



FOUNDATION FACTS

This newsletter is issued monthly to member companies and trade associations affiliated with Air Hygiene Foundation. Its purpose is to report Foundation news and activities. Air Hygiene Foundation is a partnership of industry and science organized to protect the health of the 15 million workmen in heavy industry.

January, 1940.

No. 1

HWBR-0009933

NOVEMBER 1939
AIR HYGIENE
FOUNDATION

Proxy Meeting Announced; No Need to Attend

Notices are being sent out announcing the Foundation's "annual meeting," which for several years has been a proxy meeting. Actually, the real annual meeting is held in November. The situation came about in this way: when the Foundation was formed the Code of Regulations fixed the annual meeting for the second Tuesday in February. It was soon discovered that November was a more practical time for such a meeting, and the February meeting became a proxy meeting. This year we wish to amend the Code of Regulations to make the November date the official annual meeting. Please return your proxy.

X-Ray Bulletin in Press

The manuscript for the Foundation's second bulletin on X-ray has been turned over to the printer. It will be issued in several weeks. This bulletin is the result of research supported by the Foundation at University of Pennsylvania. The Study attempts to develop more definite standards in X-ray reading which has always been "more of an art than a science." A digest of this bulletin was given by Dr. S. Reid Warren, Jr., at the Foundation's November meeting.

Meeting Proceedings and Absenteeism Report Being Prepared

The formal Proceedings of the Foundation's November meeting, including the text of all reports presented, are now being prepared for publication. The material will be turned over to the printer in the near future. The Proceedings will not include Dr. A.J. Lanza's report, and the resulting discussion on sick absenteeism. So important is this absenteeism data that it will be issued as a separate bulletin in our Medical Series. It will also include a manual and forms prepared by the U.S. Public Health Service and revised in cooperation with our Medical Committee. This is for the use of member companies, who will be urged to take part in the Foundation's projected study of absenteeism. The bulletin will be available in the near future -- more details in the next News Letter.

Industrial Health "Inventories" Urged

"....I strongly urge that progressive companies currently obtain information as to dust, fumes, etc., under prevailing working conditions. It is even advisable to have this data prepared by a disinterested and recognized authority in the medical or engineering field of industrial health, because if the information is secured by the company's own employees, it is often disregarded by Compensation Committees or the Courts on the basis that it is prejudiced, just as is often the case when the data has been obtained by so-called 'experts' after cases have been filed, and when it is necessary to prove that the conditions then found were the same as those prevailing before or at the time of the alleged 'accident.' The Air Hygiene Foundation is in an excellent position to undertake the 'disinterested' examinations, and if harmful conditions are found, to advise what corrective steps should be taken....."

--Mr. Andrew Fletcher, Vice President
St. Joseph Lead Company.

PLAINTIFFS
EXHIBIT
LHR-135

Air Hygiene Foundation,
4400 Fifth Ave., Pittsburgh, Pa.
January 17, 1940.

HW88-6609934

DIGEST OF INDUSTRIAL HYGIENE
Literature--News--Developments

News Items:

1. Annual Meeting of the American Institute of Mining Engineers, New York City, February 12-13, 1940. Mr. O.M. Schaus, Chairman of the Committee on Health and Safety in Mines, with the assistance of Daniel Harrington, U.S. Bureau of Mines, and R.R. Sayers, U.S. Public Health Service, has drawn up a very interesting program of which the articles on Health are here listed:
 Pneumoconiosis Due to Certain Silicates. W.C. Dreesen, National Institute of Health, Washington, D. C.
 Sickness Absenteeism--Is Industry Concerned and What Can Industry Do About It. C.D. Selby, General Motors Corp., Detroit.
 Dust Control Program at the Hiwassee Dam Aggregate Plant. David F. Shaw, Hiwassee Dam, N. C.
 Pyrophyllite Dust: Its Effect and Control. M.F. Trice, State Board of Health, Raleigh, N. C.
 Ventilation and Dust Control at Ontario Mines. A motion picture film.
2. X-ray treatments may be of critical value in speeding recovery from carbon monoxide poisoning. This statement is based on results obtained with such treatments of monkeys and other animals. Monkeys exposed to concentrations of this gas that would otherwise have been fatal recovered rapidly when treated with moderate amounts of x-rays. Young rats and rabbits can withstand six to ten times as great exposure to carbon monoxide as adult animals. No such change of resistance with advancing age was found in such higher animals as guinea pigs and monkeys. Science News Letter, January 6, 1940.

Papers on Dust, Dust Diseases and General Industrial Hygiene.

3. Silicosis Research in Ontario. Can. Min. J., 60, 478-481 (August 1939).
 A summary of the report of the Ontario Mining Association dealing with silicosis. More attention is being directed to the reduction of air dustiness at operating drills. Emphasis is placed on the necessity of collaring wet. A combination air throttle and water valve is being developed to insure full flow of water through a drill at all open positions of the throttle. Air throttles having a blowing position in the valve should be removed after sinking. Although of higher upkeep cost, dustless drills have shown their superiority in reducing dust dispersed. Mine managers are reminded of the desirability of protecting stopper machine runners until more adequate means of reducing dust produced by these machines is discovered. Interest is being shown in reducing dust from blasting. Progress has been made in more general use of the burn cut or "shatter Cut." There has been a decrease in amount of early blasting done. More mines are using the waterblast in dead ends. Definite improvement in ventilation of mines in the province is noted with detailed discussion.

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STEWART
LIBRARY

4. Silicosis in Slate Quarry Miners. T.W. Davies. Tubercle, 20, 543-555 (September 1939). (British).
At Blaenau Ffestiniog, Wales slate is mined very extensively. It contains 55% silicon dioxide, 24% aluminum oxide and 10% iron oxide. Among females in this region, the rates for tuberculosis are practically the same as for Wales as a whole but for males, the percentage of all deaths is 12.7 compared to 5.3 for the whole country. For males up to 55 years of age the actual death rates were 0.73 for the whole of Wales and 1.20 in Blaenau Ffestiniog, whereas the rates for males over 55 were 0.94 for Wales and 7.32 for this region. Out of 117 quarry workers examined, silicosis in one or other of its three stages was diagnosed in five-eighths.
5. Tuberculosis Survey in Vermont. I. Rabinowitz, E.J. Roger and H.S. Slocum. Am. Rev. Tuberc., 40, 438-443 (October 1939).
The tuberculosis death rate in Washington County, the center of the granite industry, is excessive even during recent years. For the period 1934-1937, the rate was 154 per 100,000 which though considerably less than the rate for 1925-1929 (206 per 100,000), was still almost five times that for the rest of the state. The rate for the state, excluding Washington County, averaged 34 per 100,000.
6. Fibrosis of the Lungs. G.T. Hobert. Tubercle, 20, 145-160 (January 1939). (British).
In a test of modern opinion on the diagnosis of the different forms of fibrosis from radiological appearances alone, thirty films were selected from different patients, 10 of whom had, and 20 had not, an appreciable degree of fibrosis as judged from a careful clinical and radiological examination of each case. Those were shown to 70 individuals, including radiologists, chest hospital physicians, sanatorium superintendents, tuberculosis officers, and others with experience of radiology of the chest. The question was asked on each film whether a specified form of fibrosis could be diagnosed confidently in some particular area, or in certain instances in the lungs as a whole. In the results as a whole, fibrosis was diagnosed when present in 57% of the replies and when absent in 35%. By leaving out the replies on 11 "difficult" films these percentages were altered to 75 and 29 respectively. Hence on x-ray films fibrosis does not always give recognizable evidence of its presence, and at times even experts find it when it is not present to a significant degree.
7. The Problem of Pneumoconiosis and its Relation to Tuberculosis. A. Policard. Rev. d'hyg. et de med. prev., 61, 161-178 (1938). (French). (Review by Dr. L.U. Gardner for J. Ind. Hyg. & Toxicol., January, 1940).
Prof. Policard states his intention of attempting to summarize current knowledge of silicosis and related tuberculosis, indicating definitely known facts and reviewing various hypotheses that have been advanced. He points out the International Labour Office, by calling together various experts in Geneva last September performed a signal service in clarifying international opinion upon this subject.
After reviewing the evidence he concludes that there can be no question but that inhaled dust of any type is retained in the lungs, that carbon is harmless, that quartz is irritating and that mixed dusts are dangerous in proportion to the amount of silica that they contain. On the action of silicate dusts he finds no general agreement. Threshold values for harmful atmospheric concentrations can be established for each particular kind of dust or mixtures of dusts. The average period necessary to produce reaction can also be determined. This period is always a matter of years and he regards so-called "acute silicosis" with scepticism since it is almost invariably associated with tuberculosis. To his mind almost any dust produces a pathological reaction characterized by a generalized fibrosis in the interstitial tissue. Silica merely produces more reaction than

