



FOUNDATION FACTS

This news-letter 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.

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No. 3

HW88-0009970

November 1992

STRAUBS
11/16/92

Please "Return Your Coupon"

The Foundation's report on "Sick Absenteeism in Industry," was mailed to member companies last week. (If your copy has not arrived please let us know.) This report is the first step in a program intended to reduce the losses member companies suffer through sick absenteeism -- one of the most costly drains on management. Therefore, the report is of vital importance to your company. In order to carry out the study the Foundation must of course have information from your firm. Your identity will be scrupulously guarded. Please return the coupon, which is on the last page of the report. When the "returns are in," showing how many companies will participate, we will be able to iron out details and furnish you with further information on procedure. Right now we are anxious to line up a representative number of companies, large and small, to participate in the study. Please return your coupon.

Any Health Hazards?

Are there any health hazards in your plants? The fact that you've had no trouble in the past, or belief that the plant is free of hazards is poor "evidence" in case of claims. You don't determine costs like that. You find out. Find out whether there are health hazards. The Foundation will do this for you as a membership service at bare cost. Take an "inventory" in industrial hygiene.

New Members

The Pullman Company and the Maryland Self Insurers' Association have recently affiliated with Air Hygiene Foundation. It is gratifying to have these two organizations allied in this collective effort of employers to improve employee health. The Foundation's program is limited only by the amount of support received from American industry. This recalls the comment by Mr. Andrew Fletcher, Vice Chairman of the Foundation's Board of Trustees, and Vice President of St. Joseph Lead Company, made at the November meeting:

"In closing I earnestly hope that the present members will avail themselves of the valuable assistance that the Foundation can give, that they will be willing to make some contribution other than their dues for continuing and developing the research activities, and that they will try to obtain as new members other companies from their own industries, even if such companies are competitors in business. I use the word 'business' because in industrial health there are no 'competitors.' All employees gain through improved working conditions, and all employers benefit through lower operating costs."

PLAINTIFF'S
EXHIBIT

HP-137

November 1992

THE AIRWAYS

Air Hygiene Foundation,
4400 Fifth Ave., Pittsburgh, Pa.
March 18, 1940.

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DIGEST OF INDUSTRIAL HYGIENE
Literature--News--Developments

News Items:

170. Proposed Federal Control over Occupational Disease Legislation. A bill has been introduced by Senator Murray of Montana (S.3481) and referred to the Committee on Education and Labor, which has for its purpose the establishment of Federal control over occupational disease legislation by the various States. Federal money would be available, upon the approval of the Secretary of Labor, to any State which submits a State plan which conforms with certain national policies proposed to be established by the law. Failure of a State to submit a plan acceptable to the Secretary would mean that the State in question would not have the benefit of Federal funds.
171. Silicosis from "Pummy." The Industrial Hygiene Division of the State of New York recently reported a fatal case of silico-tuberculosis in a dental technician from exposure to what was thought to be pumice and this fatality has brought this matter to the attention of industries employing this material for abrasive purposes. True pumice is a substance of volcanic origin, variable in composition but usually high in silicates and low in free silica. During the World War, when the price of Italian pumice became extremely high, a substitute for it was developed and marketed in this country under the name of "pummy." This was actually nothing but ground sand and was very high in free silica. Because of its low price it has continued to replace pumice to a certain extent and there is also the possibility that it is being used as an adulterant. Because of the potential hazard involved, care should be taken by industry either to use the "pummy" with increased precautions or, as one of our member companies has done, assure themselves of unadulterated sources of pumice.
172. Courses in Industrial Medicine and Surgery. During the month of May there will be held, under the auspices of the Harvard School of Public Health, a series of clinics, lectures, and plant visits on various aspects of Industrial Medicine and Surgery. It will be possible for those attending to make reasonable changes in the schedule in order to meet individual preference. A number of vacancies in both mornings and afternoons are left to care for special clinics and special plant visits to be arranged with the applicants. Students taking Industrial Hygiene in the School of Public Health are free to take this course as their May field work. Applicants from outside the School will enroll as special students, for which the fee will be \$65. Application blanks can be obtained from the Secretary, at 55 Shattuck Street, Boston, Mass.

