# INDUSTRIAL HYGIENE DIGEST

*Literature Abstracts*

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

*Industrial Health News*



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# INDUSTRIAL HYGIENE DIGEST
## Literature and News

### News Items

338 Federal Workers Health Service Proposed.
Plans are being considered to establish an industrial health service for Federal workers to reduce sick leave, which costs government agencies $100,000,000 a year. It is to be coordinated under the United States Public Health Service, through the Division of Industrial Hygiene, and tentative plans are that medical directors for each Department will be selected from the U.S. Public Health Service staff, who will be administratively responsible to the Department head.

"Emphasis will be on prevention and discovery of disease, through health education programs, sick absenteeism studies, removal of health hazards, and first aid and treatment for minor ailments. Treatment and cure for more serious conditions will be left to the private physician."

### Legal Developments

339 Allergy to Wheat Flour.
The claimant in this case, an employee of a bakery, applied for compensation for disability due to "Allergic Bronchiectasis," alleging that his condition is due to contact with wheat flour, to which he is allergic. Claimant has worked as a baker for about 6 years in Ohio and Indiana. His attending physician in reporting on the case said: "This is definitely allergy to flour dust which over a long period of time has produced disabling bronchiectasis, and he must leave his work until well and then find some other occupation." An expert to whom the claimant was referred for examination gave essentially the same opinion. The claimant was referred to the Board of Silicosis Referees for examination and it found that the claimant was totally disabled for a time but was not now disabled, although it expressed the opinion that disability would again ensue if claimant returns to his former occupation. The Commission allowed the claim.
Ohio Ind. Comm. Monitor, 15, 13 (January, 1942).

340 Injury from Tapping Compensable.
An assembler employed by a tool and die plant, applied for compensation, alleging he had been disabled by a severe pain in his right shoulder and arm, which he attributed to the hand tapping of cap screws in the assembling of machines. Investigation disclosed that the claimant was required by his employer, on or about March 11, 1941, to do some heavy tapping of screws, using a heavy tap wrench and he had a large order to complete. While doing this tapping he received the strain upon which the application for compensation was based. This type of work is usually done by machine but as these particular taps were of a small size, the employer was afraid the machine would break them and ordered them done by hand, using a tap wrench. It was pointed out that the claimant is a bench and assembly man and was required to do very little tapping. The employer certified the application and the claims reviewer held that the evidence, both lay and medical, was such that the claim was one that should be recognized as an occupational disease and be held compensable. The Commission ordered that the claim be allowed. Ohio Ind. Comm. Monitor, 15, 12 (January, 1942).

341 Public Works Employees Not Covered.
This case is one of a group filed under the provisions of the Occupational Disease Act by inmates of The Lodge, a relief program carried on by the Cuyahoga County Relief Bureau. In each case, the cause of disability was given as tuberculosis and in each case, medical attention for the alleged tubercular condition was first given in May, 1941. All the inmates of The Lodge are public relief employees who receive meals and lodging and cash not to exceed $10 per month. It is not clear, the claims reviewer points out, just on what basis the claimants are alleging their tubercular condition to be the result of their employment at The Lodge and no causative relationship is alleged. He points out that these claims are not compensable as the Public Work Employee's Compensation Law does not include occupational diseases. The Commission ordered that the claim be disallowed for the reason that proof of record shows that claimant is a work-relief employee within the meaning of Sec. 3496-1 G. C. and as such is only entitled to benefit under the Public-Work Employees' Compensation Law, under which law occupational diseases are not compensable. Ohio Ind. Comm. Monitor, 15, 13, (January, 1942).

342 Duodenal Ulcer. Aggravation by Nervous Tension During Strike. Absence of Accidental Traumatic Injury.
Shea had been employed by the appellant. A strike developed. Shea remained inside the plant for 13 days, when he suffered from a perforated gastric ulcer and died. The Industrial Commission disallowed the claim as decedent's death was in no way related to any incident of employment. The Court of Common Pleas directed a verdict for defendant. The Court of Appeals reversed that judgment, finding that there is evidence tending to show that the decedent was subjected to a high nervous tension by reason of the conditions existing at the place of his employment, which high nervous tension either caused or aggravated a duodenal ulcer from which decedent was suffering causing same to perforate resulting in his death. The evidence of so-called injury was not supported by any proof of a traumatic injury, accidental in origin and cause, which was the result of a sudden happening at a particular time. Judgment of the Court of Appeals reversed and the judgment of the Court of Common Pleas affirmed. Shea v. Youngstown Sheet & Tube Co., Ohio Supreme Ct., Decided March 18, 1942. (CCH).

343 Undulant Fever Contracted While Skinning Dead Cow. No Evidence that Cow had Bang's Disease.
This is a workmen's compensation case. Judgment was rendered in favor of plaintiff. Defendant appeals on the ground that there is no evidence to show that

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plaintiff's disability resulted from the injury. While skinning a cow, plaintiff cut his finger and became violently ill with undulant fever. There is no evidence showing that plaintiff contracted undulant fever through the cut in his finger while skinning the dead cow. The defect in plaintiff's case is the lack of any evidence that the cow in question had Bang's disease. It would have been necessary to establish by positive evidence, and not by circumstantial evidence, that the cow had Bang's disease, in order to lay the proper ground for an inference that the disease was communicated to plaintiff from that particular cow. The judgment of the trial court is reversed, and judgment is here rendered in favor of defendant. Federal Underwriters Exchange v. Hightower. Texas Ct. of Civ. App., 2nd Dist. Decided April 3, 1942. (CCH).

344 Death from Heat Exhaustion. Waiter in Hot Restaurant Subjected to More Severe Conditions than Other People in Locality on Hot Day. Death Held Compensable. Appellees, as dependents of Clarence E. Banet, deceased, were awarded compensation by the Industrial Board of Indiana at the rate of $9.[illegible] per week for a period of three hundred weeks. Appellees alleged Banet died as a result of personal injuries received by him on said day, by reason of an accident arising out of and in the course of his employment by the appellant. Appellant contends that there is no evidence to establish the fact that the death was the result of an accident arising out of his employment. Appellant operated a restaurant. Banet, a waiter, was busily engaged on a particularly hot day on which the relative humidity was as high as 84%. He became ill, and the doctor diagnosed his ailment as heat prostration. He died a few hours later. Appellant contends that this evidence is insufficient to show that the death was a result of an accident arising out of his employment by the appellant. Appellees' decedent, because of his employment, was subjected to greater exposure to injurious results than the exposure to which persons generally in that locality were subjected. He was engaged in waiting upon the appellant's customers in a room without cross-ventilation. The day was excessively warm and the humidity was high. The trade for the evening meal was quite heavy, and, in waiting upon these customers, the appellees' decedent was exposed to the heat from the kitchen, the steam table, the coffee urn, and while so engaged in such labor, the appellees' decedent was overcome from the heat. This over exhaustion arose out of his employment, death was the result of heat exhaustion. Award affirmed. Fox v. Banet et al. Indiana App. Ct. Decided March 24, 1942. (CCH).

345 Manganese Poisoning. Exposure Prior to Occupational Disease Act, Disability and Death Thereafter. Award Affirmed.
McIntyre entered the employ of defendant, and from 1935 on his duties involved exposure to manganese dust. In September, 1937, he was transferred and thereafter had no contact with manganese. He was discharged on the fourth of February, 1938. On the twenty-fourth of that month he became totally disabled from manganese poisoning, and died on April 27, 1939, and his widow was substituted as claimant. An award was made and affirmed. The point raised is that the Occupational Disease Compensation Act of 1937 does not cover the situation, because, by its terms, it did not go into effect until January 1, 1938. Since the date when McIntyre's disability occurred was February 24, 1938, this was the time when a compensable injury occurred, and, it being subsequent to the effective date of the act, no retroactive construction of the statute is involved. Even if the construction thus placed upon the Act of 1937 were to be regarded as giving it a retroactive operation, such interpretation would not make it unconstitutional. It could not be contended that, if an occupational disease arising in the course of the employment culminated in a disability which manifested itself after the employment had ceased, the disability could not be the subject of compensation,

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for otherwise, after an employee had been exposed to the hazard for years and the seeds of occupational disease had been sown in his body, his employer could discharge him and thus avoid compensation liability for a resulting disability which might reveal itself shortly, or even immediately, thereafter. Affirmed. McIntyre v. E.J. Lavino & Co. et al. Penna. Supreme Ct. Decided March 23, 1942. (CCH).

346 Occupational Disease Hernia. Alleged Forfeiture of Right to Compensation Because of Refusal of Operation. Finding of no Aggravation of Hernia by Prior Non-Compensable Disease. Award Sustained.
Plaintiff while employed by defendant, suffered a hernia. Defendant furnished a truss and plaintiff returned to work. He worked one day when he was stricken with a recurrence of Malta Fever, a disease about which defendant knew at the time of plaintiff's employment. Upon return to work, defendant offered him an immediate operation for hernia which plaintiff refused because of his recent serious illness. Plaintiff applied for compensation and operative correction because of the hernia, under the occupational disease part of the compensation act. The commission found that plaintiff suffered from an occupational disease hernia and allowed plaintiff's claim for total disability. Defendant contends that plaintiff forfeited his right to compensation because he refused an operation for hernia, when such operation was recommended by his own doctor. The rule is well established that if the operation is not attended with danger and if the operation offers a prospect of restoration, then he must either submit to the operation or release his employer. All doctors testifying agreed that plaintiff is a less than normal operative risk. The record sustains the finding of the commission that it was not only inadvisable, but also dangerous for plaintiff to undergo an operation for the hernia, and the commission's holding that plaintiff did not waive his right to compensation because he refused an operation. The commission also found that plaintiff's disability was caused by an occupational disease, hernia arising out of and in the course of his employment, and the evidence also shows that the fever was not a contributing factor in the discontinuance of plaintiff's employment. The record contains evidence to support this finding. Moreover, there is evidence in the record to sustain the finding that the disability caused by the hernia was not aggravated by the Malta fever. Award affirmed. Coombs v. Kirsch Co. Mich. Supreme Ct. Decided March 17, 1942. (CCH).

347 Linotype Operator Gets Dermatitis from Lead Alloy Fumes.
Linotype machines require a melted lead alloy from which the type is made. In the plant where claimant worked as a linotype operator, pots electrically heated were used in connection with the machines to melt the metal. There was no apparatus to remove any fumes that resulted. The pots were closed except when the metal was put in. The claimant had to open the one attached to his machine for this purpose, and at times when readjustment was necessary, he also handled sticks of type which had not cooled. He developed a dermatitis. Tests indicated that the dermatitis resulted from the fumes volatilized from the melting antimony which was one of the elements in the lead alloy, and from handling the hot type. The claimant was found to be unusually susceptible to the hazard which caused the dermatitis. An award was granted. The dermatitis was held to be compensable as an "occupational disease" notwithstanding the fact that only employees unusually susceptible would suffer from it. Le Lenko v. Wilson H. Lee Co. (Conn.) 24 Atl. 2nd 253 (January, 1942). Occup. Hazards, 4, 27 (Apr., 1942).

