

Industrial Hygiene Foundation
(Initial & Forward)

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Literature Abstracts

- MEDICAL
- ENGINEERING
- LEGAL --- decisions and trends

Industrial Health News



Issued Monthly By

INDUSTRIAL HYGIENE FOUNDATION

4400 FIFTH AVENUE
PITTSBURGH 13, PA.

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PLAINTIFF'S
EXHIBIT

NW88-0007699

NOVEMBER 1992

THE AMERICAN

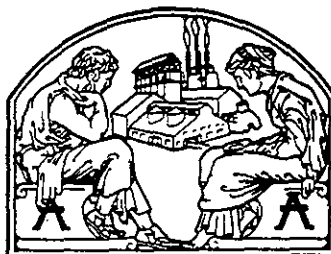
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INDUSTRIAL HYGIENE DIGEST

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INDUSTRIAL HYGIENE

November 1992

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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.

Vol. 6.

January, 1944

No. 1.

Practical Data on Employing the Veteran

The panel discussion on "Putting the Disabled Veteran Back to Work," a high-point of the Foundation's last annual meeting, is being published separately from the meeting Proceedings and will be sent to member companies in a few days. This will speed up distribution of practical data which becomes more important daily with the increasing demobilization of service men. One source says veterans are being mustered out at the rate of 70,000 per month. The forthcoming report should be of specific assistance to companies in dealing with this grave problem. Those who have questions regarding the rehabilitation of service men may send them to the Foundation.

Results of Women in Industry Study Released

Copies of the Foundation's plant-to-plant investigation of "Health Problems of Women in Industry," were sent to members recently. The report presents factual data collected by Dr. C.O. Sappington in visits to 54 war plants throughout the East and Mid West. The study is receiving national publicity in the press and radio.

Annual Index of Digest; List of Publications

THE ANNUAL INDEX, covering the monthly INDUSTRIAL HYGIENE DIGEST for 1943 is now being mimeographed and will be sent to members in the near future. Exactly 1163 separate items were reported during the year, exclusive of the November issue which is devoted to abstracts of most of the papers presented at the annual meeting. The list of the publications, and addresses, covered by the DIGEST, is being revised. This will also be sent to members in the near future so that they may order the text of articles abstracted in the DIGEST, when desired. Unless otherwise noted, the Foundation has no copies of original publications or reprints for distribution.

More New Members

Latest addition to the Foundation's membership is Allis-Chalmers Manufacturing Company. Other new members, not previously reported, are Ball Brothers Company and Firth Sterling Steel Company. Thirty-three new members joined in 1943.

Annual Meeting Comment: "The better the working conditions the better the point of view and the better the production!"

-- Charles F. Kettering.

Company Publications Welcome

A number of member companies send the Foundation their "house organs" or employee publications. The staff is glad to receive these journals since they are helpful in keeping us informed of a member's industrial operations. "The Hawley Reporter," publication of the Hawley Products Company, carries the following slogan:

"More Days of Work Mean Fewer Days of War."

03118321

NOVEMBER 1943

STILL FOR A MINUTE

HWBB-0007702

January, 1944.
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INDUSTRIAL HYGIENE DIGEST
Literature and News

News Items

- 1 New Clauses in Labor Agreements.
A study of 300 labor agreements, 75 of which were signed in 1943, indicate various labor relations trends, including an effort on the part of the unions to incorporate employee benefits, such as group life insurance, hospitalization, death benefits, and especially health and safety measures, in labor agreements. Personnel, 20, 171-181 (November, 1943).
(Editor's Note: The text of the proposed Health and Safety Clauses of the UAW were sent to Foundation members recently for their information.)
- 2 Silicosis and Other Dust Diseases Compensated in 1942.
In New York State in 1942, 43 cases of silicosis and 21 cases of other dust diseases were awarded final compensation, the paid claims totaling \$130,751 for silicosis and \$15,030 for other dust diseases. The awards for silicosis include those in which payments were completed for cases originating as far back as 1936, when the law was passed, and the average cost per case would be higher if only the new cases were included. The occupations in which the most cases occurred were: stonecutters 15, miners 9, metal chippers 5, and sandblasters and molders 5. Nineteen of the 43 cases ended in death. In the other dust diseases, flour, fur, chloride of lime, dyes, feathers, coke, and shell dusts were the cause of the disorder. There was one death involving pre-existing bronchial asthma and other ailments. The average age of the 43 men compensated for silicosis was 52. Industrial Bulletin (N.Y.), 22, 397-9 (October, 1943).
- 3 The Common Cold.
Dr. G. Bergquist, a Swedish physician, has published the results of a study on the common cold in the medical journal, Svenska Lakartidningen. The investigation covered 855 male workers between the ages of 20 and 60. The subjects were divided into four similar groups each of whom received one of the following: A. Tablets of indifferent composition; B. Quinine tablets; C. Vitamin C tablets, and D. Quinine admixed with vitamin C. The tablets were labeled by letter and observations were made for a period of three months. There was no statistical difference in the suffering from colds in any of the groups and the conclusion is reached that quinine and vitamin C have no more effect on the common cold than sugar pills. -- Swedish International Press Bureau.

03118322

4 The "Cold" Season is on.

Colds, influenza, ear infections, tonsillitis, bronchitis and pneumonia are common causes of illness and absenteeism at this season. Unfortunately much still remains to be learned by scientists and physicians concerning these ailments, particularly about the so-called "common cold." Certain simple things we do know: One infection comes from another; those who do not come in contact with persons who are sneezing, coughing and giving other evidence of respiratory affections, generally do not contract these or allied complaints. Industrial nurses can render a fine service of prevention insofar as colds and possible serious complications are concerned. They should obtain suitable literature on these respiratory ailments and distribute copies free of charge to all employees. Words of warning plus effective personal advice often accomplish much to reduce epidemics of colds and related ailments. -- Safety Eng., 86, 58 (November, 1943).

5 Preventing Welding and Cutting Fires.

The rules and recommendations given in this booklet are based on the combined experience of oxy-acetylene equipment users, equipment manufacturers, and members of the National Fire Protection Association, National Safety Council, and International Acetylene Association. Copies can be obtained upon request from: International Acetylene Association, 30 E. 42nd St., New York 17, N.Y.

6 Returning Soldiers.

A timely and important problem is the matter of rehabilitation of debilitated and physically handicapped men returning to civilian life from the battlefronts. Some employers feel a tremendous moral obligation to these men, while others refuse to hire anyone who does not measure up to peacetime standards. New factors have entered the picture because of the widespread use of the airplane. These are concerned with mental ailments, whose effects are not yet fully understood by doctors and psychiatrists. -- Management News, 16, 2 (November, 1943).

7 Employment and Training of Discharged Veterans.

On December 12, 1943 the Office of War Information issued a report on the training and employment opportunities open to discharged servicemen of this war. The report, based on information obtained from 7 government agencies, indicates that a majority of the returning servicemen are successfully employed in war plants. At least 300,000 veterans of this war have been given discharges, 26,000 of whom have applied to the Veterans Administration for continued hospitalization and 2,300 to the same agency for vocational rehabilitation. The greater part of the report consists of a discussion of the prerogatives of the discharged veteran. Office of War Information.

8 Vocational Rehabilitation.

On December 20, 1943, Federal Security Administrator Paul V. McNutt announced the assignment of Dr. Dean A. Clark, surgeon, U.S. Public Health Service, as chief medical officer of the Office of Vocational Rehabilitation. He will take charge of the newly established Physical Rehabilitation Section.

9 Battle for Blood.

A wager between the Moore Drydock Company, Oakland, Calif., and one of the Kaiser shipyards recently netted 2,000 pints of blood for the Red Cross. A "Weld for Blood" contest was held, with workers betting their blood on the result of a race between the two women welders of each company.

03118323

HW55-6007705

10 Health Bonus.

Workers at one New York plant are literally being paid to keep healthy. To encourage physical fitness, the company offers a \$10 bonus to employees who master a sport well enough to be able to participate passably if not brilliantly. Workers may take up baseball, track, archery, tennis, bowling, even pingpong. One condition -- it must be a sport they have never played before entering the factory. -- Forbes, 52, 24 (November 15, 1943).

11 Hospital and Medical Insurance Plans and Dental Benefits.

Non-profit hospital insurance plans have been legalized in 32 states and 13 states have legalized medical care plans. Other states have similar legislation in preparation. Details of 10 typical medical care plans are presented in tabular form. Looking at the data from the standpoint of the dental profession, the most striking feature in the plans is the nearly complete exclusion of dental work. In another article in the same issue, attention is called to a similar exclusion of dentists in proposed Social Security Acts.

12 Absenteeism in England.

A correspondent writes: "Here in England absentee workers are dealt with first by educational methods, and if this fails disciplinary action is taken. It is usual for workers losing a certain amount of time each month to be brought before the shop committee which is composed of fellow workers chosen by the workers themselves. This committee tries to get an improvement by talking to the worker, presenting arguments for good attendance, and, if there is a good excuse, try to find some remedy. If the worker's record for the second month shows no improvement, the offender is sent to an official of the Ministry of Labor who usually prosecutes and the fine imposed is usually severe. Thereby action is taken out of the hands of the firm. If the absence is due to illness, old age or unforeseen circumstances these facts are noted in the report to the Ministry. The time lost is also reported. Usually the shop committee gets the required improvement and it is seldom that a case is referred to the Ministry." -- Textile World, (November, 1943).

13 Unusual Trichlorethylene Fatality.

A night watchman in Birmingham, England, tried to dry clean his trousers by dipping them in industrial trichlorethylene, took them into a shelter, turned on an electric radiator and went to sleep. He was killed by the vapor. -- Chem. Trade J. (October, 1943).

Legal Developments

14 Death from Heat Stroke. Death as Due to Accident.

Where an employee suffered a heat stroke when he temporarily stopped his work and took a drink of water and died, his death was due to accident and not to an act of God. The superior court did not err in reversing the award of the State Board of Workmen's Compensation, denying compensation to the claimant. Fidelity & Casualty Company v. Adams. Georgia Ct. of App., Decided Nov. 16, 1943. (CCH).

03118324

- 15 Chronic Cardiac Condition. Increased Exertion in Course of Employment, Precipitating Cause of Death.
An employer and his insurance carrier appeal from an award of death benefits made by the Workmen's Compensation Commission to deceased's dependents. Decedent was a carpenter who had been afflicted with a cardiac condition for years and who, his doctor testified, was improving during the last year of his life. After carrying a 100 to 150 pound plank with his partner, he was attempting to slide the plank into proper position by himself while his partner watched to see when it was properly placed, and remarked to his partner, "Boy I'm about to pass out." Within a few minutes he was dead. The court holds that the increased exertion of sliding the plank in place was the precipitating cause of death. Affirmed. McGregor & Pickett v. Arrington. Ark. Supreme Ct. Decided Nov. 15, 1943. (CCH).
- 16 Tuberculosis as Incidental to Silicosis. Necessity of Exposure for Sixty Days or More.
Lanucha, a molder and cleanup man, made a claim for compensation from his employer for disablement claimed to have been caused by pulmonary tuberculosis, to which he was last exposed while in such employment. Compensation was allowed. Plaintiff in error contends an employer is not liable under the Workmen's Occupational Diseases Act, effective October 1, 1936, in a case of silicosis, with or without tuberculosis, where it is undisputed that the employee was employed during a period of only forty-four days (as here) after the effective date of the act, because in such cases section 25 of the act requires a period of at least 60 days of exposure in employment after the effective date thereof. If such a limitation prevails in silicosis cases it would only seem reasonable that it was intended to be applicable to cases of ordinary diseases which are incidental to silicosis. Defendant in error's claim being barred by the provisions of section 25 of the act, the judgment of the superior court is reversed. Western Foundry Co. v. Industrial Commission. Ill. Supreme Ct. Decided Nov. 16, 1943. (CCH).
- 17 Aggravation of Quiescent Tuberculosis. Conditions in Course of Employment, Longshoremen's Act.
Complainants seek to enjoin the enforcement of an award made on March 12, 1943, by the Deputy Commissioner of the United States Employees' Compensation Commission for the 13th District in favor of Robert B. Strand. An injunction is sought under the extended authority of Section 21 of the Longshoremen's and Harbor Workers' Compensation Act, (33 U.S.C.A., Section 921 (b)), as incorporated in an Act of August 16, 1941, (42 U.S.C.A., Sections 1651 to 1654, inclusive). Complainants contend that the evidence taken in the proceedings before the Deputy Commissioner fails to support the order and award aforesaid, and that as a consequence it is violative of the Fifth Amendment to the Constitution of the United States as an attempt to deprive complainants of their property without due process of law. The only issue to be determined was whether or not there was sufficient evidence to support the findings and award of the Deputy Commissioner herein. The Deputy Commissioner found that while performing service for his employer defendant Strand became wholly disabled by the development of an active tuberculosis caused or exacerbated into activity by a heavy cold contracted aboard ship. There was sufficient evidence to support the award. Judgment accordingly. Lockhead Overseas Corp. v. Pillsbury. U.S. Dist. Ct., So. Dist. of Cal. Decided Oct. 12, 1943. (CCH).
- 18 Co-Existing Silicosis and Tuberculosis. Statutory Allowance of Claim. Undisputed Evidence of Exposure.
From the allowance of compensation for death of an employee claimed to have resulted from silicosis, this appeal was granted. The criticism is that the order

