INDUSTRIAL HYGIENE DIGEST

Literature Abstracts

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

Industrial Health News



Issued Monthly By

INDUSTRIAL HYGIENE FOUNDATION

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FOUNDATION FACTS

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

September, 1942 No. 9.

Advance Notes on Annual Meeting

[illegible]eventh Annual Meeting of Industrial Hygiene Foundation --- the organ-[illegible]rst wartime conference --- will be held at Mellon Institute, Pittsburgh, [illegible]ril. The program will stress practical how-to-do-it data on saving pre-[illegible]ver now lost through sick absences. It is planned to devote a morning or [illegible] session exclusively to the reduction of sick absences in industry.

Other program highlights will include:

Safeguarding of non-average workers -- women, older men, etc.;
[illegible]vention of industrial skin diseases;
[illegible]th data on the use of grinding wheels, silicates, magnesium;
Findings from the Foundation's medical and engineering researches;
Legal developments and trends respecting occupational disease.

Preliminary programs will be sent to members in the near future. Meanwhile, [illegible] your program suggestions and any industrial health questions you may [illegible]t the annual meeting.

New Medical Bulletin Issued

The Foundation is now issuing another new bulletin (number 6) in its Med-[illegible] Series. This is the result of studies supported at the Saranac Laboratory under [illegible]. Leroy U. Gardner. The new bulletin deals with "Effects of Daily Exposures to [illegible]; Fumes and Gases Upon Normal and Tuberculous Animals." A preliminary [illegible]rt of this study was given at the Sixth Annual meeting in 1941.

News Item -- Mr. S. C. Rothmann, formerly Chief Engineer of the West Virginia Workmen's Compensation Silicosis Fund, has entered the Army and is serving as a Captain in the Sanitary Corps under Lt.Col. A.J. Lanza, Office of the Surgeon General, War Department, Washington, D. C.

Charts -- Chemistry & Metallurgy said recently.... "the probability of [illegible]ne poisoning is often ignored by many technical men. This may be due to faulty training as well as to the concentration of industrial hygiene literature in journals [illegible]t widely read by chemical engineers employed in industry." (Here is another point [illegible] the Foundation's Industrial Hygiene Digest of the literature which is issued [illegible]ch month.)

[illegible]lth and safety work makes an excellent theme for institutional or [illegible] publications advertising where a company's record warrants.

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INDUSTRIAL HYGIENE DIGEST
Literature and News

News Items

811 New Managing Director for National Safety Council.
Dr. Ned H. Dearborn of New York City has been appointed executive vice president and managing director of the National Safety Council. Dr. Dearborn had been Dean of the Division of General Education of New York University, since 1934. He will actively direct the greatly expanded wartime program now being conducted by the National Safety Council as a result of a proclamation by President Roosevelt. Dr. Dearborn succeeds Mr. W. H. Cameron who has retired after almost 30 years as managing director of the Council.

812 Manitoba Industrial Hygiene Director.
George S. Baldry, formerly connected with the Harvard School of Public Health, has been appointed director of the Division of Industrial Hygiene for the Province of Manitoba. He will be located with the Department of Health and Public Welfare, Division of Industrial Hygiene, Winnipeg, Manitoba, Canada.

813 Increase in Occupational Disease.
The August, 1942 issue of the Ohio Industrial Commission Monitor summarizes occupational disease claims filed in Ohio, during 1941. The total was 3,413, which was 1,437 more than in 1940. The greatest increase was for dermatitis but silicosis, plumbism and benzene poisoning also were more prevalent. The data presented are based on the number of claims filed rather than the number compensated. The time lost from work by the claimants shows a total of 654,474 days.

814 Occupational Diseases
The Connecticut Health Bulletin summaries of occupational disease experience for June and July, 1942 show these results: Dermatitis (all classes) - June - 86 cases, July - 131 cases; Silicosis, pneumoconiosis and tuberculosis - June - 4 cases, July - 12 cases; Poisoning - June - 3 cases, July - 2 cases.

815 Hours and Work Conditions.
The August 4 issue of Victory magazine summarizes a four-part program recommended by eight government agencies for war contractors: (1) The eight hour day and 48 hour week approximate the best working schedule for sustained efficiency in most industrial operations. (2) One scheduled day of rest out of every seven for the individual should be a universal and invariable rule. (3) A 30 minute meal period is desirable. (4) Vacations are conducive to sustained production. They should be staggered over the longest possible period.

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816 Tuberculosis in Industry.
An editorial on tuberculosis in industry is included on page 1577 of the August 15, 1942 issue of the Journal of the American Medical Association. Caution is advised in the assumption of a causal relationship between employment and tuberculosis especially when scientific data is absent. The Saranac symposiums are commended as the proper method for the establishment of facts relating to occupational conditions which are predisposing or activating factors in tuberculosis. The tendency to assume that pneumoconiosis and silicosis are synonomous is quite widespread and it must be combatted.

817 Course in Industrial Medicine.
The Yale School of Medicine has announced that a postgraduate course in Industrial Medicine has been planned for physicians on Wednesday afternoons from October to December inclusive. The sessions would run from 2:30 to 3:39P.M. A registration fee of $10.00 will be charged but the course is dependent upon the response from the medical profession. An excellent program has been prepared.

818 Industrial Safety and Hygiene Courses.
A course entitled "Industrial Hygiene and Occupational Diseases" will be given next February at the Washington Square Center of New York University. The tuition fee will be $10.00. Three other special courses on safety and first aid are planned, two of which will be offered beginning October 5 and 14 respectively.

819 War Neuroses.
The Science News Letter for August 29, 1942 describes the severe mental effects of the war on fighting men. Commander Uno H. Helgesson, U. S. Navy psychiatrist, has said, "We are all convinced of the importance of sulfa drugs for infections. Let's not forget that prompt psychiatric treatment for emotional breakdowns is equally vital." The gruesome "refinements" of modern warfare which have produced Dunkirks, Pearl Harbors and Bataans, can push human indurance to the breaking point. Even a previously healthy soldier if pushed too far, may suddenly go into a catagonic-like trance that would ordinarily be diagnosed as schizophrenia. Commander Helgesson said further, "Unless this soldier can be made to remember his frightful experience and to re-live it, he is in immediate danger of developing permanent symptoms." Hypnosis or one of the hypnotic drugs, such as sodium amytal, are recommended to induce memory. Cure is dependent upon the skill of the psychiatrist in guiding his patient, once the patient begins to talk. Shock treatment such as insulin or metrazol are contra-indicated.

Book Reviews

820 Medical Clinics of North America -- Symposium on Industrial Medicine July, 1942. W.B. Saunders Co., Philadelphia, Pa. 349 pp. Price - Paper $12.00 - Cloth $16.00 per clinic year.
This collection of papers on the various phases of industrial medicine represents a current, authoritative and practical program of postgraduate study for the physician. The general practitioner who has been drafted for part-time or full-time industrial work will find that the book furnishes a key to the many new problems which he will face. Those who have been engaged in industrial practice for years will find the book to be an excellent refresher course. There are 26 illustrations accompanying the papers most of which have good bibliographies.

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The subjects discussed include, the physician in industry, the organization and management of an industrial medical service, physical examinations in industry, workmen's compensation and medicine, tuberculosis, nutrition, psychiatry, pneumoconiosis, fatigue, dermatitis and numerous occupational poisonings.

801 Surgical Clinics of North America -- Symposium on Industrial Surgery. W. B. Saunders Co., Philadelphia, Pa., 299 pp. Price - Paper - $12.00 - Cloth $16.00 per clinic year.
This sister book to the volume on medical clinics is composed of 16 papers on industrial surgery. The list of contributors is an impressive one and the subjects discussed offer a comprehensive coverage of the greater part of the field of surgery in modern medicine. The skill of the industrial surgeon is preserving many valuable manhours for industrial production. The techniques and experience of many acknowledged experts in the field is made available to those men who will be adding industrial obligations to those of their private practice because of the demands of our war effort. There are 81 illustrations and many of the articles include bibliographies.

802 The Toxicity and Potential Dangers of Toluene, with Special Reference to its Maximal Permissable Concentration. W.F. VonOettingen and others. U.S. Pub. Health Service, Pub. Health Bull., No.279 (1942). Price 10¢.
With regard to the maximal permissable concentration of toluene in air, their experiments show that toluene has essentially narcotic properties and that continued exposure to a concentration even as high as 5,000 p.p.m. is not liable to cause definite injury of the blood forming organs, the liver or any other organs. Toluene is therefore less toxic with regard to the blood and blood forming organs than benzene, and with regard to the liver less toxic than carbon tetrachloride, the maximal permissable concentration for both of these being considered as 100 p.p.m. Since exposure of human subjects for eight hours to 200 p.p.m. was found to produce slight but definite changes in muscular coordination, this concentration may render individuals more prone to accidents. According to their findings the repeated exposure of animals and humans to such concentrations causes no discernable untoward effects on their health. It appears, therefore, as far as toxicity is concerned, that the maximal permissable concentration for toluene in air for eight hours' exposure daily is 200 p.p.m. In operations which offer specific accident hazards this concentration may prove to be too high. -- From Authors' summary.

803 Reducing Absenteeism -- Studies in Personnel Policy, No.46. National Industrial Conference Board, Inc., New York. (1942).
The long felt need for the reduction of absenteeism is graphically presented along with methods for combatting the huge losses involved. The magnitude of the problem warrants re-emphasis time and again until the answer is found. Absenteeism during 1941 was responsible for the loss of the time of nearly 1,250,000 persons every day during the year. The logical approach by the collection of statistics showing why these absences occur can be made through a combined national effort. This excellent study provides data on absence recording and analysis and illustrates the methods used by representative companies, both large and small together with measures for solving specific problems in absenteeism.

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Legal Developments

824 Death from Cancer. Injury to Groin as Alleged Cause.
The trial court withdrew the evidence from the jury and entered a judgment in favor of the defendant. The action was persecuted by the wife of a deceased workman, who, it is claimed, died as the proximate result of an accidental injury. The deceased dropped a tool, and in recovering it, felt a snap in his groin, which culminated in cancer. There is evidence to the effect that this injury proximately caused his death. The evidence does not show that the deceased sustained an accidental injury within the purview of the workmen's compensation law. The judgment is affirmed. Lindquist v. Goodyear Tire & Rubber Co., Ohio Ct. of App. 9th Dist. Decided June 3, 1942. (CCH).

825 Death of Foundry Worker Due to Heat Prostration Compensable. Injury Arising Out of and in Course of Employment. Meaning of "Compensable Injury." When an Injury is Accidental. Heat Prostration as Traumatic Injury. Causal Connection. Dependency of Decedent's Mother.
Malone was employed as a foundry pourer. One witness testified that the temperature where Malone worked approximated 113 degrees when the temperature outside approximated only 90 degrees. Malone collapsed. He was attended by a physician who diagnosed his condition as acute indigestion complicating heat prostration. He died. Lucy Malone, mother of the decedent, filed a death claim. The claim was denied. On appeal to the Common Pleas Court, a verdict was rendered in favor of the claimant, and judgment entered on the verdict. The question is whether heat prostration is a compensable injury. The Workmen's Compensation Act provides compensation for only such injuries as "arose out of the employment." That is, the injury must be such as is suffered through and because of the employment. There must be a causal connection between the employment and the injury. A compensable injury must be accidental and traumatic in origin, and arise out of the employment. By statute, injury includes any injury received in the course of, and arising out of, the injured employee's employment. The term "injury" comprehends a physical or traumatic injury, accidental in its origin and cause; the result of a sudden happening occurring by chance, unexpectedly, and not in the usual course of events, at a particular time. Scores of compensable accidental injuries result where no accidental circumstance precedes or causes them. An injury may be suffered in the course of voluntary action and still be accidentally caused. When, in connection with an intentional act on the part of a workman which precedes an injury to him, something unforeseen, unexpected, and unusual occurs which produces the injury, or from which the injury results, it is accidental in character and result. While the decedent voluntarily worked in a superheated atmosphere, his death was not the usual and expected result but the unusual and unexpected result of such employment, and was, therefore, accidental. A traumatic injury is one produced by any sudden violent attack upon the tissues or organs of a living body producing a wound, tear or an abnormal condition thereon or therein. The attack may result from contact with deleterious gases, destructive temperatures or forces of nature. Heat stroke or heat exhaustion is a traumatic compensable injury. The decedent carried molten metal which had a temperature of 2,600 degrees. The jury was justified in finding that the decedent suffered an accidental injury in the course of and arising out of his employment, compensable under the Workmen's Compensation Act. When an employee, by reason of the activities, conditions and requirements of his employment, is subjected to a greater hazard than are the members of the general public, and he is accidentally injured thereby,

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a causal connection between the employment and the injury is established. Appellant also contends that the plaintiff, as mother of the decedent, was not the latter's dependent. The decedent was living at the home of his mother at the time of his death. Dependency was therefore presumed. There was also credible evidence of actual dependency. Judgment affirmed. Malone v. Industrial Commission of Ohio. Ohio Supreme Ct. Decided July 22, 1942. (CCH).

826 Silicosis Exposure to Dust Before and After July 1, 1935. Statute of Limitations. Constitutionality.

Two motions are before the Court. One is by the defendant for a summary judgment. The other is by the plaintiff for leave to amend his complaint. This is an action to recover damages for personal injuries allegedly caused by harmful dust and vapors. It is alleged that the injuries were not accidental in nature and were not such injuries or diseases as were at the time of the happening thereof within the purview of the Workmen's Compensation Act of New York. Prior to Sept. 1, 1935, sufferers from silicosis and other dust diseases had only their common law remedy. Subsequent to Sept. 1, 1935, the Workmen's Compensation Law provided for compensation, except in cases where the last injurious exposure occurred prior to that date, thus in these latter cases preserving the common law remedy. By amendment to Section 66, by Chapter 548 of the Laws of 1940, the time to commence these common law actions was limited to ninety days from April 16, 1940. Since plaintiff alleges that subsequent to Sept. 1, 1935, effective means of removal of harmful dust and vapors were employed by defendant and not that the generation of the dusts and vapors was eliminated, he, in effect, pleads that the hazard is still present, and his proposed amendment, "that plaintiff was exposed to no hazard after July, 1935," is contradictory and of no effect. Plaintiff's injuries, if any, resulted from "occupational disease" as distinguished from accidental injury. The amendment to Section 66 of Chapter 548 is constitutional. Plaintiff was not thereby deprived of any common law right of action. It is claimed there was no exposure subsequent to Sept. 1, 1935, and the allegation that the tort was continuous to 1941 is, in effect, an allegation that there was injurious exposure after Sept. 1, 1935. Upon this theory plaintiff was entitled to relief under the Workmen's Compensation Law only. The obvious purpose of the amendment was to bring to speedy disposition any rights to bring common law actions which arose before 1935, because the Workmen's Compensation Law has provided for relief for silicosis and dust diseases. The motion to amend the complaint with respect to "partial disability" is granted. The motion for summary judgment is granted. Ligiecki v. E.I. duPont deNemours & Company, Inc. U. S. Dist. Ct., West. Dist. of N.Y. Decided July 7, 1942. (CCH).

