public Liability. Henry H. Kessler, M.D., Ph.D. Second Edition. pp. 803. \$10.00. Lea & Febiger, Philadelphia, 1941.

This book is not only written for physicians, but for lawyers, insurance companies, employers, industrial accident boards and personnel managers. Because there have been no major changes in the principles underlying the administration of the medical aspects of workmen's compensation claims, the original arrangement has been retained, and the basic factors which are the foundation of the evaluation of permanent disability have been emphasized. However, the entire book has been completely revised and enlarged, while special attention has been given to the chapters on traumatic neuroses and rehabilitation. The book is based on the author's experience covering more than 100,000 cases examined at the New Jersey Rehabilitation Clinic and the New Jersey Workmen's Compensation Bureau. It concerns itself mainly with the physician's responsibility in the interpretation of problems such as the determination of the relationship between injury and disease, of the period of temporary disability and the evaluation of permanent disability. It is well printed on good paper and has extensive author and subject indexes.

- 792 The 1941 Year Book of Public Health. Edited by J.C. Geiger, M.D., Dr.P.H. pp. 544. \$3.00. The Year Book Publishers, Chicago. 1941.

To one, part of whose job is to scour the literature on industrial hygiene, it seems that Dr. Geiger has presented an excellent summary of the year's activities in the field in only 37 pages. Every article selected represents a definite contribution or activity in the problem of industrial health conservation. Industrial hygiene is, of course, only one of the many fields of public health represented in this book, but is probably the one of most interest to our readers. There are excellent subject and author indexes.

- 793 Trauma and Disease. Edited by Leopold Brahdy, M.D. and Samuel Kahn, M.D. Contributions by Twenty-four Authorities. Second edition. pp. 655. \$7.50. Lea & Febiger, Philadelphia, 1941.

Certain chapters of the first edition have been only slightly changed; others have been rewritten entirely, in order to incorporate additional data and the newer concepts of the relationship between an injury and an ensuing disease. To one who follows the legal course of only the industrial aspects of trauma and disease, the growing importance is daily becoming more apparent. This is especially true in the case of pulmonary tuberculosis where the relationship has not been clearly defined. Hardly a month passes, however, without a case being filed for compensation or damages for tuberculosis in which the alleged causative or aggravating factor is dust or noxious fumes. This facet of the problem is discussed in Chapter IV of this book. The book is well printed and bound and has extensive author and subject indexes. The contents follow:

Trauma in the Etiology of Disease -- Trauma and Heart Disease -- Trauma and Peripheral Vascular Disease -- Trauma and Pulmonary Tuberculosis -- Trauma and Pulmonary Diseases -- Trauma and Disease of the Gastro-Intestinal Tract -- Trauma and Genito-urinary Diseases -- Trauma in Relation to Obstetrical and Gynecological Conditions -- Trauma and Mental Disorders -- Trauma and Neurosyphilis -- Trauma and Diseases of the Nervous System -- Trauma and Diseases of the Bones -- Trauma and Chronic Diseases of the Joints -- Trauma and Diseases of the Spine -- Trauma and Neoplasms -- Trauma and Diabetes -- Trauma and Diseases of the Thyroid Gland -- Trauma and Septicemia.

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UNIVERSITY MICROFILMS

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794 Control of Welding Hazards in the Defense Industries.

A new special bulletin issued by the Division of Labor Standards, United States Department of Labor, in Washington. This publication, which is the fifth in a series of special bulletins dealing with safety and health of defense workers, has been prepared by Prof. Philip Brinker, of the Department of Industrial Hygiene, Harvard School of Public Health. Typical health hazards associated with welding, according to the bulletin, are:

1. Eye injuries from the effect of the brilliant light of the arc.
2. Burns of the skin from the arc or burns from molten metal.
3. Burns from handling hot objects, such as wires, tools and rods.
4. Metal-fume fever and metal poisoning caused by lack of adequate ventilation in welding.

The bulletin outlines briefly the various preventive measures which should be taken by employers and which should be used by workers in controlling the hazards mentioned. A portion of the bulletin deals with welding in confined spaces such as those found in ship construction and certain other types of operations. The need for adequate ventilation in such spaces is stressed, both from the standpoint of removing harmful gases, fumes, and smoke, and also of providing adequate fresh air. In cases where local exhaust ventilation cannot be readily applied, the publication recommends the use of approved supplied-air respirators in order to provide welders and cutters with an adequate supply of fresh air. The bulletin concludes -- If attention is not paid to such matters as ventilation, adequate eye protection, respiratory protective equipment, or if welding and cutting operations are improperly screened such jobs may cause trouble. Intelligent precautions such as those outlined above give reasonable assurance that those jobs can be done safely. Both the employer and the worker have definite responsibilities which if observed will insure safety to those engaged in welding and cutting operations. For sale by Supt. of Documents, Washington, D. C. Price 10 cents.

Legal Developments

795 Longshoremen's and Harbor Workers' Compensation Act. Pulmonary Tuberculosis. Contracting of Disease from Co-employee. Sufficiency of Evidence.

The plaintiff, an employee for several years of the intervenor, Wm. Hahn & Company, contracted pulmonary tuberculosis and made claim for such as an injury occasioned by her employment under the provisions of the Employee's Compensation Act. The defendant, Commissioner, denied this claim. He determined that the plaintiff did not have direct or immediate contact with her co-employee, Myers, from whom it is alleged she contracted the disease. The plaintiff brings this action pursuant to The Longshoremen's and Harbor Workers' Compensation Act, which confers jurisdiction upon this Court to set aside a compensation order not made in accordance with law. The critical question involved is whether or not the plaintiff contracted pulmonary tuberculosis from Jerry Myers, a colored employee who had worked in the same store with the plaintiff during her period of employment, who was hospitalized for tuberculosis shortly after the plaintiff discovered that she was so afflicted, and who died shortly thereafter from such disease. The determination of this question is necessarily grounded upon the extent of the contact between the two employees. While, under the evidence, the Commissioner might have come to a different conclusion from that which he did, it cannot be said that the conclusion which he did reach is not supported by substantial evidence. The motion to dismiss the complaint is granted.

Dansky v. Cardillo. U.S. Dist. Ct., Dist. of Col. Decided August 11, 1941.(CCH)

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796 Furnace Operator in Draft.

The widow of a tempering furnace operator applied for a death award, alleging that her husband's death was due to a severe cold contracted through exposure to a draft from an outside window while he was perspiring from the heat of the furnace. The employer contended that the decedent had not been exposed to any hazard of his employment and that his death was due to natural causes. The investigation of the claim brought out that the decedent had worked at the job for eight years and that the conditions surrounding his employment were about the same at all times, although claimant alleged that the decedent had closed a window to shut off a cold draft and other employees had opened it. The medical department could see no relation between the death of the decedent and any exposure in the course of his employment. Affidavit of an employee who worked on an adjoining machine was to the effect that the decedent complained about a severe cold but did not mention anything about the draft bothering him. The Commission held that proof of an injury sustained in the course of and arising out of decedent's employment was lacking and ordered that the claim be disallowed. Ohio Ind. Comm. Monitor. 14, 153 (October, 1941).

797 Rheumatic Fever in Wet Sander.

In this case the claimant was employed as a wet sander on coach bodies and he asked compensation for disability due to an attack of rheumatic fever. His duties required him to work constantly with sand paper wetted in water and then used to smooth enamel. He wore rubber boots and a rubber apron and his clothes did not ordinarily become wet, but he developed acute rheumatic fever, with arthritis involving both wrists and hands. The claims reviewer, basing his opinion on the medical report that claimant's condition could reasonably be due to exposure to water almost continuously in the course of his employment, thought the claimant should have the benefit of the doubt, especially since the employer agreed with this conclusion. The Commission found that claimant suffered from a compensable occupational disease and ordered that the claim be allowed. Ohio Ind. Comm. Monitor. 14, 153 (October, 1941).

798 Tenosynovitis in Soda Clerk.

In this case the claimant was a young woman employed as a clerk at a soda fountain. She based her application for compensation from the Occupational Disease Fund on the allegation that she was suffering from tenosynovitis, a compensable occupational disease. The investigation of the claim disclosed that the claimant had worked for three months at the fountain and that she developed what she described as a sprain of the tendons of one arm but which was diagnosed by the attending physician as tenosynovitis and which was due, the medical report said, to the continuous dipping of ice cream. The claims reviewer was of the opinion that the claim should be allowed and the Commission so ordered. Ohio Ind. Comm. Monitor. 14, 153 (October, 1941).