the other dusts although it may form microscopic pseudo-nodules without hyaline centers. (The reviewer would point out that such lesions are extremely common in coal miners and that Professor Policard's other papers have dealt chiefly with anthraco-silicosis). The roentgenographic pattern of this non-specific pneumoconiosis consists merely of linear exaggeration of the normal pulmonary shadows. Since the subjects have no symptoms and in most countries are permitted to continue at work he believes that this condition is not a disease but merely a pathological state. (American opinion is in full agreement but most observers would go further and include in the same category a majority of cases with simple discrete nodulation.) Policard admits that the roentgenograms of the Rand miners may show fine nodulation which passes over into coarse nodulation with the advent of infection but he thinks that autopsy material on cases of uncomplicated silicosis is too limited to permit evaluation of the pathology. He signals out the experimental observations of the reviewer, which purported to demonstrate that silica would produce nodular fibrosis in the absence of infection, as immaterial because the nodules were not exactly the same as those in the human subject. He affirms that the experimental nodules were not fibrous, but this is a matter of opinion. The language difficulties at the meeting were apparently responsible for certain erroneous impressions as to the proportion of silica in dust that would cause reaction. The reviewer reported beginning fibrosis after 3 years' exposure to ferruginous chert containing 50% silica although Policard stated that no fibrosis resulted with dusts containing less than 98% silica. He affirmed that none of the silicates had caused fibrosis in experimental animals although the reviewer had attempted to demonstrate that inhaled asbestos would produce such reaction but that particulate silicates produced no fibrosis when injected into extrapulmonary tissues. Policard concludes this reaction with the statement that while it would be preferable to test the effects of injurious dusts upon animals rather than upon human beings, thus far the experimental method has proved inadequate. The solubility hypothesis, to explain the tissue damage from silica, he accepts in principle but points out that the various stages of such reaction are not understood. He reviews the data on the inhibitory effects of alumina and his own theories on interchanges of bases in silicates in contact with body fluids, which alter the capacity of such minerals to cause irritation. He reviews in detail important contributions to the subject of the relationship between silicosis and tuberculosis. He emphasizes the frequent association of the two conditions and points out their mutual interaction, the silica stimulating the growth of the tubercle bacillus and the tuberculous lesion favoring the retention of the silica. He discusses silico-tuberculosis, describing the well known features of its pathological, roentgenological and clinical manifestations. He then inquires whether there can be any pure pneumoconiosis (silicosis apart from infection) and concludes that if it exists it is merely a pathological condition and not a disease productive of symptoms and disability.

8. An Inquiry into the Effects of Occupation on the Pulmonary Condition of Stone-Masons. K.R. Moore and C.A. Kuhlman. Med. J. Australia, 2, 267-274 (1939).
A report of a clinical and radiological survey of 355 workers in the stone-mason industry in New South Wales, Victoria and South Australia. Inspection of working conditions and dust counts were also made. Two types of pulmonary fibrosis were found as well as evidence of other more acute respiratory conditions which may be occupational in character. Of 268 masons examined, 111 or 41.4% were found to be afflicted with pulmonary fibrosis of moderate or advanced degree or from tuberculosis. Of the eight cases of silicosis uncovered, all except one were found among workers in sandstone which had a high content of free silica (86% to 95%). These workers developed fibrosis earlier and in more severe form than those using granite or other stones with a low silica content. There was also evidence of industrial disease in other groups, such as polishers and sawyers.

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STUBBINS

9. Structure and Mode of Formation of Fibrotic Areas in Pneumoconiosis. A. Pollicard, L. Crozier and E. Martin. *Ann. d'anat. pathol.*, 15, 97-132 (1939). (French).
Report of examinations of fibrotic sections of lungs of coal miners who have also worked in rock. The authors report that definite and characteristic signs of tuberculosis were always present and they conclude that a pure silicosis is rare, if it exists at all.
10. Secondary Silica as a Probable Factor of Silicosis in South Wales. A.E. Cox. *Proc. S. Wales Inst. Engrs.*, 54, 161-167 (September 1938). (British).
It is the author's opinion that the high incidence of silicosis in the South Wales anthracite field is due to the free silica, and particularly the secondary silica in the shales which accompany the coal. It has been observed that much shale overlying the coal was ripped to make height in working places. Being in an exceedingly fine state of subdivision, this secondary silica is difficult to detect microscopically and practically impossible to determine quantitatively.
11. A Cutaneous Test for Tissue Reactions in Animals with Dusts Causing Pneumoconiosis. S.R. Gloyne. *Tubercle*, 20, 561-562 (September 1939). (British).
The author uses a compromise between intra- and subcutaneous routes which might be described as a cutaneous inoculation. The test may be useful as a simple routine technique for dust-testing. The advantage is that the lesion is not spoiled by any natural intercurrent diseases of the animal, such as pneumonia or pseudo-tuberculosis.
Study
12. Report of Dust/Conducted in Granite Monument Cutting Plants in South Carolina. R.M. Brown. *Bulletin, So. Carolina State Board of Health, Ind. Hyg. Div.* (1939).
In this survey of twelve monument and tombstone cutting plants, high concentrations of dust were found in every stone cutting operation. The average concentrations for the majority of the plants and for the industry as a whole were found to be dangerously above the limit of 10 million particles per cubic foot of air for granite dust.
13. The Chemical Properties of Siliceous Industrial Dusts. H.V.A. Briscoe. J.Roy. *Soc. Arts.*, 38, 104-122 (December 15, 1939). (British).
In the author's opinion, there has been no clear proof that the causative agent of silicosis is silica. Since substances other than free silica, such as asbestos, or the silicates present in anthracite coal dust, can also produce disabling changes in the lung similar, according to the author, to those produced by free silica dust, he feels that both "free silica" and these silicates have some constituent in common which is the real cause of damage. As evidence that soluble silica is not to blame, the author quotes the examples of exposure to cement dust or coal dust containing siliceous ash which produce no lung disease. In his opinion, the accepted methods of dust collection such as wetting, produce changes in the samples which lead to erroneous conclusions as to their chemical reactivity. His dissatisfaction led him to devise new methods of collection which he divides into three classes: (a) volatile crystal filters; (b) soluble crystal filters; and (c) the "labyrinth." Using dust collected by the latter means, it was found that dust of the magnitude of less than 1 micron was three times as soluble as dust of 2-3 microns. It is believed that there may be a selective solubility effect on the various mineral dusts so that methods of collection using water as a medium do not give a true picture of the dust as it is breathed. Little value, according to the author, can be placed on findings obtained by examining minerals in the lung at autopsy; these may have been considerably changed. He feels that further experiments need to be undertaken with artificially prepared dusts using careful control of its characteristics so that any resulting effects could be absolutely attributed to them.

