INDUSTRIAL HYGIENE DIGEST

Literature Abstracts

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

Industrial Health News

Issued Monthly By

INDUSTRIAL HYGIENE FOUNDATION

4400 FIFTH AVENUE

PITTSBURGH (13), PA.

INDUSTRIAL HYGIENE FOUNDATION

FOUNDATION FACTS

Foundation Facts is a monthly news-letter issued to industrial concerns holding membership in Industrial Hygiene Foundation. The Foundation is a non-profit association of industries for the advancement of healthful working conditions.

Vol. 6. March, 1944 No. 3.

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1. Medical
2. Engineering
3. Industrial Relations
4. Legal

The panel, "Putting the Disabled Veteran Back to Work," a highpoint of the annual meeting of members, was published separately from the Proceedings to expedite circulation. Additional copies of this panel discussion are available upon request. The annual meeting of members is one of the most valuable services of Foundation membership. Accordingly, the Proceedings should be examined carefully and routed to all interested persons within each member's organization.

New Members and Subscribers

Latest additions to the Foundation's membership list are: American Optical Company, Van Cleef Bros., and Vanadium Corporation of America. New subscribers are: Fairfield Air Service Command, Ohio; Medical Supply Officer, Ft. Mason, Cal.; Ministere Sante & B.E. Social Hygiene, Quebec, Canada; Netherland Government Commission for Scientific Documentation, and the Pennsylvania Department of Labor and Industry.

Seen in the News

DETROIT, March 11 (UP) -- R.J. Thomas, President, United Automobile Workers (CIO) today declared that his union "was no longer satisfied" to bargain for wages and hours only and announced the union would negotiate clauses containing health standards for workers.... He said, "The health of our workers in the shop is an immediate problem and it must be met and solved through collective bargaining."

Sacramento, Calif. -- Women workers who repair bullet-proof airplane gasoline tanks at Mather Field are equipped with oxygen masks and officials say this innovation cuts repair time at least in half. The patching is done by small women who crawl through a narrow opening in the tank. Formerly they had to come out every four or five minutes or risk suffocation from fumes.

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A plant manager, studying jobs in his shop that disabled veterans might perform, observed: "When I see a man running a machine with one hand in his pocket I make a mental note that he could probably operate another machine and a one-armed veteran could do that job."

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.....Industrial Hygiene Helps Maintain Manpower.....

383 Chlorohydrocarbon Solvents. E.W. McGovern. Ind. Eng. Chem., 35, 1230-1239 (December, 1943).
Included in a comprehensive paper on the properties of chlorohydrocarbon solvents is a section on toxicity. The toxicities of a number of the solvents in themselves are of the same order of magnitude, but carbon tetrachloride and ethylene dichloride are practically more toxic than other liquids of somewhat higher molecular weight on account of their higher vapor pressures. Methyl and ethyl chlorides have low toxicities, but, being gases at ordinary temperatures, the effect of leakage is a high concentration of the vapors with increased fire and health hazards. Chloroform, beta-trichlorethane, and especially tetrachlorethane, possess high toxicities, and must be used with precautions although their vapor pressures are low. In general, human beings should not be exposed to atmospheres in which the odors of chlorohydrocarbons are detectable. However, they may be all rendered safe by the use of properly designed equipment. Danger in skin contact and decomposition at higher temperatures with formation of more toxic substances are discussed briefly, as are also methods of detection.

384 Bagasse Disease of the Lung. W.A. Sodeman and R.L. Pullen. New Orleans Med. & Surg. J., 95, 558-560 (June, 1943).
A case of bagasse disease of the lung is reported together with the findings at biopsy in an involved area of the lung. The picture appears to be that of an organic pneumoconiosis. It is evident that particles of bagasse may enter the alveolar regions and produce this reaction. The mechanism of the changes, and the nature of the stimulus set up by the bagasse dust to produce the cellular reaction, remain obscure.

385 Pneumoconiosis and Working Conditions in Coal Mines. Brit. Med. J. No. 4316, 395-396 (September 25, 1943).
The Committee on Industrial Pulmonary Disease has been unable to draw final conclusions on causation or differences in incidence of pneumoconiosis in the South Wales coalfield. Anthracite dust is more dangerous than that of bituminous mines. The most important measure in prevention is the reduction of dust breathed by the miners. To this end, the committee advocates a series of procedures which are discussed in this article: (1) maintenance of adequate ventilation, (2) use of water to prevent dust dispersion, (3) allaying of dust in roadways and at loading points, (4) reduction of shot-firing to a minimum, with fewest possible men exposed, (5) regulation of ripping processes, and (6) prevention of chill during spake journeys.

386 Liquefaction Necrosis in Bilateral Symmetrical Conglomerate Lesions of Anthracosilicosis of Lung: Report of Case. B.J. McCloskey. Am. J. Roentgenol., 50, 42-45 (July, 1943).
It is the intention of the author to show that the correct interpretation of the roentgen appearance of necrosis and cavitation in the conglomerate lesions of anthracosilicosis may be very difficult. A case is reported, showing these lesions, uncomplicated by tuberculosis. The only known exposure to silica was when the man worked as a pick miner in a soft coal mine for a period of 12 years and there was no exposure for a period of 44 years before his death. The roentgenologic appearance of the necrotic areas was that of consolidation or pleural thickening. At sutopsy each cavity was found to contain thick, black, viscid fluid, which showed no free silica on examination. Examination of the cavity wall and surrounding lung tissue showed a content of 0.25 per cent silica.

387 A New Radiologic-Social Classification of Pulmonary Silicosis. R.Lorca and others. Bol. de la oficina sanitaria panamericana. 22, 976-981 (November, 1943).(Spanish).
The authors review the principal systems of classification of silicosis, including that of Irvine and that adopted at the International Conference in 1930. They

then propose the following classification, reducing the eight groups to five: (1) exposed but showing no silicosis; (2) suspicious; (3) confirmed phase No. 1, initial nodular fibrosis; (4) confirmed phase No. 2, marked nodular fribrosis; (5) confirmed phase No. 3, confluent nodular fibrosis.

288 Asbestosis and Pulmonary Tuberculosis. R. Desmeules and others. Laval med., 8, 217 (March, 1943). (French).
Asbestosis is an occupational disease caused by the inhalation of asbestos dust. It is diagnosed by the presence of asbestos bodies in the sputum, and is characterized by the transformation of normal lung tissue into fibrous tissue. Symptoms appear usually five to seven years after the beginning of exposure. Both asbestosis and tuberculosis were seen in 8 workers exposed to asbestos dust for 20 years. In three of these cases asbestosis was masked by tuberculosis.

289 Asbestosis and Pulmonary Tuberculosis. R. Desmeules and M. Giroux. Laval Med., 8, 227 (March, 1943). (French).
The case history of a 44 year old man is given who had worked for 20 years in an asbestos mill. After 10 years he had developed productive cough which increased gradually. Shortly before he was admitted to the hospital he started to run fever and had pains in the chest. The clinical diagnosis of ulcero-fibrous tuberculosis and asbestosis was confirmed by the autopsy. Diffuse peribronchial and perialveolar sclerosis was also seen. It is believed that the first symptoms of asbestosis appeared ten years before the symptoms of tuberculosis, but the matter could not be decided radiologically and pathologically.

290 Asbestosis Bodies. M. Giroux. Laval Med., 8, 239 (March, 1943). (French).
The "curious bodies" found in the sputum of patients suffering from pulmonary asbestosis usually measure 24 to 50 mu by 12 to 24 mu but can be as large as 250 mu. They consist of a central fiber of asbestos which is covered by a golden-yellow substance containing iron. Rabbits, guinea pigs and one dog were exposed to inhalation of asbestos dust. Asbestosis did not develop in the rabbits nor in the dog. The guinea pigs showed, after several weeks, macrophages with asbestos fibers in their alveoli. Erythrocytes appeared in the alveoli, and hemoglobin derivatives containing iron could be found on asbestos fibers two to three months after the beginning of the inhalation of the asbestos dust. When a suspension of asbestos in olive oil was injected subcutaneously or into the testicles of guinea pigs no asbestos bodies were formed. However, if first one cc. of blood was injected and then the asbestos dust through the same needle, asbestos bodies could be found one month later. The presence of asbestos bodies in the sputum is believed to be a definite sign of pulmonary asbestosis.

291 Coincidence of Primary Carcinoma of the Lungs and Pulmonary Asbestosis. F.Homburger. Am. J. Path., 19, 797-807 (September, 1943).
In the medical literature there are now at least 19 known cases of asbestosis associated with primary pulmonary carcinoma. In 4137 autopsies at the pathology laboratory at Yale University School of Medicine, there were 45 cases of pulmonary carcinoma in the years from 1918 to 1938. Asbestosis was diagnosed 8 times, silicosis 17 times. Pulmonary carcinoma was found in 4 of the 8 cases of asbestosis and twice in the 17 silicotic cases. Despite the high correlation of the foreign body asbestosis in the lungs with primary pulmonary carcinoma, this is a small series of cases and the value of these data is limited. Three cases are given in detail. The diagnosis of pulmonary asbestosis was diagnosed according to the following criteria: (1) fibrosis of the lung and (2) presence of asbestosis bodies.

292 Pulmonary Asbestosis. L. Rousseau. Laval Med., 8, 233 (March, 1943). (French).
The radiological picture of pulmonary asbestosis is not characteristic; it is usually similar to that of tuberculous fibrosis. The diagnosis is, therefore, often made only after asbestos bodies have been found in the sputum. Asbestos fibers may be seen in the sputa of individuals who do not suffer from asbestosis; asbestos bodies are due to a pathologic tissue reaction. Microscopical examination of the lungs of patients who have died from an intercurrent disease may show asbestosis, which had not been found on X-ray examination. The case history of a 42 year old man with asbestosis without tuberculosis is given. The patient had been working in the asbestos industry for 18 years. For 2 years the patient had been suffering from increasing cough, expectoration and dyspnea. Roentgenological examination showed mottling of both lungs. Sputa and gastric examinations were negative for tubercle bacilli. Asbestos bodies were found in the sputum.

Methods of Detection and Determination

293 The Quantitative Determination of Cyanide in Air. D. Lester. J. Ind. Hyg. & Tox., 26, 61-63 (February, 1944).
The author describes a method for cyanide determination based upon the colorimetric measurement of cyanide derivative formed from methemoglobin exposed to air containing cyanide. An air sample of 1 liter is sufficient for determining a concentration as low as 1 part per million, with an error of 0.1 parts per million, higher concentrations to 2% accuracy. The colorimetric measurement depends upon the change in light absorption of methemoglobin at wave length 635 milli-microns, which decreases with the conversion in accordance with the Beers-Lambert law. Full details of collection and determination procedures are given.

294 Sampling and Analysis of Air Contaminants. F.H. Goldman. Ind.Med., 13, 100-103 (January, 1944).
The analysis of air for various contaminants especially substances produced for military use, is described briefly. The standard impinger and midget impinger may be used for the collection of ammonium picrate, dinitrotoluene, tetryl, TNT, nitroglycerine, mercury fulminate, tracer bullet mixtures, fluorides, metal fumes, chlorinated hydrocarbons and war gases. The tests after collection are indicated very briefly. The Shepherd bottle is used for collecting substances such as nitrogen oxides or benzene, as one type of a grab sampler. The electrostatic precipitator and the benzol indicator are discussed briefly, with mention of other special methods.

295 Analysis of Atmospheric Contaminants Containing Nitrate Groupings. H. Yagoda and F.H. Goldman. J. Ind. Hyg. & Tox., 25, 440-444 (December, 1943).
Methods are described for the estimation of nitroglycerine, PETN (pentaerythritol tetranitrate), nitrous fumes, and ammonium nitrate in atmospheres arising from manufacturing processes. The analyses are based on the nitration of m-xylenol in 62.5% sulfuric acid and the colorimetric determination of the nitro-xylenol isolated by a simple steam distillation. -- Authors' summary.

296 Dust Measurement. W.Grundmann. Arch.tech.Messen Lfg. 126, T.152,2 (1941).(German)
Dust measurement is possible with the Tyndallometer by determination of the intensity of the scattered light of the dusty atmosphere. Calibration curves for the various sorts of dust must be made because the effects of size, form and optical surface effects of the dust particles must be eliminated to secure an accurate measurement of the dust concentration.

Industrial Hygiene Foundation
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INDUSTRIAL HYGIENE DIGEST
Literature and News

News Items

220 Aluminum Therapy.

In response to questions from member companies concerning aluminum therapy, the Foundation secured the following statement from Dr. L. U. Gardner, Director, The Saranac (N.Y.) Laboratory. The Foundation helps support Dr. Gardner's investigations in this field.

"I believe that aluminum therapy has definite possibilities as a preventive against silicosis. I know that in experimental animals it will prevent the development and stop the progression of silicosis. I am not at all sure that as a therapeutic agent it invariably has as much effect upon symptoms as other investigators have indicated. I am interested in seeing aluminum treatment used in as many different types of exposure as possible provided there is sufficient control so that its effects may be scientifically evaluated. I believe that its greatest possibilities will be found in treating men who already have early manifestations of silicosis so that they can continue their present work without danger of further progression. I would not recommend its use by any employer who intends to rely upon aluminum as a preventive to the exclusion of recognized engineering methods for the control of a silica dust hazard."

221 Eye Accidents.
Asserting that only one plant out of every eight has an adequate safety program, C.O. Cozzens, Vice President of the American Optical Company, announced that United States industry is currently losing or repairing 200,000 eyes a year at an annual cost of $50,000,000. He said these industrial eye accidents are responsible for an annual loss of 8,000,000 man days. Emphasizing that eye accidents can be prevented by ordinary safety precautions, he reported that 72% of accidents occur on jobs regarded as non-hazardous to eyes. -- Chem. & Eng. News. January 25, 1944.

222 "War Conference" on Industrial Medicine, Hygiene and Nursing.
The Second "War Conference" of industrial physicians, industrial hygienists and industrial nurses will be held in St. Louis, Mo., May 8-14, at the Hotel Jefferson. The participating organizations are (1) American Association of Industrial Physicians and Surgeons, (2) American Industrial Hygiene Association, (3) National Conference of Governmental Industrial Hygienists, and (4) American Association of Industrial Nurses. The medical subjects to be presented include welding, noise, better health in small plants, maladjustment and job environment, women in industry, and panel discussions on "Who Can Work?" The industrial hygienists will examine the health hazards in the synthetic rubber industry, radium, solvents, toxicology of TNT, possibilities of excessive silica dust hazard from the extensive quartz crystal industry, techniques of air sampling in specific reference to the collection of cutting oil mists and of lead fumes, and hazards of exposure to cadmium. The industrial nurses will consider postwar planning for nurses and medical services in industry.

223 Absenteeism Reduced.
Absenteeism has been reduced as much as 60% in some war plants by various corrective measures, according to R.C. Goodwin, War Manpower Commission Director for Ohio, Michigan and Kentucky. In some cases companies made certain improvements and in others workers served on a "Kangaroo Court." In another case, absenteeism was reduced by setting up facilities for obtaining gasoline, tires, shoes, medical aid, beauty treatments and housing information at the plant. -- Steel, November 22, 1943.

224 Prizes Reduce Absenteeism.
One company awards merit certificates to "Regular Fellows," that is, to employees who have not lost time during a pay period and additional certificates for regular attendance for 3 months. After every pay day a jack-pot drawing is held for additional certificates, only the "Regular Fellows" participating. The merit certificates are exchangeable for prizes that are catalogued and displayed. The plan has been very successful. -- L.R. Rhodes, in Ind. Marketing, Feb., 1944.