799 Bookkeeper's Allergy.

A feminine employee of a hardware company filed application for compensation for disability due to an eye condition which, she alleged, arose from the conditions of her employment. The investigation revealed that the claimant had worked as a bookkeeper for the past thirteen years. She worked in a room 25 feet long and 8 feet wide, enclosed by glass windows and heated by a small, radiant type gas heater. She had worked in this room from April 1, 1940 until September 22, 1940, when she developed an inflammation of the outer edge of the right eye, being disabled until November 7, 1940. The diagnosis of the attending physician was an allergy affecting the tissues, membranes and skin surrounding both eyes. The medical investigator to whom the claim was referred considered it improbable that the conditions of claimant's employment or the fumes from a radiant heater

could have caused the disability and the claims reviewer recommended disallowance. The Commission held that proof was lacking that claimant's disability was due to a compensable occupational disease and ordered that the claim be denied. Ohio Ind. Comm. Monitor. 14, 153 (October, 1941).

800 Solar Retinitis.

The claimant in this case, a fireman on a heat-treating furnace, had applied for compensation alleging injury to his eye as a result of intense light to which he was subjected in the performance of his duties. The claim was considered and denied but the claims referee suggested the possibility that the claimant might have contracted an occupational disease. An O.D. claim was then filed but after investigation it was disallowed on the ground that claimant's disability could not be ascribed to an occupational disease. The claimant then exercised his statutory rights under Sec. 1465-68d, Effective May 26, 1939, and applied for a review of his application by a Medical Board of Review. The case was heard before a medical board at Cleveland and it found that "in the absence of known or proven etiology, from a physical standpoint one cannot deny the possibility of a solar retinitis, the result of exposure to intense light." The board recommended allowance of the claim and the Commission followed the board's finding, allowing compensation for a total loss of vision of one eye. Ohio Ind. Comm. Monitor. 14, 153 (October, 1941).

801 Pneumonia in Sign Painter.

Display sign painter for a department store who worked indoors was assigned to new quarters in another building. Consequently, one day in January, he moved his brushes and paints into the other building. In order to do this it was necessary for him to go through a tunnel connecting the two buildings and use an elevator to the third floor. The tunnel was heated but the elevator shaft was not heated. Said sign painter contracted a cold which developed into lobar pneumonia and resulted in death five days later. His widow filed a claim for death benefits alleging that her husband contracted the cold when moving and while riding up and down a number of times in the drafty and cold elevator. Decision (1) that the evidence did not indicate that anything extraordinary or catastrophic occurred to justify a finding of accident and (2) that the disease was not an occupational disease inasmuch as the pneumonia was not the natural and unavoidable result of the conditions of the employment, upheld. Disallowance affirmed. Westbrook v. Edwards & Sons, 262 App. Div. 785. N. Y. State Dept. of Labor Ind. Bull., 20, 213 (July, 1941).

802 Blisters and Callouses.

A letter directed by Chairman Will T. Blake of the Ohio Industrial Commission to help John D. Goodrich, supervisor of the Claims Section, says: "The question of whether or not blisters and callouses caused by employment should be considered as injuries or occupational diseases has been presented to the Commission. It is the opinion of the Commission that if blisters and callouses can be attributed to one specific act they should be considered as injuries. However, if callouses or blisters cannot be attributed to one specific act but result from the work performed by the claimant, they should be considered as occupational. Medical expense and compensation for disability resulting from callouses and blisters, or the infection thereof, should be paid as in other claims." Ohio Ind. Comm. Monitor. 14, 140 (September, 1941).

---Remember the Meeting, Nov. 12-13---

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ARRAMS

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803 Silicosis as Cause of Hernia.

In this case compensation has been allowed claimant for disability due to silicosis contracted in the course of his employment. The award was made for temporary total disability from August 3, 1940 to November 2, 1941. Under date of February 13, 1941, the claimant notified the Commission that he had developed a hernia as the result of a violent coughing spell and asked that treatment for the condition be included in his claim. The medical department reported that there could have been a direct relation between the hernia and the violent coughing spell to which silicotics are sometimes subject, as it developed immediately after the attack. The claims referee considered the claim compensable and the Commission ordered that the hernia be recognized as a part of the claim. Ohio Ind. Comm. Monitor. 14, 157, (September, 1941).

804 Review by Medical Board.

This was an occupational disease claim which was heard by the Commission on January 30, 1941, and disallowed on the ground that proof was lacking that the claimant's disability was the result of a compensable occupational disease contracted in the course of his employment. Subsequently claimant exercised his statutory rights and filed an application for review of his claim by a Medical Board of Review as provided for in Sec. 1465-68 D, effective May 26, 1939. The case was reviewed before a three-man board at Cleveland on April 25, 1941, which held that the claimant's disability was due to the aggravation of a pre-existing condition as the result of irritating fumes. Since the Commission, under the statute, is bound by the decision of the Medical Board of Review on medical questions, the claim was ordered allowed. Ohio Ind. Comm. Monitor. 14, 136, (September, 1941).

---Annual Meeting - Nov. 12 and 13---

Fatigue as Accident Hazard. The father of the decedent filed the application, alleging that death was due to an injury sustained in the course of his employment. From the report of the investigation, it appears that the decedent had worked on shift ending at 4:36 A.M., and accepted the option of working another shift beginning at 7:00 A.M., spending the few hours intervening sleeping in a chair at home. As he concluded the second shift after sweeping up the shop, he was seen to spin around and fall to the cement floor. When picked up he was bleeding at the mouth, his eyes were set and his head was jerking. The evidence indicated that nothing was likely to have caused him to fall other than an attack of some kind, although one witness said there was a small spot of water on the floor near where he fell. The claims reviewer theorized that since the decedent had worked 18 hours, his attack may have been due to fatigue. He was of the opinion that this long stretch might be considered a hazard of his employment and recommended an award of \$1000 to the father as a prospective dependent. The Commission however, held that proof failed to show an injury sustained in the course of and arising out of employment and ordered that the claim be denied. Ohio Ind. Comm. Monitor. 14, 137, (September, 1941).

806 Death as a Result of Silicosis Contracted in the Course of Employment. Application for Modification of Award. Dismissal. Mandamus Proceeding. Constitutionality of Section 1465-68A.

The Columbus Malleable Iron Company employed Lourin, the husband of the relator. From 1930 to 1937, while working for such company, in the course of his employment as a bench molder, making molds from sand, Lourin was exposed to dust, which resulted in his contracting silicosis. He died in 1938 from silicosis. The commission made an order that the maximum amount of compensation payable herein

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according to the provisions of Section 1465-68a, General Code, is \$551; and that the commission grants the maximum amount. In 1939, relator filed an application for a modification to the effect that the compensation for the death claim should have been allowed and paid in accordance with Section 1465-82, Subsection 2, General Code, instead of the latter portion of Section 1465-68a, General Code. The application was dismissed. It is alleged that that portion of Section 1465-68a, General Code, which provides certain limitations on the award to the dependent of one dying from an occupational disease is unconstitutional under Section 26, Article II of the Ohio Constitution, and of Section 1, Article XIV, Amendments of the United States Constitution. Relator desires that mandamus issue requiring the commission to award her compensation as the widow of her deceased husband, under Section 1465-82. Respondent, the Industrial Commission, demurs to the petition for a writ of mandamus on the ground that it does not state facts sufficient to show a cause of action entitling the relator to the remedy therein sought. Relator asserts that she is not accorded the same protection as is accorded to other persons of the same class, that is, claimants for compensation or benefits arising out of occupational diseases.

For quite a period the Legislature neglected to exercise its power to provide compensation for occupational diseases, and the question was never raised that under the Constitution it was obliged to provide such relief or to fix the rate. Under the constitutional provisions, the Legislature has a right to pass such legislation as to provide such compensation and death benefits as may seem just.

That portion of the section claimed to be unconstitutional is not violative of the provisions of the Constitution. Demurrer sustained. State, ex rel. Lourin v. Industrial Commission of Ohio. Ohio Ct. of App. Decided January 28, 1941. (CCH).

807 Tuberculosis Contracted by Repairman for Electric Refrigerators. Sulphur Dioxide Gas. Sufficiency of Evidence.

The appellee, Stribling, brought this action to recover damages for an injury suffered by him while a servant of defendants, and recovered judgment in the sum of \$30,000. The evidence was conflicting to the extent that the jury would have been justified under the law in finding a verdict either way. Stribling testified, and he was substantially supported, that in repairing refrigerators which was his work, it was generally necessary to first purge them of the gas, make the repairs and then replace the gas; that if no protection therefrom was used the gas was highly inflammatory to the nose, throat and lungs; that the plaintiff was not aware of the dangers and the defendants did not warn him of them and furnish him protection against them, as they could have done at little cost; that the result was he contracted tuberculosis causing him permanent disability. The position of the defendants is that they are not liable in damages for the injury to the plaintiff caused by tuberculosis because they had no notice either by experience or otherwise that the inhaling of the gas might reasonably result in that disease. However, plaintiff made out his case by showing that serious injury might result without his putting his finger on the particular serious harm. On the other hand, it was reversible error that a cousin of one of plaintiff's counsel was a juror. Reversed and remanded. Mississippi Power Co. et al. v. Stribling. Miss. Supreme Ct. Decided September 22, 1941. (CCH).