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W. J. ALLEN

14. Method of Neutralizing the Condition Producing Qualities of Finely Pulverized Siliceous Materials. J.J. Denny and W.D. Robson. U.S. Patent 2,156,378 (May 2, 1939).
That silicosis can be prevented by introducing finely powdered aluminum dust into quartz-laden air, as in mines, is the claim of these authors. The method for dispersing the aluminum is by mixing it into the blasting charge. They also suggest that silicosis can be "neutralized" by allowing silicotics to breathe the aluminum dust by means of some inhalator device.
15. Dusts Produced by Mining Processes. H.S. Patterson. J.Chem. Met. & Min. Sec. So. Africa (May 1939).
Following a survey of the difference in dust clouds in mining operations and other means of production, the author who is engaged in dust researches at the Physico-Chemical Investigation Department of the Transvaal Chamber of Mines, Johannesburg, discusses the particle-size distribution in dusts produced by wet-drilling, dry-drilling, hand-hammer drilling, ore-bin tipping, blasting and shovelling, and reports briefly on the dust concentrations inhaled by various operatives in the gold mines in Witwatersrand.
16. Servicing Respirators and Goggles. M.H. Kronenberg and H. Guilbert. National Safety News, 40, 66 (October 1939).
To clean, sterilize, inspect and repair their large investment in goggles and respiratory protective equipment, the Pullman Company has provided a central agency for this purpose. If necessary, the attendant can service one hundred men a day with this type of equipment. However, a larger supply than is needed is kept on hand to allow for passage through this storeroom. This new arrangement is very popular with the men since they have more confidence in their protective equipment and value it more highly because of the Company's efforts to keep it in perfect condition.
17. Breathe Freely. W.P. Biggs. Safety Engineering, 78, (November, December 1939).
A discussion of the various types of respiratory protective equipment with comments on care and use. The author is Safety Engineer of the U.S. Navy Department and mentions the special tests such as resistance to sterilization, to corrosion, freedom of materials from skin irritants, etc., which are required by that organization.
18. Ohio Industrial Hygiene Bulletin. Ohio Department of Health, 1, 2 pp. (November 1939).
Contains a discussion of lead poisoning in Ohio and reports a large proportion of the total number of occupational disease cases to be of this disease. A brief article considers the basophilic aggregation test warning that in chronic lead poisoning this test may be positive, but usually is not. In persons exposed to lead and other substances such as benzol, toluol, xylol, etc., abnormal percentages of basophilic-containing cells may not be caused by the lead alone, but by those other substances or both. The anemias, other diseases involving the red blood corpuscle and occasionally certain infectious diseases may cause the normal range to be exceeded. Further consideration is given to the subject of vapor determinations and control of the halogenated hydrocarbons.
19. Ohio Industrial Hygiene Bulletin. Ohio Department of Health, 1, 2 pp. (October 1939).
Contains a discussion on halogenated hydrocarbons dealing mainly with their chemistry, physical properties and industrial uses. There is also a general report on carbon monoxide poisoning for the statistical period, October 1, 1938 to September 30, 1939.

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THE AIRBATHS

20. Role of Engineer in Air Sanitation: Typical Problem in Industrial Sanitation. J.J. Bloomfield. Proc. Am. Soc. Civ. Engrs., 65, 1484 (November 1939).
A discussion of the role of the engineer in industrial sanitation studies, indicating the trends in this field of public health. After the physician has recognized the existence of those diseases associated with the working environment, is the engineer's function to study the conditions that may be detrimental to health, and by precise quantitative measurements, to determine the extent of the hazard. Once the nature and degree of the hazard have been demonstrated, it is also an engineering problem to devise methods for minimizing or controlling the dangerous condition, and lastly to estimate the effectiveness of these measures.
21. Twenty-Five Years Progress in Prevention of Accidents and Silicosis in Witwatersrand Mines. E.H.A. Joseph. J. Chem. Met. & Min. Soc. So. Africa, 40, 34-50 (August 1939).
A review of measures adopted to reduce the risk of accidents and silicosis; legislative control of safety and health in mining; and the results achieved. A discussion of silicosis prevention work and the present organization is also given.
22. Disabling Illness in Slaughter and Meat Packing Industry. H.P. Brinton, H.E. Seifert and E.S. Frasier. U.S. Pub. Health Reports, 54, 2196-2219 (December 15, 1939).
This is another of the reports covering statistical material collected by the Occupation Morbidity and Mortality Study of the National Health Survey of 1935-1937. The data was transcribed from the sick benefit organization records of the participating companies. The highest frequency rates for illness lasting 8 or more days were found among cold meat workers, among white males; scalers, wrappers and packers, among white females; and by-products workers, among Negro males. These high rates were due in large part to an excessive number of respiratory diseases. Rates for rheumatic diseases were high in warm and cold meat workers, sausage and casing workers, and curing workers. Exposure to high humidity and wet conditions showed the highest rates in environmental analyses, while of the material hazards, hides and wool, glue and entrails, appeared to be the most dangerous, with digestive diseases as the apparent sequelae.
23. Evaluation of the Industrial Hygiene Problem of the State of Maine. E.W. Campbell, Director, Dept. Health and Welfare, Bur. of Health, Div. of Sanitary Engin., Augusta, Maine, 1938.
This publication has just recently been made available. It is a survey, accompanied by numerous tables, of the potential health hazards of this State. It recommends the formation of a state bureau of industrial hygiene.
24. Industrial Medicine in 1938. Internat. Labor Office Year Book, 1938-1939, Chapter IV, pp. 107-126.
A general article on various industrial maladies, studies made, and laws passed in various countries. The nutrition of workers is widely studied and the problem of rest pauses, lunch periods and factory meals investigated. Lead, mercury, chromium and other toxic agents are considered; pneumoconiosis is given special attention. Eyesight, X-rays, ankylostomiasis and cancer are briefly considered as well as the position of the factory doctor, medical care, hygiene in special trades and medical inspection.
25. Survey of Industrial Disease. W.J. Connell. Safety Engineering, 78, 37-38 (December 1939).
An outline of a lecture delivered at New York University's Center for Safety Education. The author discusses very briefly dusts, gases, fumes, toxic substances and other general problems of industrial hygiene.

