FOUNDATION FACTS

Vol. 3. August, 1941 No. 8.

Staff Hygienist Covers 2700 Miles in 3 Days
Three Field Men Now Busy with Plant Surveys

In helping member companies "keep precautions apace with production," one of the Foundation's industrial hygienists has averaged 2,000 miles a month for the past year. Meanwhile, the services of two other field men are being utilized to meet the demand for plant surveys. F.S. Mallette of the staff flew 2,700 miles in three days last month to cover emergency work in the plants scattered from Oklahoma to New Jersey. Increased production causes increased health hazards, demands increased precaution. Have your operations been checked for health hazards during this period of zooming defense demands? Please see the memo to members sent with the last News Letter which lists membership services.

Meeting Plans; Suggestions Welcome

The Foundation's staff and committees are busily engaged planning for the sixth annual meeting which will be held at Mellon Institute, November 12 and 13. We are striving to make this the most interesting, important and highly valuable session the Foundation has ever held. Announcement of the dates, together with the announcement of the change of the Foundation's name to Industrial Hygiene Foundation, are receiving national publicity in the daily, trade, technical and professional press. Please send in suggestions for subjects you desire covered at the meeting. Meanwhile, red letter November 12 and 13.

Foundation Bulletins Bombed!

The Medical Research Council of Great Britain wrote the Foundation on July 14th as follows: "A few weeks ago this building was damaged during an air raid, and amongst the papers that were destroyed were copies of the Fourth and Fifth Annual Meetings of Members of the Foundation. These reports contain information which is of much value to me, and I am venturing to ask whether you could replace my lost copies."..... The Bulletins have been sent.

A Reminder

Unless otherwise noted, the Foundation has no extra copies of articles abstracted in the monthly Digest of Industrial Hygiene (nor is the Foundation responsible for the content of articles). Members desiring originals should write direct to the source of the abstracted article. Names and addresses of publications covered by the Digest were sent to the members sometime ago. (Extra copies of this list are available if desired.) If any member has difficulty in obtaining an article from the original source, and if he will advise the Foundation, we will make every effort to secure the material.

William S. Knudsen -- Safeguarding the health of our employees is, in my opinion, the greatest and most important task before us at all times.

"We'll have to rehearse that," said the undertaker as the coffin fell our of the car.

----Casualty & Surety Journal.

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August, 1941.

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

DIGEST OF INDUSTRIAL HYGIENE
Literature--News--Developments

News Items

608 Harvard Industrial Hygiene Course.
The Harvard School of Public Health will offer a short course in Industrial Hygiene starting September 22 and closing a few days before Christmas. This is similar to the recent course given for Naval Medical Officers and will be open to properly-qualified engineers, as well as doctors.

609 Information Wanted on Citric Acid Dust.
The Indiana Bureau of Industrial Hygiene, in a cooperative study with the dental officer of the State Board of Health has observed that dental erosion frequently occurs among workers breathing citric acid dust. Concentrations of 15 to 21 milligrams per cubic meter of air were found in operations where workers were exposed to this dust. The process is being controlled by enclosure and by local exhaust ventilation. Information on the safe limit and on pathologic conditions which may result from the inhalation of citric acid dust would be appreciated. Anonymous. Ind. Hyg. (U.S. Pub. Health Service) 1, 8 (May, 1941).

610 New York Stone Cutting Regulations.
The adoption of stone cutting regulations as a part of the New York State Industrial Code has been announced by Chairman William J. Picard of the State Board of Standards and Appeals. Effective September 1st, the new rules will curb the incidence of silicosis. Delay in putting these regulations in effect will enable operators of stone cutting establishments to familiarize themselves with the code and to prepare for compliance. "The incidence of silicosis in men engaged in the stone cutting and finishing trade where no dust control measures have been provided, has been found to range from 22 to 55% with increased susceptibility to pneumonia and tuberculosis," Mr. Picard said. For the effective control of silica dust the Board has prescribed local exhaust ventilation and wet methods, to remove dust at the point of generation, reduction of dust particles through general ventilation, and individual use of approved pressure masks and respirators in isolated and infrequent operations. Medical Record, 153, 413 (June 4, 1941).

611 Iowa Institutes on Industrial Health.
A series of special institutes on industrial health, sponsored by the Speaker's Bureau and the Committee on Industrial Health of the Iowa State Medical Society, and the Iowa State Board of Health were held in five Iowa cities during the week of June 23. Seven national medical leaders and 22 Iowa physicians and industrialists participated in the program, and the institutes were attended by Iowa practicing physicians, industrial physicians and industrial managers. Ind. Hyg. (U.S. Pub. Health Service) 1, 5 (June, 1941).

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612 Directory of State and Local Industrial Hygiene Personnel.
An up-to-date directory of State and City Industrial Hygiene organizations with their officers and chief personnel occupies 12 mimeographed pages of Industrial Hygiene (U. S. Public Health Service) for June, 1941.

613 What's In a Name?
The name of the Connecticut "Bureau of Occupational Diseases" has been changed to "Bureau of Industrial Hygiene." This would indicate that the State of Connecticut is recognizing the broad aspects of industrial health, i. e., that industrial health constitutes health in all its aspects, rather than freedom from industrial accidents and diseases alone. Ind. Hyg., (U.S. Public Health Service) 1, 5 (June, 1941).

614 Indiana's Educational Program Progresses.
In cooperation with the State medical society and the Indiana University School of Medicine, the Indiana Bureau of Industrial Hygiene participated in a number of discussions and clinics presented by the School of Medicine in its annual intensive postgraduate course for general practitioners. Industrial dermatoses, benzol poisoning and joint injuries in industry were the subjects covered. This is the first time that industrial hygiene has had a place on this program, and therefore can be considered a step forward in the Indiana bureau's educational program. Ind. Hyg. (U.S. Public Health Service) 1, 9-10 (May, 1941).

615 Promotion of Medical Examinations in Small Plants.
At a recent meeting attended by representatives of the Committee on Industrial Health of the Michigan State Medical Society, the Michigan Manufacturers Association and the Bureau of Industrial Hygiene of the Michigan Department of Health, plans were made to set up two units for the purpose of promoting medical examinations in small plants. Two large industrial counties, widely separated, were selected for an experimental study. If it is successful similar studies will be made in other areas. Ind. Hyg. (U.S. Public Health Service) 1, 9 (May, 1941).

616 Yours for Health.
An organizing drive for "Yours for Health" clubs in Vermont is well underway. Employers who become members agree to do all they can to protect the health of their employees. Each will organize from the employees an advisory Yours for Health committee. Employees who become members of the club agree to do all they can to promote the sanitation, safety and morale of their working place. The Vermont State Department of Health will cooperate in various ways, such as sending on request competent representatives to advise on subjects pertinent to workers' health, and furnishing notices, buttons, and literature on matters pertinent to health. Ind. Hyg. (U.S. Public Health Service) 1, 10 (May, 1941).

Legal Developments

617 Recent Statute Changes.

Massachusetts has now included, in its workmen's compensation act, "infectious or contagious diseases if hazards of contracting disease is inherent in employment (Sec. 1 (7A), added by Chap. 437, Laws of 1941, effective October 7, 1941).

Illinois now provides that where death results from an occupational disease on or after July 1, 1941, compensation as provided in Sections (a), (b), (c), (d), and (h) of Section 172.7 shall be computed according to the provisions of this section exclusive of the now paragraph (k) and after so computed shall be

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increased ten per centum. Such increase shall be accomplished by increasing the aggregate amount only; provided, however, that in no case shall this new paragraph (k) operate to provide an aggregate increase of more than ten per centum of the aggregate compensation which but for this new paragraph (k) would be payable. Subsection (1) of Section 172.8 governing compensation for disability after July 1, 1939 is amended to except disability and disablement occurring on or after July 1, 1941. (S.B. No. 682, Laws 1941, effective July 16, 1941.)

Pennsylvania has amended Section 308, relating to compensation payable jointly by employer and the state to include provision for source of appropriations under this subsection (a); to designate the department (of Labor and Industry) as a codefendant in claims payable under this subsection (a); and separate statement of amounts payable by employer and the Commonwealth. This Section (308) is also amended to re-define the term "employer" to deem the department (of Labor and Industry) a "party-in-interest" in any proceeding involving a claim, a part of which is payable by the Commonwealth. (CCH).