03118325

INDUSTRIAL HYGIENE

ANALYSIS

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affirmatively shows that the Commissioner found that the "deceased came to his death as the result of chronic tuberculosis, aggravated by exposure to silicon dioxide dust," which it is argued, expressly negatives a death by silicosis. The orders and records made by administrative and quasi-judicial bodies are not required to have the fullness and legal completeness of courts of law and chancery. If the papers in the case, as a whole, suffice to make it clear that the Commissioner did in fact approve and allow the claimant's claim it will be treated as a finding in her favor. The printed form attached to the order becomes a formal order either allowing or disallowing the claim. As the "Description of Injury" is given as "Silicosis, fatal," it is a plain adjudication and allowance of the plaintiff's claim and appellant's assignment of error in this respect is untenable. The fact that there was nothing to identify the specimen from which claimant's sole medical witness testified, is of no moment as he found nothing from this specimen to sustain the plaintiff's case. On the question of the decedent's exposure to silicon dioxide in harmful quantities the employer offered no evidence. The undisputed evidence that deceased worked in this quarry as a loader for all but one year and four months of the period extending from 1927 to April, 1937, indicates that there is no possible question but that he was continuously exposed to this quarry dust for this long period. It cannot be said as a matter of law, that the Commissioner erred in holding that the decedent was exposed to silicon dioxide dust in harmful quantities within the time and under the circumstances required by the statute to be shown as a basis for compensation. As to the question whether the decedent did in fact die of "silicosis" as that term is used in the statute, the court stated that the statute does not require the tuberculosis to be caused or even preceded by the silicosis proper, but only that it accompany that disease. Affirmed. Hobday v. Compensation Commission, W.Va. Supreme Ct. of App. Decided Oct. 19, 1943. (CCH).

- 19 Silicosis. Instance Non-Compensable Under the Act. Right to Action at Law for Damages. Conditions Constituting Negligence.
Claimant having been denied relief under the Indiana Workmen's Occupational Diseases Act, he brought an action at law for damages on the grounds of employer's negligence in failing to provide him a safe place to work. There was a jury verdict for claimant from which the employer-appellant now appeals. This court holds that there is no authority for the position that a workman is bound by a compensation act where the injury or disease from which he suffers is non-compensable under the terms of the Act involved. Therefore the Indiana Workmen's Occupational Diseases Act has nothing to do with the cause of action set out in appellee's complaint and such cause of action was not abolished or struck down by the existence of the Act. Mention of the Act was not essential to a good complaint and the pleading of its terms could not constitute a good answer. The lower court therefore committed no error in overruling appellant's demurrer and in sustaining appellee's demurrer. To make one liable for negligence, it is not necessary that he should have foreseen the particular or precise injury that in fact occurred. If he negligently permitted conditions to exist or continue from which he might reasonably have anticipated a certain class of injuries might very likely result, and if the resulting injury was of such class, his negligence is actionable. That appellant should have anticipated appellee's disease is evident by the existence of the Factory Act of 1899 which required adequate exhaust fans and ventilation in rooms where non-organic dust is continuously inhaled. Award affirmed. Dalton Foundries, Inc. v. Jefferies. Ind. Ct. of App., Decided Oct. 22, 1943. (CCH).

- 20 Potter's Death Due to Silicosis. Event that Starts Statute of Limitations Running
This is a proceeding to review an order of the Industrial Accident Commission denying compensation for the death of an employee due to silicosis. The award

03118326

was denied on the grounds that, according to section 5406 of the Labor Code, where no claim has been filed by the employee during his lifetime, the death benefit claim must be filed within two years from the date of injury, and if that time has elapsed before the death of the employee, the death benefit claim is barred before it ever arose. Decedent, a pottery presser, had for many years suffered, to a certain degree, chest pains and congestion and dyspnea; however, it wasn't until April, 1939 that he and his wife learned that he had silicosis and that it was attributable to his work. Except for an alleged but unconfirmed two weeks period of absence at that time, however, deceased was not disabled by reason of the silicosis until February, 1941. He died June 11, 1941 and his wife filed for compensation on December 1, 1941. An examination of his entire lifetime pay record shows no average decrease in his earning capacity up to the time he ceased work in February, 1941 due to the silicosis. This court holds that it is not the fact that the decedent may have been technically entitled to compensation that starts the statute running, even if he knew that he was so entitled, but that to have this result, the injury must have culminated in a real and material disability to perform his normal work and must have resulted in a material wage loss. Contradictory evidence on other points not considered by the Commission is to be considered. Award annulled and cause remanded. Bianco v. Industrial Accident Commission. Cal. Dist. Ct. of App., 1st Dist. Div. 1. Decided Oct. 18, 1943. (CCH).

21 Sand-Blaster's Respiratory Condition. Exposure to Same Conditions as Other Classes of Laborers. Occupational Disease.

On this appeal from a judgment of the superior court for King County, entered March 13, 1943, upon the verdict of a jury, reversing an order of the department of labor and industries, denying a claim for disability resulting from an occupational disease, this court finds that, while there is some showing that there was a great quantity of dust in that portion of the plant where respondent was employed as a sandblaster, there is no showing that respondent's respiratory condition naturally and proximately resulted from his employment. At the most, the testimony of one of the physicians goes no farther than that the respondent's exposure to the dust incident to his occupation delayed respondent's recovery from sinus trouble, from which he has suffered a number of years. Respondent's condition cannot be classified as an occupational disease as it was brought about by conditions to which all laborers, regardless of their occupation, are exposed. Reversed and remanded. Romeo v. Dept. of Labor and Industries. Wash. Supreme Ct. Decided Oct. 25, 1943. (CCH).

Book Reviews and Notices

03118327

- 22 Rehabilitation of the War Injured: A Symposium. Edited by W.B. Doherty and D.D. Runes. Philosophical Library, N.Y., 1st edition, 685 pp. (1943). Price \$10. In this symposium 59 authors contributed to the discussion of 5 major aspects of the subject of rehabilitating the war injured. These aspects include the neurologic and psychiatric sequelae of injury, reconstructive and plastic surgery, orthopedics, physiotherapy, occupational therapy, legal aspects of rehabilitation, and certain vascular and peripheral disturbances seen in survivors of shipwreck. This volume should interest those responsible for the rehabilitation of victims of industrial accidents as well as to those concerned with the rehabilitation of war injured. (Editor's Note: The panel on "Putting the Disabled Veteran Back

to Work," a feature of the Foundation's last annual meeting, will be issued shortly. Members with questions on this subject may submit them to the panel through the Foundation.)

- 23 The Nutrition Front. Report of the New York State Joint Legislative Committee on Nutrition. Legislative Document No. 64, 1943. 286 pp.
- This book is a compilation of papers by about 20 authors and a few anonymous reports, on various phases of public nutrition, with a letter of transmittal embodying the recommendations of the committee. About one-third of the book is devoted directly to industrial nutrition, but all the subjects discussed have more or less bearing on it. First are several papers on diet in general -- "What is an Adequate Diet?" and "Recent Trends in Food Consumption" by Mrs. M. Harper; a report of a questionnaire by Dr. Gallup on "What Americans Should Eat and Don't," a paper on "Factors Influencing our Diets," by E.L. Koos; "Changing Food Habits," by M. Mead; "What They are Eating Over There," by J. Lindberg. The first three, although differing somewhat in details, demonstrate that average American diet is low in milk and its products, and according to Dr. Gallup also in eggs. However, the American of today eats more sugar and dairy products and drinks more citrus fruit juices and coffee than did his father. Mr. Koos finds that choice of a poor diet is influenced much more by custom, family patterns and prejudices than by economic lack. Lindberg demonstrates that Americans are consuming more calories per capita than Europeans did in peacetime. Where rationing is most successful in Europe the better balanced diets and greater appreciation of food values has done much to offset the serious deficiency in supplies of some foods. The next two papers describe Great Britain's war nutrition policy, including details of rationing, price control, industrial and school canteens, special allowances, and education. After a summary of the Canadian recommendations on nutrition, a number of articles deal directly with American industrial nutrition. A. Knudsen discusses the "Nutritional Status of Our People With Special Reference to War Workers." His conclusion is that our workers are not getting the food they need for "all-out" production. Surveys summarized in the report indicate that a large number of our war workers are suffering from hidden hunger. In "Nutritional Problems in War Plants," May R. Mayers gives the results of a survey showing that half of the war plants in New York State have no lunchroom facilities. Problems arising from this fact and others are outlined in her report. "Between-meal Feeding in Industry" is discussed by L.A. Greenberg and E.W. Haggard, who conclude that it is desirable providing the food meets certain standards of nutrition and cleanliness. Haggard then presents the controversial subject "Should War Workers be Fed Vitamins." Admitting that our knowledge of vitamins is still very limited and agreeing that there is no need of supplementary vitamins for the adult population so far as deficiency diseases are concerned, he believes that supplementary vitamins for war workers are desirable in order to correct faulty diet. The subject is then discussed by a number of nutritional authorities. Although their opinions conflict on the main question, they all agree that education in food values would be a much better solution of the problem than administration of vitamins. Those on the affirmative advocate additional vitamins because the public cannot be educated quickly enough to know to provide adequate vitamins for sustaining war work. Several of those who advocate supplementary vitamins urge using them in the form of brewer's yeast rather than in synthetic preparations. Reports from a number of companies that have tried vitamins dispensing to employees, are nearly all favorable. Results of the "Bridgeport Lunch Box Plan" are reported by Beatrice H. Kneeland. Newspaper publicity, pamphlets, demonstrations and the aid of Mrs. Roosevelt by way of expressed approval combined to overcome inertia and opposition and put over the idea of packing nutritious lunches for most of the 70,000 war workers of Bridgeport, Conn. This result would appear to answer the point that the public

03118328

cannot be educated in nutrition. Milk feeding by plant service is advocated by Ethel A. Martin. Brief statements by labor leaders on the attitude of labor toward plant nutrition complete the strictly industrial portion of the book. Articles on several phases of public nutrition are followed by outlines of administrative organization. The letter of transmittal at the beginning of the book presents a brief summary of some of the results in the individual papers. To quote part of it: "Although there is a low prevalence of severe, acute malnutrition in this, the best fed nation of the world, there is a high prevalence of mild, chronic nutritional deficiencies. Hidden hunger, which impairs efficiency and morale, leaves us susceptible to infection and disease. In time of peace, this condition is deplorable; in time of war, it is a calamity." Therefore nutrition is a proper concern of all governments. The first set of recommendations is administrative, mostly in the way of better cooperation between agencies and making organizations permanent. Recommendations on industrial nutrition include: (1) the first objective of the state nutrition policy should be that of improving the diet of war workers; (2) war plants should be required to operate canteens, encouraged to serve between-meal snacks of nutritious foods; (3) war plants should add brewer's yeast to on-the-job diets; (4) war plants should cooperate in nutritional studies, and (5) food served in factory canteens should not be subject to rationing.