808 Dermatitis from Creosote Poisoning and Poison Ivy Proves Fatal.

The deceased employee, a bridge worker, contracted poison ivy and creosote poisoning from handling timbers which were treated with creosote and had been lying in poison ivy. A dermatitis developed which proved fatal. The defendant claimed

that the employee did not die from the dermatitis, but that the death was due to arsenical poisoning which resulted from injections of nearsphenamine given to the employee in the mistaken belief that he was suffering from syphilis. The testimony showed the creosote poisoning and the poison ivy to be the chief factors, or at least the largest contributing factors to the fatal results. Since the poisoning sustained by the employee was "accidental," the death was held to be compensable. This was so even though the injections administered to the employee may have contributed to the death. Woodward vs. Kansas City Bridge Co. (Louisiana) 153 So. 2nd 221 (June, 1941). Occup. Hazards, 4, 33 (October, 1941).

- 809 Failure to Provide Modern Dust Control Equipment Results in Silicosis Awards. Six cases involving disabilities resulting from silicosis were heard together, the facts in all of the cases being fundamentally the same. The claimants were miners employed in the company's mine. Operations included blasting as well as drilling. The company had installed wet drilling apparatus, but nevertheless much dust was present and the claimants developed silicosis. Other than the wet drilling equipment the mining company had done little to improve conditions. Its failure to do so resulted in awards to the claimants. The Court stated that an injury caused by conditions which science and industry have learned to control and eliminate cannot be classed as an occupational disease. It stated that there is no cure for silicosis but that hope in stemming the disease lies in preventive measures. The company had failed to provide any mechanical ventilation, had not installed exhaust pipes or filters, and had not supplied masks for the underground workers. The neglect to take these preventive measures resulted in a finding by the Court that the silicosis was not a non-compensable occupational disease under the Compensation Act, but a compensable injury. Howard vs. Texas Owyhee Mining & Development Co. and five other cases. (Idaho) 115 Pac. 2nd 749 (July, 1941). Occup. Hazards, 4, 32 (October, 1941).
- 810 Ohio Silicosis Record. Since silicosis was made a compensable occupational disease in Ohio, 738 compensation claims based on this disease had been filed with the Industrial Commission up to July 31, 1941. Out of the total of claims filed, 132 originated in foundries, 70 in iron foundries, 32 in non-ferrous foundries and 30 in steel foundries. The 95 cases charged to the ceramic industry are distributed as follows: floor and wall tile, 24, tableware 30, glass house refractories 10, insulating brick and electric insulators 6 each, silica brick 5, silica sand and diatomaceous earth 4, stoneware and enamels 3 each, glass, sanitary ware, fire-brick and building brick and tile, 1 each. There were 19 claims filed by cut stone workers, 14 being in monument work, 4 in building stone and 1 in quarries. Polishing, buffing and grinding iron and steel led to 5 claims, coal mining produced 2, and miscellaneous sources 2. A total of 255 claims have been allowed, 352 denied and 131 are still pending. The July record was 20 claims allowed and 15 disallowed. L.M. Merritt, Ohio Ind. Comm. Monitor. 14, 126, (August, 1941).
- 811 Revised Occupational Disease Rating in Ohio. The inclusion of silicosis and other disease has so increased the claim obligations that the two cent flat occupational disease rate was producing inadequate premiums. In order to increase the disease premiums and also to provide an incentive for disease prevention in industries where disease hazard is prevalent, the law was amended, to provide for a general disease rate of at least two cents for all classifications and in addition higher disease rates in those classifications where the disease hazard is prominent. Therefore occupational disease rates have been established varying from a minimum of two cents in classifications with little or no indicated disease hazard to fifty cents where exceptionally high disease costs have developed. In order to indicate the disease

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portion included in the basic rate, a symbol specifying the amount of the disease portion is shown for those classifications where the disease rate is higher than two cents. For example: Oil distributors, coal mines (electrified), lime quarries, and bakeries, 10 cents extra; painting, coal mining (not otherwise classified), planing mills, 15 cents extra; brick manufacturing, structural steel erection, iron foundries, 20 cents extra. Ohio Ind. Comm. Monitor. 14, 118, (August, 1941).

Papers on Dust, Gases and General Industrial Hygiene

- 812 Educational Qualifications of Industrial Hygienists. C.D. Selby. Report of Sub-Committee. Am. J. Pub. Health, 31, 728-730 (July, 1941).
The industrial hygienist should receive the general training for personnel in public health plus special courses to acquaint him with his particular field, such as instruction in industrial medicine, hygiene, and sanitation. A report dated March 1, 1941 indicated that there are 4981 physicians engaged or who have had experience in industrial practice. Less than 1000 of these are on a full-time basis and more than 2000 are on a part-time basis. Of the 23,705 public health nurses, 3271 were listed as industrial. As of the midyear 1940 there were in the state and local health departments 37 trained medical industrial hygienists, 81 engineers, and 37 chemists. The Public Health Service had 51 trained industrial hygienists, of whom 15 were physicians. The committee does not feel it desirable to suggest an inflexible curriculum or even a basic outline of a course in industrial health at this time.
- 813 Historical Milestones in Occupational Medicine and Surgery. A.H. Whittaker. Ind. Med., 10, 331-333 (August, 1941).
A continuation of the author's series, the first of which dealt with the first printed book dealing exclusively with occupational diseases. This discusses the writings of Isbrand de Diemerbroeck, as published in 1696. The book deals only briefly with the pathology of occupational disease, but this brief description illustrates clearly the transition from anatomical repetition of the writings of many centuries to the writings of accurate clinical observation. This article quotes an interesting description of the autopsy of "Stone-Cutter's Asthma" done in 1649.
- 814 Industrial Health Service for the Small Plant in the Ceramic Industry. H. Williams and others. Bull. Amer. Cer. Soc., 20, 285-287 (August, 1941).
An outline is given for securing and applying industrial hygiene service to the small plant in the ceramic industry. The use of engineering and medical principles to conserve and promote the health of the employees is also discussed.
- 815 Industrialization and Public Health with Special Reference to the Tuberculosis Problem in the Philippines. W. Niederland. Acta.med. Philippina, 2, 79 (July, September, 1940).
There seems to be a relation between the mortality from tuberculosis and occupation for the beginning of industrialization was associated with an increase in mortality from that disease. Much of this may be due to lowering of living standards for after a time the rate begins to improve. The author believes that the Philippines are in this early stage of industrialization and have the high tuberculosis rate associated with it.

- 816 The Function of Public Health in Defense. T. Parran. J.A.M.A. 117, 186-188 (July 19, 1941).
The importance of public health efforts is evidenced by the figure of 350 million man-days lost last year owing to illness and accidents among workers -- the equivalent of 1,000,000 men working a full year. This is a much greater loss than that caused by labor troubles. The author also discusses the problem of men rejected for military service because of correctable defects -- he urges government aid in rehabilitating these men for use in industry. Nutrition problems, difficulties caused by the heavy influx of new workers to small communities, the supply of physicians, are other topics discussed.
- 817 Industrial Hygiene in the National Defense Program. J.J. Bloomfield. Annals of Int. Med., 15, 165-171 (August, 1941).
Industrial mobilization in recent months has greatly augmented industrial health problems. New workers are being taken on in increasing numbers, many of them not as physically fit as those they are replacing, and unless the working environment is made safe for them, marked rises in accident and disease rate may be expected. The problem of fatigue will appear as a result of the speed-up in production. New and hazardous chemicals will come into use. Recent research and organization find us better prepared to cope with these arising problems than ever before. A program has been outlined for the purpose of developing a nationwide effort in industrial hygiene in defense industries. The responsibility of the medical profession in this program is discussed.
- 818 Medical Plans for Industry. K. Roberts and M.W. Brown. Advanced Management, p. 61. (April-June, 1941).
Absenteeism due to illness is costing industry more than \$60 per employer per year. It is costing employees more. Strikes in 1940 resulted in a loss of about two hours per worker per year; absenteeism due to illness, which never makes the headlines, resulted in a loss of approximately eight days per worker. The total of illness has been estimated at 400,000,000 man-days per year. This article discusses various means of reducing this high toll. Several plans are described and discussed in detail. The objectives of a proper program are threefold: (1) improved health of the working force; (2) security for the employee against the financial hazards of illness; (3) increased efficiency and raised production level.
- 819 The Public Health Administrator's Responsibility in the Field of Occupational Disease Legislation. J.J. Bloomfield and W.M. Gafaer. Pub. Health Repts., 56, 2033-2041 (October 17, 1941).
This is an attempt to emphasize some of the responsibilities and opportunities confronting public health administrators in the development, enactment and administration of occupational disease legislation. These are discussed and an example of certain procedures given by citing the Utah Study. Here, the results helped materially to establish the nature and extent of the industrial health problem in that State, furnishing basic information to the Occupational Disease Commission on which to formulate a comprehensive compensation law for occupational diseases. The study also provided data on which to base a permanent industrial hygiene program, which is now in progress.
- 820 The Industrial Medical Department: Quarters and Equipment. Council on Industrial Health. J.A.M.A. 117, 34-35 (July 5, 1941).
Floor plans are presented for four rather elaborate industrial medical departments. For as little as \$150, a smaller one can be designed and equipped, but a more satisfactory result is obtained for \$350. The general requirements are outlined and a check list of equipment shown.