225 New Magazine.
The British Medical Association announces the publication of a British Journal of Industrial Medicine, a quarterly journal. -- Chemical Trades J., February, 4, 1944.

226 New Standards Group to be Formed.
Organization of an Allied Nations standards body was announced at the silver anniversary meeting of the American Standards Association. The objective of the new body will be maximum coordination of standards necessary for the war effort and the immediate postwar period. A skeleton staff will have offices in London and in either New York or Washington. -- Heat. & Vent., February, 1944.

Legal Developments

227 Scratches on Hands Received in Course of Employment as Portal of Entry for Tetanus Bacilli.
Although there was no witness who saw the decedent sustain the accidental injuries to his hands, the facts that several days prior to his illness as well as later, the employee showed various scratches on his hands to his mother, his wife, and several fellow employees and stated that he had received them on an electric screw driver at the factory where he worked, and even in his dying remark to his brother-in-law he stated that he received the scratches at the factory, and the fact that the employer did not show by any evidence that the injuries were sustained elsewhere, there was evidence to substantiate a finding that the scratches leading to the subsequent tetanus and death arose out of the employment. Harrison Furniture Co. v. Butler. Arkansas Supreme Ct. No.4-7218. January 31, 1944. (CCH).

228 Aggravation of Tuberculous Condition by Heavy Lifting.
This Court affirms without opinion the decision of the Supreme Court where it was held that the strain of lifting heavy cartons which precipitated a lung hemorrhage in an employee, who was suffering from tuberculosis in either a dormant or active state, was sufficient to constitute an industrial accident and compensable injury since any strain incident to the labor performed, whether ordinary or extraordinary, constitutes a compensable accident. Cavanaugh v. Murphy Varnish Co. New Jersey Ct. of Errors and Appeals. No. 26, October Term, 1943. January 27, 1944. (CCH).

229 Chemical Splashed in Eye Not Shown as Cause of Cataract.
An employee claimed that a chemical solution composed of alcohol, ether and dinitrotoluene was splashed into his right eye in the course of his employment and that within a week to ten days the vision in that eye became blurred and continued to grow progressively worse until there was a loss of vision in that eye. A diagnosis of cataract was made with a number of eye specialists concurring, but none was able to state that there was any known case of a single contact with such a chemical causing a cataract and, although claimant was known to be in good general physical condition, it was not known if there had been a previous chronic eye disease, and the fact that there was never any pain or irritation of the eye indicates the probability of a secondary change from a chronic uveitis. All the evidence pointing to a pre-existing chronic eye disease and the failure to establish any causal relation between the incident of the chemical in the eye with the cataract, the loss of vision cannot be said to be a result thereof. Carter v. Hercules Powder Co. Virginia Supreme Ct. of Appeals. No. 2754. January 24, 1944. (CCH).

230 Causal Provocative Connection Between Heat Prostration and Death.
On June 19, 1941, the employee was overcome by heat and coke fumes in the course of his employment and was temporarily disabled for about three weeks when he returned to work. On July 25, 1941 he quit work on account of an alleged illness and disability, never again being employed. He died on April 25, 1942 as the result of a valvular cardiac lesion. Prior to the incident of the heat prostration, the employee had been treated by the same physician who attended him after the exposure to heat and coke fumes and continued to attend him up to the time

of his death. This physician testified that prior to the incident of prostration, the employee's lungs and heart were in good condition and thereafter the lungs and bronchial tubes were irritated and congested causing a strain upon decedent's heart. Since the evidence must be viewed in the light most favorable to claimant and since there is evidence to support the finding of causal provocative connection, an award of compensation must be affirmed. Combustion Engineering Co., Inc. v. Whatley. Tennessee Supreme Ct. February 5, 1944. (CCH).

231 Aggravation of Pre-existing Tuberculosis by Exposure to Inorganic Dust.
Where an employee became disabled, after nine or ten years employment with his employer, because of an active pulmonary tuberculosis, and the report of the industrial disease referees stated, "nevertheless it seems probable that in the past over a period of thirty years, he has inhaled inorganic dusts which may have been sufficient in quantity and of such an irritant nature as to act as an exciting or contributory cause in the extent of his present lung tuberculosis," there was sufficient evidence to find causal relation since it has frequently been held that the opinion of experts, that a relation probably exists between two facts, is evidence that there is such a relationship. Duggan's Case. Massachusetts Supreme Judicial Ct., Suffolk. January [illegible], 1944. (CCH).

232 Disability Due to Tuberculosis Following Poor Ventilation.
Although there is conflicting medical testimony as to whether or not the poor ventilation in the sewing room where the air was heavily laden with starch from the fabrics used, was the proximate or aggravating cause of the employee's disabling pulmonary tuberculosis, the jury verdict awarding the employee $2,000 damages must be affirmed, since there is testimony and evidence to support that finding by the jury. Where X-ray pictures, made on February 9, 1940, show that the employee developed pulmonary tuberculosis on or before that date and the employee failed to bring action against her employer until February 15, 1941, the action is not barred by the one year statute of limitations, since in cases where there is a continuous tort, such as the employer's failing in this instance to provide proper exhaust fans, the statute of limitations does not begin to run until the time of disability, which, here, was February 27, 1940. The Goodall Co. v. Sartin. U.S. Circuit Ct. of Appeals, Sixth Circuit. Nos. 9431-9432. February 15, 1944. (CCH).

Book Reviews and Notices

233 Report of the Bureau of Industrial Hygiene (State of Connecticut). A.S. Gray, Director. 57th Report of the Connecticut State Department of Health, pp. 285-320. (1942).
This routine report testifies to increasing activity in the number of field trips, plants visited, laboratory determinations, etc., and variety of subjects investigated, which include extensive studies of particular hazards presented by benzene, lead, fluorides, lacquering solvents, electrolytic alkali cleaning, electroplating and degreasing, with a number of other hazards encountered on a smaller scale. The number of surveys of industrial conditions was 923, and 182 studies of specific hazards were conducted. Publicity features included 25 radio talks. The work in the various fields is tabulated.

234 Annual Report of the Chief Inspector of Factories for the Year 1942. Ministry of Labor and National Service. Factory Dept. Cmd. 6471, 1943. London: H.M. Stationery Office.

An increase of 66 per cent over the 1941 figure in the number of accidents to women is due in part to the larger number employed in dangerous and heavy industries. Fencing of machinery and wearing of properly designed caps and other clothing are strongly advised for women. A safety committee, with representatives of management and workers and one or more trained safety officers should function in every factory of considerable size. Industrial lighting has been much improved, with many installations of fluorescent tubular lighting. Ventilation is still poor in some factories during the hours of blackouts. Public opinion is more strongly in favor of personnel and welfare departments in all works of any size. There has been a reduction in dermatitis due to TNT, tetryl, fulminate of mercury and white lead, which may be credited to the use of recommended precautions. Other forms of TNT sickness and aniline poisoning cases also showed a decline. Toxic anemia is now notifiable. Of 14 cases notified, [illegible] were associated with TNT and the rest with solvents containing low proportions of benzene. Practical methods of overcoming the enhanced risk of silicosis in steel foundries are being sought. There has been a tendency to reduce weekly hours of work for all workers. Industrial canteens have multiplied greatly in factories and on docks and building sites.

235 Absenteeism: Management's Problem. J. B. Fox and J.F. Scott. Publication No. 29 of the Graduate School of Business Administration, George F. Barker, Harvard University, Boston. December, 1943. 28 pp. Price $1.00.

The authors made a systematic study of absenteeism at three similar plants in the same city, largely confining it to the casting department of each plant because the absentee problem was more acute there. In their records each absence was counted, regardless of its length. By that method and by a comparison under similar conditions, the effect of many of the factors commonly considered was minimized. The data showed that there is normally a substantial percentage of employees who have one or no absences per year, as shown in the plant employees as a whole. In the casting shops of the three plants, the percentages with low absence records was lower over the period from January 1, 1942 to March 1, 1943. Fluctuations were probably due to changes in days of work and other working conditions caused by government regulations and pressure of war work. However, in the plant designated C the absenteeism settled back to a reasonable figure after these disturbances, while in plant A it continued increasing to the end of the study, plant B occupying an intermediate position. The authors traced this variation to differences in labor policy. In plant A individual piece work was the basis of wages; in C the payment was on the basis of total work done by all shifts over a 24-hour period; in C the foremen rotated shifts in such a way that they were in contact with all groups of workmen, and were relieved of enough responsibility on mechanical work so that they could keep attendance records and talk with the men about absence problems and complaints. In general, intelligent consideration of the numerous problems by the management was the greatest factor in reducing absenteeism. The authors believe that in most discussions of absenteeism the attitude of management is not given sufficient consideration.

Industrial Health Hazards and Their Effects

236 Sewer Gas - Hazards in Sewage Plants. C.S. McKinley. Ind. Med., 12, 804 (December, 1943).
Hazards associated with this gas are: (1) poisonous gases, (2) inflammable gases that may cause explosion, and (3) deficiency of oxygen. Attention is called to the hazard of underground pumping rooms, often found in sewage disposal plants. Methods of preventing fatalities in pumping pits are summarized.

237 Testing Mine Diesel Engines with Liquid Gas and the Carbon Monoxide Question in the Diesel, Diesel Gas and Otto Process. J. Ternes. Gluckauf. 78, [illegible]-88 (1942). (German).
By choosing a suitable regulation of the mixture, adjustment of excess of air, condensation ratio, etc., in Otto, Diesel and Diesel gas engines, in particular with the use of liquid gas, it is possible to counteract the danger of carbon monoxide to human lives.

238 Injurious Welding Fumes. J.S. Wright. Welding Engr. 29, 48, 49 (February,1944).
The author, a welding operator, discusses welding fumes in non-technical and non-medical language. The three types of welding fumes are those from: (1) galvanized iron; (2) stainless steel electrodes; (3) burning of lead-based paints; and (4) aluminum welding operations. From the fumes in the galvanizing of iron, the hazard is metal fume fever. Zinc fumes do not collect in the lungs, as many welders believe, but are constantly being removed. Milk, warmth and avoidance of carbonated beverages are advocated for prevention of fume fever. The injurious fumes encountered in working with stainless steel electrodes and welding aluminum are those of fluorine compounds. The fundamentals of prevention by exhaust systems are discussed very briefly.

239 Investigation of the Composition of Arc-Welding Gases. V.D. Taran. Zavodskaya Lab. 9, 785-787 (1940). (Russian).
Taran proposes a method for taking samples of arc-welding gases for analysis. Auto tractor pipes are used as electrodes. One of the openings of the pipe is cleaned carefully, welded and covered with the coating under investigation. The open end of the pipe is connected by means of a rubber tubing to a pipet and a vacuum system. The whole system is washed with the arc gas by means of a vacuum pump, the welding process started and the gas passed to the pipet by means of a hydrostatic mercury pump. Approximately 200-300 cc. of gas is obtained from one electrode. Analyses are given of electric arc gas obtained from various coatings of the electrodes.

240 Health Hazards from Arc Welding. Illinois Dept. of Labor, Industrial Hygiene Div., Factory Inspection Div., Ill. Labor Bull., 4, 4-6,23 (August 31, 1943).
Previous studies have shown that a great variety of poisonous, irritating or annoying dusts and gases may be found in welding fumes: nitrous fume, carbon monoxide, fluorides, silicates, zinc fume, lead fume, lime, chromium, manganese, iron oxide, etc. Greatest ignorance is in the field of welding rod coatings. There are at least three important factors in the work and the environment: (1) ventilation, (2) volume of work, and (3) position of the welder. The Illinois study investigated the significance of dust counts from two angles: the relation to hazardous gases and the relation to ventilating control. This study has shown that local exhaust ventilation is not only practical, but the only reliable method for controlling welding fume. The way in which this local exhaust must

be applied in various operations is discussed at length. In locations where ventilation alone is inadequate, an efficient supplied air respirator is the solution. Because welding fume has been shown to contain a complex mixture of hazardous air contaminants, many of which give no warning of their presence, it is wise to control the fume at the source by positive means. Prevention is better than treatment or compensation.

241 Health Hazards in Welding. Ontario Department of Health, Division of Industrial Hygiene. Pamphlet, 8 pp. No date.
This booklet describes briefly the health hazards encountered in welding and preventive procedures. The general classification of hazards is given and directions for local exhaust and general ventilation. For eye protection, numbered shades of lenses are recommended for various types of work.

242 The Inflammability and Explosibility of Metal Powders. I. Hartmann, J. Nagy and H.R. Brown. U.S. Bureau of Mines, Report of Invest. No. 3722. 44 pp. (October, 1943). Obtainable from Div. of Information, U.S. Bureau of Mines, Washington, D. C.
An extensive and thorough study of inflammability and explosibility of 14 metals and 6 alloys in powder form, was made in the dust explosion laboratory of the Experimental Coal Mine Section of the Bureau of Mines. The tests made usually included: (1) minimum ignition temperature and minimum energy needed for ignition of dispersions in air and of quiescent layers; (2) relative inflammability with two different sources of ignition; (3) minimum concentration required in a dispersion in air to permit ignition; (4) maximum pressure and rate of pressure rise in small explosions; (5) reduction in oxygen content of the air needed to prevent ignition; and (6) effect of a humid atmosphere on the powders. Most of the results are presented in tables, and the summary covers 3 pages, so only a few of the most striking results will be given here. The wall temperature required in a heated furnace to ignite powder dispersions in air varied from 315° to 900°C, according to the metal and conditions. A dispersion of zirconium sometimes ignites at room temperature. Very little energy is required for ignition by spark. Maximum pressure attained and rates of pressure rise very widely. Magnesium gives the highest figures for both, 72 lbs. per sq. in. and 5,000 lbs. per sq. in. per second, respectively, and only 0.05 second was required to reach the maximum pressure. A large explosion of that intensity would wreck a plant, and large relief vents would not prevent damage. The metals in decreasing order of inflammability are: (1) zirconium, magnesium and its alloys, aluminum and titanium; (2) reduced and carbonyl iron, manganese, zinc, silicon, tin and antimony; and (3) cadmium, copper, chromium, lead and milled iron. In diluting air with nitrogen, carbon dioxide and helium to reduce inflammability, it was found that titanium, zirconium and magnesium and its alloys ignite in pure carbon dioxide, whether dispersed or in a quiescent layer, and in nitrogen in a quiescent layer when heated sufficiently. Much work remains to be done on the subject, and 9 fields for future investigation are listed. Members interested in metal powders should obtain the entire report from the above address.

243 External Trauma and Peptic Ulcer - Analysis of Their Relationship. R.H. Fowler. Ind. Med., 12, 614-632 (September, 1943).
From the study of a large number of ulcer cases the writer has found "the incidence of primary ulcers resulting from a single blunt traumatism unaccompanied with other severe coexisting injuries" to be 0.6%. A small group of physicians still deny the existence of traumatogenic peptic ulcer under any circumstances. Post-traumatic neurosis may indirectly result in peptic ulcer, in which case the mechanism operates through psychic factors of emotional stress on a subclinical ulcer. The histories of nine litigated cases are reported.

244 Dermatitis from Exposure to Tear Gas. J.T. Ingram. Brit. J. Dermat., 54, 319 (December, 1942).
Ingram reports a case of dermatitis in an officer exposed to a fairly high concentration of tear gas (chloracetophenone) in a confined space for three quarters of an hour. About seven hours later he noticed irritation of the skin, especially in the flexures, quickly followed by a morbilliform eruption which soon became blistered. Under simple treatment with baths and calamine lotion the condition resolved in two weeks and left the patient with no ill effects.