827 Silicosis. Claim Must be Filed Within Six Months After Death.

The single question is whether the relatrixes filed their claims before the Industrial Commission within the period required by Section 1465-68a, General Code, which reads in part as follows: "Claims for compensation on account of silicosis shall be forever barred unless application shall have been made to the Industrial Commission within one year after total disability began or within six months after death." The decedent became totally disabled November 17,1939, and died March 16, 1940. More than seven months later on October 22, 1940, one relatrix filed her claim. The claim of the other was not filed until April 12, 1941, nearly thirteen months after the decedent's death. With reference to a death claim the statute clearly seems to provide that it must be made within six months thereafter. With equal clarity that part of the statute relating to a disability claim seems to require it to be filed within one year. The General Assembly has provided a separate and distinct limitation for each of two separate and distinct types of claim. The respondent's demurrer to the petition must be sustained; the action dismissed, and the writ of mandamus denied. Judgment for respondent. State, ex rel. Raymond et al. v. Industrial Commission of Ohio. Ohio Supreme Ct., Decided July 8, 1942. (CCH).

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Industrial Health Hazards and Their Effects

828 Industrial Illness Due to Tetryl. L.J. Witkowski, C.N. Fischer and H.D. Murdock. J.A.M.A., 119, 1406 (August 22, 1942).
Tetryl or trinitrophenylmethylnitramine (used in explosives) has caused dermatitis and other toxic symptoms in 1258 (23 per cent) of a group of more than 5000 people employed where the compound is processed. 75 per cent of the affected workers had a definite tetryl dermatitis. Neither sex nor age was found to be a predisposing factor. 40 per cent of the operators who were in direct contact with tetryl developed some form of illness. 20 per cent of the workers who had no direct contact with the tetryl developed tetryl illness proving that direct contact is not the only disposing factor. One per cent of the workers developed symptoms during the second or third week of exposure. The maximum is reached during the fifth or sixth week with five per cent being affected. A decrease to about three per cent then occurs and is maintained indefinitely. This would indicate a degree of tolerance is developed. Prophylactic measures include, the rotation of employees, the use of small open rooms, a program of cleanliness, ventilation and temperature control, dietary measures and the use of protective creams.

829 Combating Chronic Poisoning in Chemical Operations. W.M. Pierce. Chem. & Met. Eng., 80 (August, 1942).
In many plants the chemical engineer is called upon to pass judgment on the hazards which may result from the use of a certain chemical. These opinions are generally sound insofar as corrosion, explosions, contamination of product or acute poisoning are concerned. However, the probability of chronic poisoning is often ignored by many technical men. This may be due to faulty training as well as to the concentration of industrial hygiene literature in journals not widely read by chemical engineers employed in industry. The portals of entry of poisonous substances and the difficulties encountered through variation in individual susceptibility to poisons are discussed. A summary of the means for preventing chronic poisoning is also given. This is the first of a series of articles by the author to appear in Chemical and Metallurgical Engineering.

830 Study of Dust Problems in the Ceramic Industry. L. Greenburg and T. Hatch. The Industrial Bulletin (N.Y.), 21, 187, 233 (May & June, 1942).
The dust concentration data reported are of great significance from two points of view. First, the data show that without effective dust control, excessive dust concentrations may build up in practically every manufacturing department of a ceramic plant. The seriousness of the health hazard resulting from the dust exposure, however, is not necessarily the same in all plants or in all departments of the same plant since the free silica content of the parent material and of the air-borne dust varies. Second, effective dust control measures have been developed and are in practical use in some departments of several plants and it is believed that such measures are generally applicable throughout the ceramic industry. In certain cases, however, it may be necessary to make changes in the manner of handling materials or in the manufacturing processes in order to achieve the desired results. It is shown for example, that in materials handling, best results are obtained with mechanized equipment since ventilation can be applied to such equipment with more positive results than to manual handling operations. Segregation of dusty from non-dusty operations is also an essential measure. Plant construction and layout must be of a form that will

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make it possible to maintain good housekeeping. Overcrowding of operations in a single room must be avoided. A summary of the measures recommended by the U. S. Public Health Service for controlling dust in ceramic plants is given.

831 A Case of Pneumoconiosis Due to the Inhalation of Fuller's Earth. A.H.Campbell and S.R. Gloyne. J. Path. & Bact., 44, 75-80 (January, 1942).
A miller of fuller's earth for 38 years, aged 56, complained of dyspnoea, some cough and expectoration. X-ray showed a "miliary distribution of small nodular areas denser in the mid zones," but involving all parts of both lung fields. (Although not mentioned in the text, emphysema is suggested by lighter zones in the costo-phrenic regions of a reproduced chest roentgenogram.) Rales over both lungs, sputum negative for tubercle bacilli, pulse and temperature normal. The man died suddenly of causes not stated. At autopsy the heart showed no lesion. The lungs revealed soft adhesions of recent pleurisy with no silicotic nodules. Scattered throughout both lungs were "irregular, rounded, black, fibrotic patches 1/4 to 3/4 inches in diameter," with a tendency to confluence in the upper lobes. They were not as hard as silicotic nodules, and were not raised above the cut surface. About them were areas of compensatory emphysema and large bullae were found in one apex. There was a terminal bronchopneumonia but evidence of tuberculosis was lacking. The tracheobronchial nodes were small, contracted and pigmented. Histologically the dust reaction is described as a "reticular fibrosis" within the air spaces together with perivascular and peribronchiolar fibrosis. No micro photograph is included. Mineralogical analysis of the fuller's earth from the pits where the subject had worked showed that 85 to 90% of the material was montmorillonite mixed with beidellite, with less than 1% of quartz. Subcutaneous injection of this material into 2 guinea pigs caused localized nodules with a central zone of necrosis, surrounded by a capsule of connective tissue. The roentgenogram has the appearance of a severe pneumoconiosis. The gross description of the lung is not too informative as the same words would describe reaction to many inert dusts. One also wishes that the histology had been illustrated by microphotograph as the statement that "the air spaces were filled with" ovoid particles of dust, "surrounded by strands of collagenous fibrosis" does not preclude an organized bronchopneumonia. The animal injections hardly constitute proof of the capacity of fuller's earth to provoke fibrosis for two photomicrographs show a type of change regularly produced on introducing large amounts of many other silicates. The reviewer would interpret the thin peripheral zone of connective tissue as a capsule formed about a mass of foreign bodies and not a specific response to a chemical irritant. The fact that the picture was the same 8 and 20 months after injection also suggests a non-specific foreign body reaction. The uniformity of the shadows seen in the roentgenogram, on the other hand, strongly favors a specific pneumoconiosis. If infection were even partially responsible for the lesion, such an even distribution would hardly be expected.

832 Pneumoconiosis. R.R. Sayers, Chairman of A.P.H.A. Committee. Am. Pub. Health Assoc. Year Book. 117-124. (1941-1942).
The committee poses the following questions: (1) "Can dusts other than silica cause fibrosis ...," (2) "What about protective dusts?", (3) "Why is the progressive process in silicosis very slow in some people, and very rapid in others?", (4) "Why do not men with comparable exposures exhibit comparable pathology?", (5) "...difficulties of diagnosis." Recent literature covering these questions is reviewed critically. It is felt that there is no longer any question about the specific harmfulness of free silica and of asbestos. The question of protective dusts is important and is under study by several laboratories. The last 3 questions are the most perplexing and no final answers are attempted. The conclusions stress the fact that it has been shown clearly that silicosis can be controlled, and even entirely prevented, by a combination of known procedures which physicians, engineers, and plant managers can carry through cooperatively.

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833 Physiological Studies Pertaining to Deep Sea Diving and Aviation, Especially in Relation to the Fat Content and Composition of the Body. A.R. Behnke, Jr., Bull. N.Y. Acad. Med., 18, 501 (September, 1942).
An outline is presented of the physiologic factors that enable divers and aviators to work in a pressure environment of 16 atmospheres or in a rarefied medium of 0.20 of an atmosphere respectively. Of especial interest are the quantitative studies pertaining to the absorption or elimination of gaseous nitrogen which in turn have permitted estimates of fat content and composition of the body of the healthy, adult male. On the basis of determinations of specific gravity, values near 1.099 indicate no excess fat and the body contains only about 10 per cent by weight of lipid matter that is regarded as essential. A reading for specific gravity of 1.080 is indicative of approximately 10 per cent excess fat. A figure of 1.062 indicates that there is 20 per cent excess fat, while a value of 1.036 denotes that 33.3 per cent of the body weight consists of excess fat.

834 Chrysotile Asbestos as an Indicator of Subtile Differences in Animal Tissues. L.U. Gardner. Am. Rev. of Tuberc., 45, 762 (June, 1942).
In the course of experiments upon the action of asbestos fibres upon living tissue it has been observed that this irritant is not like finely divided quartz, which provokes specific cellular responses in any organ of all species of animals investigated (tadpoles, fish, chickens, mice, rats, guinea pigs, rabbits, cats, dogs, monkeys and man). Asbestos fibres are acted upon to produce the "bodies," described by Cooke, only in the lungs of a few species like man, guinea pigs and white mice. They do not form in other organs of these species nor have they been observed in the lungs of white rats or dogs; in rabbits' and cats' lungs there are occasional atypical ones. Fibrous tissue reaction is also limited to the lungs, but none at all has developed in those of mice and dogs. The subtile differences in tissues responsible for such variation have not been identified but they may be of significance to the general problem of most resistance to other irritants like tubercle bacilli. -- Author's summary.

835 Industrial Hygiene Regulations (Regulations 1-3) - September 18, 1941. Colorado State Board of Health Bull., 5, 4-6 (November, 1941).
No process, material or method of working, known to have an adverse effect on health, shall be used unless arrangements have been made to maintain the occupational environment in such a manner that injury to health will not result. Exposure to dust, fumes, etc. shall be kept below concentration limits, as established in a table of suggested maximum permissible concentrations. This table includes 8 dusts, among them cement (15 million particle per cubic foot), organic dust (50 million), talc (15 million), 45 gases and vapors (benzol 100 p.p.m., toluol 100 p.p.m., methanol 100 p.p.m.), 9 metallic dusts and fumes. There is added a table of lower explosive limits of 46 inflammable vapors.

836 Pneumoconiosis of Coal Workers. Anonymous. Lancet, 6197, 689 (June 6, 1942).
This is a brief article discussing the Medical Research Council's report on chronic pulmonary disease in South Wales coal miners. See Abstract No.496, June, 1942 Digest.

837 Dust Diseases in Russia. Anonymous. Lancet, 6177, 85 (January 17, 1942).
A short summary of status of dust diseases in Russia, in particular for the Donets Coal Mining industry, is given. The work in the Donets' area has been wiped out by the war.

838 Firedamp. Recent Research on the Ignition of Firedamp and on its Movement in Air. H.F. Coward. Trans. Inst. Min. Engrs., 101, 329 (April, 1942).
Recently there have been gas ignitions apparently by sheathed explosives. An investigation has shown that the firedamp contains from five to nine per cent

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of a higher hydrocarbon, probably ethane. Experimental difficulties have prevented the identification of any other gases if they are present. Evidence has been obtained which shows that when firedamp is ignited by friction between sandstone rocks or metal tools and sandstone, the ignition results from the heated surfaces rather than from a spark. Friction sparks from ironstone, pyrites, aluminum painted rusty iron, and static sparks from belts and compressed air lines have each been studied experimentally. Eleven cases of gas explosions where sheathed (safety) explosives were used show that no explosive is safe under all conditions. The flow of firedamp in galleries or roadways has been the subject of experiment. A pocket apparatus consisting of a smoke indicator for gaseous movements was used during the study.

839 Sheathed Explosives. H.C. Grimshaw. Trans. Institution Min. Engrs., London. 101, 113 (February, 1942).
Since 1934 the consumption of sheathed explosives in the coal mines of Great Britain has increased. In 1938 about one-third of the total permitted explosives were sheathed, and in certain areas the sheathed amounted to two-thirds of the total. The experimental evidence that increased safety would be conferred by the sheath was justified by early experience. There was no instance of a sheathed explosive being involved in an ignition of firedamp underground until April,1938, but since then there have been a few. Summarized accounts of some of these occurrences are given. Test conditions for sheathed explosives are detailed and recent experimental work is described. The conditions under which explosives are used underground may vary widely, and the chance that they will ignite firedamp is greatly influenced by external conditions. Since the mode by which explosives effect ignition is little understood, it is impossible to define one set of conditions which are more dangerous than any others. The alternative is to choose a series of test conditions which together embody as far as possible all the known underground conditions that influence the ignition of firedamp. When a new test, now being devised, is added to the two already developed, it is hoped that all the critical conditions will be satisfactorily represented.
Sheathed explosives are now, on all experimental evidence, safer than unsheathed explosives. But the limitations of even sheathed explosives should be known and respected.

840 Cause of Explosions in a Brown-Coal Dust Loading Plant. E. Müller. Braunkohle, 40, 1-6, 15-19, (1941).
Among possible causes of explosions is the formation of explosive gas mixtures and their ignition by static electric sparks; the explosions which occurred, however, were shown not to be due to this cause. Experiments showed that moving dust in presence of atmospheric oxygen bursts into flame and that this phenomenon was the cause of explosions. Measures for preventing self-ignition of dust and explosions are described. No need was found for the use of a safety gas in the plant.

841 Skeletal Sclerosis in Chronic Sodium Fluoride Poisoning. P.C. Hodges and others. J.A.M.A., 117, 1938, (December 6, 1941).
Exposure to fluorine in industry, e.g., of those engaged in crushing rock containing sodium fluoride, or in the cryolite industry, is known to lead to osteosclerosis, while drinking water containing 1 p.p.m. or more leads to the production of mottled enamel of the teeth. Till recently it was held that the drinking of fluoride-containing water did not lead to bone changes, but with the last few years demonstrable bony changes have been reported where the only ascribable cause was the drinking water. The authors have carried out two investigations on a small number of persons: 81 at Kempton, Ill., of ages ranging from 7½ years to 71 years who for periods up to 61 years have been drinking water containing

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1.2 to 3 p.p.m. of fluoride; in another group were 31, ranging in age from 18 to 78 years, with from 18 to 68 years' use of drinking water containing about 2.5 p.p.m. In none of either group could they determine by x-rays any generalized skeletal sclerosis, but all of both groups who had been exposed to the drinking water in childhood showed evidence of mottled enamel. Further research is needed.