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IN RE: ALBAMA

- 821 Respiratory Infections -- Their Control in Industry. H.M. Hall. Ind.Med., 10, 376-379 (September, 1941).
Respiratory diseases are the first concern of the industrial physician. They may be controlled not only through education, and early detection, through periodic physical examinations, but also through the employment of "routine epidemiologic procedures"; in other words, by encouraging the use of single-service paper cups and utensils, or of thoroughly sanitized glass and tableware, in all eating places patronized by workers, inside as well as outside the plant area, to block the route of travel of respiratory diseases.
- 822 The Industrial Medical Service of the Standard Oil Company of New Jersey and Affiliated Companies. Anonymous. J.A.M.A., 117, 542-543 (August 16, 1941).
The Standard Oil Company of New Jersey has maintained a medical service for its employees all over the world for 23 years. One hundred nine full time physicians are employed, and, in the tropics, operates 32 hospitals with 1041 beds. The service renders care to 186,344 employees. Placement and periodic physical examinations are emphasized; records are kept showing the causes for all disability lasting one or more days. Employees in this country average 6.31 days' disability a year, significantly lower than that given for the country as a whole. Interesting differences are shown for U.S., European, and tropical employee groups. Sanitation and tropical diseases are being investigated, and a special study of 800 persons with hypertension is underway.
- 823 Industrial Health Marches On. C.D. Selby. J.A.M.A., 117, 159-161 (July 19, 1941).
Morbidity statistics from two large companies show that the greater part of lost time is caused by non-industrial accidents and diseases. In one company the ratio of non-industrial to industrial causes is 300 to 1. High on the list of causes of absence are appendicitis, non-occupational injuries, genito-urinary diseases, and influenza. Thus the role of the physician in treating workers falls into the field of preventive medicine and public health.
- 824 Iron Pneumoconiosis in Electric Welders. F. Koelsch. Arch. f. Gewerbepath., 10, 519-528 (1941). (German).
Forty welders who worked with plain steel rods were examined. Eighteen showed no dust deposits in the lungs, 18 showed light deposits, 3 had a more marked effect and one a very definite pneumoconiosis. This last man has been working for seven years. His chest x-ray showed shadows up to the size of a lentil, of moderate density and with sharp borders. There is a tendency in this condition toward bronchitis and irritation of the upper respiratory tract.
- 825 Complicated Intrathoracic Lymph Silicosis, A Compensable Disease According to the German Regulation. J. Hagen. Arch. f. Gewerbepath., 10, 502-518 (1941). (German).
Five cases with more or less severe silicosis, in which complications, starting with silicotic lymph glands, proved fatal: diverticulum of the esophagus due to traction by the shrunken silicotic lymph glands with a break in the lower lobe of the lung, the mediastinum or the main bronchus; perforation of a softened lymph node into the main bronchus; abscesses around the glands at the bifurcation, with fistula to the esophagus. Cases in which the intrathoracic lymph node glands are involved such as these are compensable without regard to any pulmonary changes.
- 826 Pulmonary Asbestosis. P. Ellman. Proc. Roy. Soc. Med., 34, 557 (July, 1941).
This woman worked for a period of one year, thirty-one years ago sewing asbestos mattresses. Her sputum still contains asbestosis bodies. She has had dyspnea, lassitude, cough and loss of weight. There is impairment at the base of both lungs, crackling rales and diffuse basal fibrosis, with some mid-zone involvement.

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- 827 Drilling Dust Problems and Their Solution. G. Hildick-Smith. J. Chem. Metal. Min. Soc. So. Africa, 41, 427-473 (May, 1941).
Results of a critical study of the factors involved in dustiness produced by jackhammer drills in mine work. The long piston machine was found to be more satisfactory. The standards necessary to ensure that a hammer machine drill cannot in operation produce dust in dangerous quantities (provided it is not doing so by atomization through the exhaust port) are that not more than 500 cc./min. of air should pass down the borer and that the velocity through the exhaust port should not exceed 2000 f.p.m.
- 828 Effect of Silicic Acid on Phagocytosis. E. Zanetti and L. Piccioli. Med. del lavoro, 32, 19-28, 39-45 (1941). (Italian).
Admixture of fine silica dust in tiny doses to blood seems to first diminish and then augment phagocytosis. Dissolved in blood, it increases phagocytosis up to 130%. This increase is brought about by stimulation of the leucocytes which increases either the number of phagocytosed bacilli or the number of phagocytosing leucocytes.
- 829 Silicosis and Silicosis with Tuberculosis. H.K. Taylor and H. Alexander. Ind. Med., 10, 365-373 (September, 1941).
A report of 16 cases of silicosis and silicosis associated with tuberculosis, together with two atypical cases. Of the 16, exposures ranged in length from two to 44 years with an average duration of 15. A number of industries were represented and a history of the use of a jackhammer, compressed air drill, dynamite or emery wheel was obtained in every instance. Four of the 16 had uncomplicated silicosis whereas the remainder had associated tuberculosis. The article is illustrated by x-rays of all the cases with a brief history.
- 830 Ultramicroscopic Examination of Asbestos Dust and Asbestotic Lungs. J. Kühn. Arch. f. Gewerbepath., 10, 473-485 (1941). (German).
Interesting pictures of different kinds of asbestos and asbestos dust from lung tissue are presented. Magnifications are from 10,800 to 29,000 times. Very small needle-shaped particles up to 6 millimicrons in diameter and 400 millimicrons in length have been found in the lungs. These particles seem to be hornblende -- serpentine seems to be dissolved. Filters of respirators do not exclude particles less than 0.2 micron and hence cannot prevent these tiny particles from reaching the lungs.
- 831 Electrolytic Deposition of Lead from Biological Material. K. Bambach and J. Cholak. Ind. Eng. Chem., (Anal. Ed.), 13, 504-505 (July 15, 1941).
The solution of ashed material is electrolysed directly, without previous separation of the lead. The electrodes can be washed and other metals can be complexed, so that the lead deposit on the cathode is almost entirely free from other substances. The lead can then be determined by the use of dithizone, the polarograph, or by other methods.
- 832 The Dropping Mercury Electrode for Lead Analysis. E.C. Barnes and H.W. Speicher. Jour. Ind. Hyg., 23, 397-407 (October, 1941).
The operation of the dropping mercury electrode is described. Necessary precautions for the accurate determination of small quantities of materials and the use of the Fisher Electropodo for determination of lead are given. Good accuracy was attained in the analysis for lead of fumes from soldering operations. The time required for such analyses is quite small in comparison to other methods.

---Remember the Meeting, Nov. 12-13---

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IN THE AIRS

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- 833 Foundry Dust Control. Part I. Molding. Anonymous. Foundry Safety, Liberty Mutual Insurance Co., 1941.

The dust exposure encountered in the molding operations of most foundries can be traced to the following sources:

- (a) Dust entering the area from adjoining departments.
- (b) Dust from operations other than molding being carried on in the molding area.
- (c) Dust from poorly kept floors and gangways which is stirred up by foot traffic or shop transportation.
- (d) Dust released by miscellaneous methods from air settled accumulations on shop fixtures, storage, building structures, etc.
- (e) Dust arising from miscellaneous operations incidental to molding such as the use of blow-off hose, parting compound, etc.

The major consideration to be kept in mind when analyzing a molding exposure is that the actual operation of molding is not dusty and that the problem is to protect molders from a dust condition resulting from the miscellaneous incidental or outside dust sources. Dust control, therefore, in the ordinary molding area can be summarized as follows:

- (1) Where practicable, the molding area should be physically separated from other departments in which dust is produced and is not adequately controlled.
- (2) Molders' benches, work stations, etc., should be carefully arranged to minimize as much as possible unnecessary shop fixtures, shelves, racks, etc., which act as dust collectors on which air floated dust will settle only to be thrown back into the air whenever objects on them are moved about or the dust otherwise disturbed.
- (3) Parting compound should be of the generally approved type, that is, containing less than 5% free silica.
- (4) The use of compressed air with blow-off guns or hose in many instances definitely adds to the dust contamination in a molding department. The air blast in addition to picking up dust by its actual use also in "scouring" nearby accumulations sets additional dust free. Some relief can be obtained by reducing the pressure available by measuring discs in the individual hose lines or by reduced pressure lines. Vacuum systems are also a possibility in some instances where a relatively large amount of material is being handled, such as in cleaning of large dry sand molds before closing, etc.
- (5) Floors and gangways should be kept as free of dry, dusty coverings as possible.
 - (a) Hard surfaced floors (concrete, wood block, etc.) should be cleaned frequently to prevent the building up of a dry coating which is easily "scuffed up." Sweeping and cleaning of floors should preferably be done outside of regular working hours.
 - (b) Sand floors should be tempered frequently to reduce dryness of surface. Floors, gangways, etc., however, may be sprinkled as required during working hours to maintain them in good condition.