245 Occupational Acne. L. Schwartz and S.M. Peck. N.Y. State J. Med. 43, 1711-1716 (September 15, 1943).
A list of chemicals that cause occupational acne is given, including a list of occupations in which there is most exposure. The chemicals include crude petroleum, insoluble and sometimes soluble cutting oils, coal tar and similar materials, chlornaphthalenes, chlordiphenyls, chlordiphenyloxide, and solid chlorbenzols and chlorphenols. The nature and location of the eruptions differ somewhat according to the nature of the chemicals responsible. Details are given by which the types may be distinguished. The article suggests preventive general and personal measures and indicates treatment. The histological studies given are of especial value.

246 Skin Troubles of Machine Operators and Their Control. W. Schweisheimer. Canad. Machinery. 54, 108-109 (1943).
The effect of oil on the skin, particularly cutting oils, and preventive care are discussed.

247 Cosmetics and Dermatitis. L. Schwartz. Amer. Perfumer. 46, 45-46 (February, 1944)
If cosmetics are properly prepared and used, they are harmless as a class and may even be beneficial to the skin. Dermatitis may occur, however, among workers manufacturing them, beauty parlor operators, and the general public. Although an occasional case of allergic dermatitis from the use of cosmetics cannot be avoided, some outbreaks have occurred because the cosmetics were not properly tested before being placed on sale. A plan for testing new cosmetic formulas before placing them on the market is proposed for the purpose of minimizing the number of cases which may occur from their use.

248 Humoral Transmission of Experimental Contact Dermatitis. L.H. Ballestero and A.M. Mom. Rev. Soc. Argentina Biol., 19, 10-15 (1943). (Spanish).
Blister fluid, from an area of skin which had been locally sensitized to 2, 4-dinitrochlorbenzene several weeks previously, produced a locally sensitized area when injected intradermally in another animal. This was shown by a typical eczematous dermatitis upon application of the compound.

249 Results of a Questionnaire on Patch Tests. J.G. Downing. Arch. Dermat. & Syph., 48, 514-518 (November, 1943).
In industrial contact dermatitis, properly executed patch tests are of inestimable value in prevention and treatment. Hypersensitive reactions of certain individuals can also be picked up in this way. When patch tests are used in cutaneous diseases in which they are not indicated they often lead to fallacious decisions. They are of value only in dermatitis venenata and dermatitis medicamentosa in which the eruption is of the eczematoid type. The site of testing most commonly chosen by dermatologists is of the flexor surface of the arm. It is unwise to test during the acute stage of the eruption and also as few patches as possible should be applied at one time. Eighty per cent of dermatologists questioned answered "no" to the question "Should patch tests be made by general practioners?",

for routine patch testing is of little value and may be dangerous. Pre-employment patch tests are not advised. Careful taking of the history, knowledge of the patient's exposures, personal investigations and the study of the various contacts will reduce the necessity of patch tests, but when needed they will continue to be of distinct value in dermatology.

250 Prevention of Industrial Dermatitis. S. Horner. Proc. Roy. Soc. Med., 36, 633 (October, 1943).
Principles of prevention are: Selection, Protection, Inspection and Cleanliness. The selection of the right personnel for dermatitis hazards is to be attempted, despite present labor conditions. The part played by diet and vitamins in the prevention and cure of industrial dermatitis has yet to be determined.

251 Poison Ivy Preventives Prove Ineffective. J.B. Howell. Arch. Derm. Syphil., 48, 373 (1943).
The author has tested the various preventives recommended for poison ivy dermatitis and has found them generally ineffective. For the person of average sensitivity thorough washing with soap and water will lessen the severity of the dermatitis only if it is used within 5 or 10 minutes after exposure. For an extremely sensitive person, soap and water is ineffective even after only one minute. Ferric chloride had no effect; petrolatum spread the infection; sodium perborate had little or no prophylactic effect; potassium permanganate, however, lessened the severity when applied topically within 15 minutes after exposure.

252 A Study of Pneumonia in the Shipbuilding Industry. The Epidemiology and Management of 864 Cases over a One-Year Period in the Kaiser Richmond Shipyards. M.F. Collen and others. J.Ind.Hyg. & Tox., 25, 1-7 (January, 1944).
The gross mortality of the patients treated in the hospital was 8.2%. The annual frequency rate of pneumonia in this group was 9.5 per 1000 workers, which is not different than the incidence among the general population, so far as reliable data indicate. Neither does the type of pneumonia, as shown by evidence presented, differ from that seen among the general population. Pneumococcal pneumonia accounted for 70% of the cases, with types VII, I, and XXV making up one-third of all typed pneumonias. Factors that cannot be proved to effect the incidence of pneumonia are: (1) The length of time a worker has lived in the region. (2) The length of employment in the shipyard. (3) The type of work done in the shipyard. The value of a low leukocyte count as a measure of the severity of pneumococcal pneumonia was affirmed. The relationship between mortality and age, number of lobes involved and albuminuria was emphasized. The treatment of these patients with sulfadiazine and adjuvant therapy was emphasized. -- Condensed from Authors' summary.

253 Tuberculosis in North Carolina Industry. T.F. Vestal. Health Bull.,(North Carolina State Board of Health). 58, 7-11 (December, 1943).
Employees of 25 industries were given chest X-ray examinations. These industries are widely distributed over the state, and are located in 8 counties. Six different types of industry are represented. Almost 42 thousand people were examined. A rate of 1.5% pulmonary tuberculosis was found. Cardiac and other pathology was also discovered. The greatest number of tuberculosis cases were found to be in the early stage. The next greatest number was in the moderately advanced stage, and the smallest number in the far advanced stage. This is the reverse of findings on admissions to sanatoria. — Author's summary.

254 Sound-Proof Airplane Motor Test Chambers. I.E.Katel. J. Acoustical Soc. of Am. 15, 114-115 (October, 1943).
The noise of an airplane during testing is not only a danger for the crews but is an annoyance to the neighborhood. The author describes the two main types of airplane motor test chambers and the means taken to make them nearly soundproof.

255 Asthma Prevention in Industry. I. Gray and M.M. Albert. Ind. Med., 12, 801-805 (December, 1943).
"Bronchial asthma is an hereditary disease, which occurs only in predisposed individuals." A past or present history of allergic disease, rather than a preplacement physical examination, should be the criterion for determining employability in occupations where the incidence of asthma is known to be high (such as in the baking or fur industries). The study of 8 cases, which are cited in the article, calls forth several observations. In every case pre-asthmatic symptoms were present, and the patients should have been removed from their occupational environment. In most cases, this measure will terminate the asthma; in others it may fail by reason of the fact that superimposed infection is present. Several cases demonstrated the occurrence of sensitivity to an occupational contact after several years of exposure to a potent allergen.

256 Rheumatism in Relation to Industry. S.A. Underwood. J. Royal Sanitary Inst., 63, 153-155 (October, 1943).
Rheumatism is a generic term, used to cover four groups of diseases: (1) acute rheumatism, (2) articular or joint rheumatism, (3) non-articular rheumatism, and (4) rheumatoid arthritis. Rheumatic diseases are responsible for a great deal of lost time in industry. Various causative factors are discussed. Prophylaxis is very valuable, and is the chief concern of this article. Important factors in prophylaxis of rheumatic disability are: (1) improved standard of living and of housing, (2) improved working conditions, (3) correction of toxic influences, (4) facilities for skilled treatment, (5) more active and early treatment, and (6) a need for suitable occupational therapy and adequate rehabilitation arrangements.

257 Spirochetal Jaundice. F.B. Bruno, C.J.W. Wilen and J.R. Snavely. J.A.M.A. 123, 419-524 (October 30, 1943).
In a strikingly attractive article, the authors point out that spirochetal jaundice has been overlooked in the past, and emphasize certain features of the disease in problems of differential diagnosis. Dogs and rats, as well as field mice, cats, pigs, foxes and horses, may be vectors harboring leptospira. Examination of mine water and muck has recently revealed leptospiras morphologically indistinguishable from leptospira icterohemorrhagiae in a single mine in Alabama where 14 human cases of spirochetal jaundice occurred. Non-pathogenic saprophytic leptospira occur in natural waters all over the world. An occupational history has usually been present in the reported cases; a history of moist, damp or wet environment is obtainable. Occupations commonly encountered in the disease are those of sewer workers, trapped coal miners, canal workers, fish workers, rice-field workers and cane cutters. The clinical symptoms of diagnostic significance are (1) an acute infectious disease with acute onset, fever, headache and prostration. (2) Severe myalgia appearing spontaneously and on pressure in the thigh, calves and back. (3) Signs of liver damage. (4) Signs of kidney damage. (5) Leucocytosis. (6) Epidemiologic information - immersion, occupation. Leptospiras can be found in the blood in the first stage (7-13 days), immune bodies between the 12th and 17th day and increasing in concentration, and organisms in the urine after the 2nd or 3rd week. Salient features of 15 cases observed at the Charity Hospital over a period of two and one-half years are presented, and the differential diagnosis discussed. A high incidence of gastrointestinal symptoms and abdominal crises existed. Bronchopulmonary, central nervous system, cardiac and EKG features are presented along with mention of hemorrhagic diathesis. The similarity of spirochetal jaundice to pneumonia makes it possible for the condition to be mistaken for hepatitis secondary to pneumonia or sulfonamide therapy. In the article two cases of leptospira canicola infection are discussed with a review of previous studies.

258 Brucellosis in Packing-House Workers. M.G. Levine. J.Ind.Hyg. & Tox., 25, 451-2 (December, 1943).
Because of its prevalence among packing-house workers, Brucellosis is considered an occupational disease. It may be spread among the general population by ingestion, but observers believe that contact infection occurs in slaughter-house workers. The finding that packing-house workers eat partially cooked meat offers a new approach to the epidemiology of Brucellosis. The practical importance industrially and sociologically of eradicating this disease is obvious. Proper education of slaughter-house workers will help to eliminate this hazard.

259 Effect of Wet Garments on Body Weight Loss at High Environmental Temperatures. N. Lipson and M.B. Visscher. J.Ind.Hyg. & Tox., 25, 434-9 (December, 1943).
Experiments were undertaken to determine the value of the practice of wearing clothing wet with water by workmen in especially hot situations, such as furnace rooms and foundries. Eleven white males served as subjects. Two environmental temperatures were studied. At a mean temperature of 110°F. and relative humidity below 25%, conditions selected to simulate roughly those found in many deserts, the weight conservation at rest was 174 g. per hr. and at work, 309 g. per hr. At a mean temperature of 97°F. and a relative humidity of 87%, conditions selected to simulate roughly those on tropical seas the values were 76 g. at rest and 94 g. at work. No effect on rectal temperatures attributable to the wet clothing was demonstrated. Under the conditions of the higher temperature, the average pulse rate was 11 beats per minute lower at rest in the wet garments than in the nude. For applications to any specific situations it is believed that further investigations should be made.

260 Light, Temperature, Humidity Factors in the Working Environment. A.M. Baetjer. Ind. Med., 13, 111-112 (January, 1944).
Subjects discussed are: Acute Effects of High and Low Temperatures; Effects of Temperature and Humidity on Resistance to Disease; Relation of Temperature to Work and Accidents; Optimum Conditions of Temperature, Humidity and Air Movement; Preventive Measures; and Effects of Radiant Energy, Ultra-violet, Visible and Infra-red Radiation.

261 Domestic Carbon Monoxide Poisoning. Current Comment, J.A.M.A. 122, 1018 (August 7, 1943).
An engineering survey carried on in West Virginia revealed that in many homes one or more gas appliances discharged carbon monoxide into the rooms, some of them in large quantities. Clinical studies revealed impaired general health, nervousness, ill-temper, etc., due to prolonged repeated exposure to small amounts of carbon monoxide. In a field survey of the health and living conditions of 279 persons who lived at home or worked in shops where natural gas was consumed for cooking or heating, 137 gave histories suggestive of carbon monoxide anoxemia. It is to be noted that milder forms of carbon monoxide poisoning do not present any distinctive clinical picture, the manifestations being essentially subjective. In suspected cases the definitive diagnosis will require proper chemical examinations of the blood of the patient, as well as of the air he has been breathing.

262 Cadmium Poisoning. Ontario Dept. of Health, Div. of Industrial Hygiene. Pamphlet 3 pp. No Date.
Although the toxic properties of cadmium and its compounds have long been known, it is only recently that cadmium has assumed importance as a source of industrial and domestic poisoning. Coincident with the increased use of cadmium there has been a sharp rise in the number of cases and even deaths have occurred from this source. Cadmium may enter the body either by ingestion or by inhalation, and produces different sets of symptoms according to the method of entry. Industrial

poisoning is practically always by inhalation. Cadmium dust or fumes may be produced by grinding, burning or welding of cadmium-plated metals, cadmium alloys and metals covered with cadmium-bearing paint.

263 Experimental Ammonia Gas Poisoning in Rabbits and Cats. E.M. Boyd and others. J.Ind.Hyg. & Tox., 26, 29-34 (January, 1944).
Experimental ammonia gas poisoning in rabbits and cats was found to be associated with : (a) An increased output of respiratory tract fluid. (b) No appreciable effedt upon the water content of the tracheal, bronchial, and alveolar portions of the respiratory tract. (c) An increase in the iron content of the tracheal, bronchial and alveolar portions of the respiratory tract and an especially marked increase in the tracheal portion. (d) No change in the chloride content of the lung. (e) An increase in blood hemoglobin above normal, beginning about 24 hours after gassing. (f) No change in serum chloride. (g) An increase in plasma lipids involving mostly the cholestorol fractions. Evidence was obtained that the naso-bucco-pharynx acted as a partial filter of ammonia, protecting the trachea and bronchi but not the smaller bronchioles and alveoli from the action of the gas, the evidence being both histological and chemical. In preliminary experiments, heramine was found to lower the mean mortality rate from ammonia gas poisoning in mice if injected subcutaneously just before or just after ammonia-gassing. -- Authors' summary.

264 Toxicity of Lead Chromate. G.C. Hampel and others. J.Ind.Hyg. & Tox., 26, 46-54 (February, 1944).
It must be concluded, that large quantities of lead when in the form of lead chromate may exist in the breathing zone without causing lead absorption than is true in the case of lead oxide. The criteria of the amount of lead allowable in the atmosphere should be raised considerably in the case of this type of compound. Atmospheric determinations of lead may cause erroneous conclusions if not substantiated by other data. While this paper does not pretend to cover other insoluble lead compounds which may act in the same way as lead chromate, the frequently recognized possibility that other and higher standards should be set up for certain lead compounds is supported. The use of a "packed tube" type of collector has proved useful in this investigation and should aid in similar types of investigation where accurate evaluations of atmospheric lead contamination are needed. Work completed several years ago and being prepared for publication now, on the solubility of several lead compounds in blood serum and lung fluid, indicates that those lead compounds which are most insoluble in such media would provide a margin of safety in the use of lead compounds that does not exist with the relatively soluble compounds. This does not mean to say that solubility is the only factor to be considered, but that it is an important consideration. -- From Authors' summary and conclusions.

265 Lead Poisoning as a Clinical Entity During the Reconditioning of Warships. F.C. Hankins. U.S. Naval Med. Bull., 41, 1785-1791 (November, 1943).
Lead poisoning occurs with greater rapidity and severity from inhalation of lead contaminated dusts and fumes than from the ingestion of lead in various forms. Cases developed and continued to develop among the paint removal crews working on the ships until effective measures were taken and enforced to keep the respired air free from lead-laden dust and fumes. This proved to be the only effective control of plumbism. Dust control measures alone are not sufficient, but in addition adequate respirators must be worn. Cleansing and clean habits are important. A list of suggested regulations is included.