618 Silicosis of a Coremaker. Conflicting Expert Testimony. Sufficiency of Evidence.

There are but two questions presented, (a) does the evidence show Trojanowski was exposed to the hazard of an occupational disease any time after the effective date of the act (October 1, 1936) and July 12, 1938, the last day of employment, and (b) is the finding that Trojanowski sustained a disablement by reason of an occupational disease against the manifest weight of the evidence? Trojanowski worked for plaintiff in error twenty-three years as a coremaker and his employment terminated July 12, 1938. Plaintiff in error contends that the facts of the sand being graded to a standard size of not less than 1/200 mesh, that oil and other substances were mixed with it before using, and the method of handling; negative every possibility of the presence of sand dust in the corercom. Dr. Weissman stated that in view of the occupational history, physical symptoms and X-ray findings, a diagnosis of silicosis could readily be made. He gave no opinion as to whether the conditions found would cause disablement. Dr. Potter said there were no silicotic nodules appearing in the lung field. In determining whether or not a complainant has silicosis causing disablement, the Industrial Commission should consider the occupational history of the patient, his physical condition, the X-ray readings, the opinions of the medical expert and the other competent evidence which tends to prove or disprove a disablement caused by silicosis. Applying such rule to the facts here, the occupation in which Trojanowski labored and his physical condition as outlined in his evidence, are, if believed to be true, corroborative of the conclusions expressed by Dr. Weissman. The finding of the commission in this case is not contrary to the manifest weight of the evidence. The judgment is affirmed. National Malleable and Steel Castings Company v. Industrial Commission et al. Ill. Supreme Ct. Decided June 17, 1941. (CCH).

619 Silicosis. Conflicting Medical Testimony. Weight of Evidence.

Kut claimed compensation fordisablement alleged to have been caused by an occupational disease arising out of his employment by plaintiff in error as an iron molder. The arbitrator and commission allowed compensation for total, permanent disability. Kut, aged fifty-eight, was employed as a molder for thirty years, the last fifteen and one-half of which was by plaintiff in error. There is evidence which shows sand dust in the room where he was employed in such quantities that exposure in his employment to the hazard of silicosis is clearly established. Dr. Weissman was of the opinion that Kut had silicosis and was totally and permanently disabled. The medical experts called by plaintiff in error testified that in their opinion Kut did not have silicosis and was not disabled by reason of an occupational disease. For the court to adopt the view presented

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by plaintiff in error would, under the facts of this case, require the court to say which of the two groups of medical experts is more worthy of belief and whose evidence is entitled to the greater weight. That being the function of the commission, the court will not disturb its conclusion, for its finding on that question is not against the manifest weight of the evidence. The judgment is affirmed. Buda Co. v. Industrial Commission et al. Ill. Supreme Ct. Decided June 17, 1941. (CCH).

620 Silicosis. Necessity to File Claim within Six Months of Time of Injury.
A referee of the Commission found in favor of the employer and insurers, denying the employee compensation. This was reversed as to the employer and insurer. Appealed. The decisive question in this case is whether respondent's claim for compensation was not filed within six months of the date of his injury. In May, 1934 plaintiff started to work for the employer herein as a grinder. The dust bothered his lungs. Dr. McNamee testified that he examined Lutman about six months before the hearing; that his diagnosis was silicosis or pneumoconiosis that pneumoconiosis is a chronic disease of the lungs caused by irritating substances which are taken in with respired air. The condition of total and permanent disability is not a prerequisite to the beginning of the running of the six months statute of limitations. If it appears that six months is too short a time, it is for the Legislature to provide the remedy. The judgment of the circuit court is reversed. Lutman v. American Shoe Machinery Co. Mo. St. Louis Ct. of Appeals. Decided June 3, 1941. (CCH).

621 Pneumonia as a Result of Inhalation of Fumes from a Truck. Injury by Accident. Hazards not Usual to Employment.
Upon consideration of appellant's motion for rehearing the original opinion is withdrawn and the following substituted. Stevenson, a truck driver, employed by appellee company, a road building contractor, became ill after driving and operating for one day one of the heavy trucks of the company, claiming that he inhaled excessive dust from the road work and fumes and gases from the motor exhaust, and that he quickly developed pneumonia by which he was incapacitated for some three months, and from which he would probably continue to be unable to work for some time in the future. Compensation was refused upon the ground that no accident was suffered by appellant which would, under the act, be compensable. All trucks of the type of the truck involved give off some gases and fumes when used in heavy duty; but this truck discharged an excessive amount of gases compared with other trucks on the job. This gas reduced plaintiffs' resistance to such an extent that the pneumo-cocci germs present were enabled to multiply and become active, resulting in pneumonia. The appellant's attack of pneumonia was not an occupational disease. The employer will become liable to a workman "injured by accident arising out of and in the course of his employment." Was there an accident here? It is asserted that appellant's injury was not an accident, because he inhaled the fumes and gases that caused him to have pneumonia, while performing labor in the course of his employment, and there was no "unlooked for event which was not expected or designed," as an accident is usually defined. It appearing from the findings of the court that appellant was subjected to unusual and extraordinary conditions and hazards not usual to his employment, and to which no other of the workmen on the job was subjected; and that such unusual and extraordinary conditions and hazards were the proximate cause of his attack of pneumonia. The court concludes that his injury, including that resulting from pneumonia was an injury by accident. The case is reversed and remanded. Stevenson v. Lee Moor Contracting Co. et al. N.M. Sup. Ct. Decided July 7, 1941. (CCH).

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622 Limit of Compensation for Anthraco-silicosis. Amounts Payable by the Commonwealth and the Employer, Respectively.
This appeal is concerned with the supplement to the Workmen's Compensation Law, known as the "Occupational Disease Act." The board determined that the anthraco-silicosis which caused the appellant, Rando's total disability in this case was such an occupational disease as developed to the point of disablement only after an exposure of five or more years, and hence that section 7 of the act applied, and as his total disability occurred during 1938 - the first year in which the act became effective - his compensation was payable jointly by the employer and the Commonwealth. The narrow point at issue in this case is whether $3600 is the total amount payable to Rando, or whether that is only the maximum amount payable by the employer, and the remainder (nine-tenths) of the compensation is payable by the Commonwealth, up to nine-tenths of the limit fixed in the Act. The board decided that $3600 was the limit of Rando's compensation. The construction given the Act by the board and the court below is in accord with both the letter and the spirit of the Act when considered in its entirety.
The judgment is affirmed. Rando v. State Workmen's Insurance Fund. Penna. Superior Ct., East. Dist. Decided July 18, 1941. (CCH).

623 Motion for Rehearing. Examination by Doctor as Medical Treatment. Tolling of Statute of Limitations.
On respondent's motion to modify the court's opinion and for a rehearing. The court would not be warranted in holding that an examination made by a doctor, for the purpose of diagnosis, constituted such medical, surgical and hospital treatment as may reasonably be required for the first ninety days to cure and relieve from the effects of the injury as provided by the Act. To hold otherwise on the evidence herein would open wide the door for more physical examinations of claimants to be regarded as payments of compensation, thus tolling the statute of limitations in a manner contrary to the clearly expressed intention of the Legislature. The motion to modify the opinion and the motion for rehearing are both overruled. Lutman v. American Shoe Machinery Co. St. Louis Ct. of App. - Mo. Decided June 17, 1941. (CCH).

624 Silicosis Claims.
Since silicosis was added to the list of compensable occupational diseases in Ohio, 724 claims for compensation had been filed with the Industrial Commission up to June 30, 1941. Of this number, 235 have been allowed, 337 disallowed and 152 are still pending. Included in the total claims allowed 122, or 51.9 per cent, originated in foundries, 30 in steel foundries, 64 in iron foundries and 28 in non-ferrous foundries. Eighty-eight, or 37.5 per cent, were filed by ceramic workers. Of these, workers in tableware filed 30, floor and wall tile 22, glass house refractories 9, electric insulators 6, insulating brick and silica brick 4 each, enamels, stoneware and silica sand and diatomaceous earth 3 each, building brick and tile, firebrick, glass and sanitary ware, 1 each. Eighteen claims were filed by cut stone workers, or 7.6 per cent of the total. Monument workers had 13, building stone 4 and quarries 1. Four claims arose from polishing, buffing and grinding, one in coal mines and two were miscellaneous.
Ohio Industrial Commission Monitor 14, 308 (July, 1941).

625 Paint Dermatitis.
In this case the claimant, who had worked for the employer for seventeen years as a spray painter, had applied for compensation for disability due to a dermatitis caused by the handling of paints and lacquers. Upon original hearing the claim had been disallowed for the reason that it had not been filed within four months after the date disability began. The employer was of the opinion that the claim was meritorious and an application for rehearing was granted. Evidence was

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presented showing that while the claimant quit work on June 14, 1940 and was off until December 2, 1940, he was not told that he was suffering from an occupational disease until after the four months statutory time limit. The claims reviewer was of the opinion that the neglect in filing the claim in time was not the fault of the claimant and was of the opinion that it should be allowed, despite the fact that it was filed eleven days too late. The Commission found that the claimant's disability was the result of a compensable occupational disease and ordered that the claim be allowed. Ohio Industrial Commission Monitor 14, 303 (July, 1941).

Notices of New Books

626 Analytical Chemistry of Industrial Poisons, Hazards and Solvents. M. B. Jacobs. pp. 661. $7.00. Interscience Publishers, Inc., New York.
This book brings together a great deal of useful information -- to do it himself would take the reader a long time. Choices of several methods are offered in many cases to allow for individual preference and suitability. The references cited at the end of each chapter also augment the choice of procedures. The author seems to lean backward, however, in avoiding the mention of certain commercial devices, for instance, he describes the electrostatic precipitator designed by Drinker but fails to speak of the excellent portable device commercially manufactured for those with neither the time nor inclination to make their own. The book, however, is still eminently useful; it is well printed on good paper and has both an author and subject index.