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STEWART & SONS

173. Recent Commission Findings. Ohio Industrial Commission Monitor, 13, 25-26 (February 1940).

At an original hearing, wherein the widow of a pottery worker had applied for a death award, alleging the death of her husband had been due to silicosis, a compensable occupational disease, medical proof of the presence of silicosis was lacking, although the decedent had worked for 19 years in a potentially injurious dust exposure. An autopsy was suggested and the body of the deceased was exhumed and an autopsy examination made. Basing their conclusion upon the autopsy report, the silicosis Referees reported that complete evidence was found that the deceased had been suffering from Silicosis, complicated by extensive bilateral tuberculosis pleurisy and tuberculosis peritonitis, which were the cause of his death. The Commission allowed the claim, the widow to receive \$800, which is the maximum possible under the Silicosis Act for this particular case. A claimant whose work necessitated the devotion of about half his time to the washing of dishes, made application for an award from the Occupational Disease Fund. He alleged that he began work for the employer in February, 1939, and that in May he developed eczema of the hands as the result of almost constant contact with soap and water. He states in his application that on the date last mentioned there appeared upon his fingers a breaking out and water blisters formed, later becoming infected and filled with pus. His condition became so serious that he was unable to properly perform his duties and he was laid off by the employer. The case was referred to a medical investigator, who reported that the claimant was suffering from a compensable occupational disease and recommended that he be compensated for disability. The Commission ordered that the claim be allowed.

174. Spray Painting Hazards. J. Jacobsen. pp. 402. Oxford University Press, London, 1939. (Translated from the Danish). (Price \$5.00.) A definitive clinical and experimental hematological study with special reference to changes in the differential blood cell count. There is a description of the acute symptoms developing upon staying in a cellulose lacquer-containing atmosphere. The effect is partly local, involving the mucous membranes of the eye and the upper respiratory passages; it further consists in several absorptive symptoms from the central nervous system: dizziness, tiredness, drowsiness, somnolence, intolerance for alcohol and sometimes slight animation. As a more chronic symptom may be mentioned the change in character, with pronounced emotional instability resulting from continued exposure. There is also loss of appetite, nausea, and epigastric oppression, besides sudden attacks of severe abdominal pain (not accompanied by fever). The blood changes manifest themselves in granulocytopenia and a pronounced shift in the blood picture to the left, while the lymphocytosis observed seems to have nothing to do with this toxic exposure, being increased, if at all, only moderately. The results of x-ray examinations revealed that there is no infiltration or induration that can be ascribed to inhalation of the pigment.

175. A Guide to Workmen's Compensation: The Law and its Practice in New York State. by H. D. Margulies and Max Bloom. Paper. pp. 96. 50 cents. New York: Progress Books, 1939. A statement of New York Workmen's Compensation Act in simple terms for the workman, trade unions, attorneys and physicians, based on court decisions and publications of the Labor Department of New York. There are also included sixteen rules for physicians promulgated by the state industrial commission.

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MINING ABSTRACTS

Digest of Industrial Hygiene - 3.

176. Industrial Dermatoses. Symposiums Presented at Meetings of American Medical Association and American Dermatological Association. Pp. 174, 5 ill. \$1.00. American Medical Association, Chicago, 1939.
This pamphlet is a collection of papers presented at the Sections on Dermatology and Syphilology of the American Medical Association and of the American Dermatological Association. There are discussions of the relation of occupational dermatoses to workmen's compensation principles and procedure and of the need for medical education in industrial skin disease problems. There are studies on erysipeloid, chronic granuloma and melanosis due to photo-sensitization and to the hazards involved in manufacture of war gases.
177. Medicolegal and Industrial Toxicology. Henry J. Eilman. pp. 324. The Blakiston Company, Philadelphia. Price \$3.00.
While concerned primarily with poisons and drugs, criminal and medicolegal investigations, it also has two short chapters on industrial poisoning and occupational diseases. The latter the author has divided into three groups: Bacterial Infections; Diseases due to Physical Agents; and Diseases due to Chemical Agents.
178. The Western Pennsylvania Regional Safety Engineering Conference and Exhibit will be held at the William Penn Hotel in Pittsburgh, April 9, 10, and 11, 1940. The Chairman of the Section on Industrial Hygiene will be William P. Yant of the Mine Safety Appliances Co. The program will be: "Safe Practices in the Use of Volatile Solvents" by Dr. Henry F. Smyth, Jr. of the Mellon Institute; "The Release of Lead from Lead-Bearing Steels During Fabrication" by Mr. J. W. Halley of the Inland Steel Company; and "Industrial Dermatitis" by Dr. Louis Schwartz of the U. S. Public Health Service.

Papers on Dust, Dust Diseases and General Industrial Hygiene.