266 Treatment of Lead Poisoning. Conferences on Therapy. N.Y. State J. Med., 43, 2079-2086 (November 1, 1943).
The discussion emphasizes the facts that ingested lead, especially in small amounts, rarely causes poisoning because of poor absorption, and that the greater danger of lead poisoning exists when fumes are inhaled; thus industry is the chief source of lead poisoning. The prevention of poisoning is very important. Control of exposure and proper industrial hygiene are necessary. Factors which control lead metabolism should be considered. The general state of health, and also nutrition, age, sex, and alcoholism are all important. Diagnosis of poisoning may be difficult. Therapy, except for purely symptomatic treatment, is based on the parallelism between the calcium and lead streams. Lead is either eliminated from the bones by a calcium deficient diet and drugs, and excreted, or is is fixed in the bones by a high calcium and vitamin D diet. The former runs the danger of episodes of acute poisoning during treatment, while the latter runs the danger of the present supply of lead remaining fixed in the body becoming mobilized and again causing episodes of acute poisoning.

267 The Possible Toxicity of Lead Alloys. III. Experiments on the Rat with a Lead-Tin-Antimony Solder. D. Saloman and G.R. Cowgill. J. Ind. Hyg. & Tox., 26, 22-28 (January, 1944).
Young rats were used in a study of the possible toxicity of a lead-tin-antimony alloy administered in the form of solder pellets containing 63.89 per cent lead. These rats, receiving 300 parts of lead per million of diet, proved to be quite similar to the control group fed an identical diet but no lead, with respect to growth, concentration of blood hemoglobin and the appearance of stippled cells as well as with respect to the amount of lead stored in their carcasses. Rats fed an identical amount of a diet containing 300 parts of lead per million in the form of lead acetate exhibited all the signs of lead poisoning; their carcasses contained large amounts of lead. It is concluded that ingested solder of the composition here studied as a source of lead is non-toxic for the rat. -- Authors' summary.

268 Health Hazards in Soldering Operations. I. Survey of Hazards Created by the Various Types of Soldering and Practical Control Methods. Illinois Labor Bull., 4, 10-11 (October 31, 1943).
War production has required (1) an increase in lead content of solders as a tin conservation measure from 30% to as high as 98%, and (2) an increase in the use of silver solder. Gas-heated soldering irons, because of the danger of building up large quantities of dross in their gas muffler, may present a real lead hazard. The muriatic flux gives rise to irritating vapors and dermatitis. Electrically-heated soldering irons use rosin which is an irritant flux. The soldering of condensers which have been treated with chlorinated vapors presents an added toxic vapor hazard. Silver soldering may have harmful quantities of fluorides arise from the flux. Machine soldering is used extensively in making tin cans. Tinning pots create a certain amount of irritating smoke but the control of the lead used by adequate exhaust will also eliminate the smoke nuisance. Also when solder is removed in reclaiming metals by "sweating," the lead in the air is usually many times the maximum limit of 1.5 mg. per 10 cu. m. Control measures in soldering operations come under the headings of good housekeeping proper hooding and local exhaust, and conscientious personal hygiene.

269 Carbon Tetrachloride - Part 2 of a Literature Study of Reports of Occupational Injuries Attributed to Volatile Solvents. H.P. Quadland. Ind.Med., 12, 821-829 (December, 1943).
In this paper both occupational injuries and other damages from carbon tetrachloride are reviewed. Brief mention is made of some reports which are not included in the table.

270 <u>Carbon tetrachloride Poisoning Epidemic in a Parachute Plant.</u> W.E. Doyle and C. Baker. Ind. Med., <u>13</u>, 184-192 (February, 1944).
An outbreak of illness, involving 137 war workers occurred in a plant manufacturing nylon parachutes. The symptoms, namely, nausea, abdominal pains, vomiting, weakness, coughs, colds, headache, etc., constitute the recognized symptoms of carbon tetrachloride poisoning in various stages. This cause was definitely established after the elimination of other possibilities and an investigation into working conditions. It is believed probably that all the employees are suffering from chronic or sub-clinical carbon tetrachloride poisoning. Remedial measures advised are: (1) Improvement of ventilation, which was inadequate because of efforts to conserve fuel; (2) Avoid any possible unnecessary soiling of nylon and thus limit the use of carbon tetrachloride; (3) Replace carbon tetrachloride with non-toxic solvents if possible. (4) Provide containers for carbon tetrachloride which automatically close when not in use. (5) Persons who are unavoidably exposed to carbon tetrachloride should: (a) Drink a quart of milk a day to increase their blood calcium level. (b) Avoid greasy foods. (c) Avoid the use of oily laxatives. (d) Whenever possible, rotate work to avoid prolonged exposure. (e) Avoid the use of alcoholic beverages. -- Condensed from Authors' summary.

271 <u>Aminothiazole Toxicity in Industrial Use.</u> R.M. Watrous. Ind. Med., <u>12</u>, 832-835 (December, 1943).
Aminothiazole, an intermediate in the synthesis of sulfathiazole, may readily be absorbed by chemical workers who handle it. A number of workmen exposed to air concentration ranging from 0.1 to 3.0 mg. per cu. ft. (0.0036 to 0.11 mg. per liter) complained of certain characteristic symptoms, the commonest of which were brown pigmentation of the urine, anorexia, nausea and vomiting. A few workmen, probably having developed a special sensitivity, responded to ordinary exposure by a syndrome of sudden onset, closely resembling serum sickness, and consisting of severe itching followed by severe migratory pains in the joints which incapacitated them for periods up to five weeks. Complete recovery without residual damage followed. -- Author's summary.

272 <u>Toxic Dose of Inspired Radium Emanation.</u> B. Rajewsky, A. Schraub and E. Schraub. Naturwiss. <u>30</u>, 489-492 (1942). (German).
Results of experiments with mice, reports of cases of radium poisoning, and observations of conditions in pitchblende mines indicate that Read and Mottram's results (Brit. J. Radiol., <u>12</u>, 54, 1939) are approximately correct. They are, however, untrustworthy because young instead of adult mice were used, insufficient mice were used for adequate periods, and experimental conditions were inadequately controlled. The toxic concentration of radium emanation in air for mice is approximately 10^{-9} curie per cc.

273 <u>Intracellular Penetration of Bromide as a Feature in the Toxicity of Alkyl Bromides.</u> D.P. Miller and H.W. Haggard. J.Ind.Hyg. & Tox., <u>25</u>, 423-33 (Dec., 1943).
Methyl bromide is hydrolyzed in the body with the formation of inorganic bromide. In part, this hydrolysis may occur within the intracellular fluid, resulting in a distribution of bromide different from that for bromide given orally as sodium bromide. The systemic effects of methyl bromide may thus be an unusual form of bromidism with intracellular penetration of bromide. A few experiments on ethyl bromide indicate that it is less rapidly eliminated than methyl bromide and is also hydrolyzed to a less extent. With the amounts administered there was no indication of an appreciable accumulation of bromide in the intracellular water. The hydrolysis appeared to occur predominantly in the extracellular fluids. -- Authors' conclusions.

274 Dangers of Methyl Chloride as Substitute for Freon. C.P. McCord and others. J.A.M.A., 124, 94 (January 8, 1944).
Freon is no longer available in any quantity for use as a refrigerant because of military requirements. The best substitute for use in the same mechanism is methyl chloride. The following precautions should be observed when the change must be made: (1) Methyl chloride is toxic and inflammable; (2) Do not use methyl chloride where it will come in contact with aluminum or zinc; (3) Test the system for leaks before charging with methyl chloride; (4) Do not use a halide torch when testing for leaks after the system has been filled with methyl chloride; (5) Increase superheat setting of "Freon"-charged thermal expansion valves to maximum . (New orifice may be needed to reduce capacity of valve); (6) Install dryer in liquid line.

275 Toxicology of Dichloromethane (Methylene Chloride). I. Studies on Effects of Daily Inhalation. L.A. Heppel, P.A. Neal and others. J.Ind.Hyg. & Tox., 26, 8-16 (January, 1944).
Several species of animals were exposed to 17 mg. per l. (5,000 p.p.m.) of dichloromethane, 35 hours weekly, for 6 months. There was no evidence of toxic reaction by rabbits, rats or dogs, but a retardation of growth rate of guinea pigs appeared. No significant blood changes occurred in dogs or rabbits, and in dogs the arterial pressure remained within normal limits, and no evidence of liver damage was given by 6 of the usual liver tests. In another series of experiments the exposure was to 10,000 p.p.m., 7½ weeks at 20 hrs. per week. Two out of 4 dogs and 4 out of 6 guinea pigs developed liver injury, but none was seen in monkeys, rabbits or rats. Several of the affected animals died, apparently from acute pulmonary congestion and edema. Repeated applications of dichloromethane to the ears of albino rabbits lead to hyperemia followed by scaly exfoliation. Data are presented on concentration of dichloromethane in the blood and urine of various animals. These experiments confirm other reports on the comparatively low toxicity of dichloromethane. No data are available concerning the effects of repeated exposures on human beings, but from these animal experiments it is tentatively suggested that the maximum allowable concentration for 8 hours daily exposure is 500 p.p.m.

276 Toxicology of Dichloromethane (Methylene Chloride). II. Its Effect Upon Running Activity in the Male Rat. L.A. Heppel and P.A. Neal. J. Ind. Hyg. & Tox., 26, 17-21 (January, 1944).
A concentration of 5,000 p.p.m. of dichloromethane in air causes a great diminution in the running activity of young male rats as measured in a standard type of revolving drum. At this concentration the animals do not show any depressant effects by ordinary inspection. It is suggested that the application of performance tests might be a useful adjunct in determining permissible concentrations of toxic solvent vapors. — Authors' summary.

277 Petroleum Solvents and Trichlorethylene. Part 3 of the Literature Study of Reports of Occupational Diseases Attributed to Volatile Solvents. H.F. Quadland. Ind. Med., 13, 45-51 (January, 1944).
The case study covers only inhalation cases, and therefore excludes cases that have occurred through ingestion of petroleum distillates. No American cases of trichlorethylene prior to 1937 could be found.

278 Effect of Trichlorethylene on the Human, Canine and Rabbit Electrocardiogram. J.F. Mallach and others. Am. Heart J., 26, 377-384 (1943).
In dogs and rabbits there was a marked slowing of the heart rate, ectopic beats and alterations in the P and T waves. No significant electrocardiographic and blood pressure changes in normal human subjects or patients with cardiovascular

279 Hazards of Tetrachlorethane on Shipboard. N.H. Friedman. U.S. Naval Med. Bull., 41, 1792-98 (November, 1943).
Sufficient quantities of tetrachlorethane may be absorbed through the skin to produce complete necrosis. In the Navy, this substance is used as a solvent for organic substances in the impregnation of gas protective clothing. It may be used with safety in properly designed and maintained equipment if there is adequate ventilation, avoidance of breathing the vapor or skin contact, and no internal use. The vapor is persistent in storage spaces, and thus ventilation may not be completely accomplished. Unnecessary exposure then permits asphyxia. To prevent shipboard accidents it is recommended that: (1) hazards should be more fully recognized; (2) impregnated clothing and storage drums should be stowed in well ventilated compartments; (3) the substance should be supplied in smaller and sturdier drums for shipboard stowage, and (4) if practicable, a less toxic organic solvent should be substituted.

280 Carbon Disulphide. Part 1 of a Literature Study of Reports of Occupational Diseases Attributed to Volatile Solvents. H.P. Quadland. Ind. Med., 13, 143-149 (February, 1944).
The final study of a series reports in tabular form the American cases of occupational exposure to carbon disulphide in the medical literature since 1932. Data given include circumstances, degree and length of exposure, ventilation, early and later symptoms, length of illness, and consequences. A number of cases which are omitted are mentioned and reasons for the omissions are stated.

281 The Chronic Toxicity of Moderate Concentrations of Benzene and of Mixtures of Benzene and Its Homologues for Rats and Dogs. J.L. Svirbely, R.C. Dunn and W.F. von Oettingen. J. Ind. Hyg. & Tox., 26, 35-46 (February, 1944).
Animals exposed to 1000 p.p.m. of benzene seemed to present the same blood picture as those exposed to 1000 p.p.m. of two blends containing 50 to 60 per cent benzene, 30 to 35 per cent toluene, 4 per cent xylene, and other hydrocarbons. The most characteristic features were a relative lymphopenia followed by leucocytosis and lymphocytosis. The differential count indicated changes in the neutrophils and lymphocytes only. No marked anemia was noted. The exposure time was about seven hours daily, five days a week for twenty-eight weeks. The urinary sulfate and hippuric acid excretion in the dogs depended upon the benzene and toluene content of the solvents. The pathologic changes found in rats exposed to benzene, Solvent X, and Solvent Y were described and compared. The spleens of many of the rats exposed showed some evidence of toxic effects -- hemosiderosis, small lymphoid follicles, and narrowing of the perifollicular collars of close packed, pale cells. Minor differences in the degree of change were noted in the case of each solvent. No significant pathologic changes were noted in dogs exposed to the solvents. -- Authors' conclusions.

282 An Unusual Case of Trinitrotoluene (TNT) Poisoning. W.D. McNally. J. Ind. Hyg. & Tox., 26, 35 (January, 1944).
The author reports a case of TNT poisoning in which the exposure consisted of dust settling on exposed parts of the body. Manifestations included yellow color, dermatitis, bleeding and running of the nose, bronchitis, headache, nervousness, fatigue, constipation and hemorrhage under the skin of the dogs, which were not exposed. The man's condition returned to normal after removal from exposure. The small number of cases of TNT and tetryl poisoning is undoubtedly due to the excellent work of the industrial hygienists and medical directors of the various plants.

283 Chlorohydrocarbon Solvents. E.W. McGovern. Ind. Eng. Chem., 35, 1230-1239 (December, 1943).
Included in a comprehensive paper on the properties of chlorohydrocarbon solvents is a section on toxicity. The toxicities of a number of the solvents in themselves are of the same order of magnitude, but carbon tetrachloride and ethylene dichloride are practically more toxic than other liquids of somewhat higher molecular weight on account of their higher vapor pressures. Methyl and ethyl chlorides have low toxicities, but, being gases at ordinary temperatures, the effect of leakage is a high concentration of the vapors with increased fire and health hazards. Chloroform, beta-trichlorothane, and especially tetrachlorethane, possess high toxicities, and must be used with precautions although their vapor pressures are low. In general, human beings should not be exposed to atmospheres in which the odors of chlorohydrocarbons are detectable. However, they may be all rendered safe by the use of properly designed equipment. Danger in skin contact and decomposition at higher temperatures with formation of more toxic substances are discussed briefly, as are also methods of detection.

284 Bagasse Disease of the Lung. W.A. Sodeman and R.L. Pullen. New Orleans Med. & Surg. J., 95, 558-560 (June, 1943).
A case of bagasse disease of the lung is reported together with the findings at biopsy in an involved area of the lung. The picture appears to be that of an organic pneumoconiosis. It is evident that particles of bagasse may enter the alveolar regions and produce this reaction. The mechanism of the changes, and the nature of the stimulus set up by the bagasse dust to produce the cellular reaction, remain obscure.

285 Pneumoconiosis and Working Conditions in Coal Mines. Brit. Med. J. No. 4316, 395-396 (September 25, 1943).
The Committee on Industrial Pulmonary Disease has been unable to draw final conclusions on causation or differences in incidence of pneumoconiosis in the South Wales coalfield. Anthracite dust is more dangerous than that of bituminous mines. The most important measure in prevention is the reduction of dust breathed by the miners. To this end, the committee advocates a series of procedures which are discussed in this article: (1) maintenance of adequate ventilation, (2) use of water to prevent dust dispersion, (3) allaying of dust in roadways and at loading points, (4) reduction of shot-firing to a minimum, with fewest possible men exposed, (5) regulation of ripping processes, and (6) prevention of chill during spake journeys.