842 The Treatment of Acute Mercury Poisoning with Sodium Formaldehyde Sulfoxylate with a Review of Twenty Cases. R. Wolpaw and M. Alpers. J. Lab. & Clin. Med., 27, 1587 (August, 1942).
A method of treatment for acute mercury poisoning utilizing sodium formaldehyde sulfoxylate and based on the work of Rosenthal is outlined. It consists of: (1) Immediate gastric lavage with sodium formaldehyde sulfoxylate. (2) Intravenous injection of sodium formaldehyde sulfoxylate. (3) High colonic irrigations with the same drug twice a day. (4) Gastric lavage twice daily for two days. (5) Daily intravenous glucose in saline. (6) Mouthwash with sodium formaldehyde sulfoxylate for stomatitis. (7) Supportive measures as needed. (8) Fluids and soft diet. Four fatal cases are presented and the causes of death are analyzed. The significance of early treatment, physiological supportive measures, high colonic irrigations, and individual management are stressed. The method is not considered to be ideal, but it is felt that it should be used in all cases of acute mercury poisoning until a more efficient routine is discovered. -- Authors' summary.

843 A Case of Industrial Phosgene Gas Poisoning. R.E. Shaw. Univ. of Leeds Med. Magazine. 11, 147-148 (October, 1941).
A labourer, aged 31 years, in a chemical works, when removing the cap from a cylinder of phosgene gas received a blast of the gas. During the next 20 minutes he coughed and vomited repeatedly; he then felt well enough to continue his work. Nearly 3 hours later he cycled 6 miles to his home and arrived "feeling quite well." He had a meal and went for a walk. Four hours after the first exposure symptoms returned. Such a latent interval is well known after exposure to phosgene gas, but it is thought that the severity of these later symptoms may be ascribable to the exertions of the patient during the interval. He complained of tightness in the chest, and suffered from increasing dyspnoea, persistent cough with thin yellow expectoration and a return of the vomiting. On admission to hospital the following day, 24 hours after the accident, his temperature was 97.8°F., pulse rate 132, weak and thready, respirations 45 per minute; he was grey and cyanosed, and rhonchi and moist rales were heard. He was propped up in a sitting position and oxygen administered, at first through nasal catheters later by the B.L.B. mask; coramine was given in doses of 1 cc. hourly. Next morning he was better, but respirations were still 48 and breathing distressed. The same afternoon he relapsed and became very cyanosed; a pint of blood was withdrawn and improvement was practically immediate and maintained till recovery. In view of possible bronchopneumonia he was given sulphapyridine, 1 gm. 4-hourly for 3 days. Twenty-four days after admission he left hospital, returned to heavy work and has kept well. The fall in temperature following the use of this drug may, suggests the author, mean that an incipient bronchopneumonia was aborted, and consequently he advocates its use prophylactically in cases of phosgene gas poisoning.

844 Phosgene Poisoning: Report on Two Cases. J.P. Steel. Lancet, 6185, 316 (March 14, 1942).
Two cases of accidental phosgene poisoning are reported, one severe and the other mild. Both patients became rapidly delirious, with fever and rapid pulse and respirations, and a painful cough, soon after exposure. In the severe case, pulmonary edema developed 24 hours after exposure; the other showed only acute bronchitis. Treatment was by rest, oxygen, general heat with poultices to the

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chest, free fluids, sedative cough mixtures and strict measures to prevent secondary infection. Both the patients improved rapidly after the first 48 hours, and there were no symptoms or abnormal physical signs at the time of their discharge from the hospital. -- Author's summary.

845 A Case of Cadmium Poisoning. G. Taylor and J.H. Hamence. Analyst. 67, 12 (1942).
As much as 0.01% cadmium was found in lemonade prepared in a cadmium-plated vessel; as little as 15 p.p.m. of cadmium produces mildly toxic symptoms.

846 Radium Poisoning. R.H. Stevens. Radiology, 39, 39 (July, 1942).
This is a case history of a patient with radium poisoning and constitutes one of the few cases in the literature where adequate data on the amount of radium involved was known, as well as the amount retained after a period of many years. The patient had an incurable malady, Hodgkin's disease, and was treated with an intravenous injection of 20 micrograms of radium chloride in 1925. A total of 440 micrograms of radium chloride were administered during a five year period. The fractional retention amounts to 11.4 micrograms or 2.5 per cent of the total administration. The treatment has preserved the man's life and there has been no evidence of Hodgkin's disease throughout the last eighteen years. Many interesting speculations are drawn from this case history.

847 Titanium Salts and the Public Health. M. Deribere. Ann. d'Hyg. Pub., Indust. et Sociale. 18, 133-137 (May-June, 1941).
The author describes the various salts of titanium and their chemical qualities in relation to solubility, acidity and neutrality, and action on the skin. A great many titanium compounds are mentioned and advocated but no special selection is made. The therapeutic conditions for which their use is advocated are various skin conditions where the skin is particularly irritable. The citrate is advocated in various conditions affecting the teeth, such as gingivitis and it is valuable in dentifrices. No particulars are given as to the actual results obtained in any series of cases.

848 Chronic Toxicity of Cadmium. O.G. Fitzhugh and F.H. Meiller. J. Pharmacol., 72, 15 (1941).
The toxicity of cadmium is increased by a low-protein diet.

849 The Hazard of Cadmium-Containing Solder. M. Richnow. Tech. Blatter, 30, 281 (1940).
Tin in solders is often replaced by cadmium. It should be noted that the boiling point of cadmium (765°) is approximately 1/3 of the boiling point of tin. Furthermore cadmium commences to vaporize just above its melting point (321°). Cadmium vapor is a strong heart poison. In using cadmium the greatest precautions must be taken.

850 Relation of the Sulfur Amino Acids to the Toxicity of Cobalt and Nickel in the Rat. W.H. Griffith and others. J. Nutrition, 23, 603-12, (1942).
The marked inhibition of growth of young rats due to 0.12% $CoSO_4$ in an 18% casein diet is largely prevented by supplements of methionine, cystine or cysteine, especially the latter. The high mortality due to either the oral or intraperitoneal administration of very toxic levels of either Co or Ni is prevented by the simultaneous and separate administration of cysteine. The complex of Co and cysteine formed in vitro is relatively non-toxic. Co poisoning may be due to the fixation and loss of sulfhydryl compounds in tissues with resulting interference with oxidative mechanisms.

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851 The Effect of Calcium Cyanamide Poisoning on the State of Immunity of the Body. M. Siebert. Arch. Hyg. Bakt., 125, 335-44 (1939).
Experimental studies on rabbits made to inhale the powdered compound for 3-4 hours showed a drop in phagocytosis, and in bactericidal power of the serum. Absolute EtOH, 3 g. per kg. body weight given in 20% solution, intensified the latter effect, and had little influence on the former. Conclusion: Calcium cyanamide inhalation lowers the body's state of immunity.

852 Clinical Considerations of Poisonings by Some of the Chlorinated Hydrocarbons. H.F. Smyth. N.Y. State J. Med., 42, 1072-9 (1942).
A lecture on dichloroethylene, trichloroethylene, tetrachloroethylene, methyl chloride, ethyl chloride, methylene dichloride, ethylene dichloride, chloroform, carbon tetrachloride, tetrachlorethane and pentachlorethane from the standpoint of industrial poisoning.

853 A Contribution to the Toxicology of Sodium Nitroprusside. I. The Decomposition and Determination of Sodium Nitroprusside. H.E. Hill. Australian Chem. Inst. J. & Proc., 9, 89-93 (1942).
After a fatal case of poisoning by sodium nitroprusside, the determination of sodium nitroprusside in animal tissues was studied. Sodium nitroprusside decomposes in the animal system with liberation of hydrocyanic acid. Only slight liberation of hydrocyanic acid occurs during steam distillation with dilute sulfuric or tartaric acid. Animal tissue and blood decomposes sodium nitroprusside at room temperature forming hydrocyanic acid which is recovered by steam distillation from acid solution. In the presence of blood the liberation of hydrocyanic acid is quantitative (98.8% maximum recovery).

854 A Contribution to the Toxicology of Sodium Nitroprusside. II. Toxicity of Sodium Nitroprusside for Guinea Pigs. L.W. Mahaffey. Australian Chem. Inst. J. & Proc., 9, 89-93 (1942).
The toxicity of sodium nitroprusside for guinea pigs is close to that of potassium cyanide. The symptoms are similar but are developed more slowly.

855 Lead Poisoning in Animals. W. Gabel. Deut. tierarztl. Wochschr., 49, 6-9 (1941).
Increase of the porphyrin excretion in the urine is not a sufficient indication of lead poisoning. The frequency of lead damage increases in summer, decreases a little in autumn, increases again in November and decreases greatly during the winter. The average lead content in the liver is greater in summer and is smaller in autumn.

856 Poisoning by Tellurium. W. Haring. Deut. med. Wochschr., 57, 930 (1941).
Tellurium poisoning of an assistant in bacteriology is described, with typical clinical appearance and course.

857 Experimental Thallium Alopecia. Hidewo Ōba. Japan. J. Dermatol. Urol., 46, 81-85 (1939).
Thallium alopecia is probably the result of direct thallium injury to the skin and functional disturbance of the glands of internal secretion.

858 Decomposition of Tetrachloroethylene. S.R. Gunewardene. J. Ceylon Branch Brit. Med. Assoc., 37, 47-8 (1940).
Phosgene was found in bottles of tetrachloroethylene exposed to light but not in those stored in a refrigerator or allowed to stand in the dark. Since phosgene is a dangerous lung irritant, the test for its presence by smell should be preceded by taking a deep breath and then testing by a gentle sniff; if phosgene is detected, expiration should be quick and complete.

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859 Ethylene Dichloride. Industrial Data Sheet D-Chem. 41. Nat. Safety News, 46, 52 (August, 1942).
Ethylene dichloride burns with difficulty but it has a closed cup flash point of 56°F. The explosive limits are from 6.2 to 15.9 per cent by volume in air. Its autoignition temperature is 775°F. and the vapor density is 3.42 (air = 1). Chronic exposure data have not yet been completed but it is known that its effects are, in general, similar to carbon tetrachloride, trichlorethylene and chloroform. The immediate effects of inhalation are narcosis, nausea, dizziness, weakness and irritation of the eyes and respiratory tract. It has been noted that one severe exposure to ethylene dichloride will increase a persons susceptibility to the compound. At least two states, California and Massachusetts, have suggested as a maximum allowable concentration in air 100 parts of ethylene dichloride per million parts of air (by volume). Skin affections caused by ethylene dichloride, resemble those caused by most fat solvents but if sensitization occurs a severe generalized dermatitis may occur.

860 The Toxicity of Benzoic Acid for White Rats. G.P. Heger, C.W. Chapman and E.B. Starkey. J.A. Pharm. Assoc., 31, 253 (August, 1942).
The toxicity of benzoic acid when administered as the sodium salt intravenously to white rats corresponds closely to that reported for other animals. The value of the $L.D_{50}$ found in this investigation is 1.714 ± 0.124 gm/Kg. (P = 0.95). -- Authors' summary.

861 Chlorinated Naphthalene Poisoning. N.G.B. McLetchie and D. Robertson. Brit. Med. J., 4248, 691 (June 6, 1942).
A case of fatal liver necrosis due to poisoning by chloronaphthalene is described. This substance is now extensively used in industry for insulating wire and electrical apparatus, and there is risk of its being absorbed by the skin or by inhalation of fumes. There is evidence from cases described abroad, that the onset of the disease may be insidious; slight jaundice may appear unaccompanied by more clamant symptoms which would induce the individual to cease work. In the present instance the subject had been at risk of exposure for six months before the onset of any illness, but, though the first symptoms were very mild, death occurred eight weeks later. The case was complicated by the existence of rheumatic cardiac disease. -- Authors' summary.

862 Death from Phenothiazine Poisoning. D.R. Humphries. Lancet, 6202, 39 (July 11, 1942).
A case history of a fatality occurring in a six year old school girl is recorded. The phenothiazine was prescribed in 2 gram daily doses for the treatment of threadworm infestation.

863 Pharmacological and Toxicological Studies on Cetylpyridinium Chloride, a New Germicide. M.R. Warren, T.J. Becker, D.G. Marsh and R.S. Shelton. J. Pharm. & Exp. Therapeutics. 75, 401 (April, 1942).
The minimum lethal dose of cetylpyridinium chloride in rabbits following intravenous administration was 20 milligrams per Kilogram. By the way of oral administration, this compound in an amount of 400 milligrams per kilogram killed one of six rabbits. It was found that the compound was most toxic following intraperitoneal administration. In many cases death was delayed for from three to six days. Chronic toxicity studies indicate that a daily oral intake of 10 mg. per kgm. and 100 mg./kgm. by rabbits for a period of four weeks does not produce any significant harmful effects. The irritant action on intact skin was determined. Cetylpyridinium chloride exerted a "curare-like" action. It produced a central stimulation and a peripheral paralysis.

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864 Porphyrinuria in Trinitrotoluene Poisoning. A.M. Kennedy and J. Ingham. Brit. Med. J., 1942, I, 490-2.
A description of the chemical findings, especially those obtained by urinalysis are presented.

865 Cetyltrimethylammonium Bromide (CTAB): A New Disinfectant and Cleaning Agent. J.M. Barnes. Lancet, 6192, 531 (May 2, 1942).
Experiments with solutions of CTAB, a cationic detergent, have shown it to be capable of materially reducing the number of bacteria on normal skin, and of completely sterilizing dirty and greasy bowls and baths. Clinical uses for this substance are suggested, since its application to normal skin and wounds seems to be without danger. -- Author's summary.

866 Toxic Effects of Bitter-Tasting Phenylthiocarbamide. C.P. Richter and K.H. Clisby. Arch. Path., 33, 46-57 (1942).
Phenylthiocarbamide, in doses of 1.0-2.0 mg. kills rats in a few hours with respiratory collapse and a very low body temperature before death. Edema of the lungs was found on post mortem examination. Increased tolerance for the drug could be established in rats, up to 10-12 mg. Rats killed after chronic poisoning with the drug showed markedly hypertrophied thyroids.

867 Volatile Solvents. H.F. Smyth, Jr., Chairman of A.P.H.A. Committee. Am. Pub. Health Assoc. Year Book, 142 (1941-1942).
Most American committee reports, at least in the general field of science, are a model of polite restraint and dull understatement. This report -- it is a little over 200 words -- is directed against the use of nitrocellulose lacquer solvent, which the inventors claim is non-toxic, although it contains 60% benzol. The committee states that the claim is not proved. It would be a blessing if we had more such reports, and less of the others.

868 Poisoning Due to Methyl Salicylate (Oil of Wintergreen). A Report of a Case with Autopsy. I.S. Epstein and J.L. Work. Ohio State Med. J., 38, 825-6 (1942).
A 4-year old boy died 19 hours after the ingestion of approximately 30 cc. of an oil of wintergreen rubbing compound. Death in methyl salicylate poisoning is usually the result of acidosis and respiratory depression; the autopsy findings are those of asphyxia rather than of any specific effect of the drug. It is emphacized that all preparations sold to the public as counterirritants should be properly labeled.