627 The Health and Efficiency of Munition Workers. H.M. Vernon. Oxford University Press, London, 1940. 158 pp. $4.50.
This book covers the field of health and efficiency of workers, especially munition workers in war time, under English conditions, with chapters devoted to: -- hours of work; work spells and rest pauses; shift systems; sickness and absenteeism; accidents and injuries; ventilation, heating and lighting of factories; and welfare and labor management. The practice of increasing working hours to 70 and 80 and even above 90 hours a week which was tried early in the first world war, was found to be a mistake, and tests have shown that in some processes a 55-hour week resulted in higher production than a longer one. No definite regulations have asyet been made, but the Government has agreed that hours should be limited to 60 a week with reductions for women and minors. To Americans, a striking feature of this discussion is that the possibility of a shorter week than 54 hours is barely considered, and that a three-shift system is not mentioned. The conclusions reached in the remaining chapters agree well with those of American authorities: that regular rest periods are beneficial; that much can be done to reduce sickness and absenteeism; that there is a large personal factor in the frequency of accidents and injuries; and that adequate ventilation is essential. Detailed consideration is given to those and other points, some of which indicate marked differences in British and American habits, and others, a fundamental agreement.

628 Occupational Hazards and Diagnostic Signs. L. I. Dublin and R.J. Vane. U. S. Dept. of Labor, Div. of Labor Standards, Bull. No. 41, 1941. 70 pp. Obtainable from Supt. of Documents, Washington, D. C. for 10 cents.
The last previous revision of this valuable publication, issued in 1933, has had wide circulation, and the extensive developments in production of new materials since that date have necessitated a thorough revision. The occupations subject to exposure are tabulated under 10 general headings each with subclassifications,

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and the section on poisons includes 128 headings of specific poisons and groups, with symptoms and conditions for each. An alphabetical list of occupations provides cross references to the particular hazards encountered. In the section on dermatoses, the table gives for each occupation the materials which may cause dermatosis.

629 Discussion of Industrial Accidents and Diseases. International Association of Industrial Accident Boards and Commissions. U.S. Dept. Labor, Div. of Labor Standards, Bull. No. 46, 186 pp. 1941. For sale by Supt. of Documents, Washington, D. C., for 20 cents.
This bulletin presents a verbatim report of the Convention held at Richmond, Va., in September, 1940. The subjects discussed were mostly phases of administration of compensation laws, including means for assuring prompt payment of noncontested claims, compensation payments pending appeal, need for simplicity in workmen's compensation, measurement of permanent disabilities, extraterritorial jurisdiction, and expected changes in workmen's compensation laws.

630 American Public Health Association Year Book, 1940-41. Supplement to Am. J. of Pub. Health 31, (March, 1941).
The Industrial Hygiene Section, pages 114-134 of this year book is of most interest to our readers, and is devoted largely to the subject of ventilation. It includes the "Working Standards" for air for safety and comfort, with a summary of present trends and developments in air conditioning, and the reports of the subcommittees on physical, chemical and bacteriological methods in air analysis and on dust procedures. The section on chemical methods describes approved methods for detection of carbon monoxide; under dust procedures is a critical comparison of the midget impinger with the standard impinger, and a brief note on the electrical precipitator; and the subcommittee on bacteriological procedures describes the methods of quantitating Gordon's bacterial test for estimating air pollution.

631 Protecting Plant Manpower. U.S. Dept. of Labor, Div. of Labor Standards. Special Bull. No. 3, 1941. 70 pp.
This Bulletin, subtitled "Practical Points on Industrial Sanitation and Hygiene," is a compendium of brief papers on various phases of protection of workers. They include: (1) Fatigue, by Alice Hamilton; (2) Criteria of Industrial Hazards, by Philip Drinker; (3) Preventive Measures, especially by exhaust systems and general ventilation, by T. Hatch; (4) Heating, Ventilation, and Cooling of Work Places, by C. P. Yaglou; (5) Personal Respiratory Protection, by W. P. Yant; (6) Personal Service Conveniences, by P. A. Neal; (7) Industrial Health Program for the Small Plant, by L. Greenburg; (8) Illumination, by J. S. Rogers; and (9) Noise, by J. S. Rogers. As stated in the foreword, no new methods are brought out, each suggested technique being time-tried and tested; but the Bulletin is an excellent summary of the subject of protection from all angles.

Papers on Dust, Gases and General Industrial Hygiene

632 The Hydrogen Sulfide Hazard in Rand Mines. R. A. H. Flugge-de-Smidt. S. African Mining Eng. J. 51, 263-5 (1940).
The usual precautionary measures of adequate ventilation and careful supervision are outlined.

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633 Respiratory Protection in Work with Acetylene. E. Smolczyk. Gasmaske. 12, 69-73 (1940). (German).
This is a discussion of the possible sources of poison gas in the manufacture, purification and uses of acetylene. Although acetylene itself may be regarded as non-poisonous, it has a narcotizing action and modifies the pathological effects of other poisonous gases. Crude acetylene may contain as much as 3% hydrogen sulfide, 0.08% phosphine, 0.03% ammonia, and perhaps some cyanogen and hydrogen cyanide. Arsine and carbon monoxide are not present. During the purification of acetylene additional quantities of phosphine and hydrogen sulfide are formed along with other halogenated hydrocarbons, aldehydes, alcohols and other sulfur compounds, and large quantities of these gases may collect in the purification mass, which becomes a particular source of danger in handling. Finally during the use of acetylene in autogenous welding nitrous gases and carbon monoxide are formed and in a closed kettle they can collect to the extent of 40%. Although welding operations can be carried on in the open without particular danger, these operations are very dangerous in closed places. Fresh air or oxygen masks are recommended for such work. In handling crude acetylene a gas mask with canister "0" may be used in the open, but oxygen masks should be used in closed spaces. In changing the purification mass a mask with an all-purpose canister giving protection against carbon monoxide should be used.

634 Industrial Hygiene. Responsibility of the Medical Profession. P.A. Neal and J. J. Bloomfield. J. Mich. State Med. Soc., (January, 1941).
Industrial hygiene is a function of the general field of public health because non-occupational diseases cause more absences and economic loss to industry than do occupational diseases and accidents. The national industrial health problem would be greatly simplified if every State health department had a comprehensive industrial hygiene service, but such services are still far from meeting our needs. Therefore small industries must depend upon private physicians. However, provision for industrial health service by states is rapidly expanding. The program suggested by the Council of Industrial Health is presented, with emphasis on the necessity for physicians to inform themselves on occupational diseases, and the necessity of obtaining detailed and accurate occupational history. Cooperation with local health agencies is also stressed.

635 Educational Qualifications of Industrial Hygienists. Preliminary Report of Subcommittee on Educational Qualifications of Industrial Hygienists, American Public Health Association. Am. J. Pub. Health 31, 728-30 (July, 1941).
This preliminary report is intended for submission to members of the Association, for criticism and suggestions. In view of the close relation between industrial hygiene and public health, the Committee believes that training in industrial hygiene, whether for physicians, engineers or nurses, should not be sharply separated from public health training. Rather should there be created means to emphasize, in addition to fundamental training in community health problems, special courses to acquaint the industrial physician, nurse, engineer, chemist and health educator with the particular field of industrial hygiene.

636 Industrial Hygiene Defense Program. The Rubber Industry. May R. Mayers. N. Y. State Dept. of Labor, Ind. Bull., 20, 166 (June, 1941).
The author discusses briefly a survey of the airplane industry in New York State, on which a full report will be made later; also in more detail a survey of a plant making bullet-proof gasoline tanks for airplanes, made at the urgent request of the manufacturer. Benzene was used in many processes under conditions constituting a serious health menace. Blood studies indicated the need of immediate transfer of 19 men to other occupations. A non-toxic solvent was substituted for the benzene in a large part of the work. Several ventilating plans were suggested and one will soon be put in operation.

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637 Evaluation of the Industrial Hygiene Problem of the State of Colorado. Colorado State Board of Health, 1939. 32 pp., 46 tables and 8 charts.
The industrial hygiene survey reported in this bulletin covered 526 plants and mines, employing 31,130 workers, or 39.1% of the workers in the state engaged in mining, manufacturing, and a few other occupations. Of the 526 plants, 92.4% employed less than 500 workers, totaling 78% of all the workers. Industrial health provisions in plants employing fewer than 100 were compared with those where over 100 were employed. The following services were found available: full-time safety director, to 30.8% of the workers; full-time medical practitioner, 24%; part-time, 9%; first-aid kit, 89%; first-aid worker, 47%; sick-benefit associations, 44.5%; sickness records, 40%; accident records as required by law, 90%; drinking water from municipal systems; 80%; drinking fountains, 80%; but common drinking cups, 11%; lavatory facilities, 91%; towels provided, 75%; separate towels, 80%. Exposure to the most common hazards were as follows: silica dust, 20,000 workers; silicate dust, 17,500; bituminous coal dust, 10,500; lead and its compounds 7,600; other metal dusts and fumes, 27,000; carbon monoxide, 26,000; and sulfur dioxide, 2,000. Other toxic exposures and dermatitis were also considered. The percentage of workers receiving any type of protection was extremely small; 6.3% by local exhaust ventilation, 6.3% by enclosure of process, less than 1.3% by some type of personal respiratory protection, 12.4% by general pressure ventilation, 12.1% by general exhaust ventilation, 4.1% by wet methods, and 12.9% by use of protective clothing. The total figure is subject to reduction because many exposures were provided with more than one control measure. Although many of the figures given compare favorably with those in other states that have been surveyed, they indicate the necessity of development of better methods of control, and an integrated state program for industrial health.