286 Liquefaction Necrosis in Bilateral Symmetrical Conglomerate Lesions of Anthracosilicosis of Lung: Report of Case. B.J. McCloskey. Am. J. Roentgenol., 50, 42-45 (July, 1943).
It is the intention of the author to show that the correct interpretation of the roentgen appearance of necrosis and cavitation in the conglomerate lesions of anthracosilicosis may be very difficult. A case is reported, showing these lesions, uncomplicated by tuberculosis. The only known exposure to silica was when the man worked as a pick miner in a soft coal mine for a period of 12 years and there was no exposure for a period of 44 years before his death. The roentgenologic appearance of the necrotic areas was that of consolidation or pleural thickening. At autopsy each cavity was found to contain thick, black, viscid fluid, which showed no free silica on examination. Examination of the cavity wall and surrounding lung tissue showed a content of 0.25 per cent silica.

287 A New Radiologic-Social Classification of Pulmonary Silicosis. R.Lorca and others. Bol. de la oficina sanitaria panamericana. 22, 976-981 (November, 1943).(Spanish).
The authors review the principal systems of classification of silicosis, including that of Irvine and that adopted at the International Conference in 1930. They

then propose the following classification, reducing the eight groups to five: (1) exposed but showing no silicosis; (2) suspicious; (3) confirmed phase No. 1, initial nodular fibrosis; (4) confirmed phase No. 2, marked nodular fribrosis; (5) confirmed phase No. 3, confluent nodular fibrosis.

288 Asbestosis and Pulmonary Tuberculosis. R. Desmeules and others. Laval med., 8, 217 (March, 1943). (French).
Asbestosis is an occupational disease caused by the inhalation of asbestos dust. It is diagnosed by the presence of asbestos bodies in the sputum, and is characterized by the transformation of normal lung tissue into fibrous tissue. Symptoms appear usually five to seven years after the beginning of exposure. Both asbestosis and tuberculosis were seen in 8 workers exposed to asbestos dust for 20 years. In three of these cases asbestosis was masked by tuberculosis.

289 Asbestosis and Pulmonary Tuberculosis. R. Desmeules and M. Giroux. Laval Med., 8, 227 (March, 1943). (French).
The case history of a 44 year old man is given who had worked for 20 years in an asbestos mill. After 10 years he had developed productive cough which increased gradually. Shortly before he was admitted to the hospital he started to run fever and had pains in the chest. The clinical diagnosis of ulcero-fibrous tuberculosis and asbestosis was confirmed by the autopsy. Diffuse peribronchial and perialveolar sclerosis was also seen. It is believed that the first symptoms of asbestosis appeared ten years before the symptoms of tuberculosis, but the matter could not be decided radiologically and pathologically.

290 Asbestosis Bodies. M. Giroux. Laval Med., 8, 239 (March, 1943). (French).
The "curious bodies" found in the sputum of patients suffering from pulmonary asbestosis usually measure 24 to 50 mu by 12 to 24 mu but can be as large as 250 mu. They consist of a central fiber of asbestos which is covered by a golden-yellow substance containing iron. Rabbits, guinea pigs and one dog were exposed to inhalation of asbestos dust. Asbestosis did not develop in the rabbits nor in the dog. The guinea pigs showed, after several weeks, macrophages with asbestos fibers in their alveoli. Erythrocytes appeared in the alveoli, and hemoglobin derivatives containing iron could be found on asbestos fibers two to three months after the beginning of the inhalation of the asbestos dust. When a suspension of asbestos in olive oil was injected subcutaneously or into the testicles of guinea pigs no asbestos bodies were formed. However, if first one cc. of blood was injected and then the asbestos dust through the same needle, asbestos bodies could be found one month later. The presence of asbestos bodies in the sputum is believed to be a definite sign of pulmonary asbestosis.

291 Coincidence of Primary Carcinoma of the Lungs and Pulmonary Asbestosis. F. Homburger. Am. J. Path., 19, 797-807 (September, 1943).
In the medical literature there are now at least 19 known cases of asbestosis associated with primary pulmonary carcinoma. In 4137 autopsies at the pathology laboratory at Yale University School of Medicine, there were 45 cases of pulmonary carcinoma in the years from 1918 to 1938. Asbestosis was diagnosed 8 times, silicosis 17 times. Pulmonary carcinoma was found in 4 of the 8 cases of asbestosis and twice in the 17 silicotic cases. Despite the high correlation of the foreign body asbestosis in the lungs with primary pulmonary carcinoma, this is a small series of cases and the value of these data is limited. Three cases are given in detail. The diagnosis of pulmonary asbestosis was diagnosed according to the following criteria: (1) fibrosis of the lung and (2) presence of asbestosis bodies.

292 Pulmonary Asbestosis. L. Rousseau. Laval Med., 8, 233 (March, 1943). (French).
The radiological picture of pulmonary asbestosis is not characteristic; it is usually similar to that of tuberculous fibrosis. The diagnosis is, therefore, often made only after asbestos bodies have been found in the sputum. Asbestos fibers may be seen in the sputa of individuals who do not suffer from asbestosis; asbestos bodies are due to a pathologic tissue reaction. Microscopical examination of the lungs of patients who have died from an intercurrent disease may show asbestosis, which had not been found on X-ray examination. The case history of a 42 year old man with asbestosis without tuberculosis is given. The patient had been working in the asbestos industry for 18 years. For 2 years the patient had been suffering from increasing cough, expectoration and dyspnea. Roentgenological examination showed mottling of both lungs. Sputa and gastric examinations were negative for tubercle bacilli. Asbestos bodies were found in the sputum.

Methods of Detection and Determination

293 The Quantitative Determination of Cyanide in Air. D. Lester. J. Ind. Hyg. & Tox., 26, 61-63 (February, 1944).
The author describes a method for cyanide determination based upon the colorimetric measurement of cyanide derivative formed from methemoglobin exposed to air containing cyanide. An air sample of 1 liter is sufficient for determining a concentration as low as 1 part per million, with an error of 0.1 parts per million, higher concentrations to 2% accuracy. The colorimetric measurement depends upon the change in light absorption of methemoglobin at wave length 635 milli-microns, which decreases with the conversion in accordance with the Beers-Lambert law. Full details of collection and determination procedures are given.

294 Sampling and Analysis of Air Contaminants. F.H. Goldman. Ind.Med., 13, 100-103 (January, 1944).
The analysis of air for various contaminants especially substances produced for military use, is described briefly. The standard impinger and midget impinger may be used for the collection of ammonium picrate, dinitrotoluene, tetryl, TNT, nitroglycerine, mercury fulminate, tracer bullet mixtures, fluorides, metal fumes, chlorinated hydrocarbons and war gases. The tests after collection are indicated very briefly. The Shepherd bottle is used for collecting substances such as nitrogen oxides or benzene, as one type of a grab sampler. The electrostatic precipitator and the benzol indicator are discussed briefly, with mention of other special methods.

295 Analysis of Atmospheric Contaminants Containing Nitrate Groupings. H. Yagoda and F.H. Goldman. J. Ind. Hyg. & Tox., 25, 440-444 (December, 1943).
Methods are described for the estimation of nitroglycerine, PETN (pentaerythritol tetranitrate), nitrous fumes, and ammonium nitrate in atmospheres arising from manufacturing processes. The analyses are based on the nitration of m-xylenol in 62.5% sulfuric acid and the colorimetric determination of the nitro-xylenol isolated by a simple steam distillation. -- Authors' summary.

296 Dust Measurement. W.Grundmann. Arch.tech.Messen Lfg. 126, T.152,2 (1941).(German)
Dust measurement is possible with the Tyndallometer by determination of the intensity of the scattered light of the dusty atmosphere. Calibration curves for the various sorts of dust must be made because the effects of size, form and optical surface effects of the dust particles must be eliminated to secure an accurate measurement of the dust concentration.

297 Microchemical Determination of Mercury. A. Stock. Mikrochemie ver. Mikrochim. Acta. 30, 128-136 (1941).
In determining less than one-tenth of a microgram of mercury, the author feels that the presence of mercury in the air is the principal cause of error. Complete directions are given for getting the mercury in a sample into solution, precipitating with hydrogen sulfide and carrying out the electrolytic determination recommended in previous papers. To remove excess chlorine it is best to heat with 20% hydroxylamine hydrochloride solution. The presence of considerable hydrochloric acid in the electrolyte does no harm and the volume may be as large as 100 ml. Under proper conditions with respect to distilling off the mercury, results accurate to one-tenth microgram can be obtained without the use of liquid air for cooling. All reagents used should be carefully tested for mercury. Simplified directions for carrying out the tests are described. The procedure recommended by Roith and Van Dijk is no simpler than that recommended by the author and is less accurate for determining quantities under one microgram.

298 Determination of Small Amounts of Acrylonitrile in Air. G.H. Petersen and H.H. Radke. Ind. & Eng. Chem. Anal. Ed., 16, 63-64 (January, 1944).
The recent widespread use of acrylonitrile in the manufacture of one type of synthetic rubber has made it imperative that a quantitative method for air analysis be developed. Toxicity experiments conducted by the U. S. Public Health Service indicate that the maximum allowable limit for acrylonitrile is in the neighborhood of 20 p.p.m. The author describes a method depending upon a modified Kjeldahl reaction in which the absorbing solution containing the acrylonitrile is made strongly alkaline and then oxidized with hydrogen perioxide. Upon refluxing, the acrylonitrile is converted quantitatively to ammonia, which is distilled into a standard acid solution. Full details and precautions are given.

299 Photoelectric Photometer for Determining Carbon Disulfide in the Atmosphere. S. Silverman. Ind. & Eng. Chem., Anal. Ed. 15, 592-595 (September, 1943).
The author describes an absorption photometer based on the same principle as the Tri-Per Analyser by V.F. Hanson. In this case a different absorption band is utilized which is sensitive for carbon disulfide and is not affected appreciably by normal atmospheric constituents. The instrument covers a range of concentrations from 2 to 200 p.p.m. The accuracy is 1 p.p.m. and the time of determination is approximately one minute.

300 The Filargraph: A Recording Device to Facilitate Filar Micrometry. E.D. Palmes. J. Ind. Hyg. & Tox., 26, 64-67 (February, 1944).
By use of the Filargraph a single operator can conveniently perform all the operations of filar micrometry without the eyestrain ordinarily associated with this work. The Filargram is a convenient, permanent inked record of measurements which allows one to separate particle measurements into various size groups with ease and rapidity. The time required for a series of measurements is reduced by at least two thirds. Data obtained with the Filargraph is in very good agreement with that obtained with the filar micrometer alone.

301 The Use of the Microscope in Particle Size Analysis. G.L. Fairs. Chem. and Indust., 62, 374-78 (October 2, 1943). (London).
The author discusses in detail microscopic procedures for particle size analysis. One interesting detail is the fact that sodium vapor light reduced eyestrain and improved resolution, and therefore the writer used it as a standard for his measurements. Results are compared with turbidimeter and photosedimentation apparatus. The turbidimeter requires less time but is not as satisfactory for particles between 0-10 microns.

Control Methods

302 Control of Welding Fumes in Shipbuilding Operations. Y. Rosenfeld. Ind. Med., 13, 103-105 (January, 1944).
The following facts were determined as a result of air sampling and analysis in two major shipyards: (1) Where no control measures in the form of exhaust equipment were used, potentially toxic concentrations of metallic fumes, primarily lead and zinc, were being released from welding operations on galvanized steel. (2) Where welding was done on ungalvanized materials only ferric oxide dusts and smokes were obtained. (3) A number of illnesses of a respiratory character were reported. (4) Nitrous oxides and carbon monoxide were generally negligible. (5) There was no hazard due to oxygen depletion. Control measures advised are the installation of local exhaust equipment and air-supply ventilation. The latter alone may suffice for electric arc welding on black iron. Respirators may be used for emergencies and for daily exposures of short duration.

303 Grounding Electrical Equipment in and about Coal Mines. F.E. Griffith and E.J. Gleim. U.S. Bureau of Mines. Rept. Invest., No. 3734. 15 pp. (December, 1943).
Briefly the conclusions from experimental work are: (1) metal parts resting on a mine floor do not make an efficient ground; (2) a single peg or rod is not dependable; (3) fish-plated, unbonded track is satisfactory; (4) the resistance of all ground connections should be determined periodically, especially in the spring; (5) in the absence of track or other suitable conductor, a separate conductor should be connected to a grounding electrode of known resistance.

304 Use and Misuse of Flame Safety Lamps. W.H. Tomlinson. U.S. Bureau of Mines, Inf. Cir., No. 7271, 14 pp. (January, 1944).
Seven typical accidents are mentioned, all caused by defects or careless use of a safety lamp. The historical development of the safety lamp is given briefly and the modern lamp and its proper operation are described. Coal companies are urged to make certain that all persons who use lamps are thoroughly familiar with their construction, proper assembly and correct method of inspection and testing; also to insist on proper training of all persons whose duties require them to test for gas. Other precautions include prohibition of smoking and carrying matches underground and employing only persons with good vision for gas testing.

305 Accidents Due to Misuse of Explosives. D. Harrington and J.H. East, Jr. U. S. Bureau of Mines, Inf. Cir., No. 7259 14 pp. (November, 1943).
Fourteen accidents, many fatal, at widely separate localities, and with varied causes, are described, as samples of some of the foolish things that should not be done when explosives are handled or used. Quoting from the summary, "Ultimately rigid laws should be enacted requiring that all persons who engage in blasting shall have a certificate of competency issued by the State after the applicant has passed a rigid examination embodying fundamental facts on the characteristics and hazards of explosives."

306 Fire Control in Magnesium Foundries. R.I. Thrume. Am. Foundrymen's Assoc., Reprint 43-36, pp. 109-123 (1943).
As a result of a series of experiments and actual magnesium fire extinguishing experience, the magnesium foundry, with which the author is connected, developed

307 Limits of Inflammability and Ignition Temperatures of Acetic Anhydride. G.W. Jones, F.E. Scott and G.S. Scott. U.S. Bur. of Mines, Rept. Invest., No. 3741 (December, 1943).
The temperatures between which air saturated with acetic anhydride vapor forms inflammable mixtures were found to be 47.3° and 74.4° C. (117° and 166° F.). These data correspond to concentrations of 2.67 and 10.13% by volume. All mixtures between these percentages at the temperatures given above are inflammable. The flash point by the standard closed cup tester was found to be 124° F. (51°C.). The ignition temperatures were found to be 392° C. (738° F.) in air and 361° C. (682° F.) in oxygen. -- Authors' summary.

308 Mine Fan Signal Alarms and Power Releases. W.J. Fene and H.F. Weaver. U.S. Bureau of Mines, Inf. Circ., No. 7262, 8 pp. (November, 1943).
The circular describes signal alarms and power releases which automatically give warning signals and shut off the power when any interruption in ventilation has occurred.

309 A Discussion of Acoustic Cells for Airplane Engine Test Buildings. D. Fitzroy. J. Acoustical Soc. of Am., 15, 106-113 (October, 1943).
The noise generated in testing airplane engines is annoying to the personnel of the airfield and even to residents living at some distance. The difficult problem of quieting this noise has been a subject of investigation. Findings and recommendations are stated.