179. Modern Cleaning Equipment in Foundries for Combating Silicosis. T. Gellenkirchen. Glosserei, 26, 517-524 (October 20, 1939). (German).
A discussion of cleaning equipment for use in foundries; ineffectiveness of protective helmets and dust filters against very fine dust; use of steel shot in place of silica sand; and development of wet cleaning process. American and German cleaning machines are illustrated and described. These result in more rapid cleaning and an increase in efficiency.
180. Care of Miners on the Witwatersrand. E. Williams. Iron and Coal Trades Rev., 140, 260 (February 9, 1940). (British).
A discussion of the work undertaken in South Africa on behalf of the workers to safeguard them against silicosis and other diseases. In 1920 the incidence rate of new cases of silicosis was 28 per 1,000 miners; in 1935 it was 9. In the early days of the Miners' Phthisis Medical Bureau the average duration of exposure to dust before the onset of silicosis was four years, in 1935 it had been increased to 17 years. Moreover, the severity of the disease had decreased and "secondary stage" silicosis is rarely reached in miners who have served during the last twenty years. Two main types of the disease are recognized -- a "simple" or pure silicosis and an "infective" form. The former is a slowly developing disease which rarely kills; the latter, in which the infective element is considered to be tuberculosis, progresses more rapidly and leads to death even if the tuberculous element never actually breaks out to become "active." Dust elimination is a ruling obsession with South African mine managers. This is accomplished by enforcing wet drilling and strict control of blasting operations. The work of the South African Specialists has been referred to as the "greatest experiment in the history of industrial medicine."

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ST. LOUIS, MISSOURI

181. Silicosis in Gold Miners of Gold Mines of Belliere in Maine-Et Loire. R. Amsl and J. Cady. *Rev. de tuberc.*, 5, 580-591 (1939). (French).
The variety of forms of silicosis seen here are explained by the differences in the ores. The compact white quartz which constitutes the auriferous veins contains from 60-80% of silica while the slate which is also mined here has comparatively little (from 6-8%). Many of the men had no symptoms; pulmonary auscultation and roentgenoscopy revealed nothing abnormal, but roentgenography showed considerable changes. There was a dissemination of micro nodular images in both lungs, the volume of which is slightly greater than that of tuberculous granulations and their opacity likewise greater. The general aspects of these milinary nodules give the impression of a snowstorm. This phase of silicosis may be designated as latent or pre-clinical, being demonstrable only by roentgenography. In some of the miners, dyspnea, emphysema and cardiac decompensation will gradually develop; the patient will finally become too weak to walk. X-ray then reveals new nodules, retractile sclerosis and irregular spots. This represents the pseudo-tumoral stage. The authors describe cases of each type and then discuss the terminal stage with its complications, such as spontaneous pneumothorax. In the last part of the report they take up the concurrence of silicosis and tuberculosis; the lesions of gold, iron and slate miners present such characteristic modifications that it may be possible to identify these workers on the basis of the roentgenographic aspect of their thorax.

182. Collecting and Reclaiming Siliceous Dusts in Roofing-Coating Industry. Penna. Dept. of Labor and Industry, Safe Practice Bulletin No. 3 (1939).
A description of an exhaust system largely for conveying of spillage in spreading of powdered minerals over the surface of sheet roofing. Local exhaust for controlling atmospheric dust is included. The plan is illustrated by an isometric drawing of piping layout and air velocities in all pipe lines.

183. Abrasive Wheel Manufacture, Technical Control of Dusts. F.F. Kravath. Penna. Dept. of Labor and Industry, Safe Practice Bulletin No. 13 (1939).
A description of local exhaust arrangements for three processes: grading screens are enclosed and exhausted; atmospheric dust caused by removal from hoppers of cloth filter is controlled by a local exhaust hood at the point of discharge; and hoods for grinding wheel dressing machines are like those on ordinary wheels, well-enclosed, with local illumination.

184. Silicosis and Tuberculosis Roentgenologically Simulating a Neoplasm. E. A. Fable and G. Ritchie. *Am. J. Roentg. & Rad. Thor.*, 43, 42-44 (January, 1940).
Silicosis usually produces a fairly typical picture in the x-ray and the differential diagnosis can be made from the history of exposures to dust. In this case the roentgen findings were very suggestive of neoplasm while the autopsy revealed only hilar silicosis and tuberculosis. There was no history of exposure to dust containing silica and the lesions were distributed in an extremely unusual manner for silicosis. The extreme dyspnea was caused, the authors feel, by the contraction of the hilar scar tissue about the main bronchial trunks.

185. Pneumoconiosis and Pulmonary Syphilis. I. Raucouchot and A. Lugand. *Bull. Soc. franc. de Dermatol. et de Syphil.*, 46th Meeting, at Lyon, pp. 611-613 (1939). (French).
The x-ray of a worker who was exposed to very large amounts of organic dust (in an insecticide factory) and who always wore a respirator showed an intensified shadow of the hilus and increased fibrosis in the inferior lobes. It was at first thought to be early pneumoconiosis but was later diagnosed as pulmonary syphilis.