348 Heavy Lifting Causes Tuberculosis Flare-Up.
A laborer while lifting a 300-pound bag of scrap complained of pain in his back and abdomen. It was found that the employee has suffered a lumbosacral strain. Previously, the employee had a condition of quiescent pulmonary tuberculosis.

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The strain of the lifting caused the tuberculosis to flare up and resulted in the death of the employee. The death was held to be compensable as being the result of an accident sustained in the course of employment. Jenkins v. A. Abramson & Son, Inc. (N.J.) 23 Atl. 2nd 122 (October, 1941). Occup. Hazards, 4, 27-28, (April, 1942).

349 Employee Being Allergic to Cleaning Compound does not Prevent Dermatitis Award. The employee developed a dermatitis from the use of a certain cleaning compound. The evidence showed that the claimant was allergic to the substance contained in the cleaning compound and consequently was more susceptible to the development of a dermatitis from it than persons not having such susceptibility. This did not prevent an award. Under the Workmen's Compensation Act, providing compensation for injuries caused by accident or disease arising out of employment, any disease that is caused by an employee's work becomes compensable notwithstanding an allergic tendency of the employee to the conditions that make the disease possible. Kroger Grocery & Baking Co. v. Industrial Com. (Wis.) 1 N.W. 2nd 802 (January, 1942). Occup. Hazards, 4, 26 (April, 1942).

350 Occupational Diseases and the Law. J. D. Dorsett. Pamphlet, 21 pp. (Jan.,1942). The paper is a transcript of a lecture delivered February 12, 1942, as part of the course on Industrial Hygiene and Occupational Diseases, at the Center for Safety Education, New York University. Mr. Dorsett discusses the legal rights and obligations of the employee and the employer after the former has suffered physical injury as the result of hazards incident to his employment. The history of occupational disease compensation in the United States is traced briefly, with accounts of the important cases that led to changes in the laws. The definition of occupational disease is discussed. A list of states is given in which diseases are (1) scheduled or specifically described, (2) defined in general terms, and (3) undefined. The problem of dating of compensation is discussed and varied interpretations in different states are given. Especially in the case of dust diseases, the problem of accrued liability has also arisen, and the experience in New York State with the unworkable law of 1935, leading to the enactment of Article 4-a of the present law, covering accrued liability by graduated benefits, is described. Similar laws have been enacted in several states, and a modified plan has been in force in Pennsylvania, adjusted in 1939 so that the State pays a part of the compensation directly when the disability accrued from a time before the law was passed; the law applies to other diseases in addition to silicosis. The procedures of Ohio and Washington, calling for divided compensation, have led to difficulties which have not as yet been altogether adjusted. The North Carolina plan by which full compensation may be waived by employees who are not fully disabled, is discussed. Definition of "accident" is also not a simple matter, and state laws vary in their ruling on the meaning of accidental injury. The trend, at least recently, has been toward the enactment of well considered laws; however, not only good laws, but good administration, are essential. The author closes by stressing prevention of accidents and occupational diseases as solution of the problems, and recounting the part of legislation, government bureaus, the insurance companies and other organizations in furthering prevention.

351 All-Inclusive Coverage of Occupational Diseases under the New York Workmen's Compensation Law. Anonymous. Internat. Lab. Rev., 45, 157-165 (1942). After a short survey of plans for occupational disease compensation, the author describes the New York system, under which 27 occupational diseases were originally compensable and in 1935 a paragraph covering "any and all occupational diseases," was added. In 1936 silicosis and other dust diseases were included. In 1938 the definition was stated to cover "conditions which attach to an occupation a hazard which distinguishes it from the usual run of occupations and is in excess of the hazard attending employment in general." Conditions compensated

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under this definition include hernia, facial paralysis, Dupuytren's contraction, bronchitis, bronchiectasis, pneumonia, and tuberculosis and infectious diseases, especially among nurses and attendants in hospitals. The number of cases of compensated diseases increased from 694 in 1935 to 1775 in 1940, but the number is still less than 3% of compensation cases from all causes. A large proportion of the cost of occupational diseases is caused by the high compensation cost in deaths and permanent disability from silicosis and other dust diseases.

352 Death from Disease Caused by Bacillus Enteriditis Held Compensable under Workmen's Compensation Act. (Utah Supreme Court; Andreason et al. v. Industrial Commission et al., 100 P. 2d 202, Decided March 13, 1940; rehearing denied May 31, 1940, 102 P. 2d 894).
An employee of an animal by-products company, whose duties consisted of skinning and butchering animals, died as a result of contracting a disease attributed to bacillus enteriditis. His widow sought compensation under the Utah Workmen's compensation law for herself and her minor children. The illness from which the employee died was uncommon and rare, and there were no other known cases in the State. The disease was one that was acquired from contact with diseased animals or diseased meat. There was no evidence that the deceased came in contact with any diseased animals except at his work. The statute provided for compensation for the injury or death of an employee "by accident arising out of or in the course of his employment." The law also stated that "personal injury by accident arising out of or in the course of employment" should "not include a disease, except as it shall result from the injury." The Utah Supreme Court said that two questions confronted it, namely, was the disease an accidental injury, and, if so, was it contracted in the course of the deceased's employment. These questions were answered in the affirmative. The court was of the opinion that under the compensation law an injury arising out of an accident was not limited in meaning to the result of the application of physical force to the body of the injured. An accidental injury might well be expressed as a disability happening by change or unexpectedly but must, however, be connected with the employment. We do not wish to imply, said the court, that, because one becomes ill while at work, the statute applies to him, even though it may be that he became ill unexpectedly. "That alone is not sufficient to make this case one of an accidental injury. There must be a causal connection between his employment, or his place of employment, and his illness -- something which happened to him in the performance of his duties, or some contact he made at his place of employment while on duty there -- which forms the connecting link between his employment and the contraction of the illness. And, we might add, which is not an occupational disease." Respecting the legislative provision, above-mentioned, relative to personal injury by accident not including disease, the supreme court referred to one of its prior decisions in which it had been stated that the purpose of the legislature in so enacting was to eliminate occupational diseases.
Relative to the evidence, the court stated that it believed that there was only one reasonable inference to be drawn and that was that the deceased contracted the disease in the course of his employment. The court held that, so far as the questions submitted to it were concerned, the dependents of the deceased were entitled to compensation. Pub. Health Repts., 57, 551-552, (Apr. 1942).

## Book Reviews

353 The International Labor Code -- 1939. Price $5.00. 920 pp. (December, 1941). This volume is a codified edition of the Conventions (Treaties) and Recommendations adopted by the INTERNATIONAL LABOR CONFERENCE during the period 1919

through 1939. It includes explanatory and bibliographical annotations as well as numerous appendices embodying other standards of social policy adopted under the auspices or with the cooperation of the International Labor Organization.

There are twelve books in this single volume, dealing respectively with Employment and Unemployment; General Conditions of Employment (wages, hours of work, weekly rest periods, holidays with pay); the Employment of Children and Young Persons; the Employment of Women; Industrial Health, Safety and Welfare; Social Insurance; Industrial Relations; the Administration of Social Legislation; the Conditions of Work of Seamen; Standards of Colonial Labor Policy; Migration; and Statistics. In addition to the full bibliographical references there is a large amount of material relating to the ratification, application and interpretation of the I.L.O. Conventions. The material contained in the INTERNATIONAL LABOR CODE has never been available hitherto in any convenient and generally accessible collection. This valuable work of permanent reference is now being made available to students of social legislation and international law as well as to officials responsible for the administration of social and labor law and to those who may be called upon to make detailed plans for post-war social reconstruction, national and international.

354 29th Annual Report of the Secretary of Labor for the Fiscal Year Ended June 30, 1941. Washington, 1942. 165 pp.

A large portion of this report concerns matters outside the scope of this Digest, but the listed accomplishments of the Department in the field of industrial health deserve consideration. The National Committee for the Conservation of Manpower was organized to meet the expanding health problems necessitated by an increase of over 20% of employee hours in defense industries. It built up a safety personnel of approximately 400 safety experts, and helped develop defense safety engineering in colleges and vocational schools. The conferences of labor legislation, bringing together representatives of the states, caused an increasing degree of uniformity and effectiveness and a full cooperation in making rules and regulations. Federal and state inspectors often work together, for instance, in inspection of the clothing industry in California. The interest of trade unions in industrial health and safety has been awakened.

355 Standard Bodyparts Adjustment Guide; Traumatic Cases, Occupational Diseases, Disability Evaluations, Medical Fees, Statutory Digests. $15.00, including ten years' revision service. Insurance Statistical Service of North America, Chicago, Ill.

A useful loose-leaf manual which provides a very convenient presentation of the legal and medical aspects of evaluation of disability and injury and disease compensation. The medical material, particularly the anatomical charts, are designed to be used by lay persons -- both in management and insurance -- and are very clear and concise. The section on medical fees should be of value to all having compensation problems. There is a handy arrangement of data on occupational diseases, listing the nature of the hazard and its symptoms, and a summary of the statutory regulations governing compensation in the States and Federal divisions.

## Industrial Health Hazards and Their Effects

356 Dust Problems in Industry as Related to the Coroner. C.O. Sappington. Ind.Med., 11, 127-130 (March, 1942).

Dr. Sappington discusses briefly the diagnosis of silicosis, with especial reference to the coroner's problems. He discusses 3 cases in considerable detail, in

which wrong diagnoses were made by the autopsy surgeon, and points out where the mistake lay. The essentials for correct diagnosis of silicosis are reiterated.

357 Lead Exposures in the Printing Industry in Virginia. R.T. Homewood and H.J. Worsham. Ind. Med., 11, (Ind. Hyg. Sect., 3), 186-188 (April, 1942).
A survey of lead exposures was made in 16 job printing and 9 daily newspaper plants in Virginia. Precipitator air samples and urinary samples were taken with special precautions to avoid contamination and lead was determined in both by the dithizone method. Atmospheric lead concentrations were generally within allowable limits in linotype, monotype, composition and press departments. However, in drossing and sieving operations concentrations as high as 955 mg. per 10 cu. m. were found. These operations are worse in newspaper plants than in job printing plants on account of the larger quantity of metal used. The urinary excretions of the workers engaged in these operations showed values that also indicate an unusual exposure to lead. On the basis of these findings recommendations for control measures have been made.