638 Industrial Hygiene Problems in the National Defense Program. C.D. Selby. Ind. Med., 10, 118-20 (March, 1941).
The Subcommittee on Industrial Health and Medicine, of which the author is chairman, was appointed by the Federal Security Administrator as advisor in health and medical activities related to the national defense. The Subcommittee recognizes the following pressing needs: (1) expansion of state and national bureaus to meet the needs of industrial hygiene in relation to national defense; (2) surveys of arsenal and navy yards and training of industrial hygiene and medical personnel in these establishments; (3) similar surveys and training in commercial shipyards, airplane plants and military vehicle and munition factories; (4) promotion of first aid in construction of isolated plants and in connection with disasters; and (5) toxicological researches on materials vital to national defense, including toluol, TNT, lead azide and vinyl cyanide. Other needs include investigation and control of specific hazards, advice to industry and others on the location of new plants and renovation of old plants in the interest of safety and health preparation and dissemination of information on toxic materials and processes, and promotion of measures for control of communicable diseases among industrial workers. Means of accomplishing these objectives are discussed, including: (1) training courses under the direction of schools; (2) intensive training courses in governmental plants; (3) surveys of plants and specific recommendations for protection of employees; and (4) rapid assembly of information necessary for the detection, prevention and treatment of conditions due to chemical and physical agents and other environmental factors. The cost of each phase of the program is estimated.

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639 Safe Practice in the Manufacture of Glass Sand. C.W. Steinbach. Safe Practice Bull. No. 75, Pennsylvania Dept. of Labor & Industry, May, 1941. 9 pp.
The production of glass sand is described in detail, with the dust-prevention practices that are used in each step of the process. Drilling is accomplished by means of well drills and carriage drills using sufficient water to allay the dust. Normally the rock contains sufficient moisture to prevent a serious dust hazard during crushing, but it is sprayed in dry seasons. A down draft ventilation system reduces the dust in secondary crushing, and large quantities of water are used in the grinding mills. The dust problem then disappears during screening, classification and draining of excess water. In the steam drying, the natural draft prevents the emanation of fine dusts around the dryers. The dry sand is then elevated, screened, passed over magnetic separators and conveyed to bins. All elevators are enclosed, all feed points and discharge points of conveyors are carefully hooded, all spouts and hoppers made dust-tight, and each dust-creating point tapped into a dust collecting system of the wet washer type. The problem of dust in car loading is met by use of a cloth-bag type dust system with multiple flexible inlets. By exhausting considerable air the dust can be confined to the car during the loading cycle. The operator enters the car only to put the loader in place, and to remove it after the air is sufficiently cleared. In some instances the sand is ground finer for use in the ceramic trade. Here conveying of the sand is done in closed screw-conveyors, both in grinding and car loading, and all equipment is connected to cloth-bag collectors. Some material is bagged, and in that operation the bagging machine is equipped with a hood and a pit below, both of which are strongly exhausted. Proper design of exhaust systems is very necessary. The problem of abrasion on elbows is largely solved by the use of heavier steel for the elbows, replaceable rubber liners and baffle plates. Proper choice of dust collectors is necessary. When the dust has a salvage value only the cloth-bag collector can be used, but otherwise the wet-washer type is preferable. The ratio of air to cloth surface must be kept low to minimize wear on the bags. Electrical precipitation is too costly except when the dust has a high salvage value. Recirculation of air back into plant atmosphere is never practiced. In addition to all the dust-collecting devices used, good housekeeping is also necessary. Vacuum cleaners are used for general dust. All employees are given medical examinations including x-ray. Respirators of approved type are furnished, and employees are instructed in dust hazards.

640 Health and Defense. L.D. Bristol. Nat. Safety News. 43, 10-11, 58-60 (May, 1941).
The author again discusses the need of an industrial health program in aiding national defense (Abstract No. 699, October, 1940), with emphasis on new problems and new developments of old problems. The rapid development of new defense industries has given the subject of housing added importance, and the necessities of health protection and safety in new housing are outlined. The author traces the development of industrial health programs under the headings of (1) infancy - traumatic surgery; (2) childhood -- accident prevention; (3) adolescence -- occupational disease control, and (4) adult life -- positive health promotion and sickness prevention. The need of additional cooperation is stressed, especially among the following four groups: (1) management and workers of local industries, particularly those holding defense production contracts; (2) state and local medical and allied professions; (3) state and local health or labor department divisions of industrial hygiene, and (4) state and local safety councils. The fundamental objectives of a coordinated local health program should include evaluation of hazards, development of community-wide education and interpretation on industrial health, and stimulation of at least a minimum of medical service in industries having governmental contracts. The development of a national plan of cooperation is again advocated.

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641 The Responsibility of the Nursing Profession in Industrial Hygiene. J. J. Bloomfield. Pub. Health Repts. 56, 1131-41 (May 30, 1941).
The author discusses the general objectives of industrial hygiene and the part that should be taken by the nursing profession in the industrial hygiene program. The duties and responsibilities of the industrial nurse, who should understand not only nursing but also industrial processes, public health, labor legislation, and community welfare, are given in some detail. The field of industrial nursing in official public health services has been greatly neglected in the past, and the author pleads for increased attention to that field.

642 Recent Advances in Industrial Hygiene. L. Silverman. Pyramid of Sigma Tau. 26, 17-25 (April, 1941).
This paper is a comprehensive summary of the progress of industrial hygiene with brief descriptions of methods used in evaluating hazards and of protective measures. The presentation of this material for the honorary engineering fraternity is an evidence of the growing recognition of the need of instruction in industrial health.

643 Good Housekeeping Inspections. C.S. Phillips. Occup. Hazards. 3, 8-11 (April, 1941).
The author describes the system of good housekeeping inspections practiced at the plant of Revere Copper and Brass Company. Two general plans are followed. One consists of an interdepartment and intersection cleanliness contest with prizes for the best department and best section, and for the individual with the best record. The other involves a bonus penalty for the department receiving the lowest ratings. A copy of the inspection grading sheet is presented.

644 The Story of Salt in Drinking Water. R.T. Ford. Occup. Hazards, 3, 17-8 (April, 1941).
Youngstown Sheet & Tube Company has supplied salt with drinking water since 1935 for prevention of heat sickness. An automatic device adds the required quantity of salt to each 2.5 gallons of water passing through the meter, and salt tablets are also dispensed to supplement the salt in the water and to be used at individually cooled fountains. The number of disabling heat cases in 1926 was 77; since salt dispensing was inaugurated, not a single case has occurred.

645 The Dollars and Sense of an Eye Protection Program. W.H. Lehmberg. Occup. Hazards 3, 19, 38-9 (April, 1941).
The average compensation and medical cost of an eye injury is $343, and the yearly total is over 31 million dollars. The cost of safety goggles is insignificant in comparison with these figures. Attention to eye hazards is increasing in importance on account of the defense program. The safety lens considered good enough 20 years ago is no longer acceptable or even safe in the face of current high speed operations. Modern lenses are now much stronger than the Bureau of Standards specifications, and more exacting tests are now used by some manufacturers.

646 Industrial Hygiene In a Public Health Program. M.H. Kronenberg. Illinois Med. Jour., p. 221-225 (March, 1941).
The author indicates how the local health department may extend the advantages of industrial hygiene through the medium of its own untrained personnel. Other activities of the health department can be integrated with the industrial hygiene unit to further the activities of all.

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647 Safety. J.W. Greene. Presented before the Chemical Engineering Division of the Society for the Promotion of Engineering Education, Berkeley, Calif. June 24, 1940.
The author lists safety hazards occurring in school laboratories, including fire, explosion, electricity and toxic materials, closely parallelling those found in industry, with accounts of a number of accidents which show that the student has very little safety training. Since the possibility of accidents or poisonings in industrial establishments is much greater than in the laboratory, every engineering student should receive at least elementary safety training. The suggested program includes: (1) formal lectures on industrial safety; (2) demonstrations in flame propagation and in the use of extinguishers; (3) laboratory reports on safety of particular operations; (4) appointment of one student as safety man, and (5) discussion of hazardous properties of material in technology classes.