- 834 Determination of Lead in Biological Material. A Mixed Color Dithizone Method. F.L. Kozelka and E.F. Kluchesky. Ind.Eng.Chem., (Anal. Ed.) 15, 492-494 (July 15, 1941).

This method eliminates the necessity of removing the excess dithizone or preparing standard dithizone solutions. Consistent recoveries of ± 1 gamma of lead are obtainable. The material is acid ashed and treated with sulfurous acid. to reduce the iron and oxidize the tin which would otherwise cause interference.

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- 835 An Electrostatic Method for Collecting Bacteria from Air. C.M. Berry. Pub. Health Repts., 56, 2044-2051 (October 17, 1941).
The electrostatic method has been applied to the Hollaender-DallaValle "Funnel device" for the bacteriologic examination of air. Pertinent structural changes in the "funnel device" for the application of the electrostatic method are given in detail. A greater relative sampling efficiency is shown by the new arrangement. In an appendix, the author makes suggestions for the adaptation of both current and suction in a portable form by utilizing the Mine Safety Appliances Company's electrostatic precipitator.
- 836 Leucopenia in Negro Workmen. W.H. Fortes and others. Am.J.Med.Sci., 201, 407-412 (March, 1941).
Leucopenia was shown by healthy Negro share croppers in Mississippi although white sharecroppers in the same district, living a similar life, showed normal values. The average number of leucocytes among the Negroes was 4830 per cu. mm., while that of the white men was 7600. The Negroes' red blood cell count and oxygen carrying capacity was slightly lower than normal. The two groups' diets were nearly the same. A group of 16 Negroes was split into three divisions having average leucocyte counts of 3440, 3300 and 3290 each. The first served as control, the second received iron, and the last iron and liver extract. By the fifth day of medication, the white cell count of the latter groups had increased on an average of 63% and 39% and on the 16th day, these percentages were practically the same. One man in each group of six showed no rise. The authors find no explanation for the difference between the Negroes and whites: either low leucocyte counts are normal for these people or the iron made up for a deficiency in their diet. One Negro (with a 4000 leucocyte count) was taken to Boston but showed no blood change there, despite change of climate, diet, etc. Two white persons in Boston, having persistent low white cell counts showed no response to iron therapy. Of the Negroes studied, 75% had malaria; figures on this disease are not given for the white men examined.
- 837 Vital Capacity of the Lungs in Middle Age. Results of Periodical Examinations of Men of Sedentary Occupation. J.H. Arnett. Arch. Int. Med., 67, 1129-1131 (June, 1941).
During annual physical examinations of men of sedentary occupation ranging in age from 31 to 60 at the first examination, vital capacity measurements were made. This group showed a greater standard deviation than did a group of college students. If a loss of 250 cc. is taken as a rough criterion to be expected in early tuberculosis, this test would be reliable for only 54 of the 100 working men, contrasted with 68 of the 100 students. The older men averaged a loss of 33.7 cc., the students gained 66.9 cc. per year. The periodic test is "a useful diagnostic procedure, providing its potentialities and limitations are understood."
- 838 Comparative Value of Roentgen-Photographic Methods. R.E. Plunkett and others. Am. J. Pub. Health, 31, 772-776 (September, 1941).
The results of this study show that by using 4x5 in. film, 98.3 per cent of all cases of clinically significant tuberculosis would have been found while by using the 35 mm., only 91.8 per cent of the cases would have been diagnosed. In the case of minimal lesions, the 4x5 in. films were accurate in 96.9%, and the 35 mm. in 82.6%. Both were 100 % accurate in diagnosing moderately advanced and far advanced cases. Stereoscopic 4x5 in. films should enhance the value of small films for screening without appreciably increasing the cost. Techniques to provide 35 mm. stereoscopic films have also been developed.

- 359 Prophylaxis Against Lethal Effect of High Altitude by Means of a Digitalis Glycoside (Gitalin). E. Fischer. Am. Heart J., 21, 545-550 (May, 1941). When mice were given doses of Gitalin, 5 to 10 gamma per gram intraperitoneally, a high prophylactic effect was noted against the severe, acute anoxemia produced by low atmospheric pressures corresponding to altitudes of 30,000 to 34,000 feet. The protection is at its height for a period of 16 to 30 hours after injection. The protection afforded increases with the altitude, and reaches nearly 90% at 34,000 feet.
- 840 Weil's Disease, A Report of 51 Cases Occurring in Puerto Rico and the United States. C.L. Larson. Pub. Health Repts., 56, 1650-1656 (August 13, 1941). The occurrence of Weil's disease is more common in this country than is supposed. A review of the literature shows only 27 fully described cases and 20 presumptive cases here. The author adds 51, of which 33 are based on clinical and laboratory data and 7 on laboratory findings only --- these seven were anicteric -- the blood contained specific anti-bodies but there had been no jaundice.
- 841 Epidemiology and Laboratory Diagnosis of Infectious Jaundice (Weil's Disease). J.G. Melner and J.A. Kasper. Am. J. Pub. Health., 31, 945-950 (September, 1941). A wet environment favors the propagation of *Leptospira* so that the incidence of leptospirosis is more prevalent among miners, borghemen, garbage workers, abattoir workers, soldiers in trenches, and rice field workers. Six cases, three of which proved fatal, were encountered among poultry workers. Laboratory procedures to aid in the diagnosis of this disease are discussed in detail.
- 842 Ohio Occupational Disease Record. Ohio Ind. Comm. Monitor, 14, 119 (August, 1941). A summary of the occupational disease claims filed during the year 1940 shows an increase over the preceding year, the total number of claims filed being 1,976, making an increase of 263 claims. This increase seems to have been due largely to two causes, dermatitis and silicosis. It is also probable that many of the new claims were filed because of the recent amendment to the law which became effective May 26, 1939, making all occupational diseases compensable. It should be noted, however, that these figures are based upon claims filed and not upon those actually found compensable after investigation and a hearing by the Commission. During the year, an analysis by Medical Investigator Dr. W.E. Obetz shows, 1,210 claims were filed for some form of skin disease; this was an increase of 149 claims over the previous year. When classified according to the probable cause as shown by the application, it is found that 36 were due to oils, 207 to cutting compounds, 446 to some form of industrial dust, 439 to liquids, 20 to chemical fumes and vapors, 37 to chromium compounds, and the remaining 25 to miscellaneous causes. Skin diseases are prevalent throughout the year but seem to be most numerous after the month of May, continuing through the summer and fall seasons. As indicated above, most of these cases are due to contact with some irritating substance, such as plating solutions, chemicals, washing powders, soaps, oils, cutting compounds etc. The prevention of skin irritation is best accomplished by protecting the skin in avoiding such contacts and proper cleansing to remove these irritating substances before skin inflammation develops. During the year, 71 cases of lead poisoning were reported, or a reduction of 11 claims over the preceding year. As usual, lead poisoning seems to be due largely to the inhalation of lead dust or vapors or the ingestion of lead with food or from the hands which have not been properly cleaned. Care should be taken to avoid these lead hazards since it is known that exposure to excessive amounts of lead is almost certain to result in lead poisoning if continued exposure persists. Tenosynovitis, which is an inflammation of the tendons especially of the wrists and forearms was reported in 147 claims, and bursitis, commonly called "housemaid's knee" was reported in 49 claims. During the

year, 226 claims were filed for silicosis but it is possible that a number of claims which were placed in other classifications, such as tuberculosis or bronchitis, may have been found to be silicosis upon investigation. In addition to the above claims which constitute the classifications in which the largest numbers were filed, a group of 25 claims were found due to miscellaneous exposure as follows: benzol or its derivatives 6; brass or zinc 2; volatile petroleum products 3; sulphur dioxide, potassium cyanide, carbon dioxide, mercury, 1 each, with 8 claims attributed to contact with miscellaneous chemical compounds. From the standpoint of prolonged disability and fatalities silicosis is by far the most important of all occupational diseases. Many claims now being filed are the result of years of exposure to dust hazards which existed prior to the enactment of the law making silicosis compensable. It is well known, however, that dust containing high percentages of silica is the chief cause of silicosis and for this reason every effort should be made to eliminate dust hazards, especially those with a high silica content. During the past year all claims in which silicosis is thought to exist have been investigated. Many plants have been inspected and recommendations made for the installation of dust controlling equipment. It is believed that a continuation of these investigations together with the cooperation of employers in eliminating dust hazards will result in a marked reduction of the number of claims filed for silicosis thereby preventing much sickness and death from silicosis and tuberculosis.