- 24 Manual of Foods. H.J. Heinz Company, Pittsburgh, Pa. 1st Edition. Booklet 20 pp. (January, 1942). This brochure is issued to satisfy a demand for a less technical and more condensed publication than the "Nutritional Charts" which have been published in frequent new editions by the Heinz Company since 1934. The latter are prepared expressly for medical, dental, and dietetic specialists, while this booklet is available also to laymen who are especially interested in foods and nutrition. (Editor's Note: Copies of this Manual may be secured from the Foundation.)
- 25 Chronic Pulmonary Disease in South Wales Coal Miners. II. Environmental Studies. Medical Research Council (Great Britain). Special Report Series No. 244. London H.M. Stationery Office, 1943. 222 pp. Price 10s 6d. This volume supplements Part I, published in 1942 (February, 1943 Digest, Abstract No. 138), which embraced the medical survey and pathological studies. The present volume begins with (a) a brief report by the Committee on Industrial Pulmonary Disease, and the remaining sections deal with: (b) physical studies of the dust hazard and thermal environment; (c) mass concentrations of air-borne dust; (d) composition of the air-borne dust at the coalface; (e) petrology of coal-measures, shales and sandstones; (f) chemical and x-ray diffraction analysis of the roof and clod and of mineral matter in coal; and (g) nitrous fumes in relation to pulmonary disease. The separate investigations reported in these chapters were conducted by T. Bedford, C.G. Warner, H.V.A. Briscoe, A. Brammall, J.G.C. Leech, J.I. Graham and others well known in the literature of air hygiene in mines. Some of the material has been published in separate papers but the entire report contains much valuable material for anyone interested in working conditions in mines. The dust counts at the coalface are correlated with methods of working, effects of shot firing, nature of work being conducted, and moisture. The effect of dust reduction by water was studied. Various collieries are compared as to number, mass concentration and size of particles. The maximum permissible dustiness is given in terms of mass and particle count. The study of atmospheric conditions did not lead to any positive conclusion on the relation of temperature to pulmonary disease. Atmospheric humidity itself has no influence on incidence of pulmonary disease. In the study of composition of air-borne dust, involving samples from 13 mines, no relation was found between the incidence of pulmonary abnormalities and the ash percentage or ash composition, if

03118329

all the dusts are compared. However, if the anthracite dusts alone are taken, there is a slight quantitative relation between quartz content (averaging about 0.1%) and incidence. In the petrological study, the conclusion is drawn that "the incidence of pneumoconiosis appears to be positively associated with the geological changes induced by pressure; it increases as the rank of coal changes from bituminous to high grade anthracite, and our observations show that there is a relationship between the incidence of pulmonary abnormalities in the workers and the degree of metamorphism induced by pressure in the shales." A number of photomicrographic plates accompany the section. The conclusions from chemical and x-ray diffraction analysis are not so definite and further study is required. There was no evidence that nitrous fumes from shot-firing tend to produce pneumoconiosis, but again the data are insufficient, and all precautions should be taken to avoid exposure, including reduction of shot-firing to a minimum, absorption of the fumes in sheathed cartridges, and removal from the air by a mist of sodium or ammonium carbonate.

26 A Critical Analysis of Collapse in Underground Workers on the Kolar Gold Field.

A. Caplan. Paper, 95 pp. Published in India. 1942.

This is a discussion of the results of an investigation of the mechanism of heat collapse and its contributory causes in several mines of the Kolar Gold Field of India. The factors observed that may have influenced the incidence of heat collapse were individual, seasonal and underground. Information was obtained on all three factors, from case history and physical examination, information on surface conditions and underground factors such as wet and dry bulb temperatures, humidity and air velocity. Patients were classified into 3 groups according to the first 2 factors. The most interesting data deal with the 200 cases in the group in which underground conditions and individual factors, unacclimatization, loss of acclimatization and health disturbances contributed to the collapse. It was shown that acclimatization to hotter underground atmospheres existing on deeper levels cannot be developed by many months of continuous work on the cooler levels. Loss of acclimatization appeared to be much more important in predisposing to heat collapse than unacclimatization. The health disturbances that predisposed to collapse were fever, effects of alcohol, nutritional defects, and water and chloride deficiency. The pathologic physiology of collapse is discussed in terms of changes in the cardiovascular system and water and chloride mechanism. There was a definite correlation between incidence of collapse and surface humidity, positively establishing the deleterious effect of high humidity. If the dry bulb temperature is 110-120°F on the low slopes, 91 to 93°F is a borderline condition, 94 to 95 poor ventilation and 96 or over highly conducive to collapse. The problem of the mining engineer is to prevent the wet bulb at the face from rising over 93°F. Installation of air refrigeration at two of the mines brought about a great decrease in incidence of collapse. The effect of this improvement will continue several years, but with further development of the mines it will again become a major problem taxing the ingenuity of the mining engineer.

Industrial Health Hazards and Their Effects

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27 Safety in Water Plants. V.W. Buys. J.Am.Water Works Assoc., 35, 317-19 (March, 1943).

The principal classes of hazard are physical injury, infection and gas exposure. The gases that may be encountered in water works are ammonia, carbon monoxide, chlorine, gasoline, carbon dioxide and natural gas. Protection involves detection of the hazard and mask equipment wherever there may be exposure.

- 28 Health Hazards in Chemical Industry. J. Creevey. Chem. Age., 49, 184-5 (August 21, 1943).

A general discussion is presented of precautions to be observed in handling products used in the chemical industry, which are dangerous to health. Need for precautions with new products and the danger in relaxing vigilance in long used processes are stressed. Variations susceptibilities of different persons and under different conditions are noted.

- 29 Health Control in Welding. Philip Drinker. Calif. and Western Med., 59, 18-21 (July, 1943).

On the West Coast it is not yet universal for workers to be given pre-placement physical examinations, but it is expected that these and periodic check examinations will be extended as the necessary machinery and personnel become available. At least half the workers in shipyards have some exposure to welding fumes. Metal fume fever, due to breathing zinc oxide fumes from welding galvanized iron, does not predispose to tuberculosis and the fume effects are not cumulative. In welding steel plates, however, iron oxide fumes are given off, which remain considerably longer in the body. When an arc is struck a small amount of toxic nitrogen peroxide is formed which will produce fatal lung edema if breathed in excessive dosage due to improper ventilation. In lesser amounts it irritates the trachea, bronchii, and lungs. When ventilation cannot be improved, adequate masks or respirators should be worn beneath the helmets. Other hazards are fumes given off in electric welding, due to the rod composition and coating, and lead poisoning from welding painted metal. Health control embodies knowledge of welding risks and proper use of protective equipment. The staff of Safety and Health Consultants set up by the Maritime Commission and the Navy conducts inspections to check protective equipment, local conditions, medical and first-aid facilities, and general procedures in all yards.

- 30 Welding Fumes and Gases: Their Effects on the Health of the Worker. J. Brodie. Calif and Western Med., 59, 13-18 (July, 1943).

Welding is not a hazardous occupation if the concentration of fumes is kept at a low level. Fibrotic or nodular changes which may be observed after many years of welding are now recognized as harmless by the physician. With this knowledge he should reassure his patients and explain away their fears. Three sources of danger to the worker are: (1) the heat of the welding arc, responsible for burns, and also the presence of ozone, nitrous fumes, and the intense ultra-violet rays generated; (2) the composition of welding rods and their coverings, responsible for particulate fumes of iron and coating fumes of manganese, chromium, cadmium, nickel, zinc and magnesium, and also fluorides, silicates, varnish, rubber, etc.; (3) the important factor of oxygen deficiency. Clinical aspects, reactions, symptoms diagnosis and treatment, and finally, prevention are discussed.

- 31 Light Conditioning for Arc Welding. Mag. Light, 12, 14-17 (March 25, 1943).

At the arc welding sites of a tank factory, reflecting surfaces such as walls and girders were painted with zinc oxide (ultraviolet absorbing) base paints, and the general lighting in the area was increased to 150 foot candles. Workers on non-welding tasks in close proximity to the arcs experienced a feeling of freedom and relaxation. Goggles equipped with No.4 lenses protected these workers from harmful radiation directly in their view, yet there was sufficient illumination to see safely through the lens. The welder wearing the usual eye protection required for the job, experienced no difficulty in readjusting his eyes whenever he raised his hood, due to easy light contrasting conditions. Masking the border of the seam to be welded with white asbestos increased the clarity of the welding line.

03118331

NOVEMBER 1943
AIRMAILS

- 32 Frequency and Causation of Digestive Disturbance in Electro- and Autogen-Welders. Roesing. Arch. f. Gewerbepath. u. Gewerbehyg., 11, 77-78, (October 10, 1941). (German).

The principles of two essential processes of welding are described. With the Autogen process, in which the source of heat is a gas flame, only gases (CO and NO₂) are evolved, but under ordinary conditions not in injurious amounts. Investigations by the author among the welders at Krupp's steel works show an increased frequency of digestive disturbances among electro-welders, but autogen-welders had no greater incidence than other workers. Its causation is not established but it is thought to be related to the fumes arising during electro-welding. No conclusive evidence as to the constituent responsible is available. Manganese, which is one of the substances used to cover the electrodes, is tentatively suggested, though the digestive symptoms are non-specific and unrelated to severe injury such as has been observed in manganese poisoning. Prophylactic measures include mechanical ventilation (preferable to the wearing of masks), protective clothing, adequate nutrition with sufficient time for meals, attention to teeth, avoidance of alcoholism and excessive smoking.

- 33 Safety Speeds Production. U.S. Dept. of Labor, Div. of Labor Standards, Special Bull., No. 10. 1943. 21 pp. Obtainable on request from the above Division, Washington, D.C.

This pamphlet, directed to supervisors, represents the experience of hundreds of foremen, and has been reviewed for accuracy and usefulness by safety engineers in war plants acting as representatives of the Labor Departments National Committee for the Conservation of Manpower in War Industries. It expresses the general safety rules, regarding good housekeeping, direction of workers in use of safety equipment, securing the worker's cooperation, etc., in simple and often emphatic terms.

- 34 A Guide to the Prevention of Weight-Lifting Injuries. Special Bull. No. 11, U.S. Dept. of Labor. Pamphlet 20 pp. For sale by Supt. of Documents, U.S. Government Printing Office, Washington, D.C. Price 10 cents.

This Bulletin is issued to meet requests from various agencies for some standards for practical means of holding to a minimum, injuries from handling of materials. Recommended principles are: good planning by management in the use of mechanical devices and in controlling the amount, pace, and duration of manual lifting and carrying and proper selection and training of workers for heavy jobs.

- 35 Ordinance And Code Regulating Eating and Drinking Establishments, Recommended by the United States Public Health Service, 1943. Public Health Bull., No. 280. 60 pp. Obtainable from Supt. of Documents, U.S. Government Printing Office, Washington, D.C., 20 cents.

This bulletin gives complete regulations for sanitation and safety of eating and drinking establishments. Although they do not necessarily represent the actual regulations in force in any particular state or municipality, they may be of interest to any company maintaining a cafeteria or lunchroom, as some of the regulations would apply to such establishments as well as to commercial restaurants. Although details are unnecessary here, one point of interest is that some attention is paid to cadmium poisoning; utensils plated with lead and cadmium are prohibited, and a field test for detection of cadmium is included.

- 36 Dust Explosions - They Can Happen Here. Anonymous. Modern Ind., 6, 80-7 (December 15, 1943).

Attention is called to the fact that the dangers of dust explosions and resultant fires exist practically throughout the entire range of industry. Some instruments for testing concentrations in factories are mentioned. The dust bomb is a device for determining the explosive densities of dusts. Suggestions for safeguarding against dust hazards are given. Factory good housekeeping is the first essential among these.