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26. Preliminary Industrial Hygiene Survey of Indiana Industries. L.W. Spolyar. Indiana State Board of Health, Bur. Ind. Hyg., Indianapolis, Ind., pp. 162, 1939. This is another of the series of surveys undertaken under direction of the U.S. Public Health Service. It evaluates the potential problems of industrial hygiene found in this state. A convenient type of chart presents the frequency distribution of plants according to the number of workers employed.

27. Occupational Diseases of the Pharmacist. E.R. Hayhurst. The Merck Report. (July 1939).
Occurrence of occupational disease is rare among pharmacists, only 31 out of 3,603 claims being reported for six years in Ohio. Of these, fifteen were females, chiefly employed at soda fountains. Of the 31 cases, twenty-two were for dermatitis, cleaning solution accounting for 9; various other chemicals for 9; two of impetigo and epidermophytosis, probably from handling money; one from handling labels and wrapping paper and one due to irritation from a starched apron.
Two cases of constitutional poisoning occurred in women from filling capsules with dinitrophenol. Tenosynovitis of the wrist joint occurred in a labeler, also in a wrapper and prepatellar bursitis in a man who was trimming windows. Three cases of chronic, low-grade carbon monoxide poisoning were reported in clerks checking stock in the basement of a drug store. Most of the afflictions of this trade fall in the partly occupational group.

28. Mines Inspection in 1938. Colliery Guardian, 159, 866-868 (December 15, 1939). (British).
The nystagnus figure for 1937 showed a considerable reduction compared with other years. The incidence of bent knee increased by over 50% in the period reviewed. The rates for silicosis for the Northern division are extremely low. There is an apparent lack of progress in the use of protective equipment.

29. Efforts to Use Workers who are Chronically Ill. J. Am. Med. Assoc. (Berlin letter), 113, 1748 (November 4, 1939).
Attention is being directed in Germany toward the employment of the chronically ill, because of the shortage of workers. It is the factory inspector's responsibility to find the right job for the right person and to see that the health of these workers is not undermined.

30. Artificial Sunlight for Miners. J. Am. Med. Assoc. (Stockholm letter), 113, 1653 (October 28, 1939).
Associated with the use of a solarium for underground workers for two years, is a decrease in frequency of 1-day illnesses and of catarrhal diseases of the respiratory tract, the latter very marked. There was also a reduction in the morbidity rate from 9.7 days per head to 8.5. After three months use, the average calcium content of the blood serum rose from 9.9 mg. to 10.5 mg. per 100 c.c.

31. Miners' Health and Welfare. S.W. Fisher. J. Roy. Inst. Pub. Health and Hyg., 2, 476-484 (August 1939). (British).
This article deals with the health and safety of coal miners in Great Britain. A description of the existing statutory requirements for first aid is given. Other subjects dealt with are rescue work, miners' nystagnus, incidence and prevention of silicosis, bent hand, knee and elbow, boils and carbuncles. Boils as well as generalized dermatitis occur mostly in mines where the air temperature is high and the velocity low.

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32. The Employment of the Deaf in the United Kingdom. M.L. Clark and G.P. Crowden. Joint Report. National Institute for the Deaf and the Department of Industrial Physiology, London School of Hygiene and Tropical Medicine, London, 1939. This study investigated the difficulties of the deaf in securing employment and ways in which these obstacles might be overcome. The data covers 6155 individuals in 345 occupations. Tables are shown listing occupations successfully followed by the deaf--the skilled worker has no difficulty in holding a position in the industrial world, the difficulty comes with the older unskilled workers. The replies from industrial firms reveal that there is a definite belief that the employment of a deaf person is an additional risk, placing an unjustified liability on the employer.
33. The Effects of Working Conditions upon the Health of London Central Busmen. Report of Conferences. Ministry of Labor. H.M. Stationery Office, London, 1939. (British). The conferences were held to investigate the complaints of bus workers that their work was unduly exacting and injurious to their health. Comparison with a previous study showed that those workers had about 15% more days of gastric illness than might be expected from their age groups. Stress was laid on two general factors in the causation of these gastric disturbances: (1) irregularity of hours of work and meal times; and (2) nervous anxiety and temperament. It was suggested that consideration be given to the desirability of introducing a system providing for a longer interval between shifts of work, shortening of spells of work before a meal relief, increase in time allowed for meals, etc. While it is obvious that there is some nervous strain involved in operating a passenger vehicle through congested traffic, there is no means of estimating its importance as a contributory factor in the observed excess of gastric illness.
34. "Huwood" Dust Collector. Colliery Guardian, 159, 547 (October 20, 1939). (British). A description of a device which acts in a manner similar to a vacuum cleaner. From a special collar on the drill steel, a rubber hose leads to a cylindrical tank which is filled with a bag-like filter cloth. An injector worked by compressed air is provided and the tank cover is fitted with a system of baffle plates through which the injected air escapes.
35. Formation, Collection, and Treatment of Coal Dust in Mines. D. Harrington. U.S. Bur. Mines, Inf. Circ. No. 7089 (September 1939). The author points out that a combination of watering methods around working faces on loading piles, on the floors of main haulage ways, etc., together with rock dusting all other dry surfaces, maintenance of circulation of fresh air, and prohibition of open flames or electric arcs "will ultimately solve the combined health-safety problem in coal mines, as regards prevention of widespread explosions and fires, as well as the avoidance of diseases of workers through breathing of harmful quantities of dust."
36. A Standard Air Filter Test Dust. F.B. Rowley and R.C. Jordan. Heating, Piping & Air Conditioning, 11, 633-638 (October 1939). This dust is made up of 80% Pocahontas ash screened through a 200-mesh sieve plus 20% double bolted carbon dust of 100 mesh. Variations of this could be made to conform to the type of dust the filter would meet in practice. In the described tests, dust was fed at the rate of 40 grains an hour and the face velocity at the filters was 300 f.p.m.

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IN RE: ABRAMS

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37. Flow Pattern and Pressure Drop in Cyclone Dust Collectors. C.B. Shepherd and C.E. Lapple. *Ind. Eng. Chem., Indust. Ed.*, **31**, 972-984 (1939).
The results of experiments conducted in a 12 inch glass cyclone arrester indicate spiral flow patterns without evidence of secondary eddy currents. A theoretical analysis of flow characteristics correlates data on pressure drop with variation of design, proportion of inlet width, inlet height and exit duct diameter, on the assumption of primary energy loss in the high velocity upward spiral of the exit duct. Formulae are presented for such calculations in practice. The use of straightening vanes in an extension below the exit duct results in an appreciable reduction of pressure drop, which was also reduced by heavy dust loading.

38. The Time Factor in Deep Mine Ventilation--Some Deductions from Borehole Temperatures and Allied Observations. J.P. Rees. *J. Chem.Met.Min.Soc. So. Africa*, **39**, 311-312 (April 1939).
The rate of rock cooling and the heating effect of the rock on air have been mathematically analyzed. A discussion of the general measures for combating the heat problem is given.