- 843 Study of Absentecism in a Hat Manufacturing Plant. L.G. Simon and C. Byington. Ind. Med., 10, 320-321 (August, 1941).

A study of absences of three days or over and under 56 days in a group of 2200 employees of a hat manufacturing plant. The period studied was from May, 1940 to May, 1941. The total number of workers absent was 820; of these, 497 were male and 323 female (no data as to population by sexes are given). The average annual number of days lost per worker was 12.7. This is interesting in view of lower figures based on longer absences.

- 844 Frequency of Disabling Morbidity by Cause, and Duration, Among Male and Female Industrial Workers During 1940, and by Cause Among Males During the First Quarter of 1941. W.M. Gafafer. Pub. Health Repts., 56, 1848-1852 (September 12, 1941).

In a comparison of the frequencies for males during 1940 with the corresponding frequencies for 1935-1939 the following differences are of interest: the 21 per cent increase in bronchitis, the 38 per cent increase in pneumonia, and the 22 per cent increase in appendicitis. A comparison of the frequencies for females for the same time periods shows over a 50 per cent decrease for diseases of the stomach, except cancer. Although the total frequency for 1940, 1939, or 1935-39 is from 60 to 70 per cent greater among the females than among the males, there are certain causes and cause groups that show for each of the 3 time periods lower rates among the females; these are pneumonia, diseases of the stomach except cancer, hernia, diseases of the heart, and rheumatism. The morbidity experience among males for the first quarter of 1941 compared with the corresponding period for 1940 and 1939 shows an increase of 30 per cent in 1941 for influenza and gripe, being sufficiently large to indicate an epidemic.

- 845 Disabling Morbidity Among Industrial Workers, Second Quarter of 1941, With a Note on the Occurrence of Pneumonia Among Iron and Steel Workers. W.M. Gafafer. Pub. Health Repts., 56, 2052-2053 (October 17, 1941).

While the frequencies for all sickness show no sensible changes for the second quarter and first half of 1941, there are several causes for which increases in frequency are notable. For the second quarter these causes are bronchitis, diseases of the pharynx and tonsils, pneumonia, and infections and parasitic diseases, for the first half the causes are influenza and gripe, reflecting the

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epidemic of the first quarter of 1941, and pneumonia. The frequency of pneumonia per 1000 iron and steel workers for the second quarter has increased from 3.4 in 1939 to 3.8 in 1940, and to 5.7 in 1941, while the corresponding frequencies for workers not engaged in this work show a tendency to decrease, as follows, 3.1 to 3.0 to 2.9. Factors in these changes may be attributable to the large influx of new employees, the population change for the second quarter of 1940 and 1941 representing an increase of over 50% in the iron and steel groups reporting; among workers not employed in these industries, the corresponding population change represents a decrease of 4%.

- 846 Germany. Regulation of the Minister of Labor Regarding Compensable Occupational Diseases. Reichsgesundheitsbl., 15, 494-505 (1940). (German).
Leaflets have been prepared with the help of medical inspectors of factories giving the most important clinical symptoms and laboratory findings of occupational diseases in such a way as to be very useful to the practitioner. In addition to the usual poisonings, there are described compensable occupational diseases corresponding to the schedule law of December, 1938; carcinoma, dermatitis, danger to bones and joints by use of pneumatic tools, pneumonia caused by Thomas slag, deafness caused by noise, etc.
- 847 The Necessity of Including Silicosis in Compensable Occupational Diseases. G. Pancheri. Mod. del lavoro., 32, 53-62 (1941). (Italian).
Emphasis is placed on the frequency of silicosis in Italy and the experience of other countries in making this disease compensable. The author urges that it be included in the schedule of compensable diseases in Italy.
- 848 Frequency and Course of Miners' Nystagmus Observed Over a Long Period of Time. J. Ohm. Graefes Arch. Ophthalm., 141, 604-620 (1940). (German).
An attempt is made to draw physiological conclusions from the author's theories on miner's nystagmus. One important statement is made, namely, that recovery from nystagmus after ceasing all work for one-half year is complete in about two years. In serious cases, in which nystagmus has existed for 3 or more years, a retrogression finally begins, as evidenced by decreasing amplitude and increasing frequency.
- 849 Harmful Substances Cause Disability in 2747 Cases in 1940. N.Y. State Dept. of Labor, Indust. Bull., 20, 167-188 (June, 1941).
In New York State, compensation was paid for 972 accidental injuries and 1775 cases of occupational disease amounting to \$859,342, an increase of 15% over 1939. There were 820 cases of dermatitis; 386 cases of disability due to continuous rubbing, vibration or harmful position; 274 cases of systemic poisoning (injurious substances, etc.) and 295 cases of silicosis, contagious and infectious diseases, hernia, etc. Two cases of radium poisoning cost \$6225 each, and \$1467 was the average paid for 16 cases of carbon monoxide poisoning, \$1112 for 85 cases of lead poisoning, and \$2085 for 64 cases of silicosis and other dust diseases.
- 850 Anthrax of the Kidney: Clinical Study. R. Ercole and A. Fort. Anal. de Chirurgia., 6, 263-297 (September, 1940).
Renal anthrax is more frequent than is believed. The diagnosis is best arrived at by pyelography, which reveals the tumor or abnormalities in the renal pelvis and renal calices or displacement of the structures by compression. The treatment consists of either partial or complete nephrectomy or enucleation of the tumor. Nephrectomy is indicated when the tumor occupies a considerable portion of the renal parenchyma or is situated centrally.

- 851 Symposium on Anthrax. Dept. of Health, Comm. of Penna. pp. 45. (April, 1941). This bulletin contains papers which were presented at a symposium on anthrax held on November 19, 1940 at the Philadelphia County Medical Society Building. Among the subjects presented were:

An Epidemiological Study of Anthrax in Philadelphia.
by Wm. B. Fulton and others.
A Twenty Year Survey of Anthrax in the U. S.
by Henry Field Symth.
The Treatment of Anthrax.
by Pascal F. Lucchesi and Nathaniel Gildersleeve.
Anthrax in the Fur-Felt Industry.
by Ivor Griffith.
The Enforcement Problem.
by Harry Immel.
Discussion.
by O. F. Hodley.

- 852 Caisson Disease, A Study Based on Three Hundred Cases Observed at the Que Midtown Tunnel Project, 1938. I.J. Thorne. J.A.M.A., 117, 585-588 (Aug. 23, 1941). Of these 300 cases, symptoms appeared in 95% within 2 hours. All but 6 of the 30 men who suffered vertigo had accompanying symptoms such as vomiting, nystagmus, tinnitus, etc. Cases presenting neurological symptoms are the most serious as permanent injury often ensues. Of 25 cases of nervous system involvement in this series, all recovered but one who was paralyzed in both legs. Differential diagnosis is simple if the worker is conscious and can describe his work or if he is wearing his identification tag. If these clues are absent, however, the condition may be difficult to differentiate from drunkenness, acute abdominal trouble, etc. Choice of men, prompt recompression at the first sign of trouble, the use of oxygen or oxygen and helium and exercise are chief factors in prevention. No fatal cases resulted from working on this project.

- 853 Influence on the Circulation of Man of Breathing Through Gas Masks. H. Hofer. *Ca ologica*, 6, 331-360 (1940). A review of the literature and a discussion on the effects of gas masks on respiration and the heart. The author reports on his own investigations on 42 men and 8 women, ranging in age from 16 to 55 years. Breathing through a gas mask involves a bodily overloading and the borderline of efficiency is reached more quickly. Changes of pulse rate, blood pressure make it possible for latent injury, such as coronary illness, to become manifest suddenly. No specific effect on the circulatory system could be detected.

- 854 A Simple Optical Appliance for Use with Respirators. P. Kimmont. *Brit. J. Ophth.*, 25, 122-124 (March, 1941). A discussion of the difficulties experienced with the usual procedures for adapting spectacles to the common breathing mask. This article describes a fitting which has been devised to wear outside the mask eyepiece. The advantages of the device are discussed.

- 855 Economical Air Velocities for Mechanical Air Filtration. F.B. Rowley and R.C. Jordan. *Heating, Piping and Air Cond.*, 13, 524-529 (August, 1941). A discussion of the relationship between filter resistance and air velocity. The face air velocity chosen in the operation of a filter has a marked effect on the life and dust-holding capacity. Equations between the yearly cost factors and air velocity. The method by which the optimum filter velocity is obtained is analyzed.