358 Commercial Talcs: Animal and Mineralogic Studies. R.Z. Schulz and C.R. Williams. J. Ind. Hyg. & Tox., 24, 75-79 (April, 1942).
Petrographic analysis showed that in certain "talcs" carbonate and serpentine decreased as the experiment progressed. Such "talcs" are to be preferred from the health aspect, inasmuch as a smaller amount of material is more of less permanently stored. The greatest amount of fibrous tissue was developed in the presence of the two "talcs" which contained the least carbonate. "Talcs" of this type should be avoided whenever possible, but when these are essential, methods of controlling the dust should be employed.

359 "Lasters' Disease" (Spasm in Finger Capillaries in Workers on Lasting Machines). A. Schrank. Deutsches Arch. f. klin. Med., 187, 491 (July, 1941). (German). Abstr. from J. A. M. A. 118, 850 (March 7, 1942).
This condition, characterized by spasms in the capillaries of the fingers, is an occupational disorder which develops in constitutionally disposed workers on lasting machines as a result of irritation and cold. The reaction is local and not of central nervous origin, although the entire nervous system may become irritated if it persists for a long time. Therapy is ineffective as long as the same work continues. If the job is changed, improvement results, but symptoms may persist for a long time. Treatment with diathermy and with alternating baths offers good results except in cases of severe disease in which muscular and articular parts are involved. Since alcohol and nicotine are vascular poisons, these patients must abstain from them. Young workers are more prone to the disease. In factories with modern, non-vibrating lasting machines and automatic holding devices, lasters' disease has completely disappeared.

360 Pulmonary Aspergillosis. J.M. Donaldson and others. J. Lab. & Clin. Med., 27, 740-746 (March, 1942).
A case of pulmonary aspergillosis is presented with a discussion of the mode of infection, pathology, symptomatology, x-ray picture, diagnosis, and treatment. It is emphasized that aspergillosis has a distinct relationship to certain occupations. It is most commonly observed among bird fanciers and pigeon stuffers who feed the birds from their own mouths. This occupation affords a double hazard in the infected birds and the contaminated grain. Other occupations in which there is a prolonged exposure to grain dust, such as occurs in farming, milling, threshing, and sponge cleaning afford ample opportunity for infection with this organism. It is likely that often repeated massive dosage is the chief factor in the pathogenesis of this disease. Asymptomatic cases have been found upon routine examination of iron workers in certain localities. Potassium iodide is the principal therapeutic agent.

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361 Health Hazards in Steel Mills. J.W. Fehnel. Presented at Amer. Ind. Hyg. Assoc. Convention, Cincinnati, O., April, 1942.
The operation of a by-product coke plant presents the hazards of coal-tar distillates, lime and acid burns, ammonia and carbon monoxide gas. Employees at blast furnaces are constantly exposed to varying concentrations of carbon monoxide, sulfur dioxide, and hydrogen sulfide. Casting floor workers are exposed to the sulfur gases. Many of these people are exposed to high degrees of heat and radiant rays. Open hearth workers are exposed to carbon monoxide, and, in tearing down the furnaces, to silicosis dust. Employees on the pouring platform and the ladle crane operators are exposed to the fumes given off by the molten material, both from the metal and the coal tar pitch lining of the molds. In producing alloys, many metals are added to the steel, among them nickel, chromium, ferromanganese, ferrosilicon, titanium, tungsten, and molybdenum. Fumes may be excessive, especially in the case of electric furnaces. Carbon monoxde may be present in the vicinity of heating furnaces and soaking pits. Pickle and cleaning baths expose workers to the mists and vapors of a number of acids, alkalies and cyanides.

362 The Significance of Chemical Examination in the Diagnosis of Silicosis. L. U. Gardner and A. J. Reitin. Presented at Amer. Assoc. of Ind. Phys. & Surg., Cincinnati, O., April, 1942.
There is an alarming tendency to attribute diagnostic significance to the presence of silica in tissues without regard to its state or to associated anatomical evidences of disease. An autopsy is performed to determine the presence of pathological lesions; in their absence the demonstration of even great excesses of a non-poisonous irritant like silica is without meaning. The reasoning responsible for this tendency is based upon two such obvious fallacies that the necessity for even discussing the subject is rather surprising. Because tissues from cases of recognized silicosis generally reveal large amounts of total silica, often in excess of 1 per cent of the dry lung, the converse is assumed that a large amount of total silica must mean disease. Because the total silica recovered from silicotic lungs usually includes enough free to have caused pulmonary fibrosis, the total silica content is accepted as a standard in this connection although in all others only free silica is considered significant.
This paper demonstrates the ranges for total silica in 58 lungs with no known exposure, in 20 with significant exposure but no microscopic evidence of silicotic nodules, and in 72 with both exposure and classical lesions. Many of the lungs with definite silicosis contained less than 1 per cent of total silica in the dry tissue and some with larger amounts revealed no silicotic nodules. Other data demonstrates the difficulties of correlating exposure with the amount or character of the dust in the lungs. The more logical criterion of the free silica content of tissues is discussed with figures on 32 silicotic lungs illustrating the absence of correlation with total silica values. Finally, experimental evidence is presented which suggests the improbability of exact correlation between even free silica and pathological reaction. The free silica values may be high, but an associated inhibitor mineral may have prevented irritation of the tissues; the values may be lowered in cases of advanced fibrosis due to dilution with ash of the newly formed tissue.

363 The Casting of Magnesium. C. R. Williams. Presented at Amer. Ind. Hyg. Assoc. Convention, Cincinnati, O. April, 1942.
With vastly stepped up use of magnesium, there are many new problems in foundries handling this vital metal and its various alloys. Perhaps the most spectacular of these is the fire and explosion hazard, but there should be equal concern with the potential occupational disease exposures. In general, the processes are no different than those in any non-ferrous foundry. There are, however,

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several departures from standard foundry practice which introduce materials not usually encountered in foundries. Thus, in addition to the usual air contaminants characteristic of foundries, there may be water soluble fluorides, hydrofluoric acid, sulphur dioxide, chromic acid, carbon tetrachloride, magnesium oxide, and magnesium metal -- and this list will probably grow as time goes on. Data are presented as to concentrations of fluorides found in the vicinity of several operations which may give rise to these compounds in air. In addition, concentrations of MgO and $SO_2$ from pouring and "salting out" are reported. Difficulties experienced as a result of these exposures and suggestions for overcoming them are presented.

364 The Metabolism of Fluorides. W. Machle and E.J. Largent. Presented at Amer. Ind. Hyg. Assoc. Convention, Cincinnati, O., April, 1942.
Mottled enamel, industrial fluorosis, Darmous, Gaddur, and fluorine cachexia are clinical abnormalities caused by the absorption of excessive amounts of fluoride. Moreover, acute fatal poisoning has resulted from the ingestion of fluorides. The existence of these problems of public health and industry has occasioned investigation of the behavior of fluoride in the bodies of human experimental subjects. Balance experiments have established levels of intake and output of fluoride with the subject on a normal diet. The urine was found to be the principal route of excretion. There was increased absorption and retention when fluoride was added to the diet in different amounts (up to 25 times the normal intake). Within rather wide limits a relatively constant proportion of the excess fluoride was stored in the body. Absorption of fluoride in quantities up to 1 mgm. per diem was not associated with storage, but amounts greater than 2 mgm. per diem resulted in storage. The quantities stored were not released and excreted after the intake was reduced to normal levels. The absorption of fluoride is greatly affected by the aqueous solubility of the fluoride salt ingested. Very large amounts of fluoride may be stored in the bones without the appearance of roentgenologic changes, although the bones are abnormal.

365 Silicon and Silicon Halogens. Queries & Minor Notes. J. Am. Med. Assoc., 118, 857 (March 7, 1942).
In reply to a query concerning industrial poisoning by "silicon gas," several possible forms of exposure are discussed. Air-borne suspensions of the element silicon might be construed as gaseous in the fume liberated on electric furnace treatment. The fine particles of such fumes collect as long cobweb-like streamers in flues, rafters, etc. It has been shown by animal experimentation that this form is inert and incapable of producing tissue changes except phagocytosis. The same was found true of coarser particles 1 to 3 microns in diameter. On the other hand, some of the gaseous compounds of silicon are injurious. Silicon tetrafluoride is a colorless, irritating gas. The tetrachloride has a suffocating odor and is used in the preparation of smoke screens. Several other halogen compounds are known. Of the organic silicates that might be inhaled as vapors, ethyl silicate has been found to be highly toxic on injection into animals.

366 Bronchiogenic Carcinoma in Association with Pulmonary Asbestosis. Report of Two Cases. H.H.Holleb and A.Angrist. Am.J.Pathology. 18, 123-125 (January,1942).
Two cases are reported in which men between 40 and 50 were found to have both asbestosis and a primary carcinoma of the lungs. A table listing 10 reported cases, collected from the literature, in which both diseases occurred, is presented. The authors conclude that the data from 2 cases, with some reports in the literature in doubt, are insufficient for a statistical evaluation, and that caution should be used in ascribing carcinoma to asbestosis. In one case the carcinoma was in a region least affected by asbestosis, but where carcinomas often occur.

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367 Non-Tuberculous Conditions and Complications of Tuberculosis. C. J. Koerth and others. Diseases of the Chest, 8, 40-49 (February, 1942).
Most of the large number of non-tuberculous patients who are mistakenly admitted to tuberculosis institutions could have had proper diagnoses if sufficient time had been given to the history and examination. Silicosis is the disease most frequently mistaken for tuberculosis. History of exposure, symptoms, physical, roentgen and laboratory examinations must be obtained to make a diagnosis. The paper includes a brief description, including reproductions of roentgenograms, of 11 cases of several diseases admitted to the Woodmen of the World Hospital with an erroneous diagnosis of simple pulmonary tuberculosis. Five of the cases exhibit combinations of silicosis, silico-moniliasis and silico-tuberculosis. Salient points in differentiating such cases from ordinary pulmonary tuberculosis are well brought out both in the discussion and in the roentgenograms. The chief indications of silicosis are a history of long silica exposure, negative sputum for tubercle bacilli, pinpoint nodular infiltration uniformly throughout both lungs (in early silicosis) and physical findings less marked than such symptoms as shortness of breath and weakness. The other 6 cases, treated briefly, include pulmonary carcinoma, sarcoma, lymphogranuloma, and abscess, aortic aneurysm and thyrotoxicosis. In addition 2 frank pulmonary tuberculosis cases are presented briefly to illustrate such complications as pleuritic effusion and spontaneous pneumothorax.