39. Ozone in Ventilation--Its Possibilities and Limitations. W.N. Witheridge and C.P. Yaglou. *Heating, Piping and Air Conditioning*, **11**, 648-653 (October 1939).
A concentration of 0.015 p.p.m. of ozone which can barely be smelled is sufficiently effective in reducing the smell of body odor to permit a reduction of at least 50% in the requirement for fresh air. Higher concentrations were irritating to the upper respiratory tract, while lower had no effect on body odors. Its action appears not to be by oxidation on the air of the room but on the nasal mucosa by masking. The main objection to the application of ozone to ventilation is lack of control. Until adequate means are devised for controlling the ozonators from the actual concentration in occupied spaces, the use of ozone should be discouraged because of its great toxicity.

40. On the Seasonal Variation of Forehead Temperature and its Relation to Feeling of Comfort. W. Liese. *Gesundheits-Ingenieur*, **62**, 345-50 (June 24, 1939). (German).
A study made on a number of persons in 1938-39 giving relation of the temperature of the forehead to general physiological feeling of comfort. A bibliography is given.

41. Air Conditioning. D.O. Shiels. *Health Bulletin, Dept. of Public Health, Victoria Australia*, Nos. 55 and 56, pp. 1553-1560 (July-December 1938).
A discussion of the physical and physiological principles of air conditioning and its application to offices, schools, industries, hospitals, etc.

42. Air Conditioning and Comfort at Altitudes between 1500 and 2700 Meters. M. M. Hottinger. *Gesundheits-Ingenieur*, **62**, 193-197 (April 8, 1939). (German).
A Swiss survey of atmospheric conditions and physiological comfort at varying altitudes. Comfort curves are given.

43. Summer Cooling Requirements in Washington, D.C., and Other Metropolitan Districts. F.C. Houghten, C. Gutberlet and A.A. Rosenberg. *Heating, Piping and Air Conditioning*, **11**, 587-591 (September 1939).
An effective temperature of about 71°F. is the most popular in warm weather after the occupants have become adapted to the cooled atmosphere. This has been confirmed by recent comfort studies on 73 men and women working in the cooled offices of the Federal Reserve Building, Washington, D. C.

44. Subjective Impressions of Freshness in Relation to Environmental Conditions. T. Bedford and C.G. Warner. *J. Hygiene*, 39, 498-511 (September 1939).
Results of observations made upon the relation between subjective impressions of freshness and the temperature, velocity and humidity of the air. It is shown that maintenance of a suitable degree of warmth is not the only requisite of a really satisfactory system of heating and ventilation, even though the index of warmth considered makes adequate allowance for the thermal effects of air velocity and other variables. The room should be as cool as is compatible with comfort, there should be adequate air movement which should be variable, the relative humidity should be kept well below 70%, the average temperature of the walls should not be lower than that of the air and, lastly, the air should be free from objectionable odors.

45. Spectro-Analysis in the Diagnosis of some Occupational Diseases. Experimental and Clinical Investigations Employing Electrolytical Methods. F. Capelli. *Med. del lavoro*, 17, 206-216 (1939). (Italian).
This is an account of experimental work with mercuric chloride with animals and also on a female hat worker. The author shows the advantage of electrolytical and spectroanalytical methods. He also reports on a study of the literature regarding cadmium sulfate and experiments on rabbits.

46. Methods for the Detection of Toxic Gases in Industry: Chlorine. Leaflet No. 10. Dept. Sci. & Industr. Research, H.M. Stationery Office, London, 1939. (British).
Exposure to chlorine occurs chiefly during its manufacture and use, generally as the result of accidents in which large quantities escape. Dangerous concentrations may be found in alkali, bleaching and chemical plants, dye-making and dyeing works, the tinplate industry, at water purification systems, etc. Acute poisoning is unusual as its physical qualities make it easily detected. As low as 1 p.p.m. can be recognized by smell. It is possible that there is some degree of tolerance acquired but chronic effects such as chronic bronchitis, eye affections, chronic gastritis, and sleeplessness have been described. The effects of various concentrations (parts by volume) are: 1 to 1000, brief exposure rapidly fatal by asphyxia; 1 in 10,000, exposure of few seconds is intolerable; 1 to 20,000, exposure for 30 minutes causes acute pulmonary edema; 1 in 100,000 will cause bronchitis in one hour; and 1 to a million, prolonged exposure is permissible.
A simple method of detecting and estimating is described. Samples of the air to be tested are drawn, by a hand pump of known capacity, through a bubbler of o-tolidine until the depth of color is equal to that of one of a series of standards prepared from potassium dichromate solution. By reference to a table, the number of pump strokes will give the concentration.

47. Is Gas Present? E.G. Meiter. *National Safety News*, 41, 24 (January 1940).
An able review of modern methods for the control of industrial gas hazards. The writer discusses the flame safety lamp; the Hoolamite and ampoule-type carbon monoxide detectors, the carbon monoxide indicator, alarm, and recorder; the hydrogen sulfide and hydrocyanic gas detectors; the portable gas interferometer; the halide refrigerant gas leak detector; and the various devices for the detection of combustible gases.

48. A New Method for the Microdetermination of Manganese in Biological Materials. A.C. Wiese and B.C. Johnson. *J. Biol. Chem.*, 127, 203-209 (1939).
This method is based upon the oxidation of benzidine by permanganate in the presence of nitric acid. The yellow green color is read with the photoelectric colorimeter with a 4200 A. filter. It is possible to perform 6-8 filtrations through the same filter and then read the colors developed, in this way reading 30-40 determinations in an hour. From 0.1 to 100 gamma (micrograms) can be estimated and recoveries range from 92 to 106%.

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49. Apparatus for Taking an Average Sample of Variable Flow of Gas. A. Blackie. *J. Soc. Chem. Ind.*, **58**, 293-296 (September 1939).
A description of two types of apparatus for sampling gas (or liquid) flowing in pipes. By utilizing a pin hole orifice and appropriate containers and weights in the lines leading from venturi taps on the pipe, samples of the gas are obtained which are proportional in composition to that flowing. This arrangement takes into account variations in velocity, pressure, and density in the main stream by virtue of the similarity of pressure drop through venturi and orifice.

50. Atmospheric Pollution. P. Drinker. *Ind. & Eng. Chem.*, **31**, 1316 (November 1939).
Any departure from normal air may be regarded as evidence of pollution. This may take the form of any abnormal concentration of gas, mist, solid or even radium emanations. It may be harmful to plant and animal life, it may be a nuisance, it may form explosive mixtures with air or it may be detrimental to machinery or manufacturing processes. Such pollution is usually the product of man's activities but may be, as in the case of fogs and dust storms, of natural origin. Those of human production are in the main preventable; the control of those of climatic nature are in the experimental stage. The solution of many pollution problems has been speeded because of economic recoveries of valuable materials but too often it requires the threat of damage suits to initiate change. The article discusses the various types of contaminants and the methods of determining and controlling them.