648 For the Health of the Worker. Anonymous. Monthly Bulletin Indiana State Board of Health, February, 1941.
A description of the program, equipment, and personnel of the Indiana Bureau of Industrial Hygiene. The functions of the Bureau are: to study conditions of occupation with reference to hazards to health; to determine the degree of such hazards; to investigate, evaluate, and recommend the methods for the control of such hazards; to assist in the preparation of rules and regulations for preventing occupational diseases, and to promote occupational health through education.

649 The Common Cold. F.H. Glazebrook. Ind. Med., 10, 99-101 (March, 1941).
The factors of a common cold are susceptibility, exposure and infection. The cold is primarily a physiological disorder, and germs and viruses play only a secondary role. Susceptibility is the result of lack of balance of physiological activities, and fatigue is an important factor, even in "chronic susceptibility." There is always a short prodromal period of a few hours to several days before the local irritations begin. Prevention consists mostly in keeping fit, especially a sufficient diet, with plenty of vitamin B_1. Treatment of a cold should consist of the use of laxatives, hot applications, gargling with hot salt water, a diet of fruit juices and quinine for those who can tolerate it. The patient with a fully developed cold should stay in bed for 24 hours. Subsequent treatment depends on the symptoms. The author believes that vaccines give assistance.

650 Industrial Health -- An Old Year Concept with a New Year Meaning. C. Kuh. Connecticut Industry. January, 1941.
A general discussion of the subject of industrial health and its value to management. Industrial medical service must in some way consider the worker as a mental as well as physical being. The purpose of such service may be stated to be the preservation and promotion of the health of workers, implying first of all, the provision for every worker of a safe and congenial environment, and secondly through competent evaluation of the worker as a physical and mental being, his proper placement and advancement within the organization. The steps toward this objective are reviewed.

651 Employee Morale and the Industrial Health Program. C. Kuh. Proc. Life Extension Examiners 3, 39-43 (March-April, 1941).
The plant environment plays a definite role in affecting the worker's mental health and emotional response. There is, therefore, added justification for the industrialist to develop a health program which aims among other objectives to control this environment. There can result not only reduction of occupational accidents and illness with less absenteeism and smoother production schedules, but a benefit reflected in its effect on human personality -- of subtle, but tremendous value at this time.

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652 Physical Examinations in Industry. C. Kuh. Proc. Life Extension Examiners 2, 109-112 (September-October, 1940).
A discussion of the procedures and policies to follow in a program of pre-employment and periodic physical examinations. The methods will vary in respect to accessory procedures and laboratory tests with the requirements of the individual plant. For instance, cystoscopy is not ordinarily included, but this procedure is indispensable for workers handling certain dyestuffs, whose intermediate processing not infrequently causes bladder tumors.

653 "Cracking Up" under the strain. E.V. Allen. Hygeia. 19, 685-6, 732-5 (September, 1941).
The causes of early breakdowns of business executives are discussed including excessive eating, drinking and smoking, and the "strenuous life." The remedies proposed are shorter hours for executives, and more relaxation in the form of hobbies and vacations.

654 The Special Nature of Industrial Practice. C.O. Sappington. Ind. Med., 10, 101-4 (March, 1941).
The author discusses the need of knowledge of industrial hygiene on the part of the physician, and especially of medico-legal problems. Industrial practice involves many forms of procedure, such as obtaining thorough occupational history, in which the ordinary physician is not trained. The remedy is to bring the specialized knowledge to those who need it, and the efforts of the Council on Industrial Health and the Council on Medical Education are described.

655 Industrial Health Hazards Incident to the Defense Program. E.R. Hayhurst. Merck Report 50, 6-10 (July, 1941).
An application of the general principles of the conservation of manpower applied to the emergencies brought about by the defense program. There will be, of course, new materials and processes but the general principles of health protection in industry will still apply. These are outlined in an excellent brief form

656 Carbon Monoxide Concentration of the Blood in Disease. A. Gigon and M. Noverraz. Schweiz. med. Wochschr. 70, 836-7 (1940). (German).
Carbon monoxide concentration for normal blood was found to be 0.3-1.0% of the total hemoglobin concentration. Higher values were observed in some pathological conditions, especially diabetes mellitus (up to 6.23%).

657 Reduction of Blood Carbon Monoxide after X-ray Treatment. J. A. Cameron. Proc. Soc. Exptl. Biol. Med. 46, 558-60 (1941).
Exposure to x-rays for a few minutes hastened the disappearance of carbon monoxide from the blood of animals with acute carbon monoxide poisoning. The mechanism of the effect is not yet certain.

658 Dust, Fume and Gas Elimination by Proper Prevention. P.A. Brohm. Occup. Hazards 3, 6-10, 31-2 (March, 1941).
The hazards of dust, fumes and gases are classified, and various preventive methods are discussed briefly, with special attention to ventilation. Illustrations of devices for dust elimination accompany the paper.

659 Automatic Signal for Dangerous Concentrations of Hydrogen Cyanide in the Air. V.P.Vondt. J.Applied Chem. (U.S.S.R.) 13, 1535-8 (1940). Russian with French summary.
Decoloration of iodine solution with hydrogen cyanide causes a photoelectric colorimeter to operate a sound signal. The air containing hydrogen cyanide passes first through a tube containing calcium carbonate which absorbs ammonia and sulfur dioxide. At 5 gamma of hydrogen cyanide per liter in the air the sound signal started after 4 to 5 minutes.

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660 Composition of Diesel Engine Exhaust Gas. H.H. Schrenk and L.B. Berger. Am. J. Pub. Health, 31, 669-81 (July, 1941).
It has been suggested that Diesel engines could be used safely under ground, under the assumptions that the carbon monoxide content of the exhaust gases is always low, and that fire and explosion hazards are minimized on account of the low volatility of the fuel. The authors determined the composition of exhaust gases from two commercial Diesel engines at different speeds and power outputs for fuel-air ratios of approximately 0.01 to 0.09 by weight. Carbon monoxide, carbon dioxide, and oxides of nitrogen were present in concentrations that are considered harmful to breathe. Aldehydes, soot, and under some conditions hydrogen and methane or other hydrocarbons were also present. Sulfur dioxide would also be formed if the fuel contains sulfur. When the engines were operated within the range for which they were rated and adjusted, the maximum carbon monoxide concentrations were 0.02 and 0.12% for the respective engines. However, when excess fuel was injected, the carbon monoxide was increased markedly up to concentrations equalling those produced by gasoline engines. Under those conditions much smoke was also generated. Production of carbon monoxide and smoke can be largely controlled by proper admustment without sacrifice of power output of the engine at full throttle. The authors' conclusion is that Diesel engines should not be operated underground unless ample ventilation is provided.

661 Hand Pump Air Sampling Device. M.H. Kronenberg and A.N. Setterlind. Mimeographed pamphlet, 6 pp., published (1941) by Div. of Industrial Hygiene, Ill. State Dept. of Public Health, 1800 W. Fillmore St., Chicago, and obtainable at that address on request.
The apparatus described is a simple device for sampling air. It consists of a suction hand pump and a tube assembly. The pump is a common bicycle pump converted to a suction type by reversing the leather washer serving as a piston. It is calibrated by means of a gas pipette or weighed glass bottle connected to a vessel containing water, and the quantity of air sampled is determined by the number of strokes. The collection assembly consists of a test tube within a larger side arm test tube. The assembly permits easy changing of tubes. The collection tube assembly and a comparison tube are mounted on a plywood panel. Details of construction are given and drawings and illustration accompany the text.

662 Photoelectric Sedimentation Method of Measuring Particle-Size Distribution and Efficiency of Dust-Removal Apparatus. K. Goesele. Forsch. Gebiete Ingenieurw. 10, 235-45 (1939). (German).
The size distribution of particles in a dusty atmosphere is determined by a method based on the measurement of the rate of fall of particles in an enclosed space. A light beam is passed through the sedimentation tube and the intensities of the transmitted light and the Tyndall light scattered at right angles are measured by vacuum photocells with amplifiers. The scattered-light intensity is proportional to the surface area of the particles for sizes greater than about 1 mu. The method can be used for measurements of size distribution between 1 mu. and 30 mu and for particle densities above 10 mg. per cu. m. The application of the apparatus for measuring the efficiency of dust-removal devices is described.

663 Determination of Very Small Amounts of Arsenic in Organic Material. B. Bleyer and H. Thies. Vorratspflege u. Lebensmittelforsch. 2, 281-90 (1939). (German).
After destroying interfering materials with hydrogen peroxide and sulfuric acid the arsenic is reduced to arsenic trioxide with hydrazine sulfate and determined by titration with potassium bromate in hydrochloric acid solution. By electrometric determination of the end point and the use of 0.01N potassium bromate small quantities of arsenic can be determined within about 1 gamma.