310 The Means for Reducing the Concentrations of the Quicksilver Vapors in the Air of Working Rooms of Manufactories Producing Individual Packets. G. L. Sklianskaya-Vasilievskaya. Hygiene & Health, Moscow, Nos. 1-2, 37-40 (1942). (Russian).
In factories engaged in the manufacture of packets of surgical dressings it was found that the air of all shops contained a high concentration of mercury. This came from decomposition of sublimate solution, or from dust arising during the cutting of impregnated gauze. The cellulose of gauze has an affinity for chlorine, with which it combines during the processes of soaking and drying, and mercury is therefore set free; the iron lining of the autoclave acts in a similar manner, and free mercury is deposited at the bottom. Currents of hot air escaping from the autoclave rooms and the drying rooms carry the mercury vapor into other shops. By enclosing the autoclave and drying cupboards in exhaust chambers, and by isolating the drying and autoclave shops from other parts of the factory, great reduction was effected in the amount of mercury in the air. It was also found that the addition of sodium chloride to bichloride of mercury, to facilitate solution, tended to force metallic mercury out of the compound when the latter was heated; iodine compounds have only one-tenth of the effect of sodium chloride in this respect. The author suggests that bichloride could be dissolved in boiling water (in which it is readily soluble) in an exhaust chamber, and that cooling should also take place in an exhaust chamber, since it is in these processes that noxious vapor is likely to be given off.

311 The Prevention of Lead Poisoning in Blast-Furnace Operations. Bauer. Reichsarbeitsblatt 22, III, Arbeitsschutz, 337-342 (1942). (German).
Ordinarily the danger of lead poisoning from this source is not very serious; however, there is some danger with those furnaces which produce special grades of iron that are made from raw material containing lead. A typical case is the Duisburg Hochofenwerk which processes the so-called "Purpurerz." The lead content of the iron dross was 0.8-0.9% originally; however, the use of a new alkali process which dissolved the lead by means of a concentrated sodium chloride solution lowered the lead content of the iron dross to 0.18-0.20%. This new process

increased the cases of lead poisoning which was traced back to the fact that in this new process the lead is converted to volatile lead chloride which escapes partly into the atmosphere. This danger was overcome by powerful mechanical ventilation and the use of full instead of partial gas masks.

312 The Safe Handling and Storage of Anhydrous Hydrofluoric Acid. C.M. Fehr. Chem. Inds. 53, 505-510 (October, 1943). Petroleum Refiner 22, 239-44 (August, 1943). Oil and Gas J., 42, 39-40, 41-2 (July 22, 1943).
The principal properties of anhydrous hydrofluoric acid are given, in their relationship to the problem of handling. The best materials for construction of containers and handling equipment were found, by laboratory and pilot plant tests as well as in actual operation, to be a thoroughly deoxidized steel. Monel may be used for the fabrication of laboratory equipment. Copper is satisfactory in certain parts of the process and silver and platinum may be employed where construction justifies. Unsatisfactory materials are also mentioned. Details concerning construction and capacity of shipping containers and storage vessels are given. The transfer of anhydrous hydrofluoric acid may be accomplished either by pressure padding with dry air or an inert gas or by pumping. Types of pumps and suitable packing are discussed. Welding is indicated for use wherever possible in the construction and erection of equipment. Recommended safety practices include: careful selection of personnel, periodic inspection of premises and equipment, instruction of employees as to hazards, use of certain articles of clothing made of or coated with neoprene, provision of water for washing tools and automatic safety showers. Comments on first aid embody principles similar to those given above. All suggestions are to be used only as means of reducing injury and mitigating suffering while awaiting the arrival of a physician familiar with the treatment of hydrofluoric acid burns.

313 Safety Precautions in Manufacturing Butadiene. C.E. Starr, Jr. Nat. Petroleum News, 35, R581-585 (1943).
Safety measures to be used in storage, transfer, processing operations, loading tank cars, sampling and testing are discussed.

314 Chlorinated Compounds Precautions in Handling. A.G. Cranch. Ind. Med., 13, 110 (January, 1944).
The precautions presented for handling chloro-naphthalene, chloro-diphenyl, and related chlorinated compounds are applicable also to operations where analogous materials are employed. This group of synthetic waxes has certain characteristic toxic properties, whose action causes a form of acne which is more widely distributed on the body than common acne. Preventive measures are classified as mechanical and hygienic. The former consist of good housekeeping throughout the plant, an enclosed type of equipment, and installation of exhaust ventilation. Personal hygienic measures are those generally observed where dermatitis may result from exposure to toxic chemicals. Classes of individuals who should not be employed on this work are listed.

315 Germicidal Aerosols for Post War Air Conditioning? F.W. Hutchinson. Heat. & Vent., 41, 58-60 (January, 1944).
Present air conditioning processes are not noteworthy for their effectiveness in establishing pure and "fresh" indoor atmospheres. One proposed method of improving this condition is through use of finely atomized mists of solutions having pleasant odors and bactericidal power. Development work on such germicidal aerosols has been accelerated as a consequence of the war and there is now a distinct possibility that such aerosols may become a standard part of post war air conditioning installations. -- Author's summary.

316 Ventilation and Atmospheric Pollution. Defense Ventilation and Air Conditioning Problems. C.P. Yaglou, Chairman. American Public Health Assoc., Report of Committee. Am. J. Pub. Health. 33, 859-861 (July, 1943).
For small workshops and factories that are ventilated by natural methods several types of blackout ventilators have been developed which obscure the outward passage of light without obstructing the air flow too much. Air conditioning of gun turrets aboard fighting ships has speeded up the firing rate by removing powder fumes and keeping the temperatures down. Submarines and sick bays of surface ships are now cooled in tropical waters to overcome temperatures of 90° to 95°F and humidities approaching the saturation point. Among the new developments in industrial air conditioning is the conduits system of ventilation which distributes conditioned air at high velocities through small conduits instead of large ducts. A compact and inexpensive cantrifugal airwasher is being developed for decontaminating air from chemical war gases and mists by centrifuging and countercurrent washing with chemical solutions. Complete house insulation, including wall and roof insulation in addition to weather stripping, may save as much as 60% of fuel.

317 The Control of Magnesium Dust. J.M. Kane. Am. Foundrymen's Assoc., Reprint 43-16 pp. 124-130 (1943).
The critical characteristic of magnesium dust is the ease with which it can be ignited. Therefore the various operations in which magnesium dust may be formed must be provided with suitable exhaust systems. The author describes such systems in some detail for use with the principal stages of fabrication of magnesium castings, including grinding, polishing, buffing and grinding, filing of stands and flexible shafts. The following safety precautions are recommended: (1) totally enclosed motors should be used; (2) all equipment should be grounded; (3) a protective device should prevent operation unless the liquid flow is correct; (4) equipment for magnesium should not be used for ferrous metals until cleaned; (5) extreme care should be exercised in the use of cutting torches. The author discusses the question of oil versus water as a dust collecting medium, pointing out their relative advantages, but not recommending one to the exclusion of the other, believing that the advantages of the oil do not necessarily justify the additional expense. (This position is severely criticised in the discussion by C.C. Hermann, who considers the liberation of hydrogen when magnesium is stored under water a definite hazard, and insists that all collectors employing water should be vented.)

318 Dirty Aprons and Floor Dust are Spotted as Silicosis Hazards. M. Reuter. Ceram. Ind., 42, 54, 57 (February, 1944).
This is a brief account of the control of silicosis hazards by Buffalo Pottery Co. At the beginning of the survey the employees and their union were assured that silicosis is no cause for discharge, and that mild cases of silicosis are not aggravated by conditions controlled within an acceptable minimum. After a thorough dust survey, steps were taken to remove the dust hazards, including: (1) furnishing clean aprons daily; (2) daily scrubbing of floors; (3) machines to eliminate the hand batting-out operation; (4) wire gratings on finishing benches; (5) grated bench tops for special batting-out operations; (6) change of speed in exhaust fans; and (7) isolation of dusty processes.

Industrial Medical Practice

319 Occupational Disease - The Approaches to an Adequate Study. J.G. Townsend. Ind. Med., 13, 132-135 (February, 1944).
The following are key points to consider in an approach to an adequate study of occupational disease situations: (1) Have a sound workable program. (2) Be familiar with all phases of work in the plant. (3) Know the occupational disease law in your jurisdiction. (4) Perform the proper diagnostic tests. (5) Obtain data while the subject is hot. (6) Record your observations. (7) Report the case. (8) Use consultants and review the literature. (9) Cooperate with and enlist the aid of works engineers and safety men in solving knotty occupational disease problems. (10) Play ball with the local practitioner. - Author's recapitulation.

320 Labor-Protection Problems in Wartime in Sweden. H. Sparland. Ind. Safety Survey (Internat.) 19, 89-95 (1943).
The health hazards resulting from the use of wartime substitutes are discussed. Among these are carbon monoxide from the increased use of producer gas both in motor vehicles and as an industrial fuel, acetylene used as a fuel, substitute solvents and cleaning agents (e.g., benzene, trichloroethylene, carbon disulfide and furfural), and materials used in furniture polishes and in the munitions industry.

321 Industrial Hygiene Education Materials. U.S. Public Health Service. 32 pp. (1943).
This is a book of instructions for the use of photographs, pamphlets, posters and films distributed by Public Health Service. The photographs, dealing with silicosis hazards, physical examinations, plant housekeeping, the fur felt hat industry, and a few other hazardous occupations, are reproduced in the book, as are a few of the posters.

322 The Married Woman Worker. Alabama State Health Dept., Ind. Med., 13, 94-98 (January, 1944).
The absentee rate for women, which has been consistently higher than that for men, is a problem of importance. A suggestion for meeting this problem is the adoption of a maternal health program. Some recommendations to guide the formation of such policies are outlined.

323 Factors in Reducing Industrial Absenteeism. H.O. Roberts. Executives Service Bull. (Metropolitan Life Insurance Co.) 21, 3-4 (November, 1943).
Servel, Inc., when confronted with absenteeism on conversion to war production, adopted a plan which does not inflict penalties on absentees but rather plans incentives and awards for "presentees." The plan is substantially an attendance contest, with prizes to the individual with 6 months' and 1 year's perfect attendance record, and plaques to the departments with the best attendance. The success of the plan is evidenced by the decrease in absentee rate from 10.02% to 5.75% from April to July. Nutrition and recreation programs have aided in bringing about success.

324 Frequency and Duration of Disabilities Causing Absence from Work Among the Employees of a Public Utility, 1938-1942. W.M. Gafafer. Pub.Health Repts., 58, 1554-1560 (October 15, 1943).
Absences on account of industrial injuries have increased during this period, while absences for non-industrial injuries have decreased. The annual industrial

injury rates for females are consistently lower than the corresponding rates for males, while their non-industrial rates are consistently higher. The five-year average for the number of days per male absence on account of industrial injuries is approximately 32 days, the corresponding average for females being 36. Non-industrial injuries show five-year averages of 11 and 14 days for males and females respectively. There is also shown a positive correlation between the movement of the respiratory disease rate and the rate for all sickness. It appears that for all the males as well as for the females the digestive diseases contribute least to the average annual number of days absent per person; the respiratory group and the non-respiratory-non-digestive group, on the other hand, yield larger rates and are similar in magnitude for both sexes.

325 Sickness Absenteeism Among Industrial Workers, Third Quarter of 1943. W. M. Gafafer. Mimeographed bull., U. S. Public Health Service, (February, 1944).
A comparison of the third quarter absentee rates for 1943 with the corresponding ones for 1942 shows [illegible] only a few exceptions an increase for each cause. The number of absences of 8 days or longer on account of sickness and non-industrial injuries is [illegible] per 1000 males, which is an increase of 15% over last year. The respiratory group showed the greatest gain, and the digestive the least. Thus the time lost from respiratory diseases is still increasing as it has since 1940. On the other hand, extensive gains in rheumatic diseases, diseases of the stomach except cancer, diseases of the heart and arteries, nephritis, bronchitis and nervous diseases show a gain peculiar to 1943. These increases are attributed to employment conditions, including hiring of youths and older workers, some long employed, some inexperienced, and some excluded from the armed forces, overcrowding, migration and other causes.

326 Absenteeism of Industrial Workers. A.T. Court. Michigan State Med. Soc., 42, 707 (September, 1943).
Court presents charts on the basis of which he analyzes absenteeism among industrial workers. All of the increase in disability rates has been in respiratory diagnoses, the other major classifications having remained about stable. From 1939 through 1942, respiratory difficulties were both the most frequent and the only expanding major cause of disability. The almost universal use of supplementary vitamins and the wide availability of "cold shots" does not seem to have helped much. One of the charts shows for General Motors men the time lost in 1942 from short term sickness, serious sickness, non-occupational accidents and occupational accidents. The relative unimportance of the last category is obvious. Recent public statements by poorly informed persons have exaggerated the importance of industrial accidents by 1,000 per cent or more. Another chart compares the stable rate of serious sickness among General Motors factory workers, with a sharp increase in short term absenteeism which has occurred among these workers. An analysis of this rapidly increasing short term absenteeism shows that the workers themselves give personal sickness as the reason for non-attendance in about two thirds of all cases, with sickness of other members of the family and other personal needs making up the remainder. When this short term personal absence (alleged to be mostly sickness) is analyzed day by day it is found that it is heavily concentrated on Saturdays and Mondays. These days average about twice the lost time rate that is shown on payday each week. Thus it appears that the type of absenteeism which is currently most disturbing - that is, short term absenteeism - is usually attributable to sickness which reaches epidemic proportions around the week end. Another striking fact about personal lost time is that absenteeism is concentrated among a few workers who compose a chronic fringe having more than their share of time off. One obvious characteristic is the relative youth of the group. A plant physician may be able in an

important number of cases to help effect some reorientation of the individual's understanding of his job or his home problems which will enable him to cope better with those temptations which lead to excessive "week end sickness" and related types of absence.

327 Psychosomatic Medicine and the General Practitioner. G.H. Stevenson. Canad. Med. Assoc. J., 49, 488-492 (December, 1943).
The author classifies psychic features in disease as follows: (1) delirious states (psychoses) due to toxemias affecting the brain; (2) delirious states due to organic brain disease; (3) delirious states due to constitutional predisposition, acted on adversely by environmental stresses, and (4) mental factors complicating or in part causing, actual physical disease. Each class is then subdivided, with most attention given to psychoneuroses which come under the third class. Their treatment consists essentially of finding and removing the emotional factors with symptomatic treatment of physical aspects. Psychotherapy usually simple suggestion. The will to be well must be developed in patients and must be aroused by tactful, definite persuasion, example and encouragement.

328 The Psychiatrist and Industrial Organization. Am. J. Psychiatry. 100, 286-287 (September, 1943).
The psychiatrist has been playing his part in special war activities. On the advent of peace the psychiatrist may feel bound to continue his special contribution to the current issues of contemporary social life. With a closer grasp of the factors which influence the satisfactions of the industrial worker, and which have a bearing on his feeling of self-respect and of solidarity with his fellows, the psychiatrist will be of more help to his individual patient and a more valuable adviser to those who are in a position to mould the industrial and social organization of the community.

329 The Care of Non-Occupational Injuries and Illnesses. A. McCausland. Ind. Med., 13, 129-130 (February, 1944).
When wartime conditions make it necessary for employees and their families to turn to the plant medical department for treatment of personal illnesses management should make its industrial physicians available to treat patients on a private physician-patient relationship. Material facilities of the plant medical unit may be rented to the physician for this use. The service should be given at a time when the physician is not on duty at the plant. The question as to whether treatment is part of industrial medical service must be determined by the physician.