51. Influence of Repeated Physical Effort on the Function of the Suprarenal Capsule in Man. G. Benetato. *Travail humain*, **7**, 153-162 (1939).
Examination of the suprarenal glands of young rats that had run for a month in a turning drum were found to be larger and heavier than normal. Injection of histamine showed a stronger function in trained students. In the author's opinion the better function has an important effect on the development of the constitution and favors the production of the pyknic type.

52. Chronic Systemic Diseases. H.W. Garton. *Industrial Medicine*, **8**, 459-464 (November 1939).
The author urges concerted effort in the detection and treatment of the chronic systemic diseases as an integral part of an industrial hygiene program. Increase in health and efficiency of workers; decrease in absenteeism and mortality; improvement in health of the community; and reduction in costs of compensation are all dividends which should be the reward of an intensive program of preventive medicine in industry.

53. Diffuse Scleroderma and Raynauds Phenomenon from the use of a Pneumatic Hammer. D. Leys. *Brit. Med. J.*, p. 692. (October 23, 1939).
This man, a mason, worked with a compressed-air hammer for a period of six years. He first noticed numbness of the fingers during cold weather when using the hammer. A fall, some nine years after stopping use of the hammer, brought him to medical attention. His face was immobile and expressionless with a small mouth, the aperture of which was about 1-1/2 inches. The skin of the face was tense, thin and inelastic. Both hands showed Raynaud's phenomenon. Though scleroderma and Raynaud's disease are commonly associated, there is a question here whether the cold or vibration of the hammer which brought about the condition of the hands, also set up the scleroderma.

54. Cases of Human Infection with Brucella Abortus Bang Reported During 1938. *Reichsgesundheitsbl.*, **14**, 764-765 (1939). (German).
There are between 500-600 cases of this disease reported each year. In 1938 there were 600 cases; in 280 the cause remained unknown; 145 were traced to contact with sick cattle, 124 to ingestion of raw milk, and 45 to these causes together. Most of the cases are found in the farming and dairy industry as might be expected.

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55. Tissue Reactions to some Carbon Arc Dusts. E.L. MacQuiddy, J.P. Tollman, L.W. LaTowsky and S. Schonberger. *J.Ind.Hyg. & Toxicol.*, 21, 498-513 (December 1939).
Animal experiments showed that peritoneal injections of dust in white rats gave more marked reactions than those given by the skin or lung of the rabbit. Some of the high intensity carbon arc ashes give mildly proliferative reactions and the authors suggest that it might be deduced that if they were inhaled over a long enough period of time, a proliferative type of pneumoconiosis might be produced. However, no conditions where sufficiently high concentrations to produce such a lesion are known to exist. Nevertheless, proper ventilating precautions must be taken as recommended by Drinker and Snell.

56. The Reduction of Noise in Buildings. Building Research Spec. Report No. 26, H.M. Stationary Office, London, 1939. (British).
As the result of intensive research on the problem of noise in buildings, certain broad principles have emerged. The technique of insulation against "contact" or "impact" noise is different from that required for "air-borne" noise. The relation between weight and reduction of air-borne noise in simple structures has been found to vary as the logarithm of the weight of the floor or partition.
A useful start has been made on the evaluation of the importance of "flanking" sound transmission. Numerous tables are given on the sound insulation values of various materials.

57. Physical Efficiency and Service Flying. A.F. Rook. *J.Roy.Naval Med. Service*, 25, 203-217 (July 1939). (British).
This contains a discussion of the relationship of physical efficiency to the problems arising in the selection and care of Service pilots from a medical standpoint. Nervous, respiratory and cardiovascular stresses are considered. Signs of hypernervousness at facing medical examiners do not, the author feels, preclude the candidate from flying. Respiratory difficulties have largely been eliminated by the use of air-tight suits or cabins. Above 15,000 feet the diastolic pressure falls to an extent which may embarrass the cranial circulation. In high speed flying, the centrifugal effects may cause serious symptoms. Although freedom from organic disease is essential, in the author's opinion, temperament is more important.

58. The Distribution of Electric Current in the Animal Body: An Experimental Investigation of 60 Cycle Alternating Current. A.W. Weeks and L. Alexander. *J.Ind. Hyg. & Toxicol.*, 21, 517-525 (December 1939).
A knowledge of current distribution is of importance in evaluating the effects of shock because it has an important bearing on the type and severity of damage. The paths can be fairly accurately determined if the points of contact are known. Electric current passes through the body in the shortest path from contact to contact without deflection by anatomical structures.

59. Influence of Work on Osmotic Resistance of Erythrocytes. A.L. Relwicz. *Pflügers Arch. f.d.ges. Physiol.*, 242, 35-48 (1939). (German).
Influence of Bodily Work on the Calcium and Potassium Content of the Erythrocyte. A.L. Relwicz. *ibid*, 49-53 (1939). (German).
Heavy work will increase the resistance of erythrocytes, although the change is only slight in well trained animals. Work done repeatedly and for a long time will, as a rule, diminish the resistance. Augmented resistance, it is thought is due to the increase in potassium content.

60. The Physiology of Water Exchange. E.R. Reay. *New Zealand Med. J.*, 38, 79-90 (1939).
The Physiology of Water Exchange. N.L. Edison. *ibid*, pp. 266-270 (1939).
Reviews of the present knowledge of water interchange between man and environment, and of the functions of water and salts in metabolic processes,

61. A Study of the Hazard from Tubercle Bacilli in Environmental Air. R.P. Sim and F.B. Flinn. *Am.J.Hyg.*, 30, 135-140 (November 1939).
Tubercle bacilli, because of their size, tend to fall out of the atmosphere rapidly. As expelled from the mouth, they are coated with albuminous material which tend to stick wherever it strikes and is thus not stirred up into the atmosphere again.

Papers on Industrial Poisons, Cancer, Dermatitis, etc.

62. Acute Poisoning in Animals after Intraperitoneal and Intratracheal Administration of Dusts. J.P. Tollman, E.L. MacQuiddy and L.W. LaTowsky. *J.Ind.Hyg. & Toxicol.*, 21, 514-516 (December 1939).
In the experiments reported in Item 55, certain of the injections caused the acute death of the animals. Upon investigation, this was found to be due to a soluble cupric ion. The authors warn against the possibility of errors arising out of the presence of toxic foreign substances in mixtures used for tissue reaction experiments.
63. Osseous Changes in Experimental Chronic Fluorine Poisoning. F.I. Lang. *Klin. Wchnschr.*, 18, 1035 (1939). (German).
The conclusion is made that fluorine produces disturbances in the mineral metabolism, especially in calcification of the basic substances, changes in the bones and cartilages, which resemble the osteosclerosis seen after healed rickets. This is based on the results of experiments published by Kellner (*Arch. f. exp. Pathol.*, 192, 546, 1939).
64. Severe Acute Anemia with Slight Kidney Disturbance after Absorption of Metallic Tin and Lead. A. Laporte, A. Meyer and I. Bouser. *Bull. et mem. Soc. hopit. de Paris* 55, 955-961 (1939). (French).
A man treating himself for furunculosis took twice daily a sizeable amount of ground tin which contained a "remarkable" amount of lead. He became very weak, unconscious and vomited. Blood examination showed 40% hemoglobin and two million erythrocytes. In a month he recovered, but one year later developed edema and albuminuria.
65. Poisoning from Thallium Dust. W. Schwarte. *Munch. Med.Wchnschr.*, 86, 1299-1300 (1939). (German).
A typical case of thallium poisoning evidently caused by a woman inhaling a considerable amount of thallium dust while cleaning a drawer in which Zeilocorns (grain impregnated with thallium acetate) had been placed.
66. The Occurrence of Atmospheric Lead Resulting from use of Colored Blackboard Crayons. H.W. Ruf and W.Z. Fluck. *Am.J.Pub. Health*, 29, 1149-1153 (October 1939)
Lead was found present in only various shades of yellow, orange and green in the 27 samples analyzed. The maximum quantity of lead found was equivalent to 12% by weight.
67. Chloropicrin as a Prewarning Gas in Ship Fumigation. G.C. Sherrard. *U.S. Public Health Reports*, 54, 2297 (December 29, 1939).
The use of lethal gases in the fumigation of ships presents hazards to human life which necessitates the utmost care and the use of any and all chemical or mechanical devices in prevention of fatal accidents. This is an account of studies undertaken for the purpose of developing a practical method of applying a prewarning gas preceding the introduction of the lethal gas. Of the various gases studied, chloropicrin seemed to offer the greatest possibilities for the reason that an irritant effect could be produced which was unbearable in a concentration far below the lethal dosage.