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664 Determination of Small Amounts of Naphthalene in Air. Z.M. Leibov. Lab. Prakt. (U.S.S.R.) 15, No. 11, 22-33 (1940). (Russian). Abstr. from Chem. Absts., 35, 3561 (June 10, 1941).
The author tested and modified the method of Stepanov, in which alcoholic solutions of trinitronaphthalene produce with alcoholic alkali colors of various intensity, depending on the concentrations of the substance, alkali, time and the presence of impurities. Details and working directions are given in the Chem. Absts. reference. As little as 0.003 mg. of naphthalene can be detected and determined.

665 Determination of Impurities in the Atmosphere. A. Holler. Staub, pp. 247-63 (1939). (German).
The author reviews some of the methods of determining gaseous and solid impurities in the air, and stating that gaseous impurities can be determined with sufficient accuracy by the Liesegang bell jar method, the ball jar remaining exposed for 100 hours. Optical and gravimetric methods for solid particles are described, with the admonition that the results are significant only if meteorological conditions are carefully noted.

666 Syphilis, Gonorrhea, and National Defense Industries. W. Clarke. Jour. of Social Science 27, (April, 1941).
It is known that the prevalence of syphilis and gonorrhea among industrial workers is high enough to constitute a serious problem. Studies of industrial groups have shown from 1 to 16 per cent suffering from syphilis. Compared to the soldier and sailor, the defense worker is at a great disadvantage in regard to the prevention and medical care of the venereal diseases. A plan is outlined to aid industry in reducing the losses due to syphilis and gonorrhea.

667 The Control of Venereal Diseases Among National Defense Workers. R.A. Vonderlehr Jour. of Social Science 27, (April, 1941).
It has been recognized that venereal disease control in military areas and venereal disease control in industrial areas are simply different phases of the same problem. That of the industrial worker is however much more difficult since his leisure activities are subject to no regulation. Few programs exist for controlling venereal disease among workers in any particular industry. A number of industries are beginning to require pre-employment and periodic physical examinations but on the whole little has been done. A definite plan is here outlined for a cooperative program with the States, Industry and Labor to control venereal disease among the industrial workers.

668 Methods for the Detection of Toxic Gases in Industry. Chlorine. L. S. Industrie chimique 27, 7-9 (1940). (French).
Chlorine is determined in the air by means of a special apparatus in which the air is aspirated through 10 ml. of o-toluidine solution (1 g. of specially purified o-toluidine of 130-1° m.p. dissolved in 100 ml. of concentrated hydrochloric acid and the mixture diluted to 1 liter) and the resultant yellow color of the solution compared with potassium dichromate solutions of known composition

669 Are you Getting Maximum Lighting Efficiency? A.K. Gaetjens. Occup. Hazards 3, 28-31, 40 (April, 1941).
The author discusses proper lighting in factories and its effects in reducing accidents and improving efficiency. Recent improvements, especially the use of fluorescent lamps, have contributed greatly to better illumination. Proper maintenance of the lighting system is as important as choice of installation.

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670 Silicosis in Manufacture of Water Soluble Paints. Adelaide R. Smith. N. Y. State Dept. of Labor, Ind. Bull., 20, 165-6 (June, 1941).
An X-ray survey of two plants making water-soluble paints, made by the Division of Industrial Hygiene, disclosed the presence of silicosis in 9 out of 89 employees. In addition to calcimine, both plants produce crack filler, patching plaster, paint for cement surfaces and casein paint in paste form. The greatest bulk of materials used consists of white pigments. The quantity of free silica used as such is relatively small, but clay containing 10 to 16% free silica constitutes a large portion of the raw materials, all of which are handled as dry powders throughout the process. Some ingredients and mixtures are ground in mills of French buhrstone, which is composed of practically pure quartz. A crew of two to three men are constantly engaged in resurfacing the buhrstones. One plant had a fairly efficient ventilating system for the dusty operations. Out of the nine silicosis cases, 4 were in the first stage, one in the second, 3 in the second with infection, and one in the third. They included two coopers who made and filled barrels and an elevator operator, who had handled bags of raw material. It is probable that most of the cases developed before the need of dust control was realized, but the presence of silicosis calls for conscientious attention to the best preventive measures.

671 Cotton Mill Fever in Mattress Making. Anonymous. Ind. Hyg. (U.S. Pub. Health Service) 1, 6 (May, 1941).
The Division of Industrial Hygiene has received numerous inquiries recently as the result of sudden outbreaks of illness among workers engaged in certain rural mattress-making projects. These outbreaks have followed the use of a very low grade of stained cotton which was apparently grown in a single locality. Samples of this cotton are being studied and in the meantime recommendations are being made for avoiding further occurrences of the illness. If more cases of this illness occur, the Division of Industrial Health should be notified, with full information on the condition and source of the cotton, number of cases, symptoms, duration of illness, whether it immediately followed opening of the bales and whether control measures had been observed.

672 Good Housekeeping in a Steel Foundry. J.E. Turner. Safe Practice Bull. No. 69, Pennsylvania Dept. of Labor and Industry. (June, 1941). 8 pp. Also Safety Eng., 82, 11-14 (August, 1941).
The principles of good housekeeping in foundries are discussed with emphasis on dust removal. Good housekeeping is much more a problem of good management than a duty of the employee and cannot be secured by merely making rules and disciplining workmen for disobeying them. Places must be provided for material that must be kept off floors, etc. Maintenance of floors and care in not leaving objects that may fall from overhead structures are discussed. The effects of dust are listed as follows: (1) health hazards; (2) explosive hazard; (3) damage to products; (4) increasing maintenance expense; (5) destruction of painted surfaces and (6) effect on working efficiency of employees. Dust should be eliminated at the source as far as possible, but in a foundry a large portion of the dust cannot be so handled, and daily cleaning in the plant is necessary. Vacuum cleaning, with large collecting tanks, and sufficient hose length to reach overhead structures, is recommended. In the author's plant, a vacuum machine suspended from a crane is used for cleaning runways and girders. Annealing pits, bins, pattern storages, core racks and other miscellaneous equipment can also be cleaned by vacuum methods. In the absence of vacuum cleaning when its installation is too expensive, water sprays are the next best method. Several illustrations of foundry equipment are included.

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673 Grain Dust as an Occupational Hazard; a Review. S.S. Pinto. Nebraska State Med. J., pp. 60-2 (February, 1941).
The hazards of grain dust are discussed briefly, including explosibility and effect on health. The latter include irritating nasal effects of hairs from the ripened heads of grain, atrophic rhinitis and ulcerations from dusts formed in processing, allergic manifestations from proteins, "grain itch," due to a parasite, and a variety of symptoms from molds and fungi. The explosion and health hazards can both be controlled by cooperation of the engineer and the doctor.

674 Recovery of Carbon Monoxide Poisoned Monkeys under X-Ray Treatment. J. A. Cameron. Radiol. 36, 486-7 (April, 1941).
Since x-rays and strong light have been found to aid recovery from carbon monoxide poisoning in smaller animals, the authors experimented with stronger x-rays on monkeys. In each test two monkeys were kept in an atmosphere containing carbon monoxide, for the same time, then removed and kept under the same conditions except that one was exposed to the x-rays, with its head protected. In 9 experiments with 12.5% carbon monoxide, two test animals died before the x-ray could be applied, but the remaining 7 recovered on treatment with x-rays, while all those not so treated died. In other experiments, the same animal was exposed to sublethal carbon monoxide concentrations twice with an interval of a week or more between the two exposures, one of which was followed by x-ray treatment. In each case the recovery time was reduced by one-half by the treatmant.

Papers on Industrial Poisons, Cancer, Dermatitits, etc.

675 Out of the Mist. J.H. Sterner. Safety Eng., 82, 9-10, 20 (August, 1941).
The idea that solvents fall into two general classes, the "toxic" and the "non-toxic" is fallacious. Only a sense of false security can come from the idea that if only the latter are employed, no harm can result, no matter what the concentration. Where spraying is confined to a relatively small or fixed locus, control of the atmospheric concentrations can be achieved by special ventilating devices or by accessory respiratory protective equipment. In the spraying of the interior of buildings, the reduction of these concentrations is much more difficult and usually impractical. Painting by spraying rather than by brushing usually results in much greater atmospheric concentrations for a number of reasons. The best protection is furnished by an air-supplied type of respirator but has its disadvantages. It can be improved by the addition of a charcoal cartridge through which the worker breathes when he has, for any reason, broken the connection with the air supply. If the absorbent type of respirator is used exclusively, it should have a canister content of 600 cc. of charcoal, and the latter must be changed daily.

676 Dermatitis Control in Mass Production. T.F. Mooney. Safety Eng., 82, 37-40, 42 (August, 1941).
Some of the most important factors in the control of industrial dermatitis are: (1) The encouragement of -- and the necessity for -- personal cleanliness of the worker; especially the skin. (2) The elimination of the irritant material from contact with the worker as far as possible by engineering control. (3) The use of protective clothing properly cleaned, serviced, and disinfected. (4) The application of protective creams by the employee before beginning work on exposures which are liable to cause skin irritation. The points are amplified at some length.