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- 37 Explosion Hazards of Combustible Anesthetics. G.W. Jones and others. U.S. Dept. of the Interior, Bureau of Mines Tech. Paper No. 653, 47 pp. (1943). Obtainable from Supt. of Documents, U.S. Government Printing Office, Washington, D.C. 15¢. This report summarizes the laboratory and clinical investigations carried out relative to the inflammability of various gaseous anesthetic mixtures. The various factors that contribute to the explosion hazards in anesthesia are discussed briefly. The laboratory investigations deal with the ignition temperatures of combustible anesthetics in air and oxygen and their limits of inflammability in air, oxygen, and nitrous oxide. The inflammability of a number of mixtures of anesthetics with oxygen has been determined. Emphasis has been placed on the procedure of adding helium to the inflammable anesthetic mixtures in amounts sufficient to reduce the oxygen content to the point where the mixtures are outside the inflammability range. The laboratory results that showed the most promise were investigated further by carrying out numerous clinical experiments at the St. Francis and other hospitals in the Pittsburgh district. The experiments were confined largely to the use of cyclopropane-oxygen-helium and cyclopropane-ether-oxygen-helium mixtures. The method, used in sampling and determining the explosibility of the anesthetic mixtures is described. A summary of the laboratory and clinical investigations given in this report proves rather conclusively that satisfactory non-inflammable anesthetic mixtures can be obtained by the addition of helium in sufficient amounts to cyclopropane and oxygen and cyclopropane, ether, and oxygen mixtures. -- From Authors' summary.
- 38 Crusting of Nasal Mucous Membranes and Exposure to Dusts. Queries and Minor Notes. J.A.M.A., 123, 1006 (December 11, 1943). A worker in glass manufacture has a perforation of the nasal septum, following injuries about 15 years ago. The question is whether daily exposure to the dusts ordinarily encountered in glass manufacture (sand, soda ash, salt cake, limestone, feldspar, arsenic and coal), may cause or aggravate the trouble and cause crusting which is noted. The answer is that any or all of the dusts would predispose to crusting, which would be accelerated by the presence of a deviated septum resulting from previous trauma. The crusting of an exposed angle of a fractured cartilage would lead to ulceration and perforation of the septum, and subsequent erosion would enlarge a perforation already occurring. Therapy would be only moderately successful as long as the man continues to work in the same atmosphere.
- 39 Prevention of Industrial Dermatitis. M.A. Lesser. Drug and Cosmetic Ind., 53, 630-631, 701-705 (December, 1943). The author presents salient facts of dermatitis, with a number of references to recent work, and gives formulas for 3 non-irritating detergents and 15 protective creams, including examples of the 6 types as classified by Schwartz.
- 40 An Outbreak of Dermatitis from Hair Lacquer. L. Schwartz. Pub. Health Repts., 58, 1623-1625 (October 29, 1943). Hair lacquers were originally made from shellac, but with the substitution of synthetic resins for shellac cases of dermatitis began to appear. Resins from two independent sources, one in propyl alcohol solution at a pH of 3, and the other cooked with alkali and at a pH of 9, caused dermatitis and both resins were found to be combinations of rosin and maleic anhydride. Patch tests proved that the lacquers were the actual cause of the dermatitis, and acted through sensitization rather than primary irritation.
- 41 Dermatitis Due to Hair Lacquer and Nail Polish (Lacquer). H. Keil. J.A.M.A. 123, 857-58 (November 27, 1943). In connection with various cases of dermatitis from hair lacquer and nail polish, which is also a lacquer, some reported by others and some noted by the author,

03118333

he found that several types of resin produced a positive reaction, including the melamine-formaldehyde, p-toluene sulfonamide formaldehyde resins, and possibly others. He suggests that patients with hair lacquer dermatitis be first tested with p-toluene sulfonamide-formaldehyde.

- 42 Grain Itch. G.K. Rogers. J.A.M.A., 123, 887 (December 4, 1943).
Grain itch is one of the terms used to describe a condition caused by *Pediculoides ventricosus*, which is fairly common in certain farm districts of the United States. Many cases of the disease are never diagnosed, the cause being attributed to some form of allergy or to insect bite. Symptoms and etiology are discussed and a number of case reports are given, as well as treatments used in certain cases. Recommended remedies are the use of warm demulcent baths such as oatmeal or linit starch. A formula is given for a mild antipruritic lotion which gives relief. Preventive measures require cooperation of the farmer and the state entomologist. Burning the grain is a control measure. The use of powdered sulfur, the dust treatment of granaries, buildings and other materials contacted by grain and straw, to get rid of the mite is advised by one authority.
- 43 Dermatitis of Hands of Ditto Machine Operators. Queries and Minor Notes. J.A.M.A., 123, 1149 (December 23, 1943).
Dermatitis of the hands among ditto machine operators is not of infrequent occurrence. If it is occupational, the carbon paper is not the usual cause. In an investigation of an outbreak of dermatitis among office workers (Schwartz, Louis, Sulzberger, Marion B: Dermatitis Among a Group of Office Workers Found Not to Be of Occupational Origin, Pub. Health Repts., 52, 1441 October 15, 1937) patch tests were performed on 54 persons with carbon papers of various compositions without obtaining any positive reactions. The cause of the dermatitis, if occupational, in most cases is the cleanser used to remove the indelible dyes from the skin. While the composition of the particular ditto remover which is mentioned is not available, such dye removers usually consist of a soap or a vanishing cream base containing a solvent such as carbitol or carbon tetrachloride. Dermatitis may well be caused by the frequent use of such a dye remover, especially if the skin is naturally thin and dry. Not only does such a dye remover tend to remove the indelible dye from the epithelium, but it also tends to remove the fatty secretions of the skin. Many cases of dermatitis caused by ditto remover cannot be proved by patch tests, because in performing the patch test only a small amount of the remover is used, whereas under actual working conditions the skin is exposed to much greater amounts. The indelible inks used on ditto machines consist of such dyes as methyl violet, crystal violet, various oils and solvents. In rare instances, sensitivity may be present to one or more of these ingredients. A method suggested for the removal of indelible ink stains from the skin is to immerse the hands in a 1:1,000 solution of potassium permanganate for a minute, followed by washing the hands in a 5% solution of sodium bisulfite. This is to be followed by washing with soap and water to remove all traces of the reagents. In cases in which such treatment has a deleterious action on the skin, it should be followed by the use of a simple emollient cream such as equal parts of wool fat and cold cream.
- 44 Pulmonary Edema. J.M. Carlisle. J.A.M.A., 123, 947-948 (December 11, 1943).
A method for prevention and treatment of pulmonary edema following exposure to toxic gases is discussed. It consists of the immediate administration of oxygen under atmospheric pressure with a provision for expiration against calibrated resistance of from 1 to 6 cm. of water pressure. If treatment has been delayed, the administration of 1 to 100 per cent solution of epinephrine by the oral nebulizer method either prior to or during the administration of oxygen is a valuable adjunct.

03118334

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- 45 Sulfadiazine in the Treatment of the Common Cold. R.L. Cecil, N. Plummer and W.G. Smellie. J.A.M.A., 124, 8-14 (January 1, 1944).
(1) Seventy-two colds in 66 different persons were followed clinically and bacteriologically; 49 received sulfadiazine 3.0 gm. daily by mouth for four days, while 24 served as controls. (2) Following sulfadiazine, the nasopharyngeal flora as observed by serial cultures showed a uniform decrease in total number of organisms and a check in the growth of pathogens. (3) The clinical course of the treated colds showed no striking difference from that of the controls; however, there appeared to be some amelioration of symptoms due to control of secondary bacterial infection. (4) As a result of this study, we are opposed to the routine use of sulfonamides in the treatment of the common cold but would favor their use in a few selected cases as a protection against severe secondary infection. -- Authors' summary.
- 46 Distribution of Epidemic Keratoconjunctivitis in the United States. A.J. Bedell. J.A.M.A., 123, 1101 (December 25, 1943).
Keratoconjunctivitis is not a new disease. It affects both young and old. There has been no epidemic in the shipyards on the Gulf of Mexico or along the Atlantic coast, proving conclusively that it is not a shipyard disease per se. During the rush of war it is possible that several diseases have been included under the title epidemic keratoconjunctivitis. It is certain that more complications and greater and more extensive involvements were reported from the West Coast and Hawaii than have been experienced in other parts of the country. To infer that the epidemic spread throughout the United States is not warranted by the collected facts. -- From Author's conclusions.
- 47 Infra-red Therapy of Flash Keratoconjunctivitis. D.G. Cogan, V.E. Kinsey and Philip Drinker. J.A.M.A. 123, 883 (December 4, 1943).
The use of infra-red radiation in the treatment of an ocular condition produced by exposure to welding arcs has been reported. Because of the recent increase in "Flash" keratoconjunctivitis and of the wide attention which this form of treatment has received, animal experiments were undertaken to determine whether or not, the clinical report had an experimental corroboration. Keratoconjunctivitis was produced in rabbits by exposure to a mercury vapor arc. After the establishment of doses that would result in reproducible signs, alternate eyes were treated by means of a therapeutic heat lamp. No evidence was obtained to indicate that this form of treatment benefited the keratoconjunctivitis.
- 48 Significance of Visual Defects in War Production Effort. H.S. Kuhn. J.A.M.A., 123, 1085-88 (December 25, 1943).
A direct correlation was found between accuracy in production and visual perfection as well as between lost time accidents and defects in visual performance. Detailed data on employees' visual ability has been obtained by means of the following tests: (1) uncorrected acuity for distant and for near vision; (2) acuity with glasses habitually worn i.e., work acuity; (3) muscle balance for distant and for near vision; (4) stereopsis and, (5) color appreciation. To these tests which provide a minimum amount of information are added special tests of near vision, as might be needed in selecting eyes for exceedingly intricate work done within 12 inches of the eye. A study was made of the level of defects within industry and the civilian pool of labor reserve in 1940 with a duplication in 1943. The picture found as of today is said to be a startling one. The percentage of defects among those at work in 1943 has risen slightly, but most serious of all, the percentages of defects in unaided eyes in the slowly dwindling stream of civilian applicants has doubled. The percentage of defects among persons wearing their work correction is also up, and almost to an equal degree. These

03118335

findings have great significance when it is realized that the number of jobs where a man does not need to see well are becoming rare. As a solution to this problem many vital industries are enlarging their eye program to provide information immediately, often inside the plant, whether the man with 2/100 vision in each eye can have his vision brought back to normal with glasses. It is also vital to determine whether a person with 20/200 vision in one eye and 20/20 in the other, has a progressive ocular disease that will in time effect the normal eye.

- 49 Polyneuritis in Occupational Diseases. A.V. Ramos. Anais faculdade med. univ. S. Paulo., 16, 559-598 (1940). (Portuguese).
Polyneuritic symptoms accompanying industrial poisoning by lead, arsenic, mercury, manganese, carbon disulfide, carbon monoxide, benzene, nitrophenol, aniline, nicotine and picric acid are discussed. 162 references.
- 50 Cardiovascular Adjustments of Man in Rest and Work During Exposure to Dry Heat. H.L. Taylor and others. Amer. J. Physiol., 139, 583-591 (August, 1943).
Seven thousand observations were made on pulse, blood pressure, rectal temperature and rate of sweating during work and at rest on 43 subjects (202 subject days). They had a constant salt diet before and during exposure to dry heat for 2 to 8 days. Additional observations were made on 23 other subjects for 147 subject days. Observations of blood pressure before and after elevation on a tilt table were made morning and evening. Modified Crampton scores of cardiovascular fitness were calculated from these figures. The primary adjustment involved in acclimatization to heat is an improvement in cardiovascular efficiency. A decrease in the accumulation of heat, as measured by the rectal temperature during work, is probably secondary to cardiovascular improvement. The average daily sweat loss is not affected by acclimatization. The rate of sweating during work tends to increase as acclimatization proceeds but half of this change occurs after the more important adjustments, as indicated by the rectal temperature and pulse rate during work, have taken place. The failure of the work pulse rate to show improvement over the value of the first day is a sign of impending heat exhaustion; similarly, poor cardiovascular postural adjustment in the evening is a danger sign. (Ten cases of heat exhaustion occurred.) None of the variables studied in the cold (control) are useful in the prediction of the ability to acclimatize in subsequent exposure to heat.
- 51 Heat Relief. A.R. Smith. N.Y. State Ind. Bull., 22, 253 (June, 1943).
Muscle cramps, heat exhaustion and heat stroke resulting from prolonged exposure to high environmental temperatures are of considerable importance. Affecting far more people are the ordinary feelings of lack of energy and drowsiness induced by hot weather, and reflected in the diminished output and efficiency. These can be reduced. The replacement of salt lost in sweat can be done (1) by the use of salt tablets or (2) by the addition of salt to the drinking water in a concentration of 0.1 per cent. Local cooling has given favorable results by either a blast of air directed over workers or the introduction of cooler air inside loose fitting coveralls. Diet must be good in hot weather for the body needs the energy it gets from three good meals a day as much when the temperature rises as at any other time. There is some reason to believe that Vitamin C is especially helpful in offsetting the fatiguing effects of hot weather.
- 52 How Industry Battles Noise to Win Production. Anonymous. Modern Ind., 6, 46-49 (December 15, 1943).
Executives and employees offer many practical suggestions to help cut down excessive manufacturing noise. Correcting excessive noise had been found to reduce fatigue, raise morale and increase output. Adaptability of devices to post war conditions demands special study.