869 Blood Findings in Cyclotron Workers. Shields Warren. Radiology, 39, 194 (August, 1942).
The blood counts and hemoglobin levels of 85 persons more or less exposed to slight radiation from cyclotrons and temporarily radioactive isotopes have been followed for periods varying from three to 30 months. Most persons under these conditions show no significant changes that are not explained by intercurrent disease. Four showed minor variation in the white cell count. As with exposure to x-ray or radium radiation, transient depression in white cell count is followed by elevation. This change occurs more rapidly in lymphocytes than granulocytes. Some persons have an unstable bone marrow as shown by marked fluctuations in white cell counts when subjected to only minor radiation. Such persons should not work where they are exposed to radiation. The precautions for the safety of these two groups of cyclotron workers appear adequate. -- Author's summary.

870 Late Effect of High Voltage Roentgen Rays on the Heart of Adult Rats. J. E. Leach and K. Sugiura. Am. J. Roentgenology, 48, 81 (July, 1942).
Adult male and female rats received varying amounts of high voltage roentgen radiation to the heart in single doses. There was no demonstrable effect on the

heart two to fourteen months after it had been irradiated with single doses up to and including 7,500 roentgens. There were no late changes observed in the heart of the animals that received radiation to the lungs or thigh muscle. Pulmonary infection, when present, did not cause any demonstrable change in the heart of these animals. The fluid flow theory of Failla has been applied to explain the relative resistance of the myocardium to roentgen irradiation.

871 Morphological Aspects of Experimental Actinic and Arsenic Carcinomas in the Skin of Rats. W.C. Jusper. Cancer Research, 2, 551 (August, 1942).
The evidence presented is proof that the epidermis of the rat is capable of producing under proper stimulation (ultraviolet rays or arsenic) as great a variety of carcinomas as that seen in the human skin. The carcinomas obtained in the skin of the rat following an exposure to ultraviolet rays are even more complex than those occurring in man, as they are not infrequently associated with hyperplastic or sarcomatous proliferations of the mesenchymatous elements of the cutis. The average life span of the rat is apparently shorter in general than the latent period of experimental arsenic carcinoma. -- Author's summary.

872 Mechanism of Tumor Production by Chemical Agents. Felix Borgmann. Cancer Research, 2, 660 (September, 1942).
The following principles for tumor production by chemical agents are hypothetically established: 1. The form and size of a carcinogenic hydrocarbon and of its related heterocyclic compounds determine its activity. Every substance which imitates more or less closely a given parent structure resembles it also in its blastomatogenic action. 2. In the living cell, the cardinogens are adsorbed by an acceptor possessing a definite adsorption area. This sets an upper limit for the dimensions of the active compounds. A lower limit is given by a decrease in adsorbability with decreasing size of the molecule. 3. All carcinogens are conceived as parts of an "ideal carcinogenic structure." 4. A carcinogen can be inactivated by additions which prevent its proper adsorption. The mechanism of this hindering effect is discussed. -- Author's summary.

873 Anemia in X-Ray Workers. Anonymous. Brit. Med. J., 4256, 137 (August 1, 1942).
Periodic blood studies of x-ray workers have been made in many institutions for a long period of years. In none of these institutions has a single case of aplastic anemia occurred and there is no record in the literature except when contact with radium was also involved. A few cases of secondary anemia are found from time to time which are apparently due to conditions of employment other than exposure to x-rays. Very rare cases of white cell reduction have occurred but they return to normal rapidly when exposure is stopped. If a leucopenia should reoccur upon re-exposure, a change of occupation is advisable. Periodic blood examinations at intervals of six or twelve months are advisable in order that the occasional person who may develop a severe white cell anemia may be discovered. The term x-ray anemia "has no particular meaning and should be avoided."

874 Effect of Fluoroscopy on Eyes. Queries & Minor Notes. J.A.M.A., 119, 1367 (August 15, 1942).
It is generally understood that the delicate and highly specialized tissues of the eye are not more sensitive to x-rays than the external facial structures. But few cases of iritis have developed in x-ray workers. All this [illegible] work, however, involves eyestrain in the common sense. On account of the small amount of scattered radiation present in the chest fluoroscopy, [illegible] gloves and aprons have not been generally discarded. A dental film carried in the vest pocket for a week tells whether a particular worker is unduly exposed.

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875 Photographic Industry and Cataracts. Queries & Minor Notes. J.A.M.A., 119, 1468 (August 22, 1942).
The literature does not record any cases of cataracts which have been produced by exposure to chemicals used in the processing of motion picture films. There are three ways in which a chemical substance could be absorbed to produce cataractous changes in the lens: (1) Through the respiratory passages, (2) Through the alimentary tract and (3) Through the skin. The first two methods would not apply in the developing of film. The third method is possible, but, as far as is known, none of the chemicals used in this industry will produce changes in the crystaline lens.

876 Dark Adaptation and Miners' Nystagmus. J. Campbell. Brit. Med. J., 4220, 726 (1941).
It has been recognized for more than 100 years that miners are likely to have both nightblindness and nystagmus. One of the first symptoms of nystagmus is deficient vision at twilight. The chief factor in miners' nystagmus is long continued deficient illumination. As a result macular vision is restricted and the rods of the retinal periphery are chiefly concerned, thus increasing the demand of visual purple and hence requiring an adequate blood supply of vitamin A. A group of 10 miners was studied (average age 38 years) who had worked underground an average of 25 years and had marked nystagmus. Dark adaptation showed that these men were deficient in vitamin A and could be relieved by intensive vitamin A treatment. The study has not been continued long enough to report the effects on nystagmus but the need for vitamin A therapy for all miners is indicated.

877 The Presence of Calcium Crystals in the Cornea after Erosion with Calcium. K. Lisch. Graefe's Arch., 142, 503-505 (1940).
A 27-year old mason scratched his right cornea with lime, and after 4 years suffered loss of vision. It was found upon examination that he could just distinguish fingers. The cornea showed many fine opacities in the superficial subepithelial layers and there was a grayish-white opacity in the deepest parenchymal layers of the corneal center. With the slitlamp many chalk-white granules and star-shaped crystals could be seen in the superficial and middle corneal layers. The other eye was normal. The author thinks that the crystals and granules were probably calcium phosphate and calcium carbonate. Since very few persons with corneal injuries from calcium develop such opacities, the author concludes that there must have been a disturbance of calcium resorption in this patient, the slight increase of calcium introduced into the cornea at the time of injury causing precipitation of the crystals.

878 Scarring and Shrinking of the Conjunctiva as an Industrial Injury in Dyers. R. Bruckner. Ophthalmologica, 102, 221 (October, 1941).
In two elderly dyers the author observed bilateral shrinkage of the conjunctiva with scarring, which he ascribed to the effect of exposure to chemical vapors. Individual peculiarities of metabolism and involutional changes may have played a part. The possibility of direct injury was denied by the patients.

879 Fluorosis in the Incisor Teeth of the Rat. José Grinstein. Semana Méd. (Buenos Aires), 1941, II, 16-28.
The characteristic changes caused by chronic intoxication of rats with sodium fluoride are loss of weight and delayed development and changes in the shape, color and histological structure of the incisor teeth. Most characteristic are the increase in length, decrease in density, irregularity of the surface and white and grayish spots. Photomicrographs of the various structural elements are presented.

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880 Visible Light and Skin Tumors Induced with Benzopyrene in Mice. J.J. Morton and others. Cancer Research, 2, 256-60 (1942).
In the C57 black Bar Harbor strain of mice, skin tumors were induced with 3,4-benzopyrene by painting. Two groups of mice were used; one group was kept throughout the experiment in visible light for 12 hours daily, the other group in complete darkness. There was a delay in the appearance of carcinomas, and a diminution in the number of animals which developed tumors in the groups exposed to light. In addition, a marked dermatitis developed in the group exposed to light. No dermatitis was seen in unpainted controls. The first carcinoma appeared at 105 days in the dark and at 145 days in the light. The total number of both papillomas and of carcinomas was higher in the group deprived of light, and also there was a higher percentage of both in black than in white mice. General nutrition was not a factor in painted mice nor in unpainted controls.

881 Gliomas Produced with Carcinogens. H.M. Zimmerman and H. Arnold. Trans. Am. Neurol. Assoc., 67, 161-4 (1941).
When methylcholanthrene which was purified by chromatic adsorption on Al_2O_3 so that the carcinogen had a corrected melting point of 179.8-180.4° was implanted in pellet form intracerebrally, it led to production of gliomas in approximately 25% of strain C3H mice, 10% of strains ABC and Bagg albino mice, and none of strain dba mice. In addition to the 29 gliomas produced (in the C3H mice) there were 9 tumors which were in part sarcomatous and in part gliogenous. The average length of the experimental period for the gliomas was 270 days, as against 195 days for the intracranial sarcomas. When nonpurified methylcholanthrene was similarly implanted, there was a high percentage of intracranial neoplasms, but these were nearly all of a sarcomatous nature, and gliomas were very rarely produced. Implantation of 3,4-benzopyrene undiluted in pellet form intracerebrally into the C3H mice led to gliomas comparable to those produced by the (purified) methylcholanthrene. Previous attempts to produce gliomas with 3,4-benzopyrene were unsuccessful, probably because of the use of lard or cholesterol-dilg. agents which stimulated granuloma formation as opposed to neoplasia.

882 Asthma of Bakers and Millers. P. Vallery-Radot and F. Blamoutier. Presse Med., 49, 1245-1246 (November, 1941).
Asthma arising from exposure to the dust of flour among bakers, and of grain among millers, does not differ from other asthma of occupational origin. It may be spasmodic coryza, or bronchitic asthma, or the two combined, associated with conjunctivitis. It occurs after a varying period of exposure, while at work, to the sensitizing dust; the period may be a few months, but in one case 19 years elapsed. Seventeen cases among bakers and seven among millers were carefully followed up. A feature of the cases is that, so long as the occupation is not interrupted, all is well but after a break, maybe for military service, or for holiday, or for other work, on return to the original process, the asthma develops. All the bakers gave positive skin reactions to an extract of wheat flour, with a tendency to exhibit a polysensitivity. Hereditary sensitivity to flour was noted in some cases; on others, eczema in childhood; and, in one, hay fever. But the particular interest lies in a treatment discovered by accident; an affected baker was enduring a prolonged attack of severe asthma, when he cut his hands badly with a considerable loss of blood; immediately the attack ceased. A test for skin reaction precipitated a further attack; whereupon bleeding was tried with entire success. This remedy was then employed in other cases; always beneficially. The procedure developed is to withdraw 80 to 100 cc. of blood, repeating the process if the attacks recur. Gradually the attacks become less and less frequent, and less and less severe. (This treatment might be worth a trial in other instances of occupational asthma, e.g., cotton-strippers' asthma.)

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883 Mechanism of Action of Ordinary War Gases. C.D. Leake and D.F. Marsh. Science, 96, 194 (August 29, 1942).
In general the intensity of biological action of any chemical is determined by (1) the dosage in terms of mass of chemical per mass of living material, (2) the ratio of the rate of absorption and distribution of a drug to its rate of excretion or destruction, (3) the physico-chemical properties of the drug such as polarity, energy organization, etc., and (4) the peculiarities of the particular type of living tissue involved, such as age, metabolic and allergic states and enzyme balance. The irritative action of war gases is discussed from their chemical relationship to common aliphatic irritants such as ethyl alcohol, chloroform and diethyl ether. The war gases owe their increased irritative action to aggressive factors associated with altered halogenation and polarity. Tests with mustard gas have shown that kerosene, gasoline, acetone, etc. should not be used to remove the mustard from the skin. The solvents produce a more serious burn than would occur from the untreated exposure. Soap lather or three per cent hypochlorite solution are effective first aid remedies which will minimize the results of the contact with the blister gas.

884 Is Management Responsible for Mishaps of New Workers. Anonymous. Buildings & Building Management, 42, 17 (September, 1942).
The liability of management for proper supervision of workers doing building maintenance work is discussed. A number of instances illustrating accidents and health injuries that could have been avoided by instruction and supervision are cited.

885 Comparative Toxicities of 2-chloro-2-butene, 1,2,3-trichlorobutane, and 1,2-dichloroethane. E. L. McCawley. Univ.Calif.Pub.Pharmacol., 2, 89-97 (1942).
CH_2ClCH_2Cl killed mice within 30 minutes when inhaled continuously in a vapor concentration of 0.25 millimol./liter of air (less than 0.1 of the vapor saturation at room temperature). In some animals, death occurred without preliminary anesthesia. Single sublethal exposures produced liver and kidney damage to such an extent that death was produced by a second or third exposure on subsequent days. 2-chloro-2-butene was dangerous to mice on 30-minute inhalation in a concentration of 2.0 millimols./liter in air; anesthesia occurred in 2-3 minutes; mice exposed to sublethal concentrations could be re-exposed daily for at least 10 days without production of death. Inhalation of vapors of 1,2,3-trichlorobutane produced symptoms of toxicity only after several repeated exposures to an atmosphere saturated at room temperature; when placed in direct contact with the skin, this compound produced local irritation more readily than the others. Eleven references.

886 Physiological Properties of Some Common Gases at High Pressures. J.B.S. Haldane. Chem. Products, 4, 83-4 (1941).
Carbon monoxide is not inodorous but has a garlic-like odor which does not disappear on passing the gas over activated charcoal in a tube immersed in liquid air. The threshold concentration at which it can first be smelled is probably well over 1%. The inhalation of oxygen at 6 atmospheres produces a very definite taste, both sweet and sour. Nitrogen is not physiologically inert. Air at 10 atmospheres is a mild intoxicant causing mental confusion; this is not the case with a mixture of 98% hydrogen and 2% oxygen. The latter mixture is not explosive and at 10 atmospheres it has a partial pressure of oxygen approximately equal to that in air at atmospheric pressure; it therefore supports life. Haldane concludes that it is necessary to define the pressure at which a gas is breathed when the gas is described as odorless, tasteless or physiologically inert.

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887 Experimental Acute Gastric Ulcers Produced in Animals by Exposure to Sulfur Dioxide Gas. F.R. Weedon. N. Y. State J. Med., 42, 630-3 (1942).
A description is given of the occurrence and nature of gastric ulcers in mice and guinea pigs exposed to concentrations of sulfur dioxide representing approximately 10, 25, 35, 65, 100, 150, 300 and 1000 parts per million parts of air. No effects on the stomach were observed below 65 p.p.m. At 65 p.p.m. one-third of the animals showed acute distention of the stomach on the 9th day, and at 100 p.p.m. half the animals showed distention on about the 4th day, while 2 perforations of the stomach occurred. At 300 p.p.m. most animals showed distention and multiple hemorrhagic ulcers on the 3rd day. Perforations were frequent. At 1000 p.p.m. the ulcers were less frequent and of smaller size, but the life span was shorter. The gross and microscopic appearance of the lesions is described.

888 Fluoride Domestic Water and Dental Caries Experience. H.T. Dean, F.A. Arnold, and E. Elvove. Pub. Health Repts., 57, 1155 (August 7, 1942).
A correlation between the dental caries experience rates and the mean fluoride content of the public water supply of 21 cities studied is presented. A general inverse correlation between the fluoride content and dental caries was observed.