368 Carbon Monoxide and Particulate Matter in Air of Holland Tunnel and Metropolitan New York. W.P. Yant and others. U.S. Bur. of Mines, Rept. of Invs., No.3585, 66 pp. (November, 1941).
A study of carbon monoxide and particulate matter in the air of the Holland tunnel, its dissemination into the surrounding atmosphere, and how the concentration in the air in the immediate vicinity of the tunnel compared with that in air at other places. The concentration is estimated to decrease to about 10% of that at the point of discharge, within 50 feet, and to 2% within 150 ft. The number of microscopically visible oil-immersion particles per milligram of particulate matter collected from the air of the tunnel was about 1500 million. The daily amount of tunnel-added particulate matter in the air when the traffic was about 50,000 cars was estimated to be about 33 pounds, or about 7 grains per car.

369 Toxicity of Lucitone and Vernonite. Queries & Minor Notes. J.A.M.A. 118, 1169 (March 28, 1942).
Both of these materials, used in making dentures, are believed to be methacrylate resins. Deichmann's experimental results showing evidence of pathologic effects are reviewed. The respiratory tract showed the severest damage and only local and temporary effects on the skin were found. The possibility exists that the prolonged absorption of small quantities may lead to the production of porphyrins which through photo action may lead to dermatitis or other physiological abnormalities.

370 Firedamp. R. Forstmann. Glueckauf., 76, 595-608 (1940). (German).
Present knowledge of the causes of formation of firedamp (methane) in coal mines is reviewed. A study of gas movements in a mine was made by blowing ammonia into boreholes. Data for the methane content of the air at various positions in the mine are presented, and possible methods of reducing the firedamp hazard are discussed.

371 A Case of Poisoning by Hydrogen Selenide. H.W. Senf. Deutsche med. Wchnschr., 67, 1094-1096 (1941). (German).
The author gives a survey of the literature and reports a case of poisoning by pure hydrogen selenide in a chemist working continuously in its production. Signs and symptoms included flow of tears, coryza, hoarseness, dyspnea, purple rash on

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the cheeks, edema, thrombophlebitis in the calf, and finally a heart lesion. Selenium could not be found in the urine or sputum.

372 Illnesses Caused by Turpentine and its Substitutes. W. Hofbauer. Dermat. Wchnschr., 113, 821-824 (1941). (German).
Skin diseases are relatively frequent in persons working with turpentine or its substitutes. In examinations of 31 patients the author found that substitutes were the etiologic factors in 15 cases. Data are presented regarding exposure to turpentine and to the substitutes, length of exposure, age, and the effect of skin tests. Although some of the data are rather confusing, they indicate in general that turpentine is more injurious to the skin than are substitutes, but that the substitutes often affect the skin after sensitization to turpentine. The author stresses the difficulty in obtaining the right materials for testing, because the substitutes are often changed. The substitutes on which experiments were conducted are those in use in Germany.

373 Poisoning by Tri-orthocresyl Phosphate. B. Walthard and K.M. Walthard. Schweiz. Ztschr. f. Hyg. u. Bakteriol., 4, 410-420 (1940).
In tri-orthocresyl phosphate poisoning the first development consists of serious disturbances of the gastrointestinal tract lasting about 5 days. The later effects developed 16-17 days later, starting with pains in the calves, followed by paralysis of feet and legs, and later of hands and hands, with muscular atrophy. The authors made observations in an epidemic in which 89 cases occurred. A number of facts observed in the patients, confirmed by animal experiments, lead to the conclusion that the pathologic changes are not situated in the peripheral nerves, as was believed previously, nor in the central nervous system, but in the muscles themselves.

374 Pathology and Therapy of Phosgene Poisoning. E. Rothlin. Schweiz. med. Wchnschr., 71, 1071-1082 (1941). (German).
Experiments were conducted in order to determine whether phosgene penetrates the lungs and directly causes damage to the brain, liver, kidneys, etc., or whether the lungs act as a barrier for the phosgene and the damages to other organs are consequences of edema of the lungs. Experiments were made with phosgene alone, ergotamine alone and ergotamine followed by phosgene inhalation. They led to the conclusion that the lung presents no invincible barrier and poisoning is general. Calcium therapy was found very effective in reducing the secondary consequences in the surviving animals.

375 Ultraviolet Burns of the Eye. Queries and Minor Notes, J.A.M.A. 118, 1254 (April 4, 1942).
Increase of ultraviolet burns of the eye is accompanying expansion of the heavy industries. In the beginning of an attack of photophthalmia, iced applications are of some value. Cocaine is contra-indicated but one of the more recent corneal anesthetics affords relief. An antiseptic to prevent infection of the eroded area is valuable. After 24 hours, heat hastens epithelial regeneration. There are no known therapeutic agents of curative value, but the condition is self-limited, provided there is/intercurrent infection of the corneal surface.

376 The Effect of Standing in Daily Work -- A Suggested Method to Increase Efficiency. K. Zacharias. Zentralbl. f. Gewerbehyg., 28, 119-122 (1941). (German).
The author, a physician, discusses the exertion and fatigue caused by standing in many types of work. He has invented a "standing support," consisting of a tripod with an adjustable tube and with a seat similar to the saddle of a bicycle. With this seat it is possible to work close to a machine in a half sitting, half standing position which is less fatiguing than "free standing."

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377 The Causes of Accidents; Experimental Contribution to the Effect of Fatigue. S. Tovo. Rass. Med. Indust., 12, 298-322 (1941). (Italian).
The author gives a broad survey of the literature on the significance of physiological and pathological deficiencies, of fatigue, absence of mind, imprudence, inexperience, carelessness and alcoholism, as contributing causes to accidents. The author then describes the reaction of Donnagio, by which fatigue and other abnormal conditions may be detected chemically, and reviews the literature on the subject. He examined 21 normal individuals and found an average reaction of 4 to 5 on an arbitrary scale of 68. A similar test on 107 workers as soon as possible after a slight accident gave an average of 6.9, that is, slightly more abnormal or fatigued than the other group, but in some the reaction fell to 0 a few days later. The reaction normally was higher in the early morning and afternoon than in the late morning, and higher on Monday or Saturday than at the middle of the week. About 24% of the men who had accidents were confused. (The abstractor concurs in criticism that has been made of this paper, that it tends to overemphasize the importance of relatively small results).

378 The Influence of Atmospheric Temperature and Humidity upon the Dryness of the Oral Mucosa. C.E.A. Winslow, L.P. Herrington and A.R. Gilbach. Am. J. Hyg., 35, 21-30 (January, 1942).
The condition of the oral mucosa as affected by surface moisture was studied by weighing the quantity of moisture absorbed by small discs of dried blotting paper, applied to the back of the tongue for a period of 5 seconds. Observations before and during exposure of subjects to various temperatures and humidities showed that the drying effect of the respired air is a function of its vapor pressure. With pressures above 0.4 inch of mercury the mucosa was relatively moist, but with vapor pressure below 0.4 in. there was a marked drying of the mucosa. No evidence is presented to show that such drying is harmful, but it is pointed out that if the effect is to be controlled, a relative humidity of over 50% is necessary with ordinary room temperatures of about 70°F.

379 Zinc Poisoning. T.E.P. Gocher. Northwest Medicine, 40, 476 (December, 1941). Abstr. from J.A.M.A., 118, 1012 (March 21, 1942).
The complaints that follow exposure to the fumes and dust of zinc oxide, chromate, sulfate and chloride are enumerated. They are dermatitis of the trunk and of the upper parts of the thighs, conjunctivitis, chills, gastrointestinal upsets, chronic anaemia after about six months of exposure, boils and eczema. No permanent disabilities were observed, but a certain number of men retained a distinct susceptibility and allergy to zinc salts.

380 Comparative Effects of Propylene Glycol and Some Other Agents on Oxygen Consumption of the Organism. W. Van Winkle. J.Lab.& Clin.Med., 27, 770-773, (Mar.1942).
Propylene glycol was found to depress the oxygen consumption of white rats, this depression not being due to a decrease in activity, since the depressions of pentobarbital and chloral in the same rats did not significantly decrease the oxygen consumption. These results on whole animals are in agreement with previous results on isolated liver perfused with propylene glycol, which also showed a decrease in oxygen consumption. The doses of propylene glycol used were beyond those likely to be taken as solvent or vehicle in food or medicinal agents, but the depression of oxygen consumption could occur with very large or toxic doses. This result is essentially of scientific importance, because the use of propylene glycol has a wide margin of safety.

381 Vitamin A Concentration in Rat Liver During Recovery from Carbon Tetrachloride Cirrhosis. C.Haig and J.Post. Proc.Soc.Exper.Biol.& Med., 48, 710-717 (Dec.1941).
The authors showed that the livers of rats recovering from carbon tetrachloride cirrhosis contain much less vitamin A than do livers of normal rats on the same diet.

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382 War Industries Face New Hazards. L.E. MacBrayne. Factory Man. & Main., 100, 72, 196 (March, 1942).
Among the increased hazards that may be attributed to wartime production are the introduction of potentially dangerous chemicals new to the plant's experience; stepping-up of a hitherto safe process to the point where it becomes hazardous; lowered vitality caused by fatigue because of long hours and overtime work, and consequent inefficiency. A number of specific examples are described. A discussion of sick absenteeism is also included.

383 Prevention of Ill Health in Industry Using Toxic Chemicals. J.M. Foulger. Presented at Amer. Ind. Hyg. Assoc. Convention, Cincinnati, O., April, 1942.
The industrial physician has the great responsibility of maintaining good health and, consequently, efficiency in production, of many thousands of workers in the United States in industry and especially in those branches making war material. Few operations can dispense with synthetic chemicals, which might be harmful. While it is a definite fact that with care, common sense, and proper information, any chemical can be handled without injury to health, the converse is also true. Ignorance and carelessness may lead to serious injury from chemicals. The great number and variety of new materials now in use or being introduced daily makes necessary a general picture of the physiological action of chemicals, which can be the basis of an effective program of preventive medicine. Such general information has been collected over the last four years by a study, of thousands of examination records of workers and many animal experiments, in a variety of chemical exposures. From this data, a procedure has been established for medical control of health in industries using chemicals. This method of study makes it possible to detect the effect of exposure to harmful substances at a stage at which no organic injury has occurred. At this stage, physiological abnormalities can be removed easily by increased physical protection, attention to the habits of workers, or a few hours or days of rest or temporary change of occupation. It is found that these early physiological changes (and subsequent injury if these early changes are not given attention) depend, not only upon the degree of exposure of workers in industry (as controlled by physical protection and proper medical observation), but also, to a very great degree, upon the history of workers during the sixteen hours of the day away from their industrial plant. Unnecessary overexertion during extremes of temperature and humidity, prolonged automobile driving, especially in badly serviced and poorly ventilated cars, improper nutrition, self-medication and injudicious treatment with synthetic drugs, can make an otherwise normal worker susceptible to harmful chemicals. The maintenance of good health in industry requires close cooperation of employer, industrial physician, family physician and, very definitely, the worker, himself.