03118336

- 53 The Abatement of Noise. C.P. McCord and J.D. Goodell. J.A.M.A., 123, 476-480 (October 23, 1943).

Present circumstances of living and working have increased greatly the quantity and continuity of noise. Much of the current noise is unnecessary and its toleration is no longer a virtue. Fundamental principles of physics which are applicable in the suppression of noise are tabulated and illustrations are given. Some methods used in industry for noise abatement are listed. Architectural noise prevention may be accomplished by providing certain structural features. The authors believe that the key to noise amelioration is education of the public as a whole and in groups along with necessary legislation. Some provisions of the New York City Noise Abatement Code are given.

- 54 Medical Aspects of High Altitude Flight. D.N.W. Grant. Ann.Int.Med., 18, 1006-1011 (June, 1943).

Five major problems present themselves in aviation medicine: (1) selection and training of flying personnel, (2) anoxia or oxygen want, (3) aero-embolism, (4) expansion of gases in the body cavity and alimentary canal, and (5) low temperatures. Selection and training of flying personnel is a separate problem unto itself. Anoxia does not have the same effect upon all individuals, but the author believes it mandatory that oxygen equipment be used above 10,000 feet in the event that flight is to be longer than two hours. The average individual begins to become anoxic at altitudes above 33,000 feet even though he is breathing pure oxygen and is engaging in little or no activity. Various reactions and recommendations are discussed. Aero-embolism can be avoided if the maximum rate of ascent is not more than 78 feet per minute, but this is always exceeded in aircraft. Breathing pure oxygen while exercising before the take-off may drive off much of the nitrogen from the blood and tissues, but it is probable that not over half of the young aviators can go to 35,000 feet for four hours without symptoms. Expansion of gases in the body cavities and the alimentary canal will always occur when a difference in pressure exists. Particularly annoying are plugged eustachian tubes or sinuses which may lead to severe pain and marked trauma. The problem of low temperatures is an engineering problem. Other problems are high accelerations, fatigue and clothing.

- 55 The Use of the Stethoscope in the Prevention of "Boiler-makers Laryngitis." L.R. Krasno and others. J.A.M.A., 123, 958 (December 11, 1943).

Many cases of laryngitis occur in industries where the existence of noise makes it necessary to shout and strain the voice in order to be heard. To prevent this condition a simple communication system is effected by the use of the stethoscope. The speaker talks through the bell of the stethoscope and the receiver listens through the ear pieces.

- 56 Researches on Industrial Lighting. O.A. Hill, Jr. The International Assoc. of Milk Dealers Bull., 35, 103-122 (January, 1943).

The studies reported were made by the Illuminating Engineering Society in cooperation with the International Association of Milk Dealers, the Dairy Industries Supply Association, Inc., and the Glass Container Association of America. The benefits of good illumination are less breakage, improved cleanliness, better utilization of floor space and less eye strain. A table presents recommended minimum operating foot candles in service for each room, and the different processes in the milk plant. Special treatment proposed for bottle inspection is a luminous panel incorporated into the unloading mechanism. Purely local lighting restricted to a small work area is said to be unsatisfactory unless there is sufficient general illumination in a ratio of 5 to 1.

03118337

- 57 Lighting and War Production. W.C. Darley. Illum. Engin., 38, 307-25 (June, 1944). The effect of light on safety, as well as quality and quantity of production in war plants, is discussed. Data on the most economical use of critical material in providing adequate illumination for various types of buildings is listed.
- 58 Fatigue Its Cause and Cure. A. Gray. Mill & Factory, 33, 101, 222-224 (September, 1943).
The author briefly reviews the fundamentals of fatigue in its chemical and physiological aspects, including the formation of lactic acid in the muscle during activity and its removal during rest. Experiments demonstrating the need of rest periods lengthening with the degree and duration of activity are described briefly, and the fundamental principle thus established is applied to practical conditions. Some of the present "speed-up" is injurious, and a happy medium between output and physical needs must be established.
- 59 Symposium on Fatigue. American Society for Research in Psychosomatic Problems. H. Davis, W.H. Forbes, S.A. Portis, and S.H. Bartley. Psychosomatic Med., 5, 152-165 (April, 1943).
Dr. Davis defines fatigue as impairment of performance, which can be brought about by decreased response, decreased excitability, or decreased coordination. Subjective fatigue is of importance physiologically as a safeguard of nature against organic damage due to overwork. Training has as its aim, (a) Elevation of the average level of performance, (b) Elevation of the peak of performance, and (c) Lengthening of the time during which the peak performance can be maintained. Dr. Forbes classifies fatigue into three types, physical, mental, and nervous. These types show different symptoms, hence it would be wrong to think of fatigue as an entity. Dr. Portis discusses fatigue as a symptom in neuropsychiatric patients. Dr. Bartley sees fatigue as a symptom of conflict and frustration. He points out that fatigue is not necessarily the result of work, that the change from one type of work to another may actually alleviate fatigue. Several types of conflict are listed as causative of fatigue. Dr. Miles pointed out that these conflicts may be reduced by setting up subjective barriers against distractive influences, and by concentration which in turn is furthered by interest in the work.
- 60 Cardiac Deviations in Carbon Monoxide Poisoning. P.M.J. Schweitzer and G.A.C. Bosch. Nederland. Tijdschr. Geneeskunde, 86, 1810-17 (1942). (Dutch).
The writers describe the electrocardiographic changes, which are: (1) a fleeting type attributable to transitory anoxia of the cardiac muscle, and (2) another type appearing after several days and supposedly caused by gross anatomical deviations. The latter type is probably favored by a relative deficiency in coronary circulation and may be related to exercise while blood carbon monoxide is high. Thus it is important to eliminate carbon monoxide from the blood as completely and as rapidly as possible and to watch the electrocardiogram of the patient regularly and for a long time. Absolute rest is necessary so long as abnormalities are present in the electrocardiogram.
- 61 Changes Provoked by Dust in the Lungs of Laborers Occupied in Working Up Petroleum Ash Containing Vanadium. G. Balestra and F. Molfino. Russ. med. ind., 13, 5-12 (1942).
Lung damage was caused by inhalation of dust containing 85 per cent of vanadium oxide while at work. The general picture was somewhat different from that of ordinary pneumoconiosis.

03118338

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- 62 Fluoride Ingestion and Bone Changes in Experimental Animals. E.J. Largent, W. Machle and I.P. Freneau. J.Ind.Hyg.& Tox., 25, 396-408 (November, 1943). Rabbits were fed diets containing fluorine to the extent of 12-50 mg. per kg. per day for a period of 15-92 days. Macroscopic bone changes developed in every animal so fed, and the fluoride content of the skeleton increased greatly. Roentgenographic examination failed to reveal the presence of these early bone changes. In the case of rabbits the lower jaw is a frequent site of the gross changes induced by excessive absorption of fluorine. It is suggested that roentgenographic study of the jaw in man may prove to be a useful means of detecting such changes at an early stage. The new bone resulting from excessive absorption of fluorine by rabbits has a non-specific basic architecture that bears a general resemblance to the callus resulting after fracture. -- Authors' summary.

- 63 A Case of Bronchial Asthma Due to Aluminum Dust. L.H. Cotter. J.Ind.Hyg.& Tox., 25, 421 (November, 1943). A worker in an airplane factory, whose job consisted of boring holes in aluminum plates, suffered attacks of difficult breathing, which were only relieved by leaving the plant. The symptoms recurred on his return, although the dust exposure was not as severe as before. The only abnormalities were chest conditions and high blood count and hemoglobin concentration. Evang reported similar cases in Norway in 1938, but this is the first case recorded since then, and the only one in United States literature.

- 64 Spontaneous Ignition of Zinc Dust. S. Wehrli. Chem. Gab. p. 362 (October, 1940); Ind. Chemist, 15, 579 (October, 1943). A night fire in a Swiss high school chemical laboratory was traced to spontaneous combustion of a heap of moist zinc dust that had been used in a reaction which was lying on a wooden sink. Experiments showed that when fine zinc dust is treated with acetic acid, filtered, washed and let stand, it remains quiescent for some time, but after a period varying from 30 minutes to several hours, depending on the quantity of zinc and strength of the acid, the temperature rises quickly to about 400°C, the zinc glows, and then cools quickly.

- 65 Triethylene Glycol Vapor Not Toxic. O.H. Robertson. Heat. & Vent., 40, 102 (June, 1943). The approximate saturation vapor concentration of triethylene glycol, one part per 200,000,000 of air, is not harmful to humans, but rapidly sterilizes the air when proper humidity is maintained. The optimum is 40 to 60 per cent relative humidity.

- 66 Effects of Repeated Exposure of Dogs to Monoalkyl Ethylene Glycol Ether Vapors. H.W. Werner, W.F. vonOttingen and others. J.Ind.Hyg.& Tox., 25, 409-414 (November, 1943). The most significant changes in dogs exposed to approximately 800 parts per million of methyl ethylene glycol were in the blood. Hemoglobin concentrations, cell packs, and erythrocytes were decreased, and red cells showed an increased hypochromia, polychromatophilia, and microcytosis. The white cell picture was characterized primarily by a shift to the left. In general these changes appeared a few weeks after starting exposure and the alterations of erythrocytes persisted throughout the course of exposures. Recovery after terminating exposures was delayed in proportion to the severity of anemia. Based on values for control animals, daily exposures to approximately 800 parts per million of the ethyl and 400 parts per million of the butyl derivative produced similar but less marked effects on the blood. Repeated exposures to various glycol ether vapors caused increased numbers of calcium oxalate crystals to appear in the urine, and butyl cellosolve vapor caused a moderate retention of urea in the blood.

03118339

- 67 Methyl Bromide Gas as a Fumigant for the Control of Bedbugs at Ft. Leonard Wood, Missouri. L.O. Tarleton and L.B. Dworsky. The Military Surgeon, 93, 251-264 (September, 1943).

The section of this article dealing with safety precautions in the use of methyl bromide gas is of interest. The first and most important safety measure is the provision of ventilation of buildings for one-half hour before men may enter them. After this period, further safety measures are the use of gas masks capable of absorbing organic vapors, and the use of a Frigidaire Halide Lead Detector prior to reoccupation of the building. Precautions to be observed before final sealing and fumigation and also after fumigation are stated. All methyl bromide cylinders are stored in a warehouse away from inhabited buildings and in a well ventilated room. The lack of adequate warning signs for the presence of methyl bromide, such as lacrimatory action or distinctive odor with low concentrations is impressed upon the workers, which comprise three men with a fourth as alternate.

- 68 Liquid Methyl Chloride. K.S. Willson and others. Chem. & Eng. News, 21, 1254-1261 (August 10, 1943).

The authors present a detailed study of chemical and physical properties and uses of methyl chloride, with methods of transportation, storage, handling of containers, weighing and measuring. Methyl chloride is said to be relatively non-toxic but precautions as to ventilation and guarding against leakage must be observed and carelessness prohibited. In case of a serious break canister-type gas masks are not safe. Self-contained oxygen breathing apparatus or a mask with outside source of air may be needed. Skin freezing may occur if escaping methyl bromide comes in contact with skin and should be treated as a burn.

(Editor's Note: The maximum permissible concentration given by Willson is more than twice that quoted by Lehmann and Flury. Some unpublished results would confirm the latter.)

- 69 Toluene Poisoning. Capt. Rex. H. Wilson. J.A.M.A., 123, 1106-8 (Dec. 25, 1943). Of about 1000 workmen exposed for from one to three weeks to toluene vapors varying in concentration from 50 to 1500 parts per million, 100 or 10% showed symptoms attributable to toluene intoxication. Ten or 1% showed blood changes. No deaths occurred. Treatment was symptomatic and included multiple whole blood transfusions, oral administration of liver, iron, calcium, phosphorus, yellow bone marrow and multiple vitamin preparations. Toluene has a definite toxic effect on the human system. With concentrations over 200 p.p.m. symptoms attributable to intoxication of the central nervous system may occur, and with concentrations over 500 p.p.m. depression of the bone marrow may occur. Adequate periodic examination of employees exposed to toluene vapors is valuable in the early discovery of blood dyscrasia, and removal of patients from the toxic environment and adequate therapy make it possible to return them to a normal state of health. (Editor's note: See our abstracts No.863, September, 1943 Digest; No.1125, December, 1943 Digest and No.822 September, 1942 Digest.)