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677 Skin Infections. J.T. Beard. Safety Eng., 82, 35-36, 38 (May, 1941).
Skin infections, either primary or secondary, can be prevented or eliminated by the strict observance of proper sanitary conditions, which provide for -- (a) The exclusion of germs from the cutting oil itself; (b) The elimination of germs from the skin of the operator; (c) The prevention of the entrance of germs into the pores of the skin. A program to carry out these principles is outlined by the author.

678 The Carrot as a Cause of Dermatitis. H.R. Vickers. Brit. J. Dermatol. Syphil. 53, 52-7 (1941).
In a carrot cannery, mild cases of dermatitis were common and 7 cases occurred which were severe enough to require hospital treatment. Five of the cases were localized on the hands, and all appeared after working with carrots. The carrots in various forms and water, alcohol and acetone extracts gave positive patch tests in the 2 cases with generalized dermatitis but the test with the ether extract was negative. Of 205 normal persons, 32 proved susceptible to carrots. The constituent responsible for the dermatitis is unknown, but is probably not the essential oil.

679 How Liquids and Creams Prevent Occupational Skin Troubles. J. Stifter. Occup. Hazards, 3, 10-13, 25 (July, 1941).
The rise of social legislation which makes occupational skin diseases compensable has stimulated a keen interest in their prevention, including the development of mechano-chemical preventive liquids and creams. Several such preparations are now available and have a proved background of successful use. Naturally there is no specific protective cream, paste or liquid that is equally efficacious in all types of hazards. The problem has resolved itself into a somewhat tailor-made preparation for each class of hazards. Often within a special field individual formulae with wide variations must be created, tested and proved in use. They must not be regarded as cures; their function is purely non-medical protection, and their use is only part of the preventive program.

680 Occupational and Related Dermatoses. Abstracts from the Literature for the Years 1935 to 1939, Inclusive. L. Schwartz and L.H. Warren. Pub. Health Bull. 266, U. S. Pub. Health Service, 1941, 160 pp. For sale by Supt. of Documents, Washington, D. C. price 20 cents.
This bulletin contains hundreds of abstracts on the subject of dermatoses published within the specified dates, under alphabetical headings denoting the hazardous materials and the occupations in which exposure occurs.

681 Eaton Keeps House for Ten Plants. W.A. Logan. Occup. Hazards 3, 12-5 (April, 1941).
The paper describes briefly the protective measures used in the plants of Eaton Manufacturing Company. Dermatitis is the principal non-mechanical hazard, and its prevention is accomplished by protective ointments, removal of especially sensitive employees from the hazard, and employee education.

682 Treatment of Lead Poisoning with Sodium Citrate. S.S. Kety and T.V. Letonoff. Proc. Soc. Exp. Biol. & Med., 46, 476-7 (March, 1941).
Sodium citrate removes lead ion from solution by formation of a soluble complex of extremely low dissociation and for that reason is an eliminant of lead in poison cases. Charts and details of treatment are presented, showing that in 6 cases in which sodium citrate was administered, with and without other materials, there was a rapid disappearance of toxic symptoms and a fall of the lead content of the blood to normal.

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683 Dermatitis and Eczema -- Industrial Aspects. J.G. Downing. Jour. Michigan State Medical Society 40, 265-271 (April, 1941).
Occupational dermatoses have been defined as any pathological condition of the skin for which occupation was the chief causal or contributory factor. It may comprise any lesion from a single erythema to carcinoma. Occupation dermatitis (ergodermatitis) under the generic term "dermatitis venanata" is an inflammatory disease of the skin characterized by erythema, edema, and vesiculation, and caused by irritants contacted at work. A classification of such irritants is given. Sensitization dermatitis or eczema is an inflammation resulting from repeated exposures to substances innocuous to a normal skin. The author also considers diagnosis, patch tests, legal aspects, treatment and prevention.

684 Aniline Poisoning and Acid-Base Equilibrium. C. Seghini and C. Travaglio. Pathologica 33, 89-97 (1941). (Italian).
A gaseous acidosis was found in acute aniline poisoning and a non-gaseous acidosis in chronic poisoning.

685 Fluorine Excretion in the Urine in Chronic Fluorine Intoxication of Cryolite Workers. G.C. Brun, H. Buchwald and K. Roholm. Acta Med. Scand. 106, 261-73 (1941). (Scandinavian).
Fluorosis was first described in 1932 in workers grinding cryolite, which manifests itself as a generalized osteosclerosis. Absorption of the dust from the lungs is practically excluded, but in the acid medium of the stomach a third of the fluorine is liberated as fluorine ion. The absorbed fluorine ion is not taken up by soft tissues but only by the bones and teeth. So far as is known its excretion is only through the urine. In the urine of 30 hospital patients on a normal diet 0.8 mg. fluorine was found per day (0.18 - 1.85 mg.) or 0.92 mg. fluorine per liter urine. However, in 24 cryolite workers the average fluorine excretion was 16 mg. per l. (2.41-13.41 mg.). Generalized osteosclerosis can be produced by the prolonged intake of 25 mg. of fluorine per day. Even many years after a worker had left his job his urine contained abnormally large quantities of fluorine, which shows that he mobilizes fluorine from its deposits in the skeleton.

686 The Control of the Lead Hazard in the Storage Battery Industry. W.C. Dreesen and others. Pub. Health Bull. No. 262, U. S. Pub. Health Service pp. 138. 1941. For sale by Supt. of Documents, Washington, D. C. Price 30 cents.
Chronic plumbism was studied among 766 men employed in 6 lead storage battery factories. Workers in 4 of the plants were under the medical supervision of a full-time or part-time physician. Four plants employed one or more engineers who spent the major part of their time on measures designed to reduce the lead hazard and accident hazard of the workers. Three-fourths of the workers had been employed in the industry for 5 years or more and an eighth of the workers had been employed for 20 years or more. No cases of plumbism severe enough to cause disability were seen. One hundred and seventy-seven men had a combination of clinical and laboratory findings directly referable to lead absorption. For convenience in discussion they are referred to as cases of early plumbism. Nine of these one hundred and seventy-seven men, whose findings have been presented as abbreviated case histories, are designated as cases of incipient plumbism. All nine were employed in workrooms in which the average atmospheric lead concentration exceeded 1.5 mg. Pb per 10 cubic meters of air. Ten cases of early plumbism were found in 181 men exposed to atmospheric lead concentrations below 1.5 mg. Pb per 10 cubic meters of air. The prevalence of early plumbism increased with increasing atmospheric lead concentration, 54 per cent of the 125 workers exposed to more than 3 mg. per 10 cubic meters of air being affected. A study of the diagnostic value of several laboratory tests was

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made. Urinary lead concentrations correlated well with blood lead concentration. With increasing blood or urinary lead concentration the probability of finding a case of plumbism increases, never reaching certainty, however. Workers with clincial and hematological signs of plumbism were observed occasionally who had blood and urinary lead concentrations of the same order as workers with no industrial exposure to lead. Workers whose urine contained both albumin and erythrocytes had approximately the same blood and urinary lead concentrations as workers whose urine was free from albumin and erythrocytes. Reticulocyte percentages (Osgood), stipple cell counts, and polychromatophilia were so related in their occurrence that if one of these types of cell was found to be abundant the other types were likely to be numerous also. Albuminuria was found twice as frequently among lead-affected workers as among nonaffected workers. It was most prevalent (24 percent) among workers exposed to more than 3 mg. Pb per 10 m. of air, less (14 percent) among men exposed to less than 1.5 mg. Pb per 10 m. of air, and least prevalent among men who had changed jobs (12 percent) or who worked in plants where effective control measures were in force. The prevalence of diseases of the heart was not high in comparison with industrial workers of comparable age. No relation was found between atmospheric lead exposure and the occurrence of arteriosclerotic-hypertensive heart diseases.

Three-plus or four-plus Kahn reactions were obtained in 2.2 percent of the workers. Disabling plumbism can be prevented by continuously maintained engineering control set up after a medical study of the employees and under the supervision of a physician. Periodic medical examinations are necessary to make certain that control equipment and practices are operating efficiently. A hematological test would be a useful part of the periodic examination. Workers found to have early stages of plumbism should be transferred to non-lead-using departments, there to recover under the care of a physician without interruption of wages. Equipment and practices found to be effective in reducing lead exposure are discussed.

687 Effect of Vitamin C on Workers Exposed to Lead Dust. S.W. Marchmont-Robinson. J. Lab. Clin. Med., 26, 1478-81 (June, 1941).

A group of 303 employees engaged in assembly of automobiles, and exposed to inhalable lead dust varying from 3 to 15 mg. per 10 cubic meters of air, were given daily 50 mg. of ascorbic acid (vitamin C) in chewing gum. After a short period there was a noticeable decrease in muscular fatigue and improvement in spirits and efficiency. The basophilic aggregation count showed a slow but progressive decline during the first 6 months, after which urine lead determinations and stippled cell counts were also made. At the end of 4 months the stippled cell and basophilic aggregation counts remained normal. The urine lead varied greatly among the individuals and showed no decline. The authors find no evidence that the storage of lead is promoted by vitamin C. Rather the reverse is true, as shown by the workman with the highest level of excretion in the group, 541 gamma per liter, who had been previously exposed and treated for lead intoxication. The authors suggest the possibility that the effect of lead on the human economy may be only indirectly toxic, the absorption of lead producing an avitaminosis C. This is the condition of vague symptoms known as chronic lead poisoning, but is in reality chronic subclinical scurvy.