330 Health for Your Workers. A Yardstick for Measuring Health Services in Your Plant. Committee on Industrial Health, Health Advisory Council, Chamber of Commerce of the United States. 9 pp. No date.
This is an industrial self-evaluation form for the use of business concerns that want to determine for themselves the adequacy of their health care, or are planning to inaugurate or expand their health programs. It is not a questionnaire and is not intended for return. A space for yes; no and remarks is provided for each question considered. For instance, the first point is physician, full time, part time, or on call, yes or no for each. Sections A, Personnel and B, Quarters and Equipment, are not scored, but a score is provided in Section C, Health Activities and Services.

331 Precision Necessitates Fitness - A Medical and Surgical Service and a Vision Program. H.G. Gardiner and C.O. Sappington. Ind. Med., 13, 136-142 (Feb., 1944).
The evolution of a standard industrial medical and surgical service in a modern precision industry is described briefly, supplemented by illustrations of layout, equipment and forms. In this establishment, because of the nature of the work and the necessity for visual fitness, the visual program, developed within a year, are comparable to any of the best in American industry. - From authors' summary.

332 An Industrial Medical Department - Organization and Administration. M.H.Manson. Ind. Med., 12, 846-861 (December, 1943).
Information is presented relative to the amount of floor space, equipment and operating costs for a medical office in a plant employing approximately 1500 workers. The size of the industrial medical staff depends upon several factors, which are described. The phase of administration considered is the matter of selection of the director - whether he should be a physician or a layman. The relationships of the industrial physician with management, employees, the legal department, the employment and safety departments, and organized labor are also explained.

333 Pre-Employment Examinations; Unusual Findings at Douglas Aircraft. W.S. Peart, Calif. & Western Med., 59, 162-164 (September, 1943).
The examination of each applicant embraces a "strip" physical, including a pelvic examination for all but unmarried females. Smears are taken where indicated. Special eye examinations for visual acuity, Keystone testing, and color testing, using standard methods and charts are performed. A routine 14 x 17 plate chest X-ray is made, and X-rays of other areas where indicated. A routine Kahn blood test, hemoglobin and blood cell count is made. A urinalysis is complete for all males, but must be specifically ordered on females. Qualified and limited employment has been substituted for rejection, with a consequent decrease in rejections. Due consideration is given to the hazard created by employing such an individual, as well as the personal hazard the occupation offers. General clinical observations are enumerated and commented upon. It is felt that this system contributes an important share toward helping keep workers on the job and to lessen the hours of lost production.

334 Records, the "Seeing Eye" of Industrial Medicine. W.J. Fulton. Ind. Med., 13, 1-35 (January, 1944).
The author discusses medical records from the general standpoint and in many details of the methods of use. The general purpose of the records is summarized in two slogans - "make the individual their first aim," and "records to use - not to file." Accuracy and simplicity are stressed. The chief value of the paper, however, is in the numerous reproductions of actual forms and records covering almost every industrial medical contingency.

335 The Pre-Employment Physical Examination. A. Randell. Ohio State Med. J., 39, 350 (April, 1943).
The plant physician must be thoroughly familiar with all types of work done in the establishment, and with the physical requirements of these positions. By using a complete form with special attention to those items particularly applying to a job, it is possible to place employees in work best suited to their abilities and to reduce the number of unnecessary rejections.

336 Pitfalls in Occupational Disease Diagnosis. P.A. Davis. Ohio State Med. J., 39, 337-338 (April, 1943).
The greatest pitfalls in diagnosis in occupational disease are found when there is absence of knowledge of the substances in question. In avoiding pitfalls a differential diagnosis must be made, and all data possible must be obtained to substantiate the diagnosis. The author discusses many of the newly developed hazards, and industrial causes of dermatitis, which is the occupational disease which seems to lead in frequency, especially in war industries. By following a definite procedure, such as the one suggested by the author, he feels that pitfalls in diagnosis may be kept to a minimum.

337 The Periodic Examination of Workers in Non-Toxic Chemicals. G.M. Waldie. Ind. Med., 13, 126-128 (February, 1944).
Periodic examinations of workers in non-toxic chemicals are an important feature of any industrial medical program. The frequency and the procedures of these examinations are not subject to standardization, but the more thorough the examination and the less protracted the interval between examinations, the greater the benefit to employees and employer. The fruit of the periodic examination is the use made of its findings. Employees should be advised of the results of the examination, and should be urged to secure medical assistance in the correction or the improvement of physical defects. Employees cannot be permitted by their neglect of their physical deficiencies to jeopardize the safety of their fellow workman or become hazardous to themselves or to their employers.--Author's summary.

338 The Physician's Responsibility in Illness and Injury of Uncertain (Occupational or Non-Occupational) Origin. T.J. Nereim. Ind. Med., 13, 130-132 (February, 1944).
"Whenever there is a question of doubt as to the source of a disability, it is usually considered to be occupational in origin," is a principle stated and reiterated by the author. Reference is made to a class of workers, who, because of the present need, have been admitted into industry. They often come to the medical department with complaints that are the result of fear, apprehension and the power of suggestion. These persons must be recognized and treated judiciously. A group of diseases, including chronic cardiac and renal diseases, diabetes, pernicious anemia, allergies may be treated by the industrial physician, though they are not industrial in origin. These diseases require close supervision that the patients may perform certain tasks and not become hazards to themselves and other workers. The extent to which treatment is given depends upon: The location of the plant; the facilities and personnel available; and the assistance of the practicing physicians in the plant area.

339 The Periodic Examination of Workers in Toxic Chemicals. L.B. Clinton. Ind. Med., 13, 124-126 (February, 1944).
The author discusses a number of aspects of the examining physician's experience, emphasizing the improvement in habits and attitude of the workers arising from confidence in the examiner. The benefit to the examiner himself is a point not usually mentioned in similar discussions. Individual attention to workers and general concern for their health, beyond the routine of examination, is necessary for the physician's success.

340 An Effective Preventive Medical Program at an Army-Operated Industrial Plant. E.W. Probst and L.D. Lewis. Ind. Med., 13, 43-45 (January, 1944).
The physiological effects of specific chemicals on individuals could not be followed because of rapid personnel transfers and frequent operational changes. Using the Foulger system, excessive toxic exposures have been discovered through abnormal scores. These discoveries led to improvements in the working environment and manufacturing methods. Systemic effects have been avoided by removing individuals developing abnormal blood pressure scores. - Authors' summary.

341 The Place of Dentistry in Industrial Health Programs. L.D. Heacock. Ind. Med., 12, 672-680 (October, 1943).
The realization that non-occupational diseases and illnesses cause by far the greater percentage of absenteeism, with the consequent production and economic loss, is resulting in greater attention being paid to these conditions of the worker's health. Many of the non-occupational diseases and some of the more serious nutritional deficiencies may be recognized by their oral manifestations, and also the industrial dentist must be qualified to recognize and record, as well as treat, mouth lesions resulting from over-exposure to industrial hazards. Industrial dental programs are discussed and methods suggested for providing dental services.

342 Program for the Handicapped. R.W. Emmons. Manpower Rev., 11, 15-16 (Jan.,1944). The article relates the accomplishments of the U.S. Employment Service in Ohio in placing handicapped workers. The total number placed in the first 11 months of 1943 was 12,016. Out of the total number of registrants for employment, 12% of the males and 3% of the females had some physical impairment. About one-fifth of these were skilled workers. With careful selection of the workers for the jobs, their work has been very generally satisfactory. Their attendance records have been at least as good as those of other workers. A thorough search is being made for possible additional handicapped workers who are not now registered.

343 Material for War Produced by Blind. C.R. Budd. Domestic Commerce. 31, 17-20 (December, 1943).
A brief paper calls attention to the considerable amount of war material produced by blind workers, under the Wagner-O'Day Act directing Federal departments to buy certain material from the blind. In sewing, a safety guard made from parts of a confiscated pin ball machine protects the operator's hand from contact with the needle. The use of the device can probably be extended to other machinery. In some occupations particular blind workers have excelled seeing workers, "thread chasing" is given as an example. A government committee is in charge of purchases from the blind, and post-war employment is being studied.

344 Placing the Physically Handicapped in Industrial Employment. H.L. Reed. Ind. Med., 13, 120-122 (February, 1944).
The study covered 2,690 employees who were hired between March 1 and July 1 at a plant in a labor shortage area. Of this number 291, more than 10%, were physically handicapped. Percentages of handicapped workers who were still on the job at the end of six months were, in general, about equal to those for the entire group which indicates that these employees except for some categories, are capable of performing the work assigned to them and staying on the job. A discussion is given of problems associated with the employment of the various groups, with emphasis on the importance of the work of medical directors in helping these employees.

345 Employment of Physically Handicapped. Liberty Mutual Insurance Co. Pamphlet, 9 pp. (August, 1943).
The first section, entitled "Keynotes" gives quotations from a number of authorities showing the desirability of hiring physically handicapped workers. In a special note for small plants, it is pointed out that with the small number of physically handicapped employed at a small plant, the problem can be handled satisfactorily by direct consultation with plant management, foremen and outside medical advice where needed. Familiarity with coding systems will be necessary. Under the heading "Principles and Mechanics of the Plant Program," the word "placement" is used instead of employment in connection with examinations, etc. It is not of much assistance to prepare a list of jobs in advance, but each applicant must be considered on an individual basis. A typical report form is shown as a suggestion for handling clear-cut disability cases. Details of the use of such forms especially for the placement officer, are given. Notes follow on the estimation of physical defects taken individually. In the discussion of "The Insurance Aspect," the employer's fears for responsiblity for a second accident, are allayed by showing that in Massachusetts only 3 awards for such cases were made in one year, and that no higher rate is charged to cover such cases. In conclusion the desirability of rehabilitation clinics in all industrial centers is urged.

346 Jobs for Handicapped Veterans. Anonymous. Mill & Factory. 33, 93-95, 244-246 (October, 1943).
Handicapped veterans returning from the war are being employed by many large Detroit plants, and there is every reason to believe that the number employed will be augmented as the supply increases. With few exceptions they are proving to be highly satisfactory employees. Out of their experience they bring to their work an attitude that has a salutary effect on the morale of fellow workers. No special consideration is given these workers - they are given real jobs and are treated as regular employees.

347 Penicillin and Propamidine in Burns; Elimination of Hemolytic Streptococci and Staphylococci. A.M. Clark and others. Lancet, 1, 605 (May 15, 1943).
Clark and his associates point out that the predominant part played by the hemolytic streptococcus and the staphylococcus in interfering with the repair of burns makes it desirable to perfect means for preventing and controlling infection by these organisms. Sulfanilamide is not quite the ideal agent for this purpose. The authors applied penicillin in the form of a cream to 54 burns and scalds in various stages of healing. In 41 of the wounds (76%) the streptococci disappeared within 5 days and did not reappear. In 2 the strains which promptly disappeared were insensitive to the sulfonamides. There were no cases in which penicillin appeared to have no effect. Staphylococci also disappeared quickly from many of the wounds. Healing was rapid and no toxic effects were observed. Propamidine was applied in the form of a cream (0.1%) to 34 similar burns. Hemolytic streptococci disappeared within five days from 21 of the wounds (62%). They persisted in 8 cases during treatment with propamidine. Of these, 3 lost their streptococci promptly when they were later treated with penicillin. Healing was not quite so rapid as with penicillin. No toxic effects were observed. Coliform bacilli, Proteus vulgaris and Pseudomonas pyocyanea, when present in the wounds, were apparently not affected by either agent.

348 Conduct of a First Aid Room in a Small Plant. S. Sprague. Ind. Med., 13, 50-51 (January, 1944).
Specifications are given as to location, equipment and stock of medicines required for first aid rooms. Activities, attitudes and limitations of the nurse are touched upon.

349 The Problem of Fractures with Associated Burn Injuries; Principles of Treatment. D.C. Bodenham. Proc. Roy. Soc. Med., 36, 657-662 (October, 1943).
The author presents some information collected from the Royal Air Force for the benefit of shipyards and other industries, where such a combination of injuries may easily occur. Cases should be rapidly transported to a fully equipped hospital. For prevention of infection, sulfonamide (preferably sulfathiazole) should be applied with firm pressure bandage.

350 Burns. C.C. Lund. Rhode Island Med. J., 26, 197-200 (October, 1943).
The author discusses the fundamentals of first aid and later treatment for burns. He recommends a simple bland ointment such as petrolatum or boric acid ointment for first aid, and gives the four essential requirements for treatment as prevention of pain, prevention of infection, optimum conditions for rapid healing, and minimum disability during and after treatment. A bibliography is included.

351 Adequacy of Industrial Lunch and Use of Brewer's Yeast as a Supplement. C.A. Heller, C.M. McCoy and C.B. Lyon. J. Nutrit., 26, 385-390 (October 11, 1943).
The meals served workers in one cafeteria in the Brooklyn Navy Yard have been sampled for the determination of riboflavin, niacin and thiamine. The noon meal usually furnishes at most only one-fourth of the day's requirements for these

vitamins, and the morning meal cannot be expected to furnish any more unless eating habits are much improved. Dry brewer's yeast has provided a satisfactory method of supplementing the supply of these vitamins, usually incorporated in the food in amounts small enough so that the taste was not detected. The yeast, in addition, affords antother good source of protein.

352 A Practical Program for Human Rehabilitation. H.A. Vonachen. Ind. Med., 12, 807-810 (December, 1943).
The "Peoria Plan" for rehabilitation of the civilian and military handicapped was organized by the Caterpillar Tractor Co. After its success was assured, the idea was offered to the community. Many employers in the area have organized and made ready to accept the physically handicapped. Some points of the program are: (1) Organization should be effected immediately before the disabled veterans return. (2) A well planned program consists of cooperation between Medical, Personnel, Training, and Safety Divisions, and Supervisors. (3) A survey of jobs is required. (4) Classification of handicapped persons should be clarified. (5) State compensation laws could be changed. (6) "War neurosis" cases will benefit from quick employment. It is the experience of the Caterpillar Tractor Co. that the production, safety and absentee record of the physically handicapped is above average.

353 Better Nutrition in Plant Personnel - To What Extent Can the Industrial Medical Department Contribute. C.W. Hoffman. Ind. Med., 13, 128-129 (February, 1944).
Numerous surveys have shown that the average American working man and woman does not eat adequately. The writer believes that the success or failure of the plant nutrition program depends upon the interest shown by the medical department. In the plant with which the writer is connected the medical department inspects the cafeteria about once a month, when sanitary disposal of waste is checked, as are also the proper storage of food and general cleanliness. Cafeteria employees are examined twice a year. The menus are inspected and nutritious foods are suggested. It is advised that some reference to diet on pre-employment examination forms might lead to correction of wrong dietary habits. The physician should also supervise the program of education by the use of posters, bulletins and movies.

354 The Effect of Diet on Toxic Agents. Anonymous. Nutrition Rev., 425-426 (December, 1943).
The effective protection against toxic agents by dietary constituents has been demonstrated for a variety of compounds. In a recent paper it has been shown that TNT poisoning is most severe in rats when the diet is high in fat and less on a carbohydrate diet, while moderate amounts of TNT can be fed with a protein diet without any signs of illness. These results cannot be directly related to man, but available reports show less incidence of TNT poisoning in the United States than in England, and it is suggested that either industrial hygienic conditions are better here or that the diet of Americans is more adequate, or both.

355 Group Feeding in Small Plants - Observations on How and Why. F.J. Underwood and others. Ind. Med., 13, 160-170 (February, 1944).
The wisdom of providing food for employees is generally recognized by industrial management. A plan which could be adapted to the needs of smaller plants is presented, step by step. 1) Provide a clean, cheerful space where employees may eat their lunches, (this space may also be utilized for group meetings, recreation, etc.). 2) Where convenient, vending machines may be used to supplement the worker's lunchbox and to fill the requirements of supplementary feeding periods. 3) Employment of a dietitian or home economist who has specialized in institutional feeding. 4) The establishment first of a canteen at one end of the lunch

room which will progressively supplement and replace the worker's lunchbox. This service should grow in response to employee needs and requests, and is more likely to succeed if developed in this manner.