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- 856 Defense Work of Industrial Hygiene Engineering Unit. J.M. DallaValle. N.Y. State Labor Dept., Ind. Bull., 20, 227 (August, 1941).
Many new problems have been created. A large variety of new processes and operations have been introduced for which no information is available regarding either the hazards associated with them, or possible methods for their control. It is necessary from time to time to study proposed control methods in experimental form, and apply the knowledge thus gained to the problem at hand. The realization by defense industries that speed of production depends in part upon effective control of industrial health hazards will help considerably in making progress possible.
- 857 Ventilation of Plating Tanks. A.D. Brandt. Heating, Piping and Air Cond., 13, 434-438 (July, 1941).
A study of the velocities of a plating tank 6' x 2' showed that the velocity at the centerline varied as the width to the 1/2 power. An equation for this is given. For double slot hoods, the velocity variation seems to be essentially the same, i.e., as the width to the 1/2 power. Also discussed is the control of extraneous air currents by the use of a double hood.
- 958 Correction of Malnutrition among Industrial Workers. V.P. Sydenstricker. Milbank Fund Annual Conference. Am.J.Pub.Health, 31, 977-983 (September, 1941).
The nutritive system is labile, reacting readily to numerous adverse factors. Of these, insufficient or improper diet is the commonest. In times of plenty, the national diet is not exemplary. During economic depression, it is much inferior and presents a real problem. As the call goes out for the unemployed to return to the ranks of labor, many will show the effects of prolonged dietary deprivation and periodic illness. It will be imperative that they be returned to full efficiency as soon as possible.
- 859 The Effect of Trauma with Relation to Tuberculosis, Pneumonia, Pernicious Anemia, and Related Conditions. A.H. Terry, Ind. Med., 10, 334-337 (August, 1941).
For the purpose of illustration, trauma is overemphasized as a cause of these diseases -- at most, it is only the initiating factor, the predisposing factors being hereditary, habits, etc.; the real cause, the pneumococcus, streptococcus and tubercle bacillus and company, plus the X or "P.A." factor in pernicious anemia -- but trauma can administer the coup de grace.
- 860 Effects of Crowded Housing Upon Health. R.H. Britten. Lab. Inform. Bull., 8, 5-5 (July, 1941).
The pneumonia frequency rate, among others, was found to be 60% higher for relief families with more than 1-1/2 persons per room than for those with 1 person or less per room. The rate for low income, non-relief families in congested house was 45% greater than in less crowded homes. Influenza rates were also definitely higher in these homes and tuberculosis in children was 170% higher. Common childhood diseases struck earlier, aggravating the seriousness of the disease. Homes without inside flush toilets showed more of certain diseases: typhoid fever was twice as common as it was in houses with modern toilet facilities.
- 861 Improved Vision in Machine Tool Operations by Color Contrast. A.A. Brainerd and M. Denning. Presented at Convention of Illumin. Eng. Soc., Atlanta, Ga., (September, 1941).
A beginning study of an unexplored phase of the problem of providing the best natural seeing conditions indoors. It appears that suitable attention to color contrasts and brightness is essential if the best results are to be obtained from any lighting system. The most significant feature which was achieved by this investigation is the three-dimensional effect secured by controlled color contrasts. The work in machines so treated stands out in stereoscopic clearness that cannot be achieved by brightness contrasts alone.

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- 862 Noise In Industry. C. Pharris. Conn. Health Bull., 55, 254-255 (September, 1941). Noise is not the least important among the various environmental conditions which do or may adversely affect the health of industrial workers. Too often noise is looked upon as an indispensable nuisance which must be tolerated. It has been found, however, that certain noisy occupations are conducive to hearing impairment. The influence of noise on the proficiency of workers has been demonstrated very graphically. For example, as the result of a reduction in the noise level by 14.5 per cent in a large insurance office, the efficiency level was raised by 8.8 per cent and errors of typists and machine operators were reduced 29 per cent and 50 per cent respectively. Furthermore, as a result, employee turnover dropped 47 per cent and absenteeism 37.5 per cent. In another large office the output of workers was increased 12 per cent following a reduction of the noise level from 75 to 50 decibels. Preventive measures are discussed briefly.
- 863 Causes and Effects of Fatigue Among Interstate Truck Drivers. R.R. Sayers and others. Pub. Health Bull., No. 265 U.S. Pub. Health Service. For sale by Supt. of Documents, Washington, D. C. This report describes the results of a study into the problem of fatigue and hours of work of drivers of commercial vehicles operating in interstate commerce. The principle purpose was to establish a basis for the regulation of the daily and weekly hours of drivers. In tests of seven functions, men who had not driven had the highest, men who had driven less than 10 hours the next highest, and men who had driven over ten hours had the lowest average efficiency. The conclusion is rather obvious -- "It appears that a reasonable limitation of hours of service of interstate truck drivers would reduce the number of drivers on the road with low functional efficiency."
- 864 Effort, Trauma, Occupation and Compensation in Heart Disease. A.M. Master. N.Y. Acad. of Medicine Bulletin 17, 778-795 (October, 1941). The relation of effort, occupation and trauma to heart disease frequently offers a difficult problem and each case must be carefully considered. Symptoms may be due to preexisting pathology and the effort or trauma coincidental. Yet they may aggravate -- effort does not damage a normal heart. The effort is significant if it is unusual and not routine, and if symptoms arise immediately or soon after. The latter is also true of trauma. These factors, however, play no part in coronary occlusion. Carbon monoxide poisoning occasionally results in damage to the heart, or aggravates a preexisting condition, but it does not lead to coronary occlusion. Most cases of cardiac involvement attributed to carbon monoxide are based on insufficient evidence.
- 865 Fatigue, Its Effects on Industrial Injuries. Anonymous. Penna. Lab. & Ind. Rev., pp. 93-99 (July, 1941). Industrial accidents that occurred in 1940 in Pennsylvania are summarized. A rise in accidents with the number of hours worked is shown; the tables break it down by different industries. After 3 hours of work, one peak is reached, another after seven hours, indicating a close relationship to fatigue. By discovering the best time for rest periods for their particular kind of work, industries can profit in the attempt to prevent accidents.
- 866 Evaluation of Circulatory Function in Extremities. M.B. Ferderber. Ind. Med., 10, 321-324 (August, 1941). A comparison was made of the most common methods of circulatory evaluation for peripheral vascular diseases. The absence of the dorsalis pedis or anterior tibial pulsation is not indicative of vascular disease, and the presence of a

---Remember the Meeting, Nov. 12-13---

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pulsation does not rule out the existence of vascular pathology. The oscillographic index of the leg is not markedly altered in arteriosclerosis, and normal skin temperatures do not exclude the possibility of vascular disease. The arteriovenous anastomoses are offered as an explanation for the variations that normally occur in skin temperatures. The colorimetric method of blood flow determination after Stewart, indicates that the volume in patients with vascular disease averages about two-thirds of that in normal subjects. Means of inducing reflex heat by saturated air is offered as safe and flexible.

Papers on Industrial Poisons, Cancer, Dermatitis, etc.

- 867 Hematological Changes in Aniline Poisoning. C. Seglini. Med. del lavoro. 32, 29-39 (1941). (Italian).
An extensive review of the material on blood changes in aniline poisoning and a brief report of the author's experience on rabbits, showing that the acid base balance is of little if any importance in this type of poisoning.
- 868 Late Damage to the Leucopoietic Bone Marrow Function by Benzene and Pyramidon. R. Stodtmeister. Dtsch. med. Wchnschr. 67, 263-265 (1941). (German).
Blood disorders caused by benzene may occur several days to weeks after cessation of exposure. This reported case showed new exacerbation of the bone marrow one and one-half years after cessation of the exposure. Another case is mentioned in which aplastic anemia developed 10 years after exposure stopped.
- 869 Low Concentrations of Carbon Tetrachloride Capable of Causing Mild Narcosis. H. Heimann and C.B. Ford. N.Y. State Dept. of Labor Ind. Bull., 20, 209-210, 226 (July-August, 1941).
It is felt that exposure to carbon tetrachloride in the amounts indicated produced both mild narcosis and gastric irritation. It is also felt that the narcosis, as manifested by the feeling of fatigue and the gastric irritation, are symptoms of toxicity due to the exposure to carbon tetrachloride in relatively low concentrations, the average being 79 p.p.m. The examined men were required to live relatively abnormal lives due to their occupation. Mild narcosis is also a liability to the employer as workers so affected are less efficient and liable to accidental injury. The authors believe the present permissible concentration of 100 p.p.m. too high.
- 870 Twenty-Four-Hour Output of Certain Urinary Constituents in Persons Exposed to Lead Arsenate Spray Residue. S.H. Webster. Pub. Health Rept., 56, 1910-1919 (September 26, 1941).
The average 24-hour urine volume for 177 adults was nearly 1.3 liters. Large variations in these values were found to occur both between individuals and in identical individuals during different days. Daily calcium and phosphate outputs for all the individuals studied were within the normal range. Lead and arsenic outputs were higher among the orchardists than for the other groups studied. A comparison of urinary lead concentration values for different individuals when derived from fractional-day samples gave little information regarding relative daily outputs. Twenty-four-hour specimens gave more complete information regarding individual daily outputs. First morning specimens are satisfactory substitutes, where it is impossible or impractical to obtain 24-hour specimens.