- 70 Toxic Necrosis of the Liver from Trinitrotoluene. Report of Three Cases. W.B. Palmer and others. J.A.M.A. 123, 1025-1027 (December 18, 1943).

In 3 cases of apparent trinitrotoluene poisoning with recovery, the evidence suggests that the toxic necrosis of the liver was severe in one, moderate in the second, and slight to moderate in the third. A residual pigmentation and inflammation of the skin of the ankles was noted in the third patient in addition to the jaundice, anilism and gastrointestinal symptoms characteristic of trinitrotoluene intoxication. -- Authors' summary.

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- 71 Experimental Trinitrotoluene Poisoning with Attempts at Detoxification. M.I. Smith, B.B. Westfall and E.F. Stohlman. *J. Ind. Hyg. & Tox.*, 25, 391-95 (November 1943).
The administration of ascorbic acid in several animal species had little effect on the course of chronic TNT poisoning in rats, guinea pigs, or rabbits. In cats, which are relatively highly susceptible to TNT poisoning, ascorbic acid appeared to have a slightly favorable influence on the course of intoxication. The distribution and elimination of reduced degradation products of TNT were not materially influenced by the ascorbic acid treatment. The glucuronic acid output in the urine was not influenced by TNT, and the somewhat augmented output in porphyrins noted in some animals was not affected by ascorbic acid treatment. Authors' summary.
- 72 Handling Phenol. Anonymous. *Chem. Age*, 49, 285-6 (September 18, 1943); *Chem. Inds.*, 52, 730 (1943).
Hazards in the handling and storage of phenol may be reduced to a minimum by observing some simple rules and procedures. For storing phenol, either riveted or all welded tanks are satisfactory. Nickel-clad steel construction should be used if a water-white color is desired. Otherwise iron may be used, and if the phenol does not become hotter than 60°C., aluminum is adequate. The centrifugal type of pump is satisfactory for use in unloading or transfer. Phenol must be melted in most cases in order to remove it from containers or tank cars. The methods employed in this process, with precautions to be observed are described in the article. The prohibition of open flames near storage tanks or cars and the provision of vapor-proof globes and explosion-proof safety devices for electric fixtures are additional safety measures. Phenol burns on the skin should be washed with plenty of water and then with ethyl alcohol of 70% strength. Some prefer to use copious quantities of 25% alcohol, instead, which is less likely to blister the skin. Burns in the eyes are given first-aid treatment by protracted flushing with water, followed by an application of a bland oil. A physician or eye specialist should be consulted immediately.
- 73 2-Anilinoethanol - An Industrial Hazard - Production of Methemoglobinemia. A.D. Boss and others. *J.A.M.A.*, 123, 761-763 (November 20, 1943).
An oil mixture containing 2-anilinoethanol (improperly named "phenylethanolamine") caused cyanosis in 2 factory employees using it. The substance likewise produces cyanosis in dogs but not in rabbits and mice. As established in dogs, the presence of methemoglobinemia is the cause of the cyanosis. Because this problem of toxicity is likely to arise repeatedly as new industrial uses are found for the many related chemical substances which will be available, this example has been cited. The hazard of such intoxication of human beings might be mitigated if special care was taken that similar substances are named as aniline derivatives. At least a cautionary label should be applied to warn industrial safety committees of the danger. -- Authors' conclusions.
- 74 Observations on the Toxic Effects Resulting from Exposure to Chlorinated Naphthalene and Chlorinated Phenyls with Suggestions for Prevention. H. von Wedel, W.A. Holla and J. Denton. *Rubber Age*, 53, 419-426 (August, 1943).
An account of acne-form eruptions and deaths among workers exposed to chlorinated naphthalenes and diphenyls, experiments were carried out on animals, including administration by inhalation, ingestion and skin absorption. Skin absorption was always followed by liver degeneration in animals, but the effects on the liver are essentially identical whatever the method of administration. The liver changes are described in particular detail and are illustrated with photomicrographs. Histological examination of the viscera showed that the toxic effects are confined to the skin and liver. Methods are recommended for safeguarding workers, and laws for compelling adequate safeguards are advocated.

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- 75 Safety Measures for Use of Chlorinated Naphthalenes and Diphenyls in Industry. L. Greenburg. N.Y. State Dept. of Labor, Ind. Bull., 22, 404-406 (October, 1943). Chlorinated naphthalenes and diphenyls are valuable industrial products, especially in the manufacture of electric condensers, insulation of wire and cable, and similar industries. They are made in this country by about 5 companies and are sold under varying trade names. They are in general highly toxic and must be used with extreme care. Many cases of dermatitis and a number of deaths from liver damage have occurred. Industrial hygienists should make every effort to see that exposures are controlled, insofar as humanly possible. The emphasis should be on a maximum of maintenance and engineering control, rather than on limiting atmospheric concentrations. Toxic exposures may be more readily controlled where the cold or solvent method of impregnating cable than where the hot process is used. All the evidence in the known cases of liver disease point to exposure to vapors or fumes as the cause; there is no clear evidence of systemic poisoning from skin absorption. Among the recommendations are: (1) the cold or solvent method of impregnation should be used; (2) general hygienic measures should be followed; (3) foremen should be apprised of the toxicity of the material and instructed in safe handling practice, and the information should be passed onto the men; (4) preemployment and periodic physical examinations should be given with especial attention to skin and liver conditions; (5) control measures should be checked with the insurance carrier, the State industrial hygiene agency and a competent consultant.
- 76 Some Dangerous Industrial Vapors. Anonymous. Chem. Age, 49, 387-8 (October 16, 1943). From Industrial Accident Prevention Bull., (March-May, 1943). Two cases of poisoning are given, which emphasize the necessity of observing warnings and precautions that have been published. The first happened to workers who were cleaning a degreasing tank, and was due to lack of life belt and breathing apparatus. The second was caused by faulty installation of the flue from the burners in a trichlorethylene degreasing plant. The flue terminated about 10 feet from the floor instead of passing through the roof. None of the cases was fatal, but one man spent 10 days in the hospital. The greater toxicity of coal-tar naphtha as compared with petroleum naphtha is pointed out. A maximum concentration for the solvent variety is suggested, but the author maintains that such figures should be taken with extreme caution. He advises as a safe general rule that "where any organic solvent is used the general ventilation should be supplemented by localized exhaust as near as possible to the point of origin of the vapors." Either type of naphtha may cause dermatitis, and should be kept from contact with the skin. The article concerning ethylene chloride has been abstracted from the original source.
- 77 Creosote Burns. A.D. Jonas. J. Ind. Hyg. & Tox., 25, 418-420 (November, 1943). Creosote-burns form an important industrial hazard in the erecting of wooden structures and very often seriously interfere with production. The dipping of sills in creosote solution and the sawing of creosoted lumber should be done by colored or dark-skinned workers. A thick coat of vaseline forms the best preventive. Thorough washing of the face and application of Foille-solution proved a very satisfactory way for treating creosote-burns.
- 78 Examination of Workers in an Asbestos Factory. A. Bohme. Arch.f.Gewerbepath. u.Gewerbhyg., 11, 433-452 (November 10, 1942). This is a record of clinical and radiological observations made in an asbestos factory during the years 1936-1937 and the year 1940. The factory handled raw asbestos and manufactured a variety of asbestos products. It employed up to 500 workers. Of 100 persons examined, 29% showed radiological evidence of asbestosis. Correlating these findings with exposure, it is stated that there were in workers with less than three years of exposure 5% of cases, in those with 3-5 years of

NOVEMBER 1943

ATLANTA, GA

exposure 12%, in 5-10 years 56%, and in over 10 years 79%. Five cases of pulmonary tuberculosis were noted. The clinical histories of these are recorded.

- 79 Correlation of Disability with Roentgen and Clinical Findings in Silicosis. Part 1 Paul Bovard. Radiology, 41, 11-12 (July, 1943).
Disability in industrial lung disease cannot be accurately estimated by roentgen examination alone. Uncomplicated silicosis may be associated with moderate fibrotic changes and a considerable degree of disability, whereas in other cases massive lesions may produce only a slight decrease in capacity for work. A considerable part of the dyspnoea in silicotics is due to fibrosis of the alveolus itself and not to the nodular fibrosis. When roentgen evidence of superimposed infection is present, disability should be anticipated; if there is roentgen evidence of a superimposed active pulmonary tuberculosis, it may be stated with confidence that disability is total and permanent. In absence of cavitation, diagnosis of tuberculosis in advanced silicosis is difficult, and should only be made when there is laboratory confirmation.
- 80 Correlation of Disability with Roentgen and Clinical Findings in Silicosis. Part 2. J.W.G. Hannon. Radiology, 41, 13-17 (July, 1943).
Silica, by reason of its solubility, reacts to form silicic acid, which causes specific changes in monocyte cells. First, dust laden cells in the lymphatic channels elongate and reticulum appears in the intercellular spaces. Second, the cells elongate further and assume fibroblast shape and arrange themselves in concentric nodules. Third, the cells lose their nuclei, and the nodule becomes fibrous and undergoes hyaline degeneration. The degree of dysfunction of the lungs is not proportional to the change revealed by X-ray. Inhalation of silicon dioxide dust frequently decreases pulmonary function before the shadows of the silicotic nodule become visible on X-ray film. Disability is not primarily due to nodular fibrosis, but is caused by the thickening of the alveolar walls and associated emphysema with decreased elasticity of the lungs and interference with normal bronchioles and engorgement of the capillaries are added factors in disability. The degree of lung dysfunction in pulmonary fibrosis is best measured by respiratory function tests outlined in the article. A person with respiratory disability can increase his depth of breathing only to a very limited extent, When he requires more air, he is compelled to increase his respiratory rate.
- 81 Cancer in Relation to Occupation and Environment. W.C. Hueper. Bull. Am. Soc. Control Cancer, 25, (June, 1943).
Among the chemical and physical agents causing occupational cancer are heavy metals, nitrates, aromatic amino compounds, benzol, asbestos, mineral oil, soot, radioactive substances, ultraviolet radiation and X-rays. A recent addition to the list is coal tar, which may cause cancer of the urinary tract, most frequently in the aniline dye and related industries. The following suggestions are made to aid in prevention and control of occupational cancer: (1) An occupational history of every case of cancer; (2) Experimental investigation of the carcinogenic properties of substances now in industrial use; (3) State inspection of industrial plants; (4) Technical improvement in production methods to eliminate hazards, and the use of substitutes for substances known to be carcinogenic.

Methods of Detection and Determination

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- 82 Simple Device for Preparing Vapor-Air Mixtures. Ind. & Eng. Chem., Anal. Ed., 15, 582 (1943).
A device is described by which the amount of chlorinated solvent aspirated through a combustion apparatus can be determined by successive precise weighings.