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68. Studies in Lead Mobilization. S.L. Tompsett and J.N.M. Chalmers. Brit. J. Exp. Path., 20, 408-417 (October 1939).
A further investigation by these authors on cases of clinical plumbism and increased lead absorption, especially on the influence of diet and medication on the blood level of lead. The experiments showed the extreme mobility of lead: high calcium diets produced a fall in blood lead, while low calcium diets with or without ammonium chloride produced a rise in blood lead. Increase in blood lead does not necessarily mean parallel increase in lead excretion: this raises the question of the wisdom of de-leading, as the process may result in largely increased lead in the soft tissues and circulation without compensatory increase in excretion. Single estimations of blood lead may produce erroneous results in diagnosis due to the influence of diet. In suspicious cases, if the blood lead is normal the estimation should be repeated after a course of low calcium therapy, preferably with ammonium chloride. If possible, lead excretion should be examined at the same time.

69. Acute Tunnel Gas Bronchitis. M.G. Henry. Industrial Medicine, 8, 477-480 (November 1939).
A case report of acute tunnel gas congestion with comparative x-ray photographs. The construction of tunnels through volcanic deposits is complicated by the presence of irritating gases which in combination with the gases produced by explosions are sufficient to produce severe and acute gas poisoning.

70. What We Don't Know About Carbon Monoxide. M.R. Mayers. National Safety News, 40, 38 (November 1939).
A discussion of the problems in carbon monoxide poisoning which still remain to be solved. The subject is handled from the viewpoint of the toxicologist discussing exposures to low concentrations, carbon monoxide headache, mixed gases such as illuminating gas and automobile exhaust. Of interest in the proper diagnosis of instances of poisoning and in just settlement of compensation cases.

71. Safe Practice in Viscose Rayon Industry. W.H. Chestnut. Rayon Textile Monthly, 20, 632 (November 1939).
The toxic gases involved in this industry are carbon disulfide and hydrogen sulfide as the result of a reaction in the spinning bath. At the plants described in the article, measures have been taken for protection by ventilation. Designs for two types of automatic recording equipment for these gases are shown.

72. After-Effects of Exposure of Men to Carbon Dioxide. W. Alexander, P. Duff, J.B.S. Haldane, G. Ives and D. Renton. Lancet, 2, 419-420 (August 19, 1939). (British).
This work arose out of the disaster of the submarine "Thetis," when it became desirable to determine the effect on men of breathing oxygen in an escape apparatus after prolonged exposure to air containing high carbon dioxide and low oxygen concentrations. The tests were made in a steel chamber which was brought to 1.1 atmospheres, with carbon dioxide between 6-7% and correspondingly low oxygen.
Of the six persons who breathed such air for an hour, there was headache when air or oxygen was breathed later and half of the subjects vomited, which latter reaction suggested the reason for the loss of some of the victims of the disaster. It is concluded that air or oxygen should be breathed for 30 minutes before attempting to use the escape apparatus.

73. Fighting Fires Involving Toxic and Irritant Gases. W.W. Stephen. Fire Eng., 92, 98-100 (1939).
A discussion of the following hazards and incidents related where they were encountered in fires: ammonia, benzene, bromine, carbon monoxide, carbon tetrachloride, chlorine, hydrogen sulfide, nitric oxide, sulfur dioxide and smoke. A review of the use of proper gas masks in fighting chemical fires is also given.

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74. Poisonings with Hydrogen Sulfide in Cleaning of Sulfuric Acid Tanks. T. Bauer. Arbeitsschutz, 241-244 (1939). (German).
Two cases, one fatal, of hydrogen sulfide poisoning in men who cleaned sulfuric acid tanks. An investigation, made 16 hours later, gave negative results, but additional study showed that hydrogen sulfide developed when the sludge was scraped off. It was caused by the presence of iron sulfide and sulfuric acid. The latter should have been neutralized with lye before cleaning. This shows the importance not only of testing enclosed spaces for toxic gases, but also of considering what reactions may be brought about by the processes for which they are entered.
75. Carbon Monoxide: A Public Health Hazard. L.B. Franklin. Minn. Med., 22, 623-633 (September 1939).
Occurrence of carbon monoxide is so frequent and widespread that it may be considered as a public health hazard. It is generated in burning building, in many industrial processes, in mine explosions and, perhaps most commonly, by automobile engines, the exhaust gases of which may contain about 7%. If 0.03% be considered as the dangerous concentration, surveys have shown that 5% of the cars tested have toxic amounts at the driver's breathing level. Wider education of the public regarding this common hazard and legislation covering its control are needed.
76. Systemic Effects from Exposure to certain Chlorinated Hydrocarbons. L. Greenburg, M.R. Mayers and A.R. Smith. N.Y. State Dept. of Labor, Industrial Bulletin, 18, 343-346, 367 (October, November 1939).
A report with case histories on systemic poisoning by the chlorinated naphthalenes and diphenyls. These compounds evaporate in industrial practice and condense on the clothing, tools and skin of workers, producing a rather characteristic acne-form skin eruption. However, systemically it causes acute yellow atrophy of the liver and there are reports of three fatal cases in the literature. This article discusses in detail three deaths in persons exposed to these known hepatotoxic substances and in whose cases no other etiological factors could be discovered. The authors warn that persons suffering from the acneform eruptions should be removed at once from the exposure; that persons with any past liver disease, no matter how mild, should not work with these substances; persons being treated with arsphenamine or taking drugs believed to be injurious to the liver or who are pregnant should not be exposed. Workers who have been exposed, if requiring a general anesthetic for an operation, should not be given chloroform or avertin, and vice versa, individuals who have received these anesthetics should not immediately thereafter go back to their former work, or work with any other substances believed to be toxic to the liver.
77. A Study of the Fate in the Organism of some Chlorinated Hydrocarbons. H.M. Barrett, J.G. Cunningham and J.H. Johnson. J.Ind.Hyg.&Toxicol., 21, 479-490 (December 1939).
A study was made of the quantitative sensitivity of the Fujiwara reaction, given by dilute solutions of many halogenated hydrocarbons or their derivatives. Methods were devised for studying the fate in the organism of some of these compounds. Five to 8% of the trichlorethylene absorbed by dogs was excreted in the urine, probably as a salt of trichloroacetic acid. A substance giving a positive Fujiwara test appeared in the urine after exposure to tetrachlorethylene. Carbon tetrachloride, 1, 1, 2 trichlorethane and chloroform are evidently not converted to trichloroacetic acid. It appears that the liver damage following administration of S-tetrachlorethane is not due to hydrochloric acid as believed by some workers. The authors feel that further investigation is necessary before conclusions regarding the metabolism of these compounds can be drawn.