889 New Products Bring New Health Hazards. P.A. Brehm. Nat. Safety News, 46, 34 (August, 1942).
Many substances which are known to be very toxic are being used extensively. The necessity of allocating many chemicals to their most vital point of use has resulted in the increased consumption of toxic substitutes. Benzol for toluol, lead for tin, and cadmium for chromium are examples of this condition. Many new chemicals of unknown toxicity are also being developed. The importance of non-occupational absenteeism is illustrated by two charts showing the frequency and severity experience in Wisconsin.

890 Toxic Effects of Some Basic Proteins. L. Reiner, E.J. DeBeer and M. Green. Proc. Soc. Exptl. Biol. Med., 50, 70-4 (1942).
Globin has no appreciable toxicity when injected into animals or tested on tissues and on monocellular organisms in vitro. Protamine and histone are highly toxic to trypanosomes, and have some inhibitory action on tissue respiration in vitro. When injected intraperitoneally into mice the median lethal dose of monoprotamine sulfate is 94 mg./kg. and that of histone sulfate 255 mg./kg. Factors which may influence the toxicity are discussed.

891 The Health Hazard of Refrigerants. F.W. Hutchinson. Heat. & Vent., 39, 21 (June, 1942).
The health hazards are considered under four headings: (1) fire; (2) explosion; (3) escape, and (4) decomposition. Ammonia, carbon dioxide, sulphur dioxide, the fluorine derivatives and the halogen compounds are discussed briefly. It is pointed out that water is the only completely non-toxic refrigerants.

892 Aspiration of Petrol. C.L. Cope. Lancet, 6190, 469 (April 18, 1942).
A non-fatal case of aspiration of petrol into the lungs by a man of 28 is reported. He lost consciousness for a few moments at the time and afterwards developed a right pleural effusion with patches of pulmonary consolidation. A review of the literature is given from which it is shown that the immediate effects of petrol aspiration are the signs of irritating fluid in the bronchial tree (cough, cyanosis, asphyxia) or stomach (pain, vomiting, diarrhoea); collapse may be severe or the patient may die from asphyxia. General effects are transient exhilaration, drowsiness, cyanosis, unconsciousness and upon recovery nausea, dizziness and headache. Delayed effects reported are wandering pneumonia, hemorrhagic pneumonia, pneumonitis and pleural effusion.

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893 Fires and Explosions. L. Greenburg. N. Y. State Ind. Bull., 21, 118 (Mar.1942).
The waste by industrial fire and explosions in terms of personal injury to workers as well as property loss -- particularly at a time when industry is being geared for maximum production in the interests of the war effort -- has caused the Division of Industrial Hygiene to carefully review the case histories of fires and explosions of obscure or unknown origin which had occurred in New York State and had been previously investigated, with a view to developing some general concepts as to causative factors and some of the more important principles underlying prevention. The seriousness of these dangers to life and property may be realized when one considers that the U. S. Government reports of dust explosions alone in the U. S. in the past 19 years show that these explosions caused the death of 308 persons; injury to 680 others and property damage of over 34 million dollars. Fires and explosions from inflammable gases, vapors and liquids are understood to have been even greater in number than those due to dusts, though exact figures are not available at the present time. A total of 46 such fires and explosions were studied and the whole literature of the subject carefully reviewed. Ignition sources were found to fall into 4 principal categories as follows:

1. Flames in connection with open light; matches and cigarette lighters; fires in boilers, water heaters; burning materials; incinerators; cutting and welding torches.
2. Sparks from static electricity, friction from the presence of metal or other foreign material in grinding, mixing and conveying equipment; electric shorts; sparks from tools, motors, snap-type switches and chimneys.
3. Heated materials such as glowing metals, cinders, and filament of electric lights; unprotected and portable electric lights; glowing embers of cigarette, cigar or pipe; overheated bearing on line shaft or mill; hot armature of motor.
4. Spontaneous ignition resulting from the reaction of sodium or potassium in water, turpentine and ammonia in the presence of chlorine, and hydrogen and chlorine in the presence of light; oxidation of finely divided metals such as magnesium and aluminum; oxidation of powdered charcoal and coal; bacteriological action on damp grain and hay; oxidation of oils and fats on wiping rags.

894 Polyneuritis in a Watchmaker. Queries & Minor Notes. J.A.M.A., 118, 1526 (April 25, 1942).
The question was asked as to whether a watchmaker, aged 28, who died following an acute illness, could have contracted infectious polyneuritis as a result of his occupation. The man came in contact with a solution of dilute cyanide, cream of tartar, alcohol and acetic acid, nickel chloride and nickel sulfate, copper cyanide, gold cyanide, silver chloride and silver cyanide. Several diagnoses were made, and the postmortem diagnosis was infectious polyneuritis. It was considered almost impossible for the occupation itself to have caused this disease, and no occurrences of a fatal polyneuritis are found in the authentic literature to have been caused by these plating materials. Cyanides are toxic, but do not induce the manifestations described in the acute episode above. Gold, silver, nickel and copper are not recognized as likely sources of systemic diseases after industrial exposures.

895 A Study of the Synthesis of Hippuric Acid in the Rat After Liver Injury from Carbon Tetrachloride. G. Montes, R.S. Teague and C.E. Nelson. J. of Pharm. & Exp. Therapeutics., 75, 260 (July, 1942).
Hippuric acid excretion following benzoate administration in the rat takes place at a slower rate than has been found by Griffith for the rabbit. After acute or chronic hepatic injury produced by carbon tetrachloride, rats are able to synthesize and excrete hippuric acid from administered benzoate at a normal rate in an eight hour period. Species differences in this detoxication mechanism must be taken into consideration in interpreting results. - Authors' conclusions.

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896 Duration of Carbon Monoxide in the Blood. Queries & Minor Notes. J.A.M.A., 120, 168 (September 12, 1942).
The rate of carbon monoxide elimination is distinctly influenced by a number of factors, so that the duration of the retention of appreciable quantities of this gas varies greatly. Under conditions of adequate respiratory stimulation the rate of dissociation roughly may drop one half every hour. Thus if the blood saturation at the time of removal from the dangerous gas was 60 per cent, under suitable treatment this might approximate 30 per cent at the end of one hour, 15 per cent at the end of two hours, etc. The last ten per cent of the gas dissociates itself much less freely than is true for a given 10 per cent in the higher brackets. The finding of low percentages of blood saturation from carbon monoxide is not extraordinary 16 hours after removal. Conversely the absence of carbon monoxide at the end of that period or a shorter one is not remarkable. Laboratory results from carbon monoxide estimations are not so accurate that concentrations from two to four per cent are undisputable.

897 Burns by Phosphorus. Queries & Minor Notes. J.A.M.A., 118, 1421 (April 18,1942).
Information was asked concerning burns by white phosphorus (P_4) and phosphorus trichloride (PCl_3). The answer was that white phosphorus ignites spontaneously in the air and burns gradually from the surface. It may give rise to serious burns, since even when embedded in the flesh it will continue to burn as long as air can reach it. According to Vedder (The Medical Aspects of Chemical Warfare, Baltimore, Williams & Wilkins, 1925, p. 194) first aid treatment is directed toward stopping the phosphorus from burning and toward removal of any of the substances remaining in the wound. The part is immersed in water or is irrigated, and any remaining phosphorus is washed out or is wiped off with a wet gauze sponge held with forceps. The later treatment is the same as that for any other burn. Phosphorus trichloride is a liquid at ordinary temperatures, is non-inflammable and gives off a toxic vapor. In the presence of moisture it is extremely hygroscopic and hydrolyzes rapidly, with the formation of hydrochloric acid. Its effect on the skin is not that of a true burn and is not specific for phosphorus, but is that of the caustic or the corrosive action of a strong acid. The substance should be removed or neutralized by washing of the affected part with dilute alkali and the wound treated by measures appropriate to any other injury of like severity.

898 The Problem of Cleaning the Skin Without Irritation. W. Brand. Deutsche Chemiker-Zeitung., 65, 397-400 (1941).
The living skin is protected by an "acid mantle." The PH of the normal skin is about 5.0. This mantle is believed to be responsible for the protection of the skin against bacteria. A non-irritating substance, cleaning the skin, must not raise it, deprive if of its fat and its acid mantle, or make the skin soaked. There are many ways of soiling the skin, and cleaning methods have a varying effect, and should be different according to the kind of soiling. Most of the cleaning methods in use today do not meet the necessary demands. Much work should be done to find suitable methods.

899 Use of Solvents for Hand Cleansers. P.I. Smith. Am. Perfumer, 44, 40, 41,(1942).
Solvents such as cyclohexanol, methylcyclohexanol, butyl cellosolve, methyl alcohol, carbon tetrachloride, trichloroethylene, tetrachloroethane, perchloroethylene, dichlorohydrin, monochlorobenzene, tetralin, decalin, benzene, toluene and xylene, which may or may not be toxic when used in cleansing preparations, are powerful solvents of the skin fatty substances and by removing or reducing the lipoids they reduce the resistance of the skin to heat, cold, etc., and may be absorbed in the blood stream. With hot soap solutions containing [illegible], there may be solvent inhalation; in many cases clearly defined nervous [illegible] are produced by inhalation of vapors. Emulsions and pastes preferably do not contain more than 10% of these special solvents.

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900 Dermatitis Occurring Among Operators of Air Conditioning Equipment. L. Schwartz and J.E. Dunn. Ind. Med., 11, 375 (August, 1942).
Of the 90 workmen who state that they have had more or less cutaneous exposure to chromates, approximately 14 per cent have or have had dermatitis attributed to this cause. The patch tests performed, however, indicate that probably not more than five per cent of the workmen have cutaneous hypersensitivity to chromates. The incidence of dermatophytosis, clinically, among the workmen examined was approximately 63 per cent. Dermatophytids of the hands were found in seven (6.7 per cent) of the workmen, some of these eruptions being complicated by irritation from substances encountered during the work. Sixteen per cent of the workmen showed dryness, fissuring, and thickening of the skin of the hands which was thought to be caused by the use of strong hand cleansers and solvents. The majority of the skin diseases found were not of occupational origin. Fungus infections of the feet and dermatophytids of the hands were responsible for most of these, with a few cases of other non-occupational skin diseases making up the rest. The occupational skin diseases, including those caused by solvents and skin cleaners and those resulting from exposure to chromates, represented about 20 per cent of the skin diseases found. -- Authors' conclusions.

901 Respirator Dermatitis. R.L. Sutton. British Med. J., 4254, 82 (July 18, 1942).
Cases of contact dermatitis have been attributed to the anti-oxidant in the rubber face piece of a respirator. Medication with 1 to 3000 potassium permanganate solution in cool, moist compresses, frequently refreshed or sodium perborate five to ten per cent in a greaseless ointment base or hydrous wool fat are recommended. The rubber appliance can frequently be rendered inoccuous by soaking overnight in four per cent sodium hydroxide solution. Care must be taken to thoroughly rinse the appliance before use, to remove the hydroxide.

902 Absorption of Narcotics by the Skin. E.D. Vorozhtsova. Akusherstvo i Ginecol., 1939, No.1, 93-5.
A bandage soaked in a 50% alcoholic solution of chloral hydrate (equivalent to 2 g. per kg. body weight) placed on a shaved portion of rabbit skin produced a long (18-24 hours) sleep frequently leading to death. The state of narcosis came on only after 4-7 hours. Chloroform applied to the skin in the same manner (one or two 10-g. doses) penetrated the skin in 2-4 hours and induced sleep of 30-90 minutes in 41.6% of animals. No effect was obtained when 1.5-2.0 gram doses of aqueous solutions of evipan-Na and alcohol solutions of barbital and phenobarbital were used.

903 Possible Dermatitis from Ear Phones. Queries & Minor Notes. J.A.M.A. 119, 1388 (August 15, 1942).
A few cases of ear dermatitis due to ear phones have been reported in the medical literature. Kissmeyer (Arch. f. Dermat. u. Syph., 140, 357 (1922) and Stein (Wien. klin. Wchnschr., 37, 1069 (1924), believed that the cause might be in the type of varnish which at that time was used on some telephones. Eller (Arch. Dermat. & Syph., 22, 268 (August, 1930), suggested a localized skin sensitiveness as the basis of a case which he reported. The small number of cases reported, as compared with the thousands of constant users of ear phones in radio and telephone communications, would suggest no direct occupational hazard. All the predisposing and contributory factors in dermatitis, such as uncleanliness, previous or present cutaneous diseases and allergic or hypersensitive conditions in some persons, must be taken into consideration.

904 Dermatitis from Imitation Leather. S.J. White. Arch.Derm.& Syph., 45, 1164 (June, 1942).
A case of an acute vesiculobulbous dermatitis, caused by contact with an imitation leather, is reported. Patch tests with the imitation leather were positive on the patient but negative on four normal controls.

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905 Dentures and Dermatitis. Queries & Minor Notes. J.A.M.A., 119, 1235 (August 8, 1942).
In reply to an inquiry regarding the possibility of acetone being a factor in a case of dermatitis occurring in a dental laboratory assistant the following opinion was given. Acetone causes comparatively little in the way of eruptions of the skin. The compounds from which the dentures are made would in all probability prove to be a greater source of irritation. Patch tests by a competent dermatologist are recommended using the ingredients of the denture and the acetone.

906 Epidemic of Boils in a Group of Tunnel Workers. J.Q. Gant, R.J. Owens and L. Schwartz. Publ Health Repts., 57, 612-617 (April 24, 1942).
An epidemic of boils among the workers of the Carlton Tunnel, Cripple Creek, Colo., is described. The study revealed the cause as a combination of factors which bring about a lowering of skin resistance to pyogenic bacteria. The humid atmosphere, the perspiration, the warm tunnel water, the friction from the clothes, together with the unhygienic conditions of the tunnel, and the insanitary and dirty condition of the working clothes, are the causes of the outbreak.
There follows a list of ten recommendations for the prevention of boils among tunnel workers, all of them being methods of maintaining personal cleanliness.

907 Dermatitis Due to a Transparent Adhesive Tape. H. Keil and E.S. Bereston. Arch. Derm. & Syph., 45, 1052 (June, 1942).
It is believed that this paper records the first case of truehypersensitivity to one of the ingredients in a transparent form of adhesive tape. Fractional patch testing is recommended as invaluable in studying this type of dermatitis. An ester gum (glycerinated wood rosin) is believed to be the cause of the contact eczema, but the possibility of some other fraction being the causative agent was not excluded.

908 Dermatitis from Creosote-Treated Wooden Floors. L. Schwartz. Ind. Med., 11, 387 (August, 1942).
Recent studies of skin hazards in new factories having floors of creosote treated wooden blocks has disclosed three cases of allergic dermatitis. The symptoms were identical in all three cases and appeared after one or two weeks of exposure. The ankles above the shoe tops itch and later an erythematous, papular and vesicular eruption appears extending approximately four or five inches up the leg. Patch tests with floor scrapings were not performed as previous experience with creosoted wood had shown it to be a primary skin irritant as well as a sensitizer. Photosensitization was absent probably because the creosote vapors did not reach the eyes in sufficient concentration to photosensitize. An ointment consisting of 70 parts of anhydrous lanolin and 30 parts of castor oil was recommended as a preventive measure. As the floors become older and the excess creosote evaporates and is worn away, no further cases will develop.