356 Diabetes and Injury. W.A. Bishop. J.Ind.Hyg.& Tox., 26, 55-60 (February,1944). Under present conditions serious considerations must be given to the question of employment of diabetics in industry. Diabetics should be employed if they can be properly placed, controlled and supervised. Uncontrolled diabetics are a menace to themselves and others. Diabetes is due to decreased function of the islands of Longerhand. Diabetes can be caused by trauma only when the pancreas has been injured to an extraordinary degree, and this occurs very rarely and is fatal. Diabetes is not produced by shock or emotional strain except perhaps in exophthalmic goiter induced by severe emotional, or psychic shock. Glycosuria must be carefully distinguished from diabetes, and presence of urinary sugar does not prove the disease. Glycosuria may result from head or nerve injuries. Injuries enforcing inactivity may, by greatly reducing muscle sugar burning power, make an existing diabetes worse, or assist latent diabetes to become manifest, but the effect is transitory. Infections do not cause diabetes, but frequently make existing diabetes worse. Often the disease must be fully controlled to successfully cope with the infection, and when the infection is controlled, the diabetic state returns to its former level. Sulfa drugs have no deleterious effect on diabetics and are as potent in the control of infection as in non-diabetics. -- Author's summary condensed.

357 Electronics in the Study of Head Injuries. C. Sheer and J.G. Lynn. Electronics. 17, 112-117, 338-340 (January, 1944).
Psychophysiological research has evolved a promising electronic instrument for indirect diagnosis of brain damage in concussion cases. Technical features include use of DC carrier amplification, differentiating circuits and trigger circuits that provide constant amplitude pulses for time-axis recording of 20 variables. -- Authors' abstract.

358 Ultra-Violet Radiation in the Treatment of Dermatitis Due to Cutting Oil. M. Burkes. Ind. Med., 13, 50 (January, 1944).
Ultra-violet radiation in the treatment of oil dermatitis is believed to be of value. Supplementary measures are also outlined for treatment.

359 Tuberculosis Case Finding: Problems in Industry. E. Miale. Ind. Med., 12, 602-606 (September, 1943).
The Queensboro Tuberculosis and Health Association, the Department of Health of the City of New York, and the Queens County Medical Society, in an attempt to prevent rise of tuberculosis rate in this country, projected a plan to X-ray entire industrial plants as a tuberculosis case finding measure. A worker was to 1) act as a promotion agent, contacting management and labor, 2) make all necessary technical arrangements with plant medical department and personnel heads as to facilities needed and educational measures of movies, lectures, and literature. A portable X-ray unit is used taking 100 to 125 films per hour. All individuals whose paper X-ray reveals significant abnormal changes are referred to a consultation chest clinic. Through a chest specialist, recommendations are made as to whether or not the individual should be permitted to continue working. The fee for the paper X-ray is one dollar, consultation service is two dollars, and the entire sum is absorbed by the firm. It is believed that a similar procedure can be economically incorporated into an already sound plant medical program, as a means of determining physical disabilities among new and prospective employees as well as those already employed. Large industries have found that the investment pays. Loss of time due to illness is decreased, and the productiveness

of the employees as a unit is increased. A complete program of tuberculosis case finding, and its proper and just disposal between employer and employee, has been carried out in five plants.

360 Employability of the Tuberculous - A Yardstick for Judging Placement and Supervision. W.L. Ritter and J.W. Dugger. Ind. Med., 13, 37-38 (January, 1944).
A classification of tuberculous infections is given, which may be used as a standard in placing or rejecting applicants who are tuberculous. Special considerations are given concerning employees who work in an area where silica dust is present. Adequate medical supervision is not to be neglected.

361 The Cardiac Under Forty-five: His Placement in Industry. W.S. Priest. Ind. Med., 12, 806-806 (December, 1943).
The two cases of heart disease most commonly encountered under 45 are discussed. Cases are cited, which show that workers suffering cardiac impairment are honest and attentive and lose no more time than the average for the non-handicapped. A change in the wording of the workmen's compensation act is advised as a necessary step in overcoming reluctance of employers to hire cardiacs. The writer sums up the matter by stating that "the placement of compensated cardiacs in industry is possible and feasible through the intelligent understanding and cooperative effort of the employer and industrial physician on one hand, and the attending physician, social agency and patient on the other."

362 The Significance of Rising Blood Pressures. N.S. Davis. Ind. Med., 12, 738-39 November, 1943).
It is stated that there is one sign of exposure to toxic chemicals in low concentrations that can be easily measured, the blood pressure. In the author's opinion, this sign is one of the simplest and most effective, and he attempts to justify his stand. Other factors which may cause blood pressure changes similar to those caused by exposure to chemicals are listed. A "blood pressure score" and an "index of circulatory balance" have been developed to give semi-quantitative estimates of the worker's condition. Such scores repeated at sufficiently frequent intervals are of great significance and are believed to be essential if occupational diseases are to be prevented and if ill health and absenteeism are to be reduced to a minimum.

363 Some Visual Problems in Modern Industry. H.S. Kuhn. Illinois Med. J., 82, 286-289 (October, 1943).
Industry now demands an ophthalmologist who on entering a plant makes himself familiar with the different patterns of the work, judges spatial relationships, and sets up standards for selection and placement of employees. He must find lines of activity where workmen more or less affected by color blindness can work efficiently with proper regard for their safety and for the advantage of the plant. He has to study the nature of close work, must correct refractive conditions, and must know how to rehabilitate inefficient workers. He must also consider glare factors and note when general conditions cause eye fatigue. Among other conditions the Committee on Industrial Ophthalmology has agreed on acuity tests for appraising the visual skill of employees as applied to the specific visual demands of each plant. The Committee's survey includes also distance acuity with and without glasses, color discrimination, muscle balance for distance and near, stereopsis, and the determination of near points for the right and the left eye and for both eyes together.

364 Eye Manifestations of Head Injuries. D.J.Lyle. J.A.M.A. 123,873-79 (Dec.4,1943).
The author discusses a number of forms of head injuries and their effect on the eye, including concussion, contusion, laceration, compression, and cerebral hemorrhage.

365 Epidemic Keratoconjunctivitis. A.J. Bedell. N.Y. State J. Med., 43, 2049-2054 (November 1, 1943).
The author describes the symptoms and course of epidemic keratoconjunctivitis with special emphasis and consideration of the corneal infiltrates and changes. Six cases are discussed. The opinion is strongly expressed that this is not an occupational disease, and that it is found in industry only because there one has together a large collection of individuals of varied susceptibility. No treatment has succeeded in preventing the corneal infiltrates. There is as yet no specific cure. During the acute stage the patient must be kept from work both for occupational hazards to himself because of temporarily impaired vision, and for hazards of exposure of other workers. The end results may be in evidence for a long time.

366 Epidemic Keratoconjunctivitis. E.C. Bach. Wisconsin Med. J., 42, 413 (Apr., 1943).
At present there are in the Milwaukee area over a thousand cases of keratoconjunctivitis. It is important to realize that the source of infection in many cases has been traced to first-aid rooms in plants and to the offices of physicians where the contagiousness of this disease was not realized. Epidemic keratoconjunctivitis is nonpurulent, and usually involves one eye only. It is characterized by edema, inflammation, swelling of the regional lymph nodes, and subsequent appearance of punctate opacities in the cornea. The incubation period is from 5 to 12 days. The cause seems to be a virus. Mild treatment, including cold compresses and bland ointments, seems to give the best results. (References.)

367 Estimation of Percentage Loss of Hearing. H.A. Carter. J. Acoustical Soc. Am., 15, 87-90 (October, 1943).
The author presents a method for estimating the percentage loss of hearing for medico-legal cases, which has been endorsed by interested sections of the American Medical Association.

368 Industrial Otology in a Shipyard; A Review of Experience at the Four Kaiser Richmond Yards. J.H. Urisonfeld. Permanente Foundation Med. Bull., 1, 21-29 (October, 1943).
The study covers a period of 13 months. Of 443 cases of slag burns of the external auditory canal which were treated, 5% developed a secondary external otitis, but no permanent disability ensued in any cases. Welders were the subject in 82% of the cases. Middle ear disease followed slag burns, sudden and intense noise, and exposure to irritant inhalations or variations of temperature, pressure, or humidity. Acoustic trauma if present to a significant degree will result in occupational deafness. Therapy is not effective so long as exposure continues. Ear plugs are an important measure in prevention. They eliminate the foreign body and atmospheric concussion hazard and reduce the excessive intensity of sound to innocuous levels. An ideal ear plug has not yet been prepared. Tubotympanic catarrh, which occurs with moderate frequency in a shipyard, may be prevented by avoiding excessive and rapid changes of temperature; pressure, and humidity and by instituting adequate suction ventilation systems which will eliminate irritant inhalations.

369 Women in Industry: A Study of 135 Women Working as Riveters in the Aircraft Industries. W.C. Bradbury and C.B.S. Evans. Calif. & West. Med., 59, 119-121 (August, 1943).
This is a preliminary report of a study of 135 riveters with pelvic complaints. With the exception of 5 cases, there was definite evidence of previous pelvic pathology before employment as a riveter. The authors believe that a good number of manpower hours can be conserved by adequate pre-placement examination of women workers. This, however, has its obvious difficulties, though of good scientific merit.

370 Part-Time Employment of Women in Wartime. U.S. Dept. of Labor, Women's Bureau, Special Bull., No. 13. (June, 1943).
Part-time employment of women is recommended as a measure of utilizing the services of women not available for full-time jobs. It provides an answer to local labor shortages; a means of increasing production without extending the hours of the working week; a means of meeting essential civilian requirements; and a practical method of offsetting absenteeism. Working conditions standards must be maintained, and the wage scale should be comparably maintained. Development of community facilities to meet the needs of the employed woman, including adequate provision for child care, laundering, marketing, shopping, and other household duties, is recommended as an imperative necessity.

371 Medical Management of Complaints of Women in the Explosives Industry. W. H. Varney. Ind. Med., 13, 122-124 (February, 1944).
Satisfactory experience with women workers is attributed chiefly to three factors: (1) The careful selection and placement of workers. (2) Satisfactory working conditions, which include adequate lighting, proper ventilation, correct seating, adjustment of the machine to the worker and adequate rest periods. (3) Adapting the type of operation to the individual. Complaints of workers are related to their causes, if possible, and careful consideration is given to these, with advice and treatment. A study is being made of the subject of occupational menorrhagia, which many gynecologists believe may be caused by standing at work for long periods. The author's opinion is that these cases usually occur in women who have pre-existing pelvic infection or other types of disease.

372 Which Jobs for Young Workers? No. 8. Advisory Standards for the Aircraft Industry. U. S. Department of Labor, Children's Bureau, Pamphlet, 12 pp. (November, 1943). Available on request from that Bureau.
A general classification of occupations in the aircraft industry is made, with a discussion of their suitability for young workers. The obvious determining factors of the classification are physical strength required, exposure to mechanical danger from machinery and health hazards from fumes. For instance in welding 7 suitable and 9 unsuitable jobs are given, depending on those factors. Among the generally safe departments are the tool crib, paint shop, wing, center section, tail and fuselage assembly, final assembly, receiving and packing, electrical radio, instrument assembly and upholstery. Departments and occupations generally unsuitable include the dope room, draw-bench operations, anodizing, heat treating, degreasing, foundry, wood shops (where power machinery is used) and flight ramps. There are exceptions to the general rule in nearly every department. For machine shop work, reference is made to No. 7 of the same series. Care in the selection of supervisors for young persons, instruction of their foremen in the limitations of their work, and the wearing of distinctive badges are recommended.

373 Problems of Night Work. L. Teleky. Ind. Med., 12, 758-762 (November, 1943).
The human body undergoes a 24-hour cycle in many functions, including temperature, pulse, blood pressure, respiration, oxygen and carbon dioxide exchange, blood picture, and others. The temperature cycle is simplest to follow and is probably indicative of the complete biological cycle. Most of the paper deals with the effect of changes in hours of work on the body temperature cycle, including the author's experiments and those reported in the literature. In general working at other periods than normal daytime hours produces an inversion of the cycle, i.e. a maximum temperature in the early morning instead of late afternoon. However, the normal cycles and changes in cycles vary greatly according to the individual, the nature of the work and other factors. From the study of temperature cycles and demonstrated effects of night work, the author concludes that: (1) continuous night work is unhealthful and decreases production; (2) shifts

should be rotated less frequently than weekly, at least at four week intervals; (3) the night shift should be arranged so that one shift covers the whole night period. Further research on the subject is an urgent need.

374 Toxicity of Tannic Acid: Experimental Investigation. G.R. Cameron, R.F.Milton and J.W. Allen. Lancet. 2, 179 (August 14, 1943).
Cameron and his associates report an experimental investigation into the toxicity of tannic acid and the chances of its absorption from burned areas. Some information about the fate of tannic acid after it reaches the circulation is given and contrasted with the behavior of gallic acid. Experiments have been carried out on goats, rabbits, guinea pigs and rats, 250 animals being used in all. Tannic acid was obtained from seven different firms, but one sample was employed for most of the experiments. This sample contained about 20% gallic acid. The authors present experimental evidence that in animals tannic acid has injurious effects on the liver, capillaries and possibly on the bone marrow. After the introduction of small amounts of tannic acid directly into the blood stream or large amounts into the subcutaneous tissues, animals show centrolobular necrosis in the liver, increased capillary permeability with leakage of plasma into the subcutaneous tissues, peritoneum and occasionally the lungs, and leukocytosis. Production of a reservoir of tannic acid in the tissues, as by subcutaneous injection, lead to continued absorption of small amounts into the blood and a serious intoxication. Tanning a burn surface may also be followed by absorption of tannic acid. With lapse of time the continuous bathing of the liver cells with blood containing tannic acid results in damage and destruction of certain tissues. The injurious effects cannot be attributed to gallic acid, which is rapidly removed from the blood and can be tolerated in large amounts. The authors point out that the other criticism of tannic acid treatment of burns comes from the experimentalists. Caution must be exercised in applying to man without discrimination conclusions reached by the study of animals. They recognize that the ultimate decision for or against the tannic acid method must come from human experience, and they note that evidence is already accumulating which suggests the need for critical revision of this treatment.

375 Venereal Disease Education in Industry. H.C. Rhodes and D.E.H. Cleveland. Canadian Pub. Health J., 43, 494-501 (November, 1943).
By sponsoring an Industrial Health Week, the Vancouver Junior Board of Trade distributed over half a million pieces of literature and had 190,000 employed persons receive booklets relative to venereal disease. By the well planned program of educating industrial groups through public endorsements, newspaper comments, posters, and publicity, it is hoped that some lasting wholesome and beneficial effects have come about.

376 Emergency Minimum Sanitation Standards. U.S. Public Health Service. Pub. Health Repts., 58, 1793-1823 (December 10, 1943).
These standards constitute the third edition of the Sanitation Code for State or Local Adoption. The use of the word emergency in the present code takes account of the fact that under war conditions the best material may not be obtainable. The Standards deal with all phases of public sanitation, including as the main headings: water supplies; sewage and industrial wastes and excreta disposal; milk and milk products; frozen desserts; eating and drinking establishments; swimming and bathing places, refuse, garbage, rubbish and ashes; sanitation of habitable buildings; tourist and other camps.

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