688 Stippled Red Cells and Lead Poisoning. Queries and Minor Notes. J. Am. Med. Assoc., 116, 2826 (June 21, 1941).

Any one showing 6 to 10 stippled red cells in each high power field would be showing injurious effects of lead. This patient had no lead line or colic, wrist drop or other characteristic symptoms. He had worked for fourteen years as a furnace man in a lead refinery. He should be removed from his present work and treated with ample calcium, best given in the form of milk.

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639 The Diagnosis of Lead Poisoning. R.A. Kehoe. Baltimore Health News. pp. 154-5 (1941).
The diagnosis of lead poisoning is often made erroneously and irresponsibly on the basis of a presumptive history of lead exposure from the microscopic examination of the blood, or from the results of lead analyses on the blood or urine of the patient. The author points out possibilities of error in the use of any of these methods, especially if conducted carelessly or hurriedly. The careful clinical observations required in differential diagnosis may not be neglected in favor of analytical procedures.

690 The Effect of Therapeutic Agents in the Treatment of Lead Poisoning. F.L. Smith, 2nd. Safe Practice Bull. No. 52, Part III. Penna. Dept. of Labor and Industry, June, 1941. 13 pp.
Lead determinations were made on the whole blood, serum, and cells and fibrin of a number of healthy persons, patients with other disorders than plumbism, and patients with latent plumbism. In non-leaded persons, there was no lead in the serum, a maximum of 0.013 mg. per 10 grams in the cells and fibrin, and of 0.006 mg. per 10 g. in the whole blood. The 92 cases of latent plumbism always showed 0.001 to 0.004 mg. of lead per 10 grams of serum, but in 43 of the 92 cases the whole blood and cell and fibrin contents were within the normal range, and symptoms of lead poisoning were absent but could be produced by acid therapy. These results are in sharp contrast to those reported recently, in which it was claimed that abnormal quantities of lead could be present in the blood without indicating lead poisoning. Therapeutic measures are of two distinct classes according to the result desired, elimination or storage. The choice must be made for each case. Where the elimination of lead is massive, inactivation by storage or tissue absorption is indicated. The treatment involves no hospitalization, but the possibility of development into an active case always remains. In chronic lead poisoning, controlled deleading should be used during an inactive phase without allowing the occurrence of acute lead intoxication. Lists of therapeutic agents for producing elimination and storage are given, and clinical reports on the effects of most of the agents are presented in some detail. For elimination, phosphoric acid appears to be most successful. Results with magnesium sulfate were adverse and it should never be used in lead poisoning cases. Vitamin B had no effect. Storage is most successfully accomplished by administration of ascorbic acid. The procedure adopted by the author as indicated by the experimental results, includes (1) deleading with acid; (2) stopping too rapid a liberation of lead with ascorbic acid, ferrous ascorbate or calcium gluconate and vitamin D; (3) resting the patient on ascorbic acid therapy: (4) repeating the process until a normal blood-lead picture is obtained which does not change on (5) the administration of phosphoric or hydrochloric acids.

691 Tellurium Poisoning. Anonymous. Ind. Hyg. (U.S. Pub. Health Service). 1, 7 (May, 1941).
The attention of the Illinois Division of Industrial Hygiene was recently called to a case of tellurium poisoning in a worker employed in the chilled car wheel industry. Tellurium is now added for the purpose of increasing the hardness of the metal. Heretofore tellurium has had little industrial significance, but the incident is cited as an example of Government specifications requiring the use of toxic materials that may not have raised an industrial hygiene problem in the past. It is expected that adequate ventilation will materially reduce the incidence of tellurium poisoning.

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692 Toxicity of Chlorinated Hydrocarbon Paint Removers. Adelaide R. Smith. N. Y. State Dept. of Labor, Ind. Bull. 20, 142-3 (May, 1941).
A fatal case of poisoning from a paint remover consisting of various chlorinated hydrocarbons is described in detail. The case was one of aplastic anemia and granulocytopenia, complicated by the presence of a necrotic type of ulceration of the cecum and large intestine. The toxic properties of the chlorinated lower aliphatic hydrocarbons have been thoroughly investigated, but little is known about those having more than 3 carbon atoms. Paint removers containing these substances, as well as those consisting of benzene, should be used only with adequate ventilation.

693 Hazard of Mercury Vapor in Scientific Laboratories. M. Shepherd and others. J. Research, Nat. Bur. Standards, 26, 357-75 (1941). (Research Paper No. 1383).
This is a report of the determination of the amounts of mercury vapor found in the air of various ventilated and unventilated laboratories at the National Bureau of Standards and elsewhere. The new optical mercury vapor detector devised by Woodson (Abstract No. 906, December, 1939) and produced by General Electric Company was used. The concentrations found ranged up to 70 gamma of mercury per cu. m. of air. Surfaces that showed no visible mercury globules caused the detector to respond, but the microscope corroborated the presence of mercury. Much more vapor is produced from fresh and disturbed surfaces than from undisturbed surfaces. No evidence of mercurialism was found in 38 laboratory workers exposed to various concentrations, 3 months after the severest exposures had been terminated. These results are in agreement with others in indicating no hazard when the concentration of mercury vapor is under 100 gamma per cu. m. of air. Precautionary measures are discussed.

694 Risk of Mercurialism in Laboratories and Workshops. T. Zicner. Chemia (Buenos Aires) 11, 208 (1940). (Spanish).
Three stages of mercury poisoning following prolonged inhalation of small amounts of mercury from free surfaces of metallic mercury used in apparatus in laboratories and workshops or from spilled droplets. Various preventive devices and iodated carbon as absorbent filter are recommended to eliminate the danger.

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Add Legal Developments

695 Tuberculosis - As an Occupational Disease, Accidental Injury or Actionable Tort - Including Policy Coverage. Memorandum of the Association of Casualty and Surety Executives, Clearing House on Occupational Disease Claims. 13pp. (July, 1941).

The memorandum digests 70 cases seeking compensation for tuberculosis, either under a workmen's compensation act or at common law. All reported cases are set out which involve noxious fumes, dusts other than silica, or exposure as alleged causative factors, but those in which silicosis or asbestosis is also present or in which an existing condition is aggravated by injury are omitted. The 70 cases are from 26 states, the District of Columbia, and the federal courts. For purposes of ready reference and comparison the decisions are arranged in three groups, which are in turn further subdivided. Within the ultimate subdivision, the cases are listed by states. The three main groupings are proceedings under workmen's compensation laws, actions at law for breach of a statutory or common law duty to provide a safe place to work, and actions on the issue of coverage by an insurance policy of tuberculosis liability.

The individual digests of the decisions are comparable in content to those in this "Legal Developments" section of the Foundation's Digest, with emphasis upon the nature of the work done by the claimant, the causative factor involved, and the result reached by the court, rather than the legal reasoning of the opinion. No attempt is made to supply a textual comment or interpretation of the decisions. In part this function is performed by the arrangement and subdivisions of the memorandum, and, in addition, to a large extent the cases are self-interpretive. However, the fact that 78% of these decisions have been rendered within the last decade and the majority within the past five years is worthy of note as demonstrating the increasing tendency to regard tuberculosis as a possible industrial hazard and its recognition as such in certain states.

(Members may secure copies of the memorandum by writing the Foundation)

F 130591

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INDEX

(August, 1941)

Acetylene
633

Air sampler
661

Aniline poisoning
684

Arsenic
determination 663

Atmospheric impurities
determination 665

Book notices
626-627-628-
629-630-631

Carbon monoxide
blood content in disease 657
treatment 658-674

Chlorine
detection 668

Common cold
649

Cotton mill fever
671

Dermatitis
carrot 678
control 676-677-679-
681
general 683
literature 680

Diesel exhaust gas
660

Dust control
658

Eye protection
645

Fluorosis
685

Glass sand
639

Grain dust
673

Heat cramps
prevention 644

Housekeeping
643-672

Hydrogen cyanide
detection 659

Hydrogen sulfide
632

Illumination
669

Industrial health
650-651
executives 653

Industrial hygiene
defense program 636-638-
640-655
educational qualifications
635
general 634-642-646-648
survey report 637

Industrial medicine
654

Industrial nursing
641

Lead
battery plant survey 686
diagnosis 688-689
treatment 682-687-690

Mercury hazard
in laboratories 693-694

Naphthalene
determination 664

Paint remover
toxicity 692

Paint spraying
675

Particle size determination
662

Physical examinations
652

Safety instruction
647

Silicosis
in paint plants 670

Tellurium poisoning
691

Venereal diseases
in industry 666-667

F 130592

02445

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asbestosclaims.law/library/24105/25