909 Dermatitis by War Oil. F. Asbeck. Dermat. Wchnschr., 112, 391-392 (1941).
As in World War I, cases of oil dermatitis are more frequent now in Germany than in peace time. Microscopic examination of the oil which had been used for lubricating, was cleaned and used again, and showed 200-300 minute particles up to 0.8 micron. The particles were sharp and pointed, and consisted of iron or steel. The author believes rightly that these particles are not the direct cause of the illness, as it occurs also if clean oil is used. But in numerous minor lesions, caused by these small particles, especially in the excretory ducts of the glands of the hair follicles, the oil particles are retained, and provoke the follicular inflammation.

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910 Nail Polish Dermatitis in a Man. William Garbe. Arch. Derm. & Syph., 46, 141 (July, 1942).
This is a report of a case of nail polish dermatitis in a male patient. A significant increase in the number of such cases during the past year is believed to indicate that some new product or products are being used in the manufacture of nail polishes.

911 Mesquite Wood Dermatitis. E.C. Fox. Arch. Dermat. & Syph., 44, 1098-1100 (December, 1941).
Another case of dermatitis from contact with mesquite wood (Prosopis juliflora) sawdust is recorded. A man of 28 years complained of a generalized eczematous dermatitis which occurred only in the winter months. It strongly resembled the contact dermatitis seen among farmers in spring and summer, and due to weeds or other plants. In this patient attacks occurred at a time when frosts had killed the plants. Investigation traced exacerbations to days on which the patient sawed mesquite wood for heating the cooking stove, and patch tests proved positive. Installation of an oil stove and thus avoiding the sawing up and use of the wood was followed immediately by improvement and recovery.

Methods of Detection and Determination

912 Improved X-Ray Tube for Diffraction Analysis. R.R. Machlett. J. Applied Phys., 13, 398-401 (1942).
The windows in the metal tube wall are of malleable beryllium. The x-ray beam is purer and more intense than in previous tubes. A shockproof form of the new tube is also described.

913 A Glass Vacuum Konimeter. J. van Liempt and J. van Uden. Chem. Weekblad, 37, 691 (1940).
A konimeter was constructed completely of glass following the principles of Zeiss (P. Kohler and C. Sorgenfrei, Z. ges. Therapie, 44, 9 (1939). Air is sucked by a vacuum tap through a conical, drawn-out capillary which is sealed into a wider glass tube having a suction side arm. The bottom opening of the glass tube is closed by a ground-glass stopper on which a microscope cover glass rests a short distance under the capillary tube. A small gas receiver is used to measure the volume of air handled by the instrument.

914 A Portable X-Ray Unit for Field Studies in Tuberculosis. J.D. Aronson and R.M. Saylor. Am. Rev. of Tuberc., 46, 352 (September, 1942).
A mobile x-ray unit which is compact, relatively light in weight, dependable, economical and independent of a source of electricity is described. The total cost of the car, motor generator, x-ray unit, cassettes, dark room, cable and tanks in 1939 was between $2500 and $3000.

915 Mass Radioscopy in Factories. A.S. Hall. Lancet, 6180, 161 (February 7, 1942).
X-ray screening of the chest was offered to the work people in two factories, the management allowing this to be done during working hours. In the first factory 60 per cent and in the second factory 97 per cent were examined. Of 575 people surveyed in the first factory 3 were found to be tuberculous. Of 795 examined in the second factory, two were known to have phthisis and two other active cases of disease were found.

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916 A Photoelectric Timing Mechanism for the Automatic Control of Roentgenographic Exposure. R.H. Morgan. Am. J. of Roent., 48, 230 (August, 1942).
A photoelectric timing mechanism capable of controlling automatically the length of roentgenographic exposure time is described. The theory, design, installation and operation of the instrument are discussed in detail. Regardless of the anatomical structure under examination, the device insures consistently correct exposure of roentgenographic films; calculations of exposure techniques, use of mechanical or motor-driven timing mechanisms and critical adjustments of roentgen tube potentials are eliminated entirely.

917 A Device for Infecting Animals by Inhalation. J.L. Blaisdell and A. Hambleton. Am. Rev. of Tuberc., 46, 205 (August, 1942).
The essential feature is a glass tube, 3.8 cm in diameter and 17.5 cm long, which is flared at one end; over this end is a rubber diaphragm, in the center of which is a hole 2.5 cm in diameter. The animal, rabbit or guinea pig, is placed in an animal box and its snout, wet with disinfectant, is pressed into the hole in the rubber diaphragm, which forms a seal to minimize the escape of the bacterial spray. A side arm of the glass tube, plugged with cotton wool, prevents excessive air pressure as the spray is blown in from a DeVilbiss No.48 nebulizer. Another side arm allows an air current to sweep the residual spray out of the tube, through wash bottles of disinfectant, on completing the experiment. While infecting animals, the cabinet containing the equipment may be completely closed. The cabinet should have good upward draft. -- Author's summary.

918 Colorimetric Determination of Phenothiazine with Palladous Chloride. L. G. Overholser and J.H. Yoe. Ind. & Eng. Chem., Anal. Ed., 14, 646 (August 15,1942).
A method dependent upon the formation of a blue to purple solution when phenothiazine is added to palladous chloride is presented. The color results from a complex having the formula $Pd(C_{12}\ HgNS)_2\ Cl_2$.

919 A New Simple Method for the Quantitative Determination of Glycerol. Hogai Ka. J. Agric. Chem. Soc. Japan, 16, 90 (1940).
The Deniges color reaction of glycerol and codein was investigated with respect to conditions that would permit its quantitative application. After a 25 minute oxidation period, the blue color became constant in intensity. The time at which the excess bromine was expelled from the solution had no effect on the color value. The blue color was constant 20 minutes after warming when the codein and sulphuric acid had been added. Glycerol can be determined directly from saponified fats and oils as impurities are generally insignificant. If much impurity is present treatment with lime will usually remove it.

920 The Determination of Ethyl Alcohol with the Photoelectric Colorimeter. H. Newman and M. Abramson. J. Pharm. & Exp. Therapeutics., 75, 369 (April, 1942).
The concentration of alcohol in solutions may be accurately determined by vacuum distillation of the sample off of anhydrous sodium sulphate at a temperature of 50 to 55 degrees centigrade into a solution of potassium dichromate in strong sulphuric acid and the determination of the amount of dichromate reduced by photoelectric colorimetry.

921 Atmospheric Sabotage. F.W. Hutchinson. Heat. & Vent., 39, 47 (July, 1942).
Whenever the air conditioning engineer is called on to establish "safe" atmospheric conditions, he must consider the less evident as well as the more obvious atmospheric hazards. One of the most widespread and serious dangers to industrial health and efficiency is the hazard presented by carbon monoxide. Wherever combustion processes are used, care should be exercised by the ventilation specialist to insure a minimum concentration of carbon monoxide in the air of the workroom. -- Author's conclusion.

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922 The Spectrophotometric Determination of Phosphorus and Cholesterol. M. Kaucher, V. Button and H. Williams. J.Lab. & Clin.Med., 27, 1349 (July, 1942).
The gasometric phosphorus and the colorimetric cholesterol digitonide methods have been adapted successfully to use with the spectrophotometer without sacrificing original features of microtechnique, specificity and accuracy. Phosphorus may be determined within the range 0.006 to 0.3 mg., quantities similar to the gasometric method. For cholesterol it has been possible to enlarge the quantities (0.04 to 0.7 mg.) determined without loss of accuracy. As a result of these adaptations the above micromethods should find a wider application. -- Authors' summary.

923 The Determination of Mercury in Foods and Biological Materials. E.P. Laug and K,W. Nelson. J. Assoc. Official Agr. Chem., 25, 399-403 (1942).
A method has been devised (technique described in detail) in which the sample is prepared by partial digestion of the organic matter with sulfuric acid and nitric acid under reflux, mercury is extracted with excess dithizone (5.5 mg. per l. of chloroform), copper (practically the only serious interfering metal) and mercury are separated by the use of potassium bromide (which forms an acid-soluble complex with mercury dithizonate), and the mercury is finally determined by a photometric, mixed-color, dithizone extraction method at pH 6 at which the mercury is freed from its potassium bromide complex and can again combine with the dithizone. The recoveries of mercury added to foods and to biological materials that contained no appreciable amounts of mercury varied from 92 to 106%.

924 The Determination of Fluorine in Foods. P.A. Clifford. J. Assoc. Official Agr. Chem., 25, 394-8 (1942).
A collaborative study was made of the various factors studied in the previous report. The detailed technique is not given, as changes and refinements have subsequently been introduced. The back-titration procedure when applied to a solution of pure sodium fluoride gave practically quantitative results (99.2% recovery), which indicates that the general principle of the back-titration procedure is sound and that the modification whereby the bulk of the standard sodium fluoride solution used is added to the blank tube before the Th is added is an improvement. When distillation was applied to solutions of known fluorine content, the results were presumably correspondingly low, but on the whole they showed good agreement among themselves. A rapid procedure for the determination of spray residue fluorine has been developed. It utilizes the acid filtrate from the strip solution of apples and pears when prepared with hydrochloric acid rinse and acidification. An aliquot of this filtrate is oxidized colorless with potassium permanganate, the solution is reduced with hydroxylamine and a back-titration procedure is conducted upon a subaliquot in Nessler tubes, zirconium nitrate being used with purpurin (1,2,-4-trihydroxyanthraquinone) as indicator. Provision is made for the removal of interfering anions, and the high acidity employed in the titration minimizes interference of metals that would otherwise lake with the indicator. The method is based in general on the work of Kolthoff and Stansby.

925 The Determination of Arsenic in Foods. A.K. Klein. J. Assoc. Official Agr. Chem., 25, 378-82 (1942).
It is shown that the low results previously obtained in the collaborative study of the Cassil-Wichmann method were due to the inability of the absorbing solution to "hold" the arsine quantitatively. The duplication by glass manufacturers of the original apparatus used by the originators of the method may not be practicable, and a 2-reservoir system may be required. The xanthate molybdenum blue method (Klein and Vorhes) is specific for arsenic and capable of yielding discriminating results. It gave 99.3% recoveries on solutions containing 0.3 and 0.6 mg. arsenious oxide in presence of large quantities of copper, tin, nitrate, antimony, phosphorus pentoxide, silica and iron.

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926 The Determination of Selenium in Foods. A.K. Klein. J. Assoc. Official Agr. Chem., 25, 403-10 (1942).
The tentative A.O.A.C. method, as modified the previous year, was studied collaboratively on some specially selected seleniferous whole dried eggs, and on selenium-free grapefruit rind containing a known amount of added selenium. The results were quite satisfactory, particularly in view that only 4 of the 10 collaborators had had any previous experience with a micro selenium method of any kind. Question was raised by one collaborator regarding the acidity of the hydrobromic acid solution just before precipitation of the selenium. Subsequent experiments indicated a need for limiting the volume prior to precipitating the selenium to a maximum of 100 cc. and the acidity to a minimum corresponding to 1.5 N; these conditions for the quantitative precipitation of selenium at this limiting volume and acidity are somewhat critical. A detailed description is given of a revised technique of the modified tentative method, emphasizing certain important features of the procedure.

Air Flow Measurement by the Dilution Method. Theodore Hatch and R.H. Walpole,Jr., Heat. & Vent., 39, 24 (June, 1942).
See our Abstract No.768, August, 1942 Digest.

Control Methods

927 Notes on Dust Suppression and Collection. J. Smellie. Trans. Inst. Min. Engrs., 101, 237 (April, 1942).
The author concludes that stone dusting for the prevention of dust explosions should be regarded as a last resort, when all other methods of dust reduction and collection have proved ineffective or insufficient. The essential features of a successful dust collector for underground use are: (1) simplicity and reliability; (2) small space occupied consistent with the air quantity being handled; (3) interchangeability -- suitable for both fixed and moving loading points; (4) high air cleaning efficiency at all dust concentrations, and (5) collection of the dust should be absolute and require no further treatment. Simple sprays, suction devices, filters and cyclone separators are all considered from the view of the requirements of underground operations.

928 Industrial Hygiene Study of Dust Problems Found in the Ceramic Industry. L. Greenburg and Theodore Hatch. N.Y. State Ind. Bull., 21, 147-150 (April, 1942).
This article is based upon a general survey of 21 ceramic plants in New York State and a detailed study of dust control in 9 plants. Vitreous enamel, pottery, electric porcelain, glass and abrasives and refractories plants are included. A description of the various processes is included. Each of the several groups while having much in common in regard to manufacturing, have widely differing composition mixes, hence different degrees of dust hazard. The chief hazards are those of free silica dust and lead from glazes and manufacture. Dust exposures in handling raw materials under various conditions are tabulated. This table includes some values from previous publications on ceramic studies.

929 Effect of Vanes in Reducing Pressure Loss in Elbows in 7-Inch Square Ventilating Duct. M.C. Stuart, C.F. Warner, and W.C. Roberts, Heat.,Pip., & Air Cond., 14, 550 (September, 1942).
An investigation has been made of a 7 x 7 inch square elbow with round and square inside and outside corners and various radius ratios. The data reported show a reduction of pressure loss in elbows by the use of vanes and splitters. Visual flow patterns in elbows are shown using a schlieren apparatus.- Author's summary.

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930 Fan Laws -- Their Derivation and Use. W. Goodman. Heat., Pip. & Air Cond., 14, 487 (August, 1942).
A thorough understanding of fan laws can be of great value to the user of fans. The fan laws can be of help in selecting fans so that they operate at their most efficient point and in determining the effect of changes in fan speed. Important in many cases is the effect of changes in the density of the air that the fan is handling. All fans are rated in terms of standard air, the density of which is 0.075 lb. per cubic foot. Frequently the fan laws which deal with changes in density are misapplied. This is the first article of a series which will appear in this journal.

931 Fire and Explosion Hazards from Flammable Gases, Vapors, Liquids and Dusts. Wm. J. Burke. N. Y. State Ind. Bull., 21, 259 (July, 1942).
Bad housekeeping is the leading cause of fires and explosions with carelessness and ignorance contributing to 90 per cent of the disasters. The full meaning of the term good housekeeping is discussed. Before a substance can burn or explode, it must first be ignited. Four general classes of ignition sources, namely flame, spark, heat and spontaneous combustion are considered with special attention being given to static electricity. The New York State Industrial Codes which apply to flammable liquids are mentioned. Explosion hazards from gases and vapors and from dusts are described. An excellent set of rules for the prevention of fires and explosions is included as are summaries of means and methods for the control of dust and for minimizing the effects of fires and explosions.