NOVEMBER 1943

STANDARD AIRBATHS

HHS-0007724

- 83 Report on the Determination of Lead. Dithizone Method and its Differences. P.A. Clifford. J. Assoc. Official Agr. Chem., 26, 26-53 (1943). The author discusses the dithizone method for lead determination in detail, particularly with reference to interference by other metals. Dithizone reacts with 17 or more metals under various conditions, but in the ordinary extraction in alkaline solution in the presence of the cyanide ion, bismuth, tin and thallium give most of the interference. Spectrophotometric differences in the solutions aid in the determination of lead in the presence of the others. The work of Fairhall and Keenan on determination of lead in urine is discussed critically, and the author reports accurate results when some of the errors are avoided.
- 84 A Simple and Reliable Method for the Determination of Methyl Alcohol and Formaldehyde in the Air. C.F. Ackerbauer and R.J. Lobowich. J. Lab. Clin. Med., 28, 372-377 (1942). Chem. Abstracts, 37, 6592 (November 20, 1943). The method involves absorption of methyl alcohol by permanganate and formaldehyde by Schiff's reagent, and a colorimetric comparison. Details of the method are given in the original paper and in the Chemical Abstracts reference.
- 85 Determination of the Approximate Lethal Dose with About Six Animals. W. B. Deichmann and T.J. LeBlanc. J. Ind. Hyg. & Tox., 25, 415-17 (November, 1943). The approximate lethal dose is the lowest concentration that kills and may be determined by selecting about 6 consecutive concentrations (each increased by approximately 50%) and exposing one animal to each, or by selecting about 3 doses (and 4 animals) using every other dose over the range chosen (as given in a table reproduced in the article). In the latter case one additional animal must be used to obtain the final result; this last animal is treated with the dose between the lowest lethal and the highest non-lethal concentration. The approximate lethal dose was determined for twenty organic compounds by experiments in which various species were used, and various modes of administration. The doses found agreed with the calculated $L.D_{50}$'s (determined by the use of a large number of animals) within the limits of approximately ± 30 per cent. -- Condensed from Authors' summary.
- 86 Determination of Traces of Hydrocarbons in Air. A. Luszczak. Oel u. Kohle, 38, 1103-5 (1942). (German). The hydrocarbons are concentrated in active carbon, which is then extracted with ethyl alcohol and the extract spectroanalyzed. The method is recommended for testing the efficiency of ventilation of factories and garages. Hydrocarbon concentrations of about 0.001-0.0001 vol.-% can be determined.
- 87 A Method for the Determination of Trinitrotoluene (TNT) Derivatives in Human Urine. S.S. Pinto and W.L. Wilson. J. Ind. Hyg. & Tox., 25, 381-90 (Nov., 1943). The authors describe a method for the determination of TNT derivatives in the urine of workers exposed to TNT either by inhalation or through skin absorption. The TNT derivatives are extracted from urine with ethyl ether, reduced to triaminotoluene by titanium trichloride, and after diazotization are coupled with dimethyl-alpha-naphthylamine. Workers exposed to different amounts of TNT during the course of their work have shown variations in the amount of TNT derivatives present in their urine. Expressed as TNT, this amount has varied from 1 to 101 micrograms per ml. urine. For comparative purposes, it is suggested that results of such studies be expressed as milligrams per liter of urine. Abnormalities in the metabolism of TNT may possibly be detected by this method. At the present time the data is insufficient to determine the exact composition of the TNT derivatives present in human urine. -- Authors' summary.

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Control Methods

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- 88 Protection Against Welding Fumes. L.R. Krasno and others. J.A.M.A. 123, 830 (November 27, 1943).

A compressed air unit for ventilating welders' hoods is described and illustrated. It is said that experience with this type of hood justifies the following statements: (1) Welding fumes do not enter the hood under any conditions. (2) A constant supply of fresh, cool air prevents perspiration. (3) Use of alternating shifts of men on galvanized welding jobs is unnecessary. (4) The men like the device and insist on wearing it after once trying it. (Editor's Note: Data on air flow is not provided.)

- 89 Chlorinated Solvent Exposures at Degreasing Operations. K.M. Morse and L. Goldberg. Ind. Med., 12, 705-713 (October, 1943).

The authors report a study of degreasing machines on behalf of the Illinois Division of Industrial Hygiene, involving 60 plants and 108 machines. The only solvents used were trichloroethylene and tetrachlorethylene, also called perchloroethylene. Trichloroethylene is the base of several trade products, varying only in the stabilizer added, while the only tetrachlorethylene preparation is known as "phillsolv." The degreasing liquid cleans metal parts by (1) immersion; (2) spraying, or (3) vapor; 90% of all degreasers use 2 or more methods. The degreaser consists of a tank with a heating unit and a condensing jacket, but in a recent development where tetrachlorethylene is used, there is no condensing jacket and the temperature is regulated thermostatically. Machines with condensers may or may not be ventilated. In the survey, an average concentration of 96 p.p.m. of the vapor was found from ventilated condenser machines; 135 p.p.m. from the non-ventilated type, and 221 p.p.m. from the 11 non-condenser machines. Many measurements were in excess of 200 p.p.m. which has been adopted as standard by many states. One factor in development of excessive concentrations is the speed at which the work is lowered into and removed out of the machine. The manufacturers' recommendations specify 12 feet per minute, but in practice it is usually higher, sometimes reaching 120 feet per minute. The vapor concentration rises as the speed is increased. The minimum exposure occurs when no work is passing through the machine. Faults of operation that increase vapor concentration and cause other undesirable results are: (1) cooling beyond the dew point temperature of the room air, condensation and addition of water to the solvent thereby lowering its boiling point; (2) not keeping work in the vapor zone until condensation stops; (3) poor arrangement of work in the basket; (4) lack of temperature control of circulating water, which should be below 110°F; and, above all (5) operation by inexperienced and unintelligent workers, which is quite common. Solvent loss could not be correlated directly with vapor concentration, but it is generally agreed that it should not exceed 0.20 gallon per hour, or 2.5 gallons per square foot of tank surface per 100 hours of operation, but estimates of actual loss indicated about twice that value. Tank ventilation is a disputed point but in general it appears unnecessary if tanks are carefully operated and well located. The following recommendations are made: (1) equipment with metal hoists set at a maximum speed of 20 feet per minute and withdrawal of work at same speed; (2) equipment with thermostatic control of heating and condensing zones; (3) proper design of basket; (4) location of tanks in as large a space as possible; (5) maintaining a minimum operative area exposed to air; (6) a minimum freeboard distance of 0.6 of the tank width; (7) careful maintenance of heat balance with every change in type and weight of metal; and (8) prevention of dead air spaces in work.

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- 90 Reducing Dust and Din. Anonymous. Nat. Safety News, 48, 23, 72 (July, 1943). A description is given with photographs of specially constructed, portable, booths used in a Curtiss-Wright plant for grinding and polishing operations. The design and material of the booths reduce not only the hazards from flying particles but also the ear-splitting noise created by the operation.
- 91 Good Practice in Controlling Health Hazards Associated with Iron-ore Mining Operations in the Lake Superior Region. E.C.J. Urban. Am.Inst.Min.Met.Engrs., Tech. Pub. No. 1520, 10 pp. (Mining Tech., November, 1943). A survey was made in a large number of the iron-ore mines of the Lake Superior region during 1942 by the author and the late Mr. Cummings. Its purpose was to study the various ventilation procedures employed in these mines for the control of the working environment underground -- a problem of increased proportions because of the present production rate. Their experience, classified by three common types of mining, is described. Effective ventilation is concerned with reducing dust levels, diluting noxious gases, the temperature control of air in mining work places and the disposal of vitiated air and its air-borne contaminants, with exposure to the least number of men. Ventilation should be provided at a rate of 500 cubic feet per minute per man on the largest underground shift, a supply of at least 2000 cubic feet per minute of fresh air to a development heading in rock and 1000 cubic feet per minute or more to a pair of miners in ore. Consideration must be given to physical factors: intelligent ventilation planning, proper selection of equipment, routine inspection and continued good maintenance of the ventilation procedures employed. The nature of mine airways must be to keep friction losses low. A "mine capacity factor," developed to compare the resistance to air flow of airways, illustrates the importance of the character of mine airways to good ventilation practice. -- Author's summary.

Industrial Medical Practice

- 92 Effects of War On the Scope of Industrial Hygiene. L.M. Farner. Ind.Med., 12, 714-18 (October, 1943). The general content of the article is expressed by the author in an early paragraph, as follows: "The method of attacking lost time due to sickness and accidents in the State of Washington has caused some little comment. I present herein a limited picture of the industrial hygiene activities there." The advisability of using industrial hygiene as a vehicle to carry public health to workers in industry instead of limiting the activities to environmental sanitation is considered.
- 93 Industrial Health. Editorial. N.Y. State J. Med., 43, 1304-5 (July 15, 1943). Over 4 million days are lost yearly (by the 50 million wage earners in the United States) on account of absenteeism due to sickness, with a resulting yearly cost of over 3 billion dollars. Present needs require a strengthening and broadening of the entire industrial health program. Less than one-seventh of our workers have services provided by a full-time industrial physician in their plant. Small plants must be encouraged to develop employee health programs and medical service. Until industry and industrial associations undertake to stimulate interest in medical service on the part of the small plants, absenteeism and indifferent industrial health conditions will continue to prevail.

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NOVEMBER 1943

INDUSTRIAL MEDICAL PRACTICE

- 94 Symposium on Industrial Health. C.O. Sappington, Editor. Clinics, 2, 509-801 (October, 1943).

This symposium fills one issue of the magazine and covers the entire field of industrial health. The individual papers are written by experts in the respective fields and the whole can well be taken as a textbook on industrial health. After a Foreword by C.O. Sappington, the following phases of industrial health are discussed: The Industrial Physician, by A.G. Kammer; The Industrial Nurse, by Catherine R. Dempsey; Industrial Management and the Medical Department, by J.D. Jenkins; Industrial Hygiene and Sanitation, by W.A. Cook; Industrial Safety and Industrial Health, by N.H. Dearborn; The Organization and Administration of an Industrial Health Program, by C.P. McCord; The Problem of Absenteeism Among Industrial Workers, by W.M. Gafafer; Industrial Fatigue, by R.R. Sayers; Women in Industry, by Max R. Burnell; Clinical Aspects of the Occupational Diseases, by C.D. Selby; The Problem of Nutrition in Industry, by M.A. Kronenberg; The Role of Non-Occupational Sickness, by C.D. Selby; A Program to Meet Industry's Eye Problems, by H.S. Muhn; Dental Services in Industry, by K.A. Hooper; Mental Health in Industry, by Lydia G. Giberson; and The Medicolegal Aspects of Occupational Disease, by T.C. Waters. Then follow accounts of the work that various organizations are doing in the field, including: Industrial Health Activities in the American Medical Association; The American Association of Industrial Physicians and Surgeons, by E.C. Holmblad; The American Association of Industrial Nurses, by Polly Acton; Role of the American Industrial Hygiene Association, by Philip Drinker; Industrial Health Activities of the U. S. Bureau of Mines, by R.R. Sayers; Industrial Health Activities of the U.S. Department of Labor, by V.A. Zimmer; The Industrial Health Program of the U.S. Public Health Service, by J.G. Townsend; and Functions of Industrial Hygiene Foundation, by J.F. McMahon.

- 95 Sickness Absenteeism Among Male and Female Industrial Workers, 1933-1942, Inclusive. W.M. Gafafer. Pub. Health Repts., 58, 1250-54 (August 13, 1943).

Both the female and the male rate absence in incidence for all causes in 1942 is the highest recorded annual rate since 1933. Certain specific causes for the male rates are pneumonia, bronchitis, diarrhea and enteritis. For females the causes giving highest rates are diseases of the organs of locomotion, except diseases of the joints, pneumonia and neurasthenia. Graphs are given of the contributions made by each broad cause group to the frequency for all causes for each of the 10 years and for each sex. The frequency for all causes rose since 1938, the almost constant rate of increase being evident in the instance of the males.

- 96 Absenteeism in War Plants. N.Y. State Ind. Bull., 23, 303-8 (August, 1943).

Absence rates in 15 war production plants in New York State ranged from 3.1 to 9.3 per cent during May, 1943, according to the results of a survey conducted by the Division of Women in Industry and Minimum Wage of the New York State Department of Labor. Absences for women were consistently higher than for men and the rates for older and married women were higher than for single women and those under 21. Workers employed five or five and a half days weekly were absent less than those working on six and seven-day week schedules. Workers on the day shift were absent much less than those on the second and third shifts although bonus payments were usually made to night workers. Employers are showing increased interest in combatting absenteeism. Transportation and housing shortages are met by the firms by programs of joint action with the communities in which they were located. Remedial measures which still remain to be developed on an industrial plant basis include the improvement of difficult working conditions, adjustment in hours schedules, the establishment of regular rest periods, longer lunch periods, and the installation of adequate eating facilities.