78. Benzol Poisoning. Safety Engineering, 78, 40 (September 1939).
A brief summary on benzol poisoning; the occupations most likely to be exposed; how it occurs; signs and symptoms and eight points on prevention.
79. Hemopathies Caused by Benzene. F. Mignolet. Sang, 13, 268-291 (1939). (French)
Workers in a heliographic shop were exposed to a solvent containing 80% benzene and 20% toluene. At first there were nervous symptoms, acceleration of the pulse, insomnia, headache, petechiae, bleeding of nose and gums. Of 26 cases, 14 were severe and 1 fatal. The latter case showed a red cell count of 600,000 and 1100 leucocytes. Seven showed ecchymoses, 5 bleeding of the gums and one hemoptysis. Other lesions were: ulcers of the cheeks from which noma and agranulocytosis developed, enlargement of the liver, etc. In some cases the red count fell more than the white count. Mostly there were hyperchromic anemias and there was no parallel between the latter and the intensity of leucopenia, which was a neutrophilic granulopenia. It is the author's opinion that thrombopenia and not decrease in number of leucocytes is the first sign. Bleeding time was found to be not as reliable a guide as coagulation time. The best therapy is transfusion.
80. Fatal Intoxication Following the Use of Carbon Tetrachloride as a Fire Extinguisher. G. Castrovilli. Mod. del lavoro, 30, 193-206 (July 1939). (Italian).
This is the report of a fatal case of a workman 49 years old who had been exposed to vapors of carbon tetrachloride and of burning oil, benzine and gasoline, in an effort to extinguish a fire in a closed room. The clinical history is very scanty. He suffered, soon after his exposure, from symptoms of mild narcotic poisoning, but accompanied by anuria. There was evidently no autopsy. The article is chiefly devoted to a review of the literature in carbon tetrachloride poisoning and to a discussion of the possibility that other vapors may have been involved, phosgene by heat decomposition of carbon tetrachloride, or metallo-organic compounds, formed by the union of carbon tetrachloride and metallic fumes. The author concludes, however, that carbon tetrachloride alone is capable of producing such a clinical picture.
81. II. The Effect of Carbon Tetrachloride Poisoning on Experimental Animals. P.Y. Mytnik. J. Physiol., 26, 120-127 (1939). (U.S.S.R.)
The results of prolonged poisoning of rabbits by daily intramuscular or subcutaneous injections of 0.3 cc. of carbon tetrachloride are suppuration and necrosis at the site of injection, anemia, leucocytosis, cirrhotic and fatty degeneration of the liver, pleuropneumonia and death in 46-50 days. Increase of the daily dose to 0.4 cc. reduces the time of survival by one-half, but the blood is not significantly affected and no pneumonia occurs.
82. Bleaching Wood with Hydrogen Peroxide. National Fire Protection Association Committee on Manufacturing Hazards. The Travelers Standard, 27, 237-240 (December 1939).
While this article is principally concerned with the fire hazards of hydrogen peroxide, it does mention the skin irritating possibilities. Exposure to its vapors will also irritate the eyes and lungs. The eyes should be safeguarded by safety goggles and long rubber gloves used to protect the hands and arms. Any direct contact should be immediately followed by prompt washing with water.
83. Dermatitis from Rock Wool. J.Am.Med.Assoc. (Queries and minor notes), 113, 1756 (November 4, 1939).
Cases reported by the U.S. Public Health Service showed that patch tests confirmed rock wool as a cause of dermatitis. R. Prosser White considered the quick lime (10%), the calcium sulfide (5%) and the spicules to be the irritant properties.

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IN

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84. Safe Skin Cleansers. J.V. Clander and E.R. Gross. National Safety News, 41, 22 (January 1940).
One phase of the prevention of dermatitis is an engineering problem. It has to do with eliminating skin contacts, general plant sanitation, etc. The other phase is the use of protective creams, neutralizing solutions and the various methods of cleansing the skin. The latter aspect is the subject of this article. A survey was made by the authors to determine methods and products used, frequency of washing, etc., in industry. It was found, as a general rule, that the quicker its cleansing action the more harmful the cleansing agent. A common practice among workmen is to use the solvent or chemical used in their work where better methods were not supplied. Various formulae for safe solutions and emollients are given. The best agent for cleansing the skin, in the authors' opinion is a toilet cake soap.
85. Industrial Dermatitis. J.Am.Med.Assoc. (Queries and minor notes) 113, 1661 (October 28, 1939).
Contact was made in this case with Pep-Tex, Diversol, a boiler compound, copper polish and chlorine, all of which may be damaging to the skin. Treatment should be limited to mild lotions, and long rubber gloves worn during work.
86. The Role of the Nervous Factor in Chronic Intoxication by Industrial Poisons. P.Y. Mytnik. J. Physiol., 26, 120-127 (1939). (U.S.S.R.).
Visceral hemorrhage, trophic ulcers and leucocytosis are the results of experimental injury to the nervous system. Poisoning by subcutaneous injections of benzene results in leucopenia and visceral hemorrhages. If injected subsequent to nervous trauma, benzene causes only a slight reduction in the number of leucocytes, followed by leucocytosis.
87. Occupational Keratitides and Corneal Dystrophies. M. Davidson. Arch. of Ophth., 21, 673-683 (1939). (Abstract from Am. J. Ophth.).
Occupational superficial punctate keratitis and dystrophy are often diagnosed as subacute or chronic conjunctivitis and as band-shaped keratitis, and the true nature of the conditions is overlooked without the use of the slit-lamp. Three types of this form of keratitis may be recognized. The first is an acute or subacute occupational superficial punctate keratitis, apparently due to particulate matter in spraying processes, which clings to the corneal epithelium, rather than to gases. The second is a chronic occupational superficial punctate keratitis vowing on a dystrophy and apparently due to hard and sharp spicules penetrating the cornea, such as silica or metals. This type is more important because of the hypesthesia, but is not common and is seen only among the older workers, being principally due to exposures in the presafety era. The third type is an occupational band-shaped keratitis seen in the form of a post-traumatic lime band. Medicolegally, an interval of from 1 to 5 days is to be considered a requisite for a causal relation between a corneal injury and a herpetic corneal disease. The problem of prevention of occupational keratitides and dystrophies is essentially one of safety engineering.

THE LIFE OF ALBERT EINSTEIN

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