384 Health Hazards in the Paint and Lacquer Industry. Nat. Paint Varnish & Lacquer Assoc., Sci. Sect. Circ., No. 629, 319-322 (1941).
Iron oxide, chrome oxide, ultramarine blue, barium sulfate and titanium dioxide are not toxic to man, and these dusts are not unusually irritating to the lungs. However, lead, arsenic, antimony and cadmium pigments are hazardous and require special precautions. Zinc pigments are irritating when taken internally but their external effects are comparatively non-toxic. Toluidene reds, para reds and lake colors do not appear to have marked toxic effects. Fumes and vapors from hot drying oils and resins are irritating to the eyes and respiratory organs. All volatile solvents, except water, that are used in the paint and varnish industry are poisonous when present in the air in sufficient concentration.

385 Industrial Benzene Poisoning and its Remedies. D. Florentin. Ann. d'Hyg., Pub. Indust. et Sociales, 18, 97-112 (1941). (French).
This is a general paper on benzene poisoning, including uses of benzene, method of entrance into the system, and preventive measures.

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386 The Clinical Forms of Benzol Poisoning, their Prognosis and Prophylaxis. Lechelle and others. Bull.et mem.Soc.Med.hop.de Paris, 56, 353-358 (1941). (French).
The authors studied 47 cases of benzene poisoning in female workers using nearly pure benzene. Within the first month some workers showed emaciation, intestinal troubles, headache, and sometimes fever. The authors term this form "minor benzolism." Then between the 48th and 120th days there appeared various forms of purpura, menorrhagia, and metrorrhagia; serious cases developed with or without fever, with tonsilitis and necrosis of the mucous membranes of the mouth. One such case ended fatally. The blood examination presented the picture of hypochronic anemia with leucopenia and hypogranulocytosis. In one case the red cell count was 850,000, the leucocyte count 2600, rising to 25,800 shortly before death.

387 Possible Urticaria from Solvent. Queries & Minor Notes. J.A.M.A., 118, 1169 (March 28, 1942).
Generalized urticaria in a dry cleaner using Skellysolv T does not seem to have a direct occupational origin, although dermatitis, "naphtha jags," and rarely chronic systemic poisoning do occur with this solvent, a petroleum derivative. Pollens and other dusts from clothing may be of greater significance. Contact tests should be made utilizing high dilutions of acetone with the solvent, and water with the sodium hydroxide used in reconditioning the solvent.

388 Cyanide Dermatitis. Queries & Minor Notes. J.A.M.A., 118, 935 (March 14, 1942).
A treatment is suggested for cyanide dermatitis. Boric acid ointment U.S.P. or wet boric acid dressings will act as a buffering agent keeping the pH in the range from 0.6 to 0.8. If deep ulcerations have been produced, superficial debridement may be indicated.

389 Safeguarding of Health in the Plastics Industry. J.A. Cummings. Penna. Dept. of Labor & Ind., Safe Practice Bull., No. 88 (1942). 8 pp.
Dermatitis is the most common industrial hazard in the plastics industry. The most general sources of hazards are: (1) dust of molding powders, (2) fumes from heating pellets in the molds, and (3) by-products formed when the solidified product is machined. Protective and preventive measures include: (1) use of suction hoods leading to dust collectors; (2) personal cleanliness, and (3) use of protective creams or ointments and respirators. The manufacture of plastic molded bottle caps is described.

390 Specific Diseases in the Sugar Industry. E.E. Meyer. Higiene y Seguridad, 6, 623-626 (November, 1941). (Spanish).
Sugar crystals irritate the skin mechanically, and sugar in all forms has an irritating action, not only on the bare skin, but also when the clothes become impregnated with syrup or molasses. Usually exposure is followed by slight fever, chills and malaise. A localized infiltrated patch appears, and one or more extremely painful boils develop in a few days, with lymphangitis and adenitis. The boils open spontaneously and recovery is very slow. Apparently staphylococcus is the causative agent. The disease is frequent in new workers, but immunity usually develops within a year. Other ailments include a squamous dermatitis between the fingers and on the back of the hands, fermentation in the gums, and gingivitis. In extreme cases the teeth fall out after 2 or 3 years of work. Conjunctivitis and keratitis have been attributed to hydrogen sulfide vapors. The author recommends as hygienic measures, good ventilation, dust control, bathing and washing facilities, drinking fountains, instruction of workmen, dentist's and medical service, adequate supply of clean clothes, and general sanitation of the factory and of the workmen's houses.

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391 Elastiglass Dermatitis. I. Greenfield. Urol. and Cutan. Rev., 46, 120-122 (February, 1942).
The acid gum ester of the resin used in chemically fabricated wearing apparel, especially elastiglass wristbands has been found responsible for cases of dermatitis among persons who wore them. The principal symptoms were pruritus in the exposed area, followed by papule formation, erythema and edema. Heat and moisture were found to be important factors in the development of skin reactions. Recovery is slow, and contact of the material with the skin of sensitized persons reproduced the disease within 24 hours.

392 Mango and Hualtaca Dermatitis. G.A. Paulson. Standard Oil Co., N.J., Med. Bull., 5, 197-200 (February, 1942).
The author describes a dermatitis caused by the mango and hualtaca plants, members of the poison ivy family, found in northern Peru and other tropical countries. The chemical irritants are non-proteins and are found in the sap of the peel and the fruit stem of mango fruits and in the young leaves of the hualtaco tree. The wood may be handled with impunity.

393 Allergic Dermatitis with Scaly and Large Vesicles Caused by Parsley. K. Hinrichsmann and J. Cupic. Dermat. Wchnschr., 113, 725-733, 744-752, 766-776 (1941). (German).
The authors found acute inflammation of the skin of the hands and forearms, in the majority of female workers who prepared parsley in a canning factory. Purple discoloration was present in the affected parts, as were often extremely large vesicles, followed by purulent folliculitis and carbuncles. Fever and chills were present. Rabbits were sensitized by injection of parsley extracts, and in these animals injection of the serum caused a local anaphylactic reaction, only when the patients and rabbits were sensitized by the same kind of parsley.

## Methods of Detection and Determination

394 Magnesium Acetate as an Ashing Agent in Fluorine Analysis. W.E. Crutchfield. Ind. Eng. Chem., Anal. Ed., 14, 57-58 (1942).
In determining less than 0.1 mg. of fluorine in biological fluids some fluorine may be lost during the ashing of the sample. Many of the ashing agents recommended in the literature are likely to contain fluorine. Some 2000 analyses were made with fair success when magnesium peroxide was used, but difficulty was encountered with some samples of food. Pure magnesium acetate prepared from electrolytic magnesium was found excellent. The blank is negligible and more concordant. In 64 cited results the greatest error appears to be 36.9% in determining 0.284 mg. of fluorine.

395 A Portable Field Colorimeter for Industrial Hygiene Use. T.R. Thomas and L. Silverman. Ind. Med., 11, (Ind. Hyg. Sect. 3), 188-191 (April, 1942).
A simple circuit portable photoelectric colorimeter containing combined absorber and colorimeter tubes is described. It is adapted to field or laboratory use for determinations by colorimetry, nephelometry or photometry. Examples of its applications are in the determination or detection of carbon dioxide, carbon disulfide, chlorine, chromic acid, nitric oxides and trichlorethylene. Details of construction and operation are given, with illustration.

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396 The Rate of Solution of Particles of Quartz and Certain Silicates. P.H. Kitto and H.S. Patterson. J.Ind.Hyg. & Tox., 24, 59-73 (April, 1942).
Experiments on the solubility at 38.9°C. of quartz and silica suspensions of particle size comparable to the dust in mine air are described, in which conditions of preparation of the samples have been carefully controlled and interfering factors reduced to a minimum. The effects of varying pH, particle size, and methods of preparation on the rate of solution of the particles are given. The initial rate depends on many factors, but the final rate may be proportional or nearly proportional to the radius. After some weeks the solution of the particles reaches a very slow steady rate which is probably the true solubility of the undisturbed surfaces. Experiments are mentioned on the depression of the rate of solution and the removal of silica already in solution. The theory of the solution of dusts and the results obtained are discussed. The initial high rate of solution is due mainly to the "Beilby layer" and "edge" effects, and as these are dissolved the rate decreases rapidly. The intrinsic solubility of the finest particles is probably higher, even when this disturbed outer surface has been removed. — Author's summary.

397 Shattering of Particles by the Impinger. L. Silverman and W. Franklin. J.Ind. Hyg. & Tox., 24, 80-82 (April, 1942).
A careful analysis of existing data on shattering of impinger particles by the Greenburg-Smith technic shows no conclusive evidence of shattering. Several writers give results which indicate shattering, but these may be in error due to inadequate precautions against selective sampling. Other sources of error in their observations are the failure to size all the particles and the use of higher than specified impingement velocity. Experimental data obtained showed no shattering of discrete small glass spherical particles and no significant change in the mean particle size of ground flint at the normal sampling rate. Aggregates were observed in both original and impinged samples. The number of aggregates did not appear to be significant. — Authors' summary.

398 Immersion Method for the Rapid Approximation of Quartz in Industrial Dusts. W.B. Wardlow. Ind.Med., 11, (Ind. Hyg. Sect., 3), 190-191 (April, 1942).
As an auxiliary to the immersion method of quartz determination where speed but not great accuracy are essential, a method is described depending upon the change in refraction of quartz with wave length. If a quartz particle be immersed in a liquid having high dispersion and a refractive index for sodium light just equal to that of quartz, and illuminated by ordinary light it will appear yellow-orange with a blue-green halo, or vice versa, depending upon whether it is within or beyond the focus of the microscope. If a red filter is interposed, the quartz will have a higher index than the liquid, and the opposite if a blue filter is used. In operation, two such filters are used and there are various methods of comparing the particles. For particles over 20 microns, filters which transmit both red and blue bands permit the estimation to be made in one operation and with a single filter.