---Foundation's Sixth Annual Meeting: Pittsburgh, Nov. 12-13---

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- 871 Lead and Arsenic Ingestion and Excretion in Man. S.H. Webster. Pub. Health Repts., 56, 1359-1368 (July 4, 1941).
Report of an investigation to determine the maximal quantities of lead and arsenic ingested and excreted daily by orchardists eating apples that had been sprayed with lead arsenate. Analyses of the fruit showed a daily intake of 1-26 mg. lead and 0.34-6.8 mg. arsenic per person. Daily analyses of urine and feces showed an output of 22.3 mg. and 2.43 mg. lead and arsenic respectively, per man, with wide variability in the quantities excreted by different individuals.
- 872 Diurnal Variation of Urinary Lead Excretion. S.H. Webster. Pub. Health Repts., 56, 1834-1848 (September 12, 1941).
The occurrence of diurnal variation in urinary lead excretion is demonstrated -- it appears to occur independent of previous exposure of the individual or the time of year. A wide daily variation is shown for urinary lead concentration measurements as well as for the rate of lead excretion (in micrograms per hour) and for the total volume with all of the individuals studied. The total daily urinary outputs were, however, remarkably constant for any one individual. An increase in the rate of urine excretion was generally paralleled by an increase in the rate of lead excretion for those specimens whose specific gravity was greater than 1.010. Marked diuresis was found not to increase greatly the rate of lead excretion nor the total quantity. For a given individual an increase in the amount of urinary phosphorus per sample was usually accompanied by an increase in the quantity of lead excreted. First morning specimens have been shown to be representative of the corresponding 24-hour specimens. Fractional-day samples give no measure of the total daily outputs. Neither the urinary lead concentrations nor the rate of urinary lead excretion can be used as a measure of lead absorption when they are based on short-time measurements.
- 873 Peripheral Circulatory Disturbances in Chronic Arsenic Poisoning. K.H. Butzengeiger. Klin. Wchnschr. 19, 523-527 (1940). (German).
Among 180 cases of chronic arsenic poisoning seen in vineyard workers, there were 15 cases with objective circulatory disturbances in the extremities. Gangrene developed in six. No objective signs were present in 27 other cases beyond sensations of cold in the hands or feet, permanent or temporary, or blanched or cyanotic fingers or toes, especially in winter. It seems conclusive that these circulatory disturbances are a consequence of chronic arsenic poisoning.
- 874 Contribution to the Problem of Lead Porphyrinuria (Investigation on the Urine of Herbivorous Animals). W. Gabel. Arch. f. exp. Path. u. Pharm., 195, 365-382 (1940). (German).
The author concludes that the symptom of porphyrinuria is of no value in herbivorous animals.
- 875 Evaluation of Lead Content of the Liver (Investigations of Herbivorous Animals Injured by Lead). W. Gabel. Arch.f.exp.Path.u.Pharm., 195, 383-388 (1940). (German).
The average amount of lead in the liver increases in summer, decreases in autumn, rises sharply in November and falls during the winter.
- 876 The Deposition and Removal of Lead in the Soft Tissues. (Liver, Kidneys and Spleen). L.T.Fairhall and J.W.Miller. Pub.Health Repts., 56, 1641-1650 (August 15, 1941).
Animals kept on a lead and then lead-free diet showed decrease of 50% lead in liver and kidneys but increase of 10% in bone. Blood calcium values were higher in animals after rest from lead diet. Examination showed rather severe damage

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to the renal convoluted tubule cells but this was greatly repaired after a two week lead-free period. Regeneration of the spleen was shown.

- 877 A Study of the Relative Toxicity of the Molecular Components of Lead Arsenate. L.T. Fairhall and J.W. Miller. Pub. Health Repts., 56, 1610-1625 (August 8, 1941). An investigation to determine whether the toxicity of lead arsenate was due to the lead radical, to the arsenate, or to both. The decreasing order of toxicity of the compounds studied was found to be calcium arsenate, lead arsenate, and lead carbonate. Lead compounds seem to damage the kidneys while blood destruction was greatest with the calcium and lead arsenates. Using bone deposits as the index, it appears that the arsenate radical either decreases absorption or increases lead excretion.
- 878 "Surgical Glove" Dermatitis. J.F. Burgess. Canad. Med. Assoc. J., 45, 222-223 (September, 1941). Three cases of skin disease were traced to rubber gloves. Positive results were given by tests with the gloves, but the reactions were delayed for from 48-72 hours. The author considers the dermatitis to be different from that reported here previously, in which depigmentation was seen. When latex gloves were substituted, no more trouble occurred.
- 879 Skin Hazards in Airplane Manufacture. L. Schwartz and J.P. Russell. Pub. Health Repts., 56, 1581-1593 (August 8, 1941). The process of airplane manufacturing and the skin hazards met in each operation are described. Skin trouble was caused by an oil used for metal coating. Chromates, chromic acid and dichromates in the anodizing department were offenders. In degreasing with trichlorethylene, the vapors are another source of trouble. Dermatitis can be caused by the dopes and paints, welding fluxes, and cutting oils. Recommendations are given for protective equipment, methods and ointments.
- 880 Amyl Nitrite, A Method for Its Quantitative Determination and Some Observations on its Decomposition. R.G. Horswell and L. Silverman. Ind. & Eng. Chem., (Anal. Ed.) 13, 555-556 (August 15, 1941). A method for the quantitative determination of amyl nitrite, adaptable for vapor-air and liquid analysis, is based on the fact that a color is produced when a compound containing an -- ONO radical is combined with phenol and copper sulfate in acid solution. The method will detect amyl nitrite in air within an average deviation of 10%. The advantage of this method is that the amyl nitrite vapor can be absorbed directly in the color-producing reagent. This eliminates the need for a separate solvent for amyl nitrite and simplifies the procedure because the reagent from the sampling vessel can be poured directly into a colorimeter tube and read; when determining unknown concentrations, the development of a color in the sampling tube indicates that nitrite is present and gauges the length of time required to collect an adequate sample; and although the test does not compare in sensitivity with many of those already described, it has certain advantages for sampling a large volume of vapor at a low concentration for long periods. Amyl nitrite has been determined at concentrations of 5, 10, 20 and 100 p.p.m. Amyl nitrite is stable in air and relatively stable when exposed to artificial light, but decomposes within 2 hrs. when exposed to direct sunlight.

- 881 Sensitivity of the Skin to Fluorescent Light. A.P.R. James. Arch. Derm. & Syphil., 44, 256-257 (August, 1941).

Two young women, one a brunette, developed skin disease on exposure to fluorescent light at their work. The dermatitis was most marked on the eyelids, but appeared also on other parts of the face. The other woman, a blond, was only able to resist the exposure by applying tannic acid solution to the exposed skin and by wearing polaroid glasses. In view of the increasing use of this new type of lighting, it is possible that new cases may be appearing soon. A new tube has been developed which emits additional red rays.

- 882 Radiation Protection in Forty-Five Hospitals. L.A. Scheele and D.B. Cowie. J.A.M.A., 117, 589-591 (August 23, 1941).

Many of the hospitals visited showed inadequate protection from radiation. The radiologists were frequently unaware of conditions in their own establishments. Compliance with the best methods of prevention permitted busy men to keep exposure down to 0.02 r a day; carelessness led in some instances to exposure of many persons to more than the 0.1r/day considered to be the safe limit. There was ignorance or carelessness in handling radium. Much of the equipment did not afford the protection quoted by the manufacturer. Twenty per cent of the radiologists showed some effects of radiation.

- 883 Ethylene Dichloride Poisoning. W.D. McNally and G. Fostnedt. Ind. Med., 10, 373-374 (September, 1941).

Report of two cases of chronic poisoning with ethylene dichloride. All previously reported were of acute poisoning, either from ingestion or a four-hour exposure. These individuals had been exposed to the vapors of ethylene dichloride for two and five month periods. They showed signs and symptoms of anorexia, nausea, vomiting, epigastric distress, drowsiness, tremors, nervousness and nystagmus.

What is the role of employee health in industrial relations?
Are any new health hazards arising in this period of emergency production?
What's new in the study of aluminum powder?
What are the latest legal trends?
What is the audit of sick absenteeism showing?

For the answer to those and scores of other pertinent questions in the field of employee health, plan to attend the Foundation's annual meeting Nov. 12-13.

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