932 Fire Protection Methods for Process Plants. Anonymous. Chem. & Met. Eng., 98 (August, 1942).
So much has been published in recent months on the special fire hazards of wartime that it seems possible that the ordinary peace time fire hazards of the chemical process industries may not be receiving quite the attention that they deserve. On that account this report has been prepared, both to discuss the normal hazards, and to show how fires may be fought. In addition the report goes briefly into the organization and training of the plant fire brigade, and into sources of information on industrial fire hazards, fire prevention and protection. The report is the result of the cooperative effort of the National Fire Protection Association, the Factory Mutual Fire Insurance Companies' Inspection Department and the Editors of CHEMICAL & METALLURGICAL ENGINEERING.

933 Air Conditioning of Blackout Plants. W.A. Grant. Heat., Pip. & Air Cond., 14, 509 (August, 1942).
The huge expansion of industrial plants, due to the war, has introduced air conditioning in more kinds of plants and in more different processes than ever before. Outside of the problems arising from the enormous size of the buildings, the engineering design methods follow well established application practices. With speed the paramount factor in the armament program, air conditioning has been classed as an essential industry for reducing product rejects; maintaining spoilage to a minimum and keeping every man and machine at the peak of production efficiency. -- Author's summary.

934 Motor Room Ventilation in Steel Mills. T.J. Ess. Heat. & Vent., 39, 25 (August, 1942).
The motors furnishing the drive for modern steel mills have such large power consumption and undergo such severe service under extraordinarily dirty air that careful ventilation for dissipating the heat with oversized air cleaning equipment is necessary. The article presents data for the proper handling of such a problem.

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[illegible] Ventilating Power Costs Cut by Low Velocity Systems. W.B. Harris. Heat. & Vent., 39, 42 (July, 1942).
By increasing the sizes of slots and ducts, resistances are cut to a point that even though more air is handled, power consumption is sharply decreased. A 60 per cent reduction is shown in an illustrated case. With low pressures prevailing, low pressure fans and smaller motors can be used. This is a savings in the initial cost of the equipment. It is unlikely that slot stoppage will occur if the sizes are sufficiently large. The low velocity system has the following disadvantages: (1) It is a characteristic of low pressure fans that efficiency falls sharply on either side of the designed load. This requires careful selection for the job. (2) Maintenance is of especial importance to insure that efficiency will be obtained. (3) When long ducts are required, the increased size for the low pressure system will tend to offset any gain in the lower price of fan and motor.

936 The Use of Concentrated Calcium Chloride Solution for the Prevention of Dust. J. Galambos. Nepegeszegugy (Budapest), 1077 (January 9, 1941).
The following is a translation of a German abstract of the paper dealt with: Oil being unobtainable, the Division of Chemistry of the State Institute of Hygiene recommended experiments with a 50% solution of calcium chloride. The solution was spread on the floor with the help of new brooms. 100 gm. of calcium chloride were needed per square metre. Wooden floors absorb the solution in 2 days and there is no dust for a period of 4-6 weeks, after which the floor has to be inpregnated again. The procedure is cheaper than the use of oil.

937 A Stable Hydrogen Peroxide Aerosol. H.A. Abramson. Science. 96, 238 (September 4, 1942).
A method for the nebulization of hydrogen peroxide for the decontamination of air is described. The nebulization was found to be safe and practical. No irritation was experienced from repeated breathing of dense mists of the concentration of peroxide used, 0.1 and 3.0 per cent. An investigation of additional biological and chemical properties of these stable hydrogen peroxide areosols is in progress.

938 Protection of Mice Against Infection with Air-Borne Influenza Virus by Means of Propylene Glycol Vapor. O.H. Robertson and others. Science, 94, 612-613 (1941).
Mice were placed in a chamber into which propylene glycol vapor was introduced in concentrations of 1 g. to 2-3 million cc. of air. Then 0.2-1.0 cc. of a 10^{-2} dilution of virus was sprayed into the chamber and the mice exposed for periods of 15 minutes to 1 hour. All these animals remained well, whereas the control mice died within 4-10 days.

939 A Metal Safety and Glare Goggle. Edward Stieren. J.A.M.A., 120, 26 (September 5, 1942).
A design for a safety goggle for industrial use in which aluminum discs replace the conventional glass is presented. In the center of the shield is a horizontal opening 1 mm. in width and 40 mm. long. A vertical opening of the same width and 10 mm. long bisects the horizontal opening 10 mm. from the nasal end. In addition a 20 mm. long opening is added at an axis 15 degrees off horizontal for vision in the lower field. It is claimed to eliminate the hazard from glass breakage and to reduce glare so that it can be worn comfortably in bright light.

940 Purification of Air and Gases. J.J. Stordy. Mfg. Chemist, 12, 156-8 (1941).
A review of the types of filter plants used for dealing with dust, fumes and mist in industrial atmospheres. The construction and advantages of the froth flotation filter are discussed.

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941 Bactericidal Action of Propylene Glycol Vapor on Micro-Organisms Suspended in Air. O.H. Robertson and others. J. Exptl. Med., 75, 593-610 (1942).
Propylene glycol vapor dispersed in the air of an enclosed space produces a marked and rapid bactericidal effect on micro-organisms introduced into such an atmosphere in droplet form. Concentrations of 1 g. of propylene glycol in 2-4 million cc. of air produced immediate and complete sterilization of air into which pneumococci, streptococci, staphylococci, H. influenzae and other micro-organisms as well as influenza virus had been sprayed. With lesser concentrations of propylene glycol, rapid and marked reduction in the number of airborne bacteria occurred, but complete sterilization of the air required a certain interval of time. Pronounced effects on both pneumococci and hemolytic streptococci were observed when concentrations as low as 1 g. of propylene glycol to 50 million cc. of air were employed. Numerous control tests showed that failure of the propylene glycol-treated micro-organisms to grow on the agar plates was due to actual death of the bacteria. The means by which propylene glycol vapor produces its effect on droplet-borne bacteria is discussed and data relating to the bactericidal properties of propylene glycol in vitro to the lethal action of its vapors are presented. Atmospheres containing propylene glycol vapor are invisible, odorless and non-irritating. Propylene glycol is essentially non-toxic when given orally and intravenously; at high concentrations the air has a faintly sweetish taste.

942 Good Housekeeping. P.B. Plant. Factory Man. & Main., 107, (June, 1942).
A case study in plant clean-up at the B.F. Goodrich Company is presented. Their continued crusade has paid off in tons of salvaged materials, acres of recovered floor space and in the prevention of scores of accidents.

943 The Question of Injury to the Neighborhood by Exhaust Fumes and Gases of Industrial Establishments. K.W. Jötten. Arch. Hyg. Bakt., 125, 239-72 (1941).
Analysis of air taken in such areas is reported for carbon dioxide, carbon monoxide, ammonia, hydrogen sulfide, sulfur dioxide, other sulfur compounds, hydrocyanic acid, nitric acid and hydrocarbons. Blood findings are given for rabbits made to breathe such air samples. In most cases dilution with surrounding air reduced concentrations of toxic substances well below dangerous levels, even though the atmospheres might still be malodorous.

944 Safety with Explosives. R.H. Summer. Mines Mag., (Colo. School of Mines), 32, 299-30, 254-5 (1942).
The selection of proper explosives and accessories, primary transportation and storage, secondary transportation and storage, making up of primers, loading of bore holes, firing of shots, handling misfires and selection and education of men handling explosives are discussed.

Industrial Medical Practice

945 Nutrition and the Nation at War. J.S. McLester. Bull. N.Y. Acad. of Med., 18, 497 (August, 1942).
We are engaged in a war that may be long and exhausting, one that will be won or lost in this nation's industrial plants. If we are to put in the field and on the seas armed forces of vigor and stamina; if we are to provide these forces with armament, ships and airplanes; if we are to emerge victorious, then there are many things that must be done. Not the least important among these is the elevation of the nutritive status of the American people.

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946 Treatment of Poison Gas Burns of the Eye. Queries & Minor Notes. J.A.M.A., 119, 1467 (August 22, 1942).
All local anesthetics inhibit the respiration of the corneal epithelium and delay its regeneration. Therefore it is unwise to use them excessively in the treatment of mustard gas injuries of the eyes. If necessary for examination or treatment of the patient, an instillation of 2 per cent aqueous solution of butyn, a 1:500 aqueous solution of nupercain or a 1 per cent aqueous solutionof holocaine may be used. The use of hydrogen peroxide or potassium permanganate solutions is no longer recommended for the treatment of mustard gas or lewisite burns of the eye. One instillation of two drops of either 0.5 per cent hydrogen peroxide or 0.5 per cent potassium permanganate will not damage the eye but these concentrations are ineffective in the treatment of occular burns with these vesicants. A two per cent solution of hydrogen peroxide can seriously injure the eye if it is abraded or if irrigations are continued for more than one minute. At present the most effective emergency treatment of mustard and lewisite burns of the eye consists in the immediate copious lavage with water, 1.5 per cent sodium bicarbonate, 0.9 per cent saline solution or 2 per cent boric acid solution.

947 Treatment of Lead Poisoning. I. Gray and I. Greenfield. N.Y. State J. Med., 38, 1313-19 (1938).
A diet rich in calcium, phosphorus and vitamins increased the excretion of lead and decreased the concentration of lead in the blood.

948 Treatment of Epithelioma with Ointments. H. Truttwin. Dermatol. Wochschr., 112, 394-5 (1941).
Former agents for treatment of epithelioma had only a chemical cauterizing effect; modern agents tend to produce pain alleviation, deodorization, disinfection, removal of necrotic remnants and epithelization. Amphoteric behavior and both reducing and oxidizing power are required. Malignant tumors develop in alkaline environment and increase of alkalinity is observed in necrosis; hence ointments should be acid in character, but they should not be caustic.

949 A Dental Program for Industry. R.M. Wallis. Personnel, 19, 408 (July, 1942).
This is an abstract of Dr. Wallis' paper presented at the fourth annual Congress on Industrial Health. A practical plan for the inclusion of dental services in the industrial health program is provided. The cost of an adequate service and methods of financing it are described. The dentist can detect injuries from lead, mercury, acids, radioactive materials etc. and his services are needed as a part of the well rounded medical program.

950 Report of a Dental Program. H.H. Leedke. Ind. Med., 11, 400 (August, 1942).
An effective program designed to correct previously determined dental defects, is described. The program has been in operation from February, 1941 through January, 1942 and was based on education and persuasion rather than coercion or compulsion. The success of the program is attributed to (1) The support of management prior to its inauguration, (2) The cooperation of local dentists, (3) The administration of the program by physicians and dentists, and (4) The education of the employees to secure their willing cooperation.

951 Safeguarding Worker Health. T. Lyle Hazlett. Factory Man. & Main., 76, (August, 1942).
The motivating philosophy of the health activities at the Westinghouse Electric and Manufacturing Company is that no program for the protection of health is too arduous or difficult if its undertaking will contribute to the maintenance and improvement of health. A summary of the thorough and effective program which they follow is given.

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952 Influence of Components of the Vitamin B Complex on Recovery from Fatigue. E.E. Foltz, A.C. Ivy and C.J. Barborka. J. Lab. & Clin. Med., 27, 1396 (August,1942).
Thiamine, cocarboxylase, riboflavin and parenteral vitamin B complex given intravenously have no immediate influence on recovery from voluntary muscular fatigue in subjects receiving "adequate" nutrition. The double work period method of studying fatigue enables the investigator to determine whether his subjects are actually working to a designated end point of fatigue. The per cent recovery is less variable than the first period work output, the second period work output, or the total work period output in initially untrained subjects. -- Authors' summary.

953 Narco-Analysis in Treatment of War Neuroses. J.F. Wilde. Brit. Med. J., 4252, 4 (July 4, 1942).
The morbidity and mortality in a series of 50 cases was nil. The group was unselected. Of the patients 35 has shown predisposition to neurosis prior to the war; 31 had suffered actual war trauma. 33 of the treated patients were rendered fit for duty and 17 were invalided. About half of those invalided were fit to return to civilian posts. It is believed that the factor of returning to a secure civilian post may have reacted against successful removal of the neurotic symptom.

954 Factors Influencing the Increased Incidence of Phthisis in Glasgow. S.Laidlow and D. MacFarlane. Brit. Med. J., 4254, 63 (July 18, 1942).
Tuberculosis has increased in the under 15 age groups of both sexes and in the over 45 groups of males. Home contacts are believed responsible for the cases in children. Overwork and long hours are playing a major part in the increased number of cases as shown by tabular data.

955 X-Ray Examinations for Tuberculosis. L. Banszky. Industrial Welfare, 24, 19 (February, 1942).
By screening, many persons can be examined in a short time at low cost. The error due to reliance on fluoroscopy can be greatly reduced if every suspected lung affection found by screening were investigated further by radiograph. In the author's works the combined method of fluoroscopy and radiography is applied as part of the general medical examination, and is obligatory on all applicants for work. If screening shows any suspicious shadow on the lungs a radiographic picture is taken. If the suspicion of active tuberculosis is supported by the picture, sedimentation-rate estimation, complete blood count, and sputum test follow. If then a diagnosis of active tuberculosis is established the patient is referred to his own doctor with a request that he should be sent to a hospital for a second opinion. All cases so sent are promised re-engagement after treatment, if no positive sputum is found on their return. Doubtful cases are kept under observation. Of 11,500 industrial applications examined, 161 had active tuberculosis of the lungs.

956 Periodic Health Examinations -- Important Findings Among Garment Workers. L. Price. Ind. Med., 11, 369 (August, 1942).
Since 1913 the garment workers have gradually evolved a health program giving their members an opportunity to receive good medical care. The cost of this medical care is so distributed among the worker and the local union and the international organization that the cost burden is eased for the workers. By the development of various sickness insurance plans much free service is made available. Sickness insurance is the influencing factor in preventive health measures offered the workers, who also receive cash benefits during periods of disability. The health programs permit many of the local unions to take advantage of mass health surveys and these seem to be the most promising method of stimulating investigation of the workers' health. The low incidence of tuberculosis is evidence of a prolonged program of medical supervision.

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957 Hazardous Occupations for Young Workers. Anonymous. J.A.M.A., 118, 1373 (April 18, 1942).
The Fair Labor Standards Act of 1938 established a 16 year minimum age for employment in plants manufacturing goods for shipment to interstate commerce, and also provided for the establishment of an 18 year minimum age in any occupation found and by order declared to be particularly hazardous for the employment of minors, by the chief of the Children's Bureau of the U.S. Department of Labor. Reports and orders already issued by this bureau have dealt with the manufacture of explosives, driving of motor vehicles or serving as helper, coal mining, logging and sawmilling and the operation of wood working machines. Recently a sixth in this series of reports on occupations hazardous to young workers has been issued on radioactive substances, under the guidance of a distinguished list of medical and technical advisers. The recent review is concerned mainly with exposures and working conditions in plants preparing or applying self-luminous dial paint which is crystalline zinc sulfide activated by radium, or in plants manufacturing incandescent mantles which are made from rayon mesh fabric dipped in "lighting fluid," a 25 to 50% solution of 99 parts of thorium and 1 part of cerium nitrates. Surveys have demonstrated that unsafe practices persist, although the tragic custom of lip pointing brushes used in dial painting is no longer observed. Investigation in a plant regarded as representative showed concentrations of radioactive gas up to 4 times the most liberal recommended maximum permissible limit. Every one with substantial knowledge of these industrial processes, including the employers, concurs in the opinion that minors under 18 years of age should not be engaged in work of this description. They are not so likely to possess the qualities of carefulness, neatness, fore-thought and attention to personal hygiene essential to the observation of safe practice. Hearings will no doubt corroborate the findings of this report; an order will then be issued which will have the effect of eliminating exposure of this kind, at least as far as minors under 18 years of age are concerned.