399 The Occupational Disease Hazard. W.A. Cook. Ind.Med., 11, (Ind.Hyg.Sect., 3), 193-197, (April, 1942).
The author outlines the general methods of conducting industrial hygiene surveys. One point of the discussion is how much information can be obtained by general observation without instruments. The conclusion is that general observations on the part of experienced persons and applied with common sense serve to locate the severe exposures and aid materially in planning instrumental tests, but should not be relied on as a substitute for other tests. Obtaining information on length as well as severity of exposure is emphasized, and integrating methods are advocated where possible.

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400 Procedure for Testing Gas Masks for Permeability. U.S. Bur. of Mines, Schedule 14E, 19 pp. (December 24, 1941).
This schedule supersedes Schedule 14D, issued May 9, 1935. It describes the standard tests for approval of the various types of gas masks, with directions for supplying and marking the material to be tested, schedule of fees, persons to be present at the tests, etc. Gas masks are classified into the following types: (A) for protection against acid gases; (B) for protection against organic vapors; (C) for protection against ammonia; (AB, ABC etc.) for combinations of two or more; (AE, BE, etc.) for protection against dusts or mists in addition to the type of gas specified, and (N) for protection against all the contaminants listed. The prinicipal tests given include resistance to air flow, machine tests, low-concentration and low-rate-of-flow tests, high-concentration and high-rate-of-flow tests, chemical stability, and man tests. Concentration, maximum leakage and minimum life are specified for the general tests, and types of exercises and results for the man tests.

401 Determination of Acetylene in the Air of Industrial Plants. E.B. Finkelshtein. Zavodskaya Lab., 9, 52-64 (1940). (Russian).
A method was developed for determining small amounts of acetylene in concentrations up to 0.005 gr./cu.m. of air. Two traps connected in series consisted of glass tubes 1.1 mm. in diameter and coils immersed in liquid oxygen and filled with 8.85 cc. of carbon in grains 1-3 mm. in diameter. A mixture of acetylene and nitrogen was passed through the apparatus. Before each experiment the carbon was heated to 120-150°C. and the gases were forced out. The temperature of the gas over the carbon was measured with a copper-constantan thermocouple and kept constant at 181-183°. The adsorption was discontinued after 1 cc. of nitrogen had passed through the system and all gas had been expelled from the gasholder. The adsorbed gas was desorbed into Petri tubes filled with Ilosvay reagent. Desorption took place at first on account of the heat exchange with the surrounding atmosphere, and finally the traps were heated to 100° by blowing with nitrogen in order to obtain complete desorption, as determined by the absence of color in the Ilosvay reagent. The quantity of acetylene was determined colorimetrically. At velocities over 10 l. per min. some acetylene passes into the second trap. The presence of oxygen in the air has no effect on the results. The determinations require from 30 minutes to 3 hours.

402 The Rapid Polarigraphic Estimation of Lead in Urine. I. Entrainment Method. C. Reed and V.A. Cant. Ind. Med., 11, 107-109 (March, 1942).
Urinary lead may be obtained in inorganic solution for polarographic analysis (1) by ashing of the urine sample, (2) by ashing and dithizone extraction, (3) by precipitation of lead by entrainment and subsequent ashing, and (4) by preliminary electrolytic separation, according to the recent work of Bambach & Cholak (Abstract No.831, October, 1941 Digest). The present paper is confined to the entrainment method. Entrainment with calcium oxalate was found more satisfactory than with alkaline earth phosphates. The completeness of recovery of lead by this method was demonstrated by determination of known weights of lead added to the urine, and the possibility of an unprecipitatable lead complex was ruled out by parallel experiments in one of which any complex would be broken up by the treatment. After precipitation of the lead, the remaining treatment consists of ashing the precipitate, dissolving in citric acid and polarigraphing. The accuracy of the method is ± 10%. Details of reagents and procedure are given.

403 A Rapid Method for the Microanalysis of Lead. L.T. Fairhall and R.G. Keenan. J. Am. Chem. Soc., 63, 3078-3079 (1941).
The dithizone method has proved its usefulness in the determination of lead in urine and other biological materials and in drinking water. However, a study of the natural lead content of a sample of urine sufficiently large so that it

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could be determined by standard chemical procedure, as compared with dithizone readings with small individual samples, indicates a notable disparity between the apparent quantity as measured colorimetrically and the actual lead content. The dithizone values in a series of experiments varied from 3.6 to 13.5 times the chemical value. A rapid micromethod for the determination of lead is described which permits the objective separation and precise evaluation of minute amounts in drinking water and in urine without the necessity of ashing. Full details are given. (Reprints are obtainable from the Division of Industrial Hygiene, National Institute of Health, U.S. Public Health Service, Bethesda, Md.)

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## Control Methods

404 Sulfonamide Drugs as Protective Agents Against Carbon Tetrachloride Poisoning. B.E. Leach & J.C. Forbes. Proc. Soc. Exper. Biol. & Med., 48, 361-363 (1941).
The authors found that the oral administration of sulfanilamide reduces the mortality rate of rats and protects against liver necrosis in acute carbon tetrachloride poisoning. Sulfathiazole and sulfapyridine were also protective while sulfanilic acid afforded no protection. The last fact indicates that the protective action is in some way a function of the sulfonamide group.

405 The Removal of Carbon Dioxide from Rebreathing Apparatus. J. Adriani. J. Aviation Med., 12, 304-309 (December, 1941).
Rebreathing apparatus consists essentially of a closed system equipped with a method for removing carbon dioxide efficiently. Two types are described, with special emphasis on the canister and the properties of its contents. Comparative data are presented and considered from physiological, chemical and physical viewpoints.

406 Humidity as a Health Factor in Air Conditioning. F.W. Hutchinson. Heat. & Vent., 39, 22-24 (April, 1942).
The present state of knowledge concerning humidity and health is very unsatisfactory. There would seem to be little justification for the advocacy of humidity control as a health measure. On the other hand, the possibility that unusual humidities may be decidedly unhealthful is sufficiently well founded to warrant the greatest hesitancy on the part of the engineer in using air conditioning methods which result in unusually high or low humidities even though they may be within the so-called comfort zone. Within the comfort zone, the most important influence seems to be the inverse relationship which exists between that intangible quality called "freshness" and the humidity of indoor air.

407 An Outline of Industrial Exhaust Ventilation. F.F. Kravath. Heat. & Vent., 39, 36-58 (April, 1942).
A comprehensive guide (in outline form) to be followed in the design of an industrial exhaust ventilation system of any type, an explanation of each heading and subheading in the guide explained, profusely illustrated, discussing the proper combination and sizing of the elements comprising a system. This Reference Section is divided into two parts; the first being devoted to the technical phases of the subject; the second is made up of brief illustrated descriptions of a number of actual installations of various types of exhaust systems and covering a fairly wide scope of industries and equipment combinations. A limited number of reprints of this 24-page section are available at 25 cents each, postpaid, from Heating and Ventilating, 148 Lafayette Street, New York City.

408 Ventilation and Dust Problems Associated with Deep Tunnel Operations in Colorado. R.J.Owens. Presented at Amer.Ind.Hyg.Assoc.Convention, Cincinnati,O.,April,1942. The Carlton Drainage Tunnel located at Cripple Creek, Colorado, and the Big Thompson Water Diversion Tunnel located between Grand Lake and Estes Park, Colorado, have held the attention of tunnel and mining men throughout the United States for the past few years. The Carlton Tunnel was designed to "under water" the famous Cripple Creek mining district. The bore was started at an elevation of 6,890 feet above sea level and extended underground for a distance of 31,600 feet. This is the longest tunnel that has been driven from one portal without any addits rising to the surface for auxiliary ventilation. It was anticipated that four years would be required in order to complete this project. However, with modern equipment, the tunnel was completed two years and two days after drilling began. Practically all existing world records were broken in drilling this tunnel through solid Pike's Peak granite. On two occasions the tunnel was advanced 30 feet in 24 hours. The average daily advance for the month of September, 1940, was 23.1 feet. The diameter of the bore was roughly 10 feet by 11 feet. On January 20, 1941, after the tunnel had been driven 28,970 feet a water course was struck which flowed 20,000 to 25,000 gpm for several days. This water was saturated with carbon dioxide gas which diluted the air underground to such an extent that there was not sufficient oxygen to sustain life. Changes in the ventilating system were made and "cracking" of the air line was necessary to continue the operations. Shortly after this water was encountered an epidemic of boils spread among the miners. A dermatologist from the Dermatoses Investigation Division of the United States Public Health Service was detailed to Colorado for the purpose of assisting and making a study of this problem. An underground [illegible] was developed and installed to control the gases resulting from the detonation of dynamite. Carbon monoxide concentrations in certain parts of the tunnel exceeded 0.16 per cent and oxides of nitrogen were found to be as high as 450 ppm. The filter temporarily controlled the gas problem underground. Many dust counts were made during drilling and mucking operations. Dust concentrations, while mucking was being done, were effectively lowered from [illegible] mp/cfa to 10 mp/cfa by wet methods. Silica content of the granite through which this tunnel was driven averaged 30 per cent $SiO_2$ or free silica and 36 per cent total $SiO_2$. The drilling, mucking and other underground work as well as surface operations are described, as is the method of taking blood examination of the miners and a close-up view of the boils that developed during the driving of this tunnel. The Big Thompson Water Diversion Tunnel designed to divert water from the western slope to the eastern slope under Continental Divide, is discussed. This tunnel when completed will be 13.2 miles in length. The method of driving this tunnel is comparable to that of the Carlton Drainage Tunnel. Engineering data obtained from the Carlton Tunnel is being used to advantage in driving the Big Thompson Tunnel. The Big Thompson Tunnel may be considered as two individual tunnels which will meet approximately six and one half miles underground, each half of the tunnel being similar to the Carlton Tunnel insofar as method of drilling and problems which are confronting the operators.

409 Exhausting Asbestos Fiber and Dust in Wire Insulation Manufacture. Penna. Dept. of Labor and Ind., Safe Practice Bull., No.93, pp. 6 (April, 1942).
A description of the dust control system used in a plant producing asbestos-covered wire. There are two general types of asbestos application here, one in the spool form (to be used for braiding the outside of the finished wire), and the other the ball or lap form of asbestos which is lossely wound on a reel (used on the carding machines) and applied to the wire in the form of a felt. The resulting dust, if uncontrolled, is not only a health hazard but, since it has a decided abrasive action, is also deleterious to machinery and other plant equipment. The dust control installation described is considered a model of its kind and has proved not only a safeguard for health but has produced some revenue from the salvage of waste fiber which previously had been lost.