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NOVEMBER 1943

INDUSTRIAL HYGIENE

NOVEMBER 1943
STRENGTHEN
THE ARMS

- 97 Medical Aspects of Absenteeism. L.R. Daniels. New England J. Med., 228, 773-776 (June 17, 1943).
The author feels that probably half of the absences are due to medical causes. Each year 8 days are lost by men and 12 days by women because of illness and accident of non-industrial origin. Less than one day per employee is lost through industrial accidents. It is important that patients get back to work as soon as is expedient following an illness or an injury. The man or woman who has been ill may have attained full physical recovery, but there is often a lag in the return of mental alertness and the desire to get going again. It is not unusual for these patients to be depressed and in need of a bit of encouragement. Then is the time to suggest return to work, for getting back on the job is often the exact tonic needed to effect a complete recovery. Many workers can get back to work and save many man hours by easing back into the job in the middle of the week rather than staying the week out. This way they also benefit by the weekend of rest. Age, sex, morale and social conditions are also evaluated as factors in absenteeism.
- 98 Auditing Absenteeism. Special Bulletin No. 12-A. U.S. Dept. of Labor, Division of Labor Standards. 30 pp. (1943).
The bulletin contains sample absence forms and procedures now in use in war plants. Those reproduced were selected to represent typical methods used by firms engaged in various war industries in different sections of the country. A discussion of reasons for and value of record keeping is presented, with a definition of absenteeism. Appended is a table of percentage absence rates for April and May, 1943, in selected industries.
- 99 How Absenteeism is Being Controlled. Anonymous. Occup. Haz., 6, 29-30 (November, 1943).
Five case histories of plant experience in the lessening of absenteeism are presented. Devices used include: (1) Substitution of absentee report card for the time card with a requirement for the redemption of the latter; (2) The posting of a list in each department showing the amount of absenteeism; (3) Contacting absentees at their homes in an effort to determine the cause of absence; (4) The use of poster and bulletin campaigns on absenteeism; (5) Improving employee relations and working conditions. In most cases percentages of absenteeism were reduced by 50% or more. It was usually found that a small percentage of workers caused a very large percentage of absenteeism.
- 100 Pruritus Ani and Absenteeism. R.H. Aldrich. Ind. Med., 12, 654-58 (Oct., 1943).
The multiplicity of the causes of this common and distressing rectal condition is stressed. The number of forms of therapy advocated for the relief of pruritus ani are described and commented on. The etiology is tabulated into predisposing indirect and direct causes. A description of the pathology is given. Cod liver oil ointment as a local therapeutic agent is discussed and a new mode of administration is described. Twenty-nine cases are reported in which this new form of cod liver oil ointment was used as an adjuvant. -- Author's summary.
- 101 Industrial Health Units -- Considerations and Designs for the Smaller Installations. W.I. Ritter and J.W. Dugger. Ind. Med., 12, 650-54 (October, 1943).
Floor plans are shown and discussed for basic health units for small industrial plants. These conform to sanitary regulations or laws of almost every state and vary from the type of unit adaptable to the smallest plant and the most primitive health concepts to a plan designed for the progressive small plant that has a full-time nursing service and a physician in regular, if part-time, attendance.

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- 102 Keeping Workers at Work for 7½ a Day. Anonymous. Modern Ind., 6, 64-79 (December 15, 1943).

The plan of the Permanente Foundation, which has brought good, sound, medical care to thousands of men and women at a cost of a few pennies a day, is the application to the practice of medicine of the principles of economy, efficiency and streamlined production technique that industry has developed through the years. The three factors that make the Permanente plan successful are pre-payment, group practice by doctors, and proper facilities.

- 103 Industrial Ophthalmology and Otolaryngology. G.F. Harkness. Ind. Med., 12, 658-662 (October, 1943).

A discussion is given of some problems which confront the industrial physician in the fields under discussion, often with particular reference to the matter of compensation. Some essentials in the care of eye injuries are presented and certain procedures are stressed in which unanimity of opinion in the literature is lacking.

- 104 The Physically Handicapped. B.D. Karpinos. Pub. Health Repts., 58, 1573-1592 (October 22, 1943).

The Division of Public Health Methods, National Institute of Health, conducted in 1940 an extensive survey of the number of physical handicapped persons in the United States. Data on blindness and deafness have already been published, and the main portion of this report is confined to orthopedic impairment which is defined as a permanent handicap which has been depriving the afflicted person of the natural use of some portion of his skeletal system. The impairments were classified as disabling and non-disabling, and the data are classified as to age, sex, employment status, types of impairments, and social and economic factors. To state the conclusions on these points briefly, the larger number of handicaps exists among the aged, male, unemployed (usually the result of the impairment), poor and colored persons, but several minor trends among combinations of these classes are noted. The estimated number of persons with orthopedic impairments among the population of the United States as of 1940 is given as 1,844,600 males and 759,000 females, of whom 208,500 males and 132,500 females had incapacitating impairments. In the final section, these figures are compared with those for blindness and deafness; the blind in both eyes are 70,800 males and 63,700 females, and totally deaf 77,100 males and 70,900 females. The causes of orthopedic impairments are 69.6% accident and 27.3% disease in males; 41.1% accident and 58.8% disease in females. Accidents cause 43.0% and disease 53.4% of the incapacitating impairments in males, and 30.9 and 69.0% respectively in females. The estimated annual number of new cases in 1940 included 55,530 males and 23,150 females, of which 9,730 in males and 6,030 in females were disabling. Many other details are given.

- 105 Manpower Crisis - Tapping New Sources of Labor Supply. R.C. Stormont. Factory Man. & Main., 101, 95-99 (November, 1943).

The new sources of labor supply include full-time women, boys, high school girls, part-time men, part-time mothers, and the physically handicapped. Each of these groups has contributed in some degree, although limited, to alleviation of the manpower crisis in aircraft factories. The physically handicapped are grouped in 6 classes according to the work they are able to do: (1) no hazardous machinery, consisting of those with serious visual defects, diabetes, heart disease, or hand and arm disabilities; (2) no heavy lifting (back injuries, hernias); (3) ground level work, including those susceptible to vertigo or having deformations or limitations of the extremities; (4) avoid dusts, fumes and skin irritants, including individuals with chronic bronchial conditions or sensitive to any material used; (5) no extensive walking or standing, comprising those with back lesions, varicose veins, artificial limbs, heart disease, etc; (6) restrict

03118349

November 1943

INDUSTRIAL HYGIENE ABSTRACTS

to noise-free areas, individuals with chronic ear conditions and partial deafness. With these restrictions, many of the physically handicapped are working in the Lockheed and Vega plants. There are 77 totally blind doing satisfactory work. One problem is the lack of trained dogs for the blind.

- 106 Phosphorus Burns. E. Obermer. Lancet. I, 202 (1943).
Since phosphorus is soluble in lipides, it spreads rapidly into the deeper tissues, making even minor phosphorus burns more dangerous than is often realized. Speed in first-aid treatment is essential and for slight, superficial burns it consists in rubbing off the affected skin with cotton wool soaked in a mixture of equal parts of dilute sodium bicarbonate and 2% copper sulfate solutions. Surgical treatment is needed for severe burns. An amyl acetate dressing dulls pain, prevents scarring and promotes granulation.
- 107 Loss of Vitamins in Sweat. Anonymous. Nutrition Reviews, 355-56 (October, 1943).
The problem is of interest, particularly as applied to our armed forces fighting in tropical climates. An account is given of two series of studies on the ascorbic acid, thiamine, riboflavin, niacin and pantothenic acid content of thermal sweat and sweat induced by exercise. After a discussion of difficulties encountered and complicating factors the following general conclusion is reached: "There does not appear to be convincing evidence that the vitamin losses in sweat are large compared to the daily excretion in the urine; hence specific provisions for such losses has not been justified by the limited data available."
- 108 Treatment for Gas Poisoning. J. Creevey. Chem. Age. 49, 287-8 (September 18, 1943).
All persons employed in plants where poisonous gases are present should know how to handle cases of gas poisoning. Two important points are: (1) A victim is not to be considered dead even when there is no sign of breathing, for resuscitation is possible after continuing artificial respiration for several hours; and (2) No one should enter a gas-laden atmosphere, even for rescue work, without proper protection. Details of the rescue and treatment include protection of the rescuer, precautions to be observed in handling the victim, use of artificial respiration and the inhalator, and immediate summoning of a physician. The necessity of training as many employees as possible in the prone pressure method of artificial respiration is stressed. Gas masks or respirators should be kept in good condition and distributed to workers. Directions for cleaning gas-mask face-pieces are given.
- 109 Solving The Nutritional Problem of Employees in Wartime. Anonymous. Industry. 24b-24e (October, 1943).
The New England Telephone and Telegraph Company's nutrition program is described. Courses in the fundamentals of good nutrition, in menu planning with special emphasis on diets, with special instruction on rationing and the use of alternate diets are open to all employees. Instructors were trained in preliminary courses. A textbook, "Food Makes a Difference," which was prepared by the Company, is furnished to each student. At the conclusion of the course, which consists of six lessons, taking one and a half hours, one night a week, a certificate of proficiency is presented to each student who satisfactorily completes the course. Company-operated cafeterias, which correlate their menus with those recommended in the nutrition course, serve as an example for employees. Some typical charts and forms used in connection with the program are reproduced in the article.

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MM88-0007731

INDEX
(January, 1944)

<u>Absenteeism</u>	93	<u>Explosions</u>		<u>Pneumoconiosis</u>	
auditing procedures	98	dust	36	vanadium	
case reports	99	<u>Fatigue</u>		<u>Polynuritis</u>	
medical aspects	97	cause and cure	58	occupational	49
New York State	96	symposium	59	<u>Pulmonary edema</u>	
pruritis and	100	<u>Fluoride ingestion</u>		44	
sickness		bone changes	62	<u>Safe practices</u>	
1933-42 report	95	<u>Gas poisoning</u>		weight lifting	34
<u>Air analysis</u>		treatment	108	<u>Silicosis</u>	
hydrocarbons	86	<u>Grain itch</u>	43	correlation of X-ray and	
methanol and formalde-		<u>Handicapped workers</u>	104	clinical findings	
hyde	84	<u>Heat</u>		79-80	
preparation of vapor-air		cardiovascular adjust-		<u>Solvent vapors</u>	
mixtures	82	ments	50	toxicity	76
<u>Aluminum</u>		relief	51	<u>Toluene</u>	
bronchial asthma	63	<u>Hydrocarbons, chlorinated</u>		poisoning	69
<u>Analysis</u>		degreasing	89	<u>Toxicology</u>	
lead	83	safety measures for	75	method for determining	
<u>Anesthetics</u>		toxicity of synthetic		lethal dosage	85
explosion hazards	37	chlorowaxes	74	<u>Triethylene glycol vapor</u>	
<u>2-Anilinoethanol</u>		<u>Industrial accidents and</u>		toxicity	65
health hazards	73	safety	33	<u>Trinitrotoluene</u>	
<u>Asbestosis</u>		<u>Industrial health</u>		detoxification attempts	
clinical and radiologi-		symposium	94	71	
cal	78	<u>Industrial hygiene</u>		liver damage	70
<u>Aviation</u>		and the war	92	urinalysis	87
medical aspects	54	<u>Keratoconjunctivitis</u>		<u>Ventilation</u>	
<u>Book Reviews and notices</u>		distribution	46	mining operations	91
22-23-24-25-26		flash		<u>Visual defects</u>	
<u>Burns, phosphorus</u>	106	infra-red therapy	47	and war production	48
<u>Cancer</u>		<u>Lighting</u>		<u>Vitamins</u>	
occupational causes	81	industrial	57	loss in sweat	107
<u>Carbon monoxide</u>		research	56	<u>Water works</u>	
cardiac changes	60	<u>Manpower crisis</u>		exposure to gases	27
<u>Chemical industry</u>		use of handicapped work-		<u>Welding</u>	
health hazards	28	ers	105	and digestive distur-	
<u>Colds</u>		<u>Medical plans</u>		bances	32
treatment with sulfadia-		industrial	101	fume control	88
zine	45	Permanente Foundation		health control in	29
<u>Creosote burns</u>	77	102		health effects	30
<u>Dermatitis</u>		<u>Methyl bromide</u>		<u>Welding, electric</u>	
ditto workers	42	as a fumigant	67	light reflection	31
lacquer	40-41	<u>Methyl chloride</u>	68	<u>Zinc dust</u>	
prevention	39	<u>Noise</u>		spontaneous ignition	64
<u>Dust</u>		control of	53		
glass manufacturing		industrial			
nasal effects	38	control	52		
<u>Dust and noise control</u>		hearing aid	55		
grinding operations	90	<u>Nutrition</u>	109		
<u>Eating places</u>		<u>Ophthalmology, industrial</u>			
Code	35	103			
<u>Ethylene glycol ether</u>		<u>Phenol</u>			
derivatives		hazards	72		
toxicity	66				

03118351

WAB-0007732

UNITED STATES AIR FORCE

November 1962

JAN. 1944

HW88-0007697