958 Predisposition to Occupational Skin Disease. J.N. Gallivan. Ind. Med., 11, 397 (August, 1942).
A classification which has been found to be useful in pre-employment examinations in the aircraft industry is presented. A definite policy is given on the employment of individuals with skin diseases with regard to their subsequent exposure to work which could aggravate their conditions. The suggestions are specific and should be most useful to any industry having similar exposures. Thirty-nine conditions and skin types are considered with regard to contact with heat, chemicals, etc.

959 Skin Sensitivity as a Factor in Job Placement. J.H. Biram. Ind. Med., 11, 385 (August, 1942).
A study of the lost time caused by skin disorders has led to a classification of the conditions into five groups. Group one contains the cases of oil folliculitis. Primary irritant types of dermatitis are placed in group two. In the third group are the true sensitivities to chemicals. Group four contains the [illegible] non-occupational skin diseases such as psoriasis etc. The fifth group was reserved for cases which were very resistant to treatment and included cases of [illegible] eczematoid dermatitis, dermaphytid etc. From this classification a policy on the hiring of workers was developed. By taking precautions in the hiring of new employees to eliminate the more susceptible workers from hazardous exposures it has been possible to reduce the percentage of skin disorders by about 30 per [illegible]. A policy of placement of sensitive workmen in jobs free from hazardous exposure has also been adopted. Dr. Biram has also proposed that when and if a draft is formed by the government, industry should be allowed to trade skin sensitive workers for others resistant to particular exposures. This excellent plan would benefit not only our war effort but would assure steady work for individuals who otherwise might lose much time from skin disease.

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900 The Effect of Exercise in Hot Atmospheres Upon the Salt-Water Balance of Human Subjects. D.H.K. Lee and others. Med. J. Australia. 2, 249-258 (Sept., 1941). Subjects were introduced into a room in which the desired hot atmosphere had been produced and were kept there for 7 hours, during which time marching or lifting exercise was performed. Two atmospheres were used: "hot wet" (dry bulb, 87.5°F., wet bulb 83.5°F.) with a relative humidity of 87%, and an effective temperature of 83°F.; and "hot dry" (dry bulb 101°F., wet bulb 79°F.) with a relative humidity of 38% and an effective temperature of 84.5°F. Three different levels of water intake were tried, and water administration was also compared with the intake of saline solution. Frequent administration was compared with the consumption of the same total amount at longer intervals. The subjects were weighed to the nearest half gramme immediately upon entering the room and again at suitable intervals thereafter. The quantities of fluid administered, the weight of food eaten and the volume of urine voided was recorded. From these figures the amount of moisture lost as sweat could be calculated. The sodium chloride content of the urine was estimated by electrometric titration and this method was alsoused to determine the chloride loss in the sweat. In all cases the general bodily hydration fell to a lower level in the hot dry atmosphere than in the hot wet atmosphere. The serum protein concentration showed a corresponding rise, but one which in some cases was not so pronounced. A hot wet atmosphere imposed much less strain upon the salt-water balance of a person than did a hot dry atmosphere of the same effective temperature. While this does not negative the usefulness of the effective temperature scheme in the assessment of hot climates, the authors suggest that it does provide an important exception to its application. Much more provision must be made against the loss of salt and water from persons living in hot dry climates. The experiments described in the paper were carried out on Queensland subjects and it was found that the chloride concentration in their sweat was much lower than that in English subjects previously studied. This was checked by putting 2 Australian subjects under exactly the same conditions as the English subjects and estimating the chloride loss in exactly the same way. It was reduced by (a) an increase in the rate of water administration, and (b) the administration of saline solution instead of water in the hot dry atmosphere. It was increased (a) by the substitution of a hot dry atmosphere for a hot wet atmosphere of the same effective temperature, and (b) in the afternoon. It was not consistently affected by acclimatization, by the frequency of fluid administration or by the rate of sweating.

The rate of chloride loss in the sweat was noticeably increased in the afternoon as compared with the morning of a working day, and by the substitution of a hot dry atmosphere for a hot wet one of the same effective temperature. It was noticeably decreased by the administration of saline solution instead of water but it was not consistently affected by other factors. The continuous maintenance of bodily hydration by frequent small drinks is not of much consequence in a hot wet atmosphere, but both the degree of replacement and its frequency are of importance in a hot dry atmosphere. The best results were obtained by quarter-hourly libations of at least sufficient quantity to replace the total water loss. While definite effects of acclimatization were not established in the course of these experiments, the low concentration of chloride found in the sweat of the Queensland subjects, as compared with the London subjects, suggested that an important long-term acclimatization had already occurred. That such a reduction does occur with acclimatization has been suggested by other workers. It might be of importance to examine newcomers to the tropics some time after their arrival, in order to determine whether such an acclimatization had occurred, especially if personnel is being selected for a long period of arduous work in a hot dry atmosphere with poor supply facilities.

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961 The Health Worker and Production. T.O.Garland. Lancet, 6203, 76 (July 18,1942).
The job of the health worker in maintaining production is outlined. A warning that health workers should mend their own fences is given, so that it can be said truly that they practice what they preach.

962 Planning Industrial Recreation. G.H. Duggins and F.R. Eastwood. Personnel, 19, 398 (July, 1942).
Longer hours and the quickened tempo of war production have made employee recreational activities more important than ever before. The effects of increased tension on employee health and morale may be counteracted by an intelligently planned program of recreation. The authors of this article have surveyed successful recreation programs in a number of companies and from their study have drawn up a model plan for such a program. They explain how to organize a recreation association, how activities should be planned, and how a program may be financed for as little as 14 cents per employee per week.

963 The Problems Inherent in the Protection of Flying Personnel Against the Temperature Extremes Encountered in Flight. E.A. Pinson and O.O. Benson, Jr. Aviation Med., 13, 43-52 (March, 1942).
The authors discuss the possibilities of providing adequate warmth for the flying personnel (a) by the use of extra heavy clothing, (b) by electrically heated suits and (c) by heating the cabin of the plane. Without presenting any data the authors conclude that the ultimate solution to the problem of maintaining body heat balance may lie in cabin heating, with some effective means of defrosting cabin windows. In the meantime, electrically heated suits in conjunction with insulated clothing will help alleviate discomfort in extremely cold temperatures.

964 Provisions for the Extension of Working Time During the War. Internat. Lab. Rev., 45, 454, 455, 456, 457 (1942).
The Swiss Federal Office of Industry, Arts, Crafts and Labor may issue permits concerning hours of work involving exceptions of the Federal Factories Act, wherever it may be necessary for national defense, the maintenance of supplies, the creation of employment or the equilibrium of the labor market (Orders September 4 and November 15, 1941). But the single shift shall not exceed 48, and a maximum of 52 hours per week, except for special and decisive reasons. The Finnish Council of State authorized (by orders June 19, 20 and July 31, 1941), exceptions to the legal provisions concerning hours of work; overtime up to about double of the extent permitted and reducing the overtime rate of pay. Restrictions on night work are suspended, weekly rest reduced to an average of 24 hours and reduction of the annual holidays. The British Minister of Labour allowed Sunday work in the building and civil engineering industries until February 1, 1942.

965 Treatment of Heat Pyrexia by Lumbar Puncture. J.F. Corr. Brit. Med. J., 4250, 761 (June 20, 1942).
Immediate and permanent response was obtained in the treatment of a case of heat pyrexia by ether anesthesia and a lumbar puncture as adjuvants to the usual cooling therapy.

966 Trichlorethylene as a General Anesthetic. K.G. Lloyd-Williams and D. Hewspear. Brit. Med. J., 4257, 170 (August 8, 1942).
A case of fibrillation which occurred during the use of trichlorethylene for general anesthesia is described. The trichlorethylene (trilene) was discontinued immediately and anesthesia was produced by nitrous oxide. The heart had returned to normal when the operation was completed. An electrocardiagram taken five days later showed no organic change except some loss of ventricular tone.

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967 The Eighth National Conference on Labour Legislation in the U. S. Internat. Lab. Rev., 45, 426-429 (April, 1942).
The conference, November 9-14, 1941, held in Washington, was attended by representatives, consisting mainly of labor commissioners and leaders of organized labor sent by the governors of 39 states, from Alaska and the District of Columbia. The Conference made the following recommendations: (a) That the several States be urged to fortify and expand their factory inspection facilities with provision for adequate staffs of well-trained, adequately paid inspectors, selected on the basis of competency, and protected as to security of office. (b) That the safety promotion programme set in motion by the Secretary of Labor under the auspices of the National Committee for the Conservation of Manpower in Defense Industries be continued for the duration of the emergency, as a potent instrument in combating accident losses, and that Congress be urged to give necessary financial support for the effective operation of the programme. Recognising that the State labor departments are responsible for the supervision of workplaces and for the enforcement of laws and regulations relating to industrial safety and health, and considering that industrial hygiene is essentially an engineering rather than a medical problem, the Conference strongly recommends the establishment of industrial hygiene units in the labor departments and declared itself in favor of Federal aid being allotted for this purpose.

968 Chances of Resuscitation after an Overdose of Ether, Divinyl Ether and Chloroform. W.B. Draper and R.W. Whitehead. Lancet, 6189, 442 (April 11, 1942).
Data from 600 animal cases were as follows: After 250 respiratory arrests produced by ethyl ether there were 2 (0.8%) failures to resuscitate; after 137 arrests with divinyl ether there were 4 (2.9%) failures; after 213 arrests with chloroform there were 22 (10.3%) failures. Resuscitation after a respiratory arrest is made possible by the fact that respiratory arrest develops before circulatory failure. Analeptics in general are uncertain stimulants of the paralyzed respiratory center and in fact may do harm. The most important method of treating respiratory arrest is prompt artificial respiration, supplemented by oxygen.

969 Isopropyl Alcohol for Sterilization of Metal Instruments. Queries & Minor Notes. J.A.M.A., 119, 1387 (August 15, 1942).
Isopropyl alcohol is a somewhat stronger germicide against vegetative forms than is ethyl alcohol. In addition it has advantages of lower surface tension and greater fat solvent action. The maximum bactericidal concentration of isopropanol is full strength, as compared with a maximum bactericidal concentration of 70 per cent by weight for ethanol. The best grades of commercial isopropyl alcohol are said to be 98 to 99 per cent. The small water content of these solutions renders them less corrosive for metal instruments than the 70 per cent ethyl alcohol solution. Unfortunately, however, neither ethyl nor isopropyl alcohol can be depended upon to kill spores. Brewer (J.A.M.A., 2009 (May 20, 1939) has shown that scalpels are frequently contaminated with sporulating pathogenic micro-organisms. That is probably also true of needle, scissors and other instruments which come into contact with the skin. Immersion in isopropyl alcohol for several hours, or even several days, is not a trustworthy method of sterilizing such instruments. Isopropyl alcohol is sold at present in unadulterated form, which is not irritating to the operator's hands or patient's skin.

970 The Importance of Night Vision Tests. F.E. Preston. Brit. Med. J., 4251, 800 (June 27, 1942).
It is recommended that night vision tests be made a part of the eye examinations which are given to applicants for driver's licenses. Statistics show that twilight yields an abnormally high percentage of automobile accidents which may be checked by the exclusion of individuals who are accident-prone because of faulty night vision.

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971 Notes on Trichlorethylene Anesthesia. H.F. Griffiths. Lancet, 191, 502 (April 25, 1942).
A report on the administration of trilene (trichlorethylene purified and containing a small amount of stabilizer) to fifty patients, ranging from 5 to 68 years of age is made. At the outset, a few cases of slow and grossly irregular pulse were noted which was attributed to anoxemia. The use of a considerably greater percentage of oxygen than is required with ethyl ether corrected this fault. Post-operative complications were fewer than when ether was used.

972 Anesthesia VI. The Anesthetic Action of Cyclopropyl Vinyl Ether. J.C. Krantz, Jr., W.E. Evans, Jr., S.E. Forman and H.E. Wollenweber. J. Pharm. & Exp. Therapeutics, 75, 30 (May, 1942).
The union of the molecule of cyclopropane through an ether linkage with the vinyl radical results in the formation of a volatile liquid, cyprethylene ether, having anesthetic properties when inhaled. The potency of cyprethylene ether approximates that of chloroform, while its anesthetic index is more than twice that of ethyl ether. No functional liver damage was found in monkeys and the mouse, rat, dog and monkey did not develop any significant histopathological changes in the important viscera from cyprethylene anesthesia. The monkey's heart under surgical anesthesia, as a rule, showed no abnormalities. Some irregularities occurred during the induction stage. The explosive range of cyprethylene ether with oxygen is approximately the same as that of ethyl ether. The oil/water coefficient of cyprethylene ether is approximately 16 times greater that that of ethyl ether. Anesthetic concentrations in the blood are about one-fifth of those found with ethyl ether. The boiling point of cyprethylene ether is 67°C. It has been used for 20 human anesthesias without any untoward reactions.

973 Massive Repairs of Burns with Thick Split-Skin Grafts. J. B. Brown and F. McDowell. Ann. Surg., 115, 658-674 (April, 1942).
The frequent occurrence of severe burns in industry makes the problem of adequate treatment to reduce suffering and minimize deformity an important factor in morale. The treatment of such cases offers considerable opportunity for improvement at the present time. The care of open wounds, especially from burns, in preparation for skin grafting is considered, and the technique discussed in some detail. The method of obtaining thick-skin grafts, and their use, and the care of the donor site, is outlined completely. The use of homografts (skin grafts from another individual), as a life-saving emergency "dressing" for open wounds in the debilitated or desperately injured patient is urged.

Additional News Item

974 Industrial Physicians Exempted.
The Procurement and Assignment Service, War Manpower Commission, September 10 instructed its State chairmen to retain in their present positions full-time and part-time physicians considered essential in industrial practice. Mr. McNutt said in a statement to the State chairmen: "A serious situation is developing in some States because physicians under 45 years of age who are essential in their present positions as key men in industrial practice are being declared available by State chairmen or are being approached directly by recruiting boards with instructions to apply for a commission in the Army Medical Corps. "The Selective Service System and the Surgeons General of the Army and Navy are cooperating with us to keep at their posts the physicians declared to be essential by our State committees."

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