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410 Researches on the Prevention of Industrial Anthrax; the Disinfection of Animal Hair by Steam. E. Hailer and K. Heicken. Zent. f. Bakt., 147, 209-232 (July 7, 1941). (German).
The efficiency of two types of steam disinfector for treating bales of animal hair was tested by thrusting into the bales a "spear" carrying a thermal element and a capsule containing anthrax spores, the viability of which was tested at the end of each trial. Bales of hair from various animal species from 20 sources were examined. Under the ordinary working conditions the spores remained alive in 72 of 127 tests, largely because the interior of the bale was not always heated to the temperature at which sterilization is effective. The authors' recommendations involve unpacking the hair and sterilizing it at 104°C in wire baskets. This procedure increases the danger to the worker, and protective clothing should be worn.

411 Problem of Harmless Cleansing of Skin. W. Burckhardt. Schweiz. Mediz. Wchschr., 71, 1037 (September 20, 1941). (German). Abstr. from J.A.M.A. 118, 849 (March 7, 1942).
A discussion of the role of alkaline substances in the pathogenesis of eczemas. The results of experimental patch tests are reported and observations on patients with eczema caused by soaps show the offensive substance is not the perfume but always the alkali. A search was made for neutral skin cleansers to replace alkaline soaps. The author describes the properties of a skin cleanser the active constituents of which are fat alcohol sulfonates. It is effective and harmless. It is helpful in preventing eczema, particularly in persons whose skin is hypersensitive to alkali and whose occupation involves frequent cleansing of the hands.

412 Cutaneous Detergents. C. Guy Lane. J.A.M.A. 118, 804-817 (March 7, 1942).
An extensive article on the cleansing of the skin. Many points concerning the mechanism are still controversial but an attempt is made to indicate the most satisfactory explanations at the present time. In spite of the large amount of material existing on the subject of detergents, many fundamental problems remain to be solved. Further elucidation of the process of cornification of the skin would be valuable, as well as a study of the factors affecting penetration of detergents and other substances into the various layers of the skin. The exact action of detergents in the removal of soil and on the skin itself calls for further investigation. The pathogenesis of a dermatitis from the use of detergents especially, and the development of a reliable standard patch test or other tests to aid in the proper interpretations of the causal factors of such a dermatitis, are subjects for consideration by laboratory and clinical workers. With further research on some of these subjects there would undoubtedly be developed more effective and safer detergents and perhaps a more effective method of skin sterilization without injury to the skin.

413 Dermatitis Control in a Mass Production Industry. T.F. Mooney. Ind. Med., 11, (Ind. Hyg. Sect., 3), 191-193 (April, 1942).
The four factors in dermatitis prevention — personal cleanliness, elimination of irritant material from contact, use of protective clothing, and application of protective creams — are discussed briefly, with special reference to their use in the Ford plant at River Rouge. These control measures, together with good housekeeping, have lowered the incidence of dermatitis to less than 1 1/2 cases for each 1,000 of plant population per month.

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## Industrial Medical Practice

414 Dental Status of Adult Mine and Smelter Workers. H.P. Brinton, D.C. Johnston and E.O. Thompson. Pub.Health Repts., 57, 213-228 (February 13, 1942).
Dental examinations were made on 2,365 adult male workers in 3 industries in Utah. The D.M.F. (number of teeth with untreated dental caries, plus filled teeth, plus missing teeth,) per 100 men was 1.446 among coal mine workers, 1.486 among metal mine industries, and 1.942 among smelter workers. The data for each classification are arranged according to age groups. Missing teeth were frequent among these adults; 15.5% of all miners were toothless. Gingivitis affected about 40% of the group aged 55 to 65. Pyorrhea shows a prevalence of more than 30% for the 45 to 54 age group and slightly over 65% for the men of 54 to 65 years. Forty persons employed in a lead mine showed a lead line, and all but one of the 40 had gingivitis, and pyorrhea was present in 72%. The D.M.F. rates for the young miners were less than for a group of 3651 employees of the Metropolitan Life Insurance Company studied previously, but the difference is not significant when all factors are taken into account. There were some differences between the D.M.F. rates and between the incidences of the diseases, favorable to the young coal mine workers. The probable reason is the exposure to lead of members of the other group.

415 Dental Services in Industry. H.A. Hooper. Ind.Med., 11, 157-163 (April,1942).
The foremost cause of industrial absenteeism is the common cold, and the second is defective teeth and gums, accounting for about 25%. Several instances of the prevalence of bad oral conditions are expressed in various ways; the number of persons having defective teeth varies from 42% to 95% of the total included in the particular survey. Some industries have made progress in correcting such conditions among their employees, but in the main, too little is being done. The average X-ray examination does not include the teeth, and follow-ups when teeth are considered are usually more desultory than insistent. A table of various occupations shows the ratio between carious teeth and septic roots, on the one hand, and common colds on the other, to be nearly constant. Another table shows several other diseases to be more prevalent when mouth conditions are bad. A long list of diseases attributable to bad teeth are given. A table of non-occupational causes of absence includes only a small percentage attributable directly to dental conditions, but three types of disease directly traceable to dental conditions (arthritis, gastro-intestinal and genito-urinary), caused 67% of the total days lost. Great improvement in general health of employees of one company followed elimination of their mouth infections, and such clinics are urged for all industries. They will reduce compensation because they will prevent disease. Such a program requires the action and cooperation of the industrial executive, the industrial physician, the private practitioner and the worker himself. The greatest difficulty is in interesting the worker. Posters will help, but education is necessary.

416 Periodic Physical Examinations in Terms of Results. R.M. Graham. Ind.Med., 11, 112-115 (March, 1942).
Beginning in 1922, annual examinations of all the operating employees of the Pullman Company were conducted, and the author reports on the 1940 survey and a comparison with the earliest surveys. Comparisons are given for 18 classes of disease. Some of the most striking features of the report are: 10% increase in defects or chronic diseases in spite of pre-employment examinations and periodic check-up; a decrease of active tuberculosis cases from 14 to 2; increase in hernia from 5 to 7%; and in general when there has been an increase, the conditions are usually the result of chronic degenerative changes, or the diseases of aging.

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417 The Influence of Vitamin B (Complex) Surplus on the Capacity for Muscular and Mental Work. E. Simonson and N. Enzer. J.Ind.Hyg. & Tox., 24, 83-90 (Apr.1942).
The effect of vitamin B (complex) surplus (6 mgm thiamine, 80 mgm nicotinamide, 8 mgm riboflavin, etc.) on the capacity for muscular and mental work was studied in 12 normal, healthy subjects and compared with a control group of 11 normal subjects. No effect of vitamin B intake was seen in 5 different types of muscular work. Vitamin B surplus increased the fusion frequency of flicker in 9 of 12 subjects. The first measurable increase appeared after 3 weeks intake; the effect reached its maximum after 5 weeks vitamin B intake, and dropped to the initial values during 4 to 6 weeks after cessation of vitamin B intake. All of the experimental group and only 1 member of the control group experienced subjective improvement of working capacity. A favorable influence on the capacity for all types of work characterized by fatigue of the central nervous system, may be expected in the majority of normal healthy people if a considerable surplus of vitamin B (complex) is added to the normal diet. — Authors' summary.

418 Cardiovascular Survey of Supervisors. W.L.Cook. Presented at the Amer.Assoc.of Ind. Phys. & Surgeons, Cincinnati, O., April, 1942.
This survey was begun to determine the incidence of cardiovascular disease in a group of actively working executives and whether such a limited type of examination could detect such disease process in its earliest stages. The incidence of abnormalities were:

| | | |
|---|---|---|
| Electrocardiograms | - | 1.2% abnormal. |
| Blood pressure determinations | - | 7.8% abnormal. |
| Fluoroscopy | - | 9.2% abnormal cardiac contours. |
| Auscultation | - | 4% with significant murmurs. |
| Urinalysis | - | 4% with positive findings. |

There were 13.1% of the entire group with one or more findings which deviated from the normal. Individuals presenting bundle branch block as the only abnormality or those exhibiting hypertension alone are certainly susceptible to cardiovascular accidents. The eight cases with glycosuria should have definitely benefited from this discovery. The knowledge that 87% of this group were, from this limited examination, not candidates for cardiovascular accidents is comforting knowledge. It is believed that the value of this work will be enhanced by repetition because certain borderline cases can be checked for comparison and the progress of definite abnormalities can be observed.

419 Hypertension in Workers over Forty Years of Age. Preliminary Report. A.M. Master and S. Dack. Ind. Med., 11, 145-147 (April, 1942).
The authors report an analysis of the data of blood pressure of nearly 5500 workers over 40 years of age. In 3665 males the incidence of hypertension (150 cystolic or 90 diastolic or more) was 25.7% between 40 and 49 years rising to 35.7% between 50 and 59 years, and 52.8% between 60 and 90 years. The respective incidences in the 1788 females were 40.2, 51.3 and 71.4. These percentages are considerably higher than any published heretofore, but it is probable that at least this incidence of hypertension holds for the general population. Hypertension within certain limits is concomitant of the aging process. Since the span of life is increasing yearly it will be found that millions of people in the general population have some degree of hypertension. Since hypertension is such a common finding over the age of 40, it should not be considered a sole cause of rejection for employment, unless it is excessive. This should serve to reassure both industry and labor.

420 Aphonia in Telephone Operators. Queries & Minor Notes. J.A.M.A. 118, 857, (March 7, 1942).
Loss of voice does not commonly occur as an occupational disability in telephone operators. There is no significant change after three years or more of service, careful inquiry reveals. Instances do not occur frequently enough to be a cause for concern in the industry.

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421 The Treatment of Face and Eye Burns with a Sulfhydryl Solution. A.E.Cruthirds. Ind. Med., 11, 109-112, (March, 1942).
Favorable results were reported in 43 cases of burns involving injury to the eyes and other parts of the face, treated with an aqueous solution of sulfhydryl, as described in Abstract No.219 (February, 1942). The outstanding advantages of this solution are: (1) the prompt alleviation of pain; (2) the formation of a flexible eschar; (3) a minimum of scarring and contractures; (4) prevention of infection; (5) complete lack of toxicity; (6) ease of application and low expense, and (7) a rapidity of healing vastly more prompt than any other burn treatments used by the authors.

422 Education in Industrial Health. E.J. Seeger. J.A.M.A., 118, 1017-1019, (March 21, 1942).
The objectives of industrial medicine may be in general beyond the field of the average practitioner. There has been a lag in the absorption of the progress in industrial hygiene and medicine on the part of practicing physicians due to two factors: the extremely rapid development of industry and the failure of medical educators to give proper emphasis to the training of students, both undergraduate and graduate, and to assign to preventive medicine the place which its importance justifies. There are shortages of personnel in the three professional channels of medical service to industry. The medical and professional schools and medical societies are under a duty obligation to create or improve opportunities for training.

423 War and Industrial Health Control. [illegible] Cummings. Ind.Med., 11, (Ind. Hyg. Sect., 3), 186-187 (April, 1942).
Many new workers are taking the place of those recruited for service, working hours are being lengthened, and new toxic materials are produced. Therefore the need of health guidance and protection of workers is greater than in normal times. Government agencies have expanded their industrial hygiene divisions during recent months. However, little has been done to improve health service within many essential industries, or even to insure the continuation of existing facilities. Competently trained industrial physicians, hygienists, chemists or nurses should not be diverted from indispensable positions in industry to types of military service which do not fully utilize these practically irreplaceable skills.

424 Interpretation of the Patch Test. O.L. Levin. Ind. Med., 11, 177-179 (Apr.1942).
This is an editorial calling attention to some of the precautions to be used in making patch tests. Careful training in the technique is necessary. Different parts of the body of the same person differ greatly in sensitivity, so the results on one portion of the skin are not necessarily conclusive as to the sensitivity of another portion. The areas tested should be as near as possible to the site of the inflammation but it should be remembered that the part of the body may have been further sensitized. A worker should be patched with all the materials used in his occupation, and if all the responses are negative, other materials used in his home should be tried. The insulating material between the chemical and the adhesive plaster which affixes it should be non-irritating. Unvarnished cellulose and thin mica have been proved most innocuous. Whether the tests are negative or positive, other factors besides the results must be considered.

425 Why Industrial Disease Control is Important to Women Workers. M.T. Mettert. Occup. Haz rds, 4, 10-13, (January, 1942).
The heavy influx of women into industry presents new problems in industrial disease control. There is a definite sex variant in illness. The National Health Survey showed that among men and women workers 15 to 64 years old women

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experienced a higher sickness rate in every age group, the difference increasing with age. Women are more susceptible to certain industrial poisons, especially lead and benzol, the latter even producing a different reaction than in men. Young women are also particularly susceptible to poisons affecting the nervous system, such as carbon disulfide. Among hazardous processes employing more women recently is dial painting with radioactive paints. There is some evidence that women's susceptibility may in part be due to poor nutrition because of lower wage scales.

426 Occupational Diseases of Bones and Joints. L. Teleky. Ind.Med., 11, 164-168 (April, 1942).
The author discusses all the bone diseases of any importance that are wholly or partly occupational in origin, including phosphornecrosis osteitis of mother-of-pearl, mottled enamel and other effects of fluorine, the skeletal lesions of caisson disease, skeletal injuries from overexertion. In the last category are a number of conditions that are obsolete or unimportant industrially, but "shovel sickness" is common and is discussed at some length. The effects of use of pneumatic tools are also discussed.

427 Report of a Joint Session Between the Subcommittee on Industrial Health and Medicine, Federal Security Agency, and the Council on Industrial Health, American Medical Association. J.A.M.A., 118, (1228 (April 4, 1942).
If it seems in the interests of workers and industry, an agency for the dissemination of industrial health information will be created which will probably be directly attached to the subcommittee. If industry is to absorb the products of accelerated industrial health education, some concomitant program of training industry in the advantages of medical supervision over workers is indispensable. The principal problem relates to small plants which are, or consider themselves, unable individually to support medical and nursing programs.

428 Plant Hygiene Studies. Council on Industrial Health. J.A.M.A., 118, 818-819, (March 7, 1942).
This is the fourth article on a series on medical service in industry. The primary function of the industrial physician is the location, identification and control of unhealthful occupational exposures. Plant hygiene studies have proved to be a reliable and inexpensive method of obtaining dependable data on which may be based a program of adequate control. The technic of making such a survey is outlined for the physician.

429 Occupational and Compensable Disease with Special Reference to Tuberculosis. L. Brahdy. Ind. Med., 11, 147-150 (April, 1942).
The author compares the compensation laws of the various states according to whether occupational diseases are compensable and if so, whether by schedule or by blanket coverage. Compensation for tuberculosis is summarized as follows: compensation is payable for tuberculosis (1) when it is caused by an injury which in itself is compensable, wherever there is a compensation law; (2) when caused by an occupational disease which in itself is compensable, whether blanket coverage or a schedule prevails; and (3) when caused by occupational contact with tuberculous patients or bacilli. The last applies where there is blanket coverage and in Massachusetts where occupational contact is specifically included. The methods of extending compensation laws are listed. The whole structure of compensation law and occupational health rests with the medical data. When physicians fail to recognize the occupational origin of a disease, or incorrectly class one as occupational, its prevention is impossible. All compensation laws acknowledge that physicians are the sole authorities in the field, and they must accept the responsibility.

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430 Urology. Some Industrial and Compensation Aspects. A.J. Greenberger and M.E. Greenberger. Ind.Med., 11, 123-127 (March, 1942).
The authors discuss various phases of urology in relation to compensation cases. Thorough examination and history taking have in many cases demonstrated non-occupational causes, often infection, for injuries believed by the patient to be of occupational origin. The relationship of bladder tumor and renal calculi to trauma is illustrated with case presentations. Other subjects covered are the relation of trauma to tuberculosis and to epididymo-orchitis.

431 Instruction in Industrial Medicine for Medical Students. T.L. Hazlett. Ind.Med., 11, 115-116 (March, 1942).
The industrial medical profession in general has suffered from lack of respect and has not assumed the responsibility that it should have, mostly because industrial practice has been conducted by physicians who have had no training in the field and who regard it as secondary to private practice. The remedy lies in greater attention to industrial medicine in medical school curricula. A separate course in industrial medicine should be given all undergraduates, and should include lectures on placement of the worker, routine role of the physician in the plant, hazardous occupations and care of employees, both under hazardous conditions and in a general health program. Field trips should be made to a well-organized industrial medical department. Such a course, preferably in the senior year, and covering even as little as 20 hours, would give a stimulus for future work. Graduate courses for specialists in industrial medicine, on a par with other specialized courses, should be given.

432 The Status of Medicolegal Testimony. R.T. Johnstone. Ind. Med., 11, 104-106, (March, 1942).
Before the advent of industrial medicine the service of the ethical physician was rarely demanded in matters of litigation, and the charlatan was more often seen a the witness stand. Now, however, a medical opinion is required in every occupational disease case before an Industrial Accident Commission or similar body. There are three groups of cases requiring medical testimony: (1) those in which the extent of disability from trauma is questioned; (2) those involving diagnosis of industrial poisoning, and (3) those involving the speculative relationship between an alleged trauma and a subsequent disease. In compensation litigation, medical testimony is derived from two sources, the claimant's physician, usually the family doctor, and the industrial physician. Since the latter appears more frequently in court, he is often accused of prejudice in favor of the employer or insurance carrier. The author presents statistics and evidence to disprove any contention of prejudice, and to show rather that he renders an equitable decision in favor of the claimant in 98% of the cases he examines. The statistics, from California records, reveal that in consideration of the large number of industrial cases in which he is engaged each year, he appears before the Industrial Accident Commission comparatively few times, thus dispelling any insinuation that he is comparable to the "professional" medical witness of the common courts. Finally, from the analysis of the survey by the American Medical Association, it is apparent that the insurance carrier is limited in the choice of a medical witness in any given community when the medicolegal problem involves an opinion regarding the industrial origin of the claim, simply by the comparatively small number of physicians -- 1,283 out of 120,000, who can be recorded as competent in industrial medicine.

433 The Nurse in Industry. R.Belden. Conn. Health Bull., 56, 39-41 (February,1942).
The functions of the industrial nurse, all leading to reduction of absenteeism, are discussed briefly; (1) knowledge of the raw materials used and products made, their potential hazards, and what workers are exposed to them; (2) attention to illness from causes not associated directly with employment; (3) keeping accurate records of absenteeism.

434 The Economic Effects of Industrial Care of Health. A. Marcus. Zentralbl. f. Gewerbehyg., 28, 113-119 (1941). (German).
The author first discusses the American data on costs caused by illness and accidents, showing that there are about 5 days disability through sickness and non-industrial accidents annually per person in the U.S.A. The sickness insurance in a large German plant shows 17 days of illness per worker. The author estimated the total loss of work time in Germany to be 1.5 billion work hours, and the loss of production to be 15 billion R.M. The employment of factory physicians is the most hopeful means of decreasing this lost time. The regulations for industry and workers' organizations issued in Germany outline the tasks of these physicians, who should be appointed in every factory. Their duties include first aid, periodical examinations, advice to the management on sanitary problems and to the worker in every question of health. They are not expected to treat workers except in first aid and certain physical treatments, and should cooperate with the family doctor. Yearly reports are sent to the "Office of Hygiene and Worker's Protection."

435 Diagnostic Procedure in Evaluating Industrial Dermatoses. L.Tulipan and F.A. Glass. Ind. Med., 11, 101-106 (March, 1942).
The authors recommend definitions and tabulations for procedure in diagnosing dermatitis, based on extensive experience. They define an occupational dermatosis as any disease of the skin arising out of, during, or in the course of a person's work. This definition avoids the word "injury". The procedure in evaluating causal relationship is presented in outline form. First, the past and present history are to be taken; emphasis should be placed on whether improvement of the eruption occurred on cessation of exposure and exacerbation occurred on resumption of exposure. Consideration should be given to household and avocational exposures. The next step, the physical examination, includes examination of the entire skin and the mouth, and demonstration by the patient of his daily work routine. A number of characteristics of the eruption are to be noted. The technique, precautions and interpretations of patch tests are next discussed, with consideration of "false positive," "false negative" and "delayed" reactions. A list of 11 classes of substances for patch tests, with recommended concentrations, is presented. Finally a careful evaluation and impartial opinion as to causal relationship should take into account all of the findings described.

436 The Health of the Worker in Industry in War Time. J.G. Cunningham. Canad. Pub. Health J., 32, 562-564 (November, 1941).
In peace time about 25% of all workers in industry have important physical defects, and the number is now increased by the enlistment of fit persons and the employment of handicapped men and women. Accidents are increasing, partly on account of new workers, supervisors and methods of production, but they also increase in some industries where those conditions do not exist. Sickness is more important as far as output loss is concerned, reaching 4% of working time. Production, however, is a much more sensitive index of ill health than lost time, as is shown especially in the effect of increased working hours. The Canadian Government is considering limiting men to 11 hours a day or 60 a week, and women to 54 hours per week with 1 day's rest in 7. Night work is increasing, but fortnightly changes of day and night shifts have increased output of production and decreased sickness absences. Occupational disease is increasing, due to increased exposure. However, non-occupational illness remains the most important curb on output. The increased needs of medical inspection, preemployment and periodical examination, supervision of first aid and education in personal health are stressed.

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