HWB-600975

186. Clinical Studies in Asbestosis. M. J. Stone. Am. Rev. Tuberc., 41, 12-21 (January 1940).

This report is based upon examination of 180 persons formerly employed in the opening, carding, spinning and weaving departments of an asbestos brake lining plant. Of the entire group, all of which were litigants for compensation, 32 were diagnosed as having no asbestosis; 148 were thought to have some degree of pulmonary involvement, grouped in three stages, on the following basis: Stage I, slightly increased lung markings with a chest expansion limited to less than 2 inches; Stage II, definite x-ray evidence of pulmonary fibrosis and definite symptoms; Stage III, marked pulmonary involvement by x-ray with well-marked symptoms. Details regarding the relationship between duration of exposure and degree of x-ray change are given on 168 of these cases and are shown in the accompanying table.

Exposure Period	Total Exposed	X-Ray Evidence of Asbestosis			
		0	Stage I	Stage II	Stage III
		%	%	%	%
Under 4 years	47	53.2	28.0	17.0	0
4-9 yr.	56	0	64.2	21.4	14.2
10-15 "	40	0	35.0	50.0	15.0
Over 15"	25	0	36.0	56.0	3.0
Average Exposure			8 yrs.	10 yrs.	11 yrs.

Evidence of tuberculosis was found in 9 (5%) of the films of the total 180 cases; in only two was the infection active at the time of the initial examination. One case occurred in Stage II and the other in Stage III. After measurements of the heart shadows it was concluded that asbestosis was particularly prone to produce secondary changes in the heart and pericardium and that "the dyspnea noted in this disease is of cardiac or circulatory rather than pulmonary origin." Thirteen of these patients were re-examined 2 or 3 years later and the changes in the advanced cases seemed more marked but no change in the Stage I and Stage II type. Blood studies seemed to rule out the possibility of associated infections. Since the first examination 18 patients have died; 3 of pulmonary tuberculosis, 5 of broncho-pneumonia, 2 of lobar pneumonia, 2 of heart disease and the rest of various causes. Seventeen were chronic invalids complaining of cough and dyspnea.

187. Air-Borne Matter. H.L.M. Larcombe. Indus. Chemist, 15, 177-8 (October, 1939); 379-82 (November, 1939); and 440-443 (December, 1939). (British).

This is a review of the fundamental characteristics of air-borne matter which must be set down before any detailed research can be made in any particular branch: origins of air-borne matter; measurement of particle size; characteristic dimensions; laws of the behavior of air-borne matter; dusts; Stokes' Law; fumes; smokes; electric characteristics; gravitation; filtration; electrostatic precipitation; and dust explosions. There is also a discussion of inflammable dusts; the effect of air-borne matter on health; kinds of dust; silicosis; and the importance of ventilation.

188. Methods of Rock Dusting American Coal Mines. J. J. Forbes. U.S. Bureau of Mines Rept. Invest., #3465 (1939).

The number and percentage of rock dusted mines is slowly increasing; indications are that the large producers are taking the most precautions. An average cost of rock dusting for protection against explosions in 28 mines is just under 1 cent per ton of coal mined. A survey of rock dusting practice shows the need of more adequate laws for and supervision of the extent and methods of this kind of prevention.

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STRAITS TIMES

189. The Use of Stone Dust in Preventing Coal Dust Explosions from the Hygienic Standpoint. H. Bruns, W. Ceelen and O. Ehrismann. Arch. f. Gewerbepath., 9, 509-558 (1939). (German).
The authors had to examine and give their opinion about all dusts (562 tests) recommended for this purpose, from the introduction of the method into Germany in 1923 up to 1936. They considered not only the dust's power to prevent explosion but also its effect on the human lung. Only clay schist and limestone have been employed in recent years.
190. Notes on Large-Scale Tests of the Explosability of Coal Dusts Made in the United States and Great Britain. H. P. Greenwald. U.S. Bur. of Mines, Rept. of Invest., No. 3462 (September, 1939).
The purpose of this report is to correlate divergent results obtained in the studies which have been carried out in the two countries for the past 15 years. The important variables were to be found in (1) the quantity of coal dust, and (2) the source of ignition. In addition, the presence of inflammable gas variation in composition of the coals and effectiveness of various types of rock dusts in preventing explosions are considered. The conclusion is that the data obtained from large-scale testing of explosability are only relative, but the final criterion as to the importance of such tests is the result obtained from practical application. Further research is suggested with regard to variations in the strength of the source of ignition, the distribution of dust to be tested in the gallery or passage way in which tests are conducted, and the effect of changes in cross section and configuration of the gallery.
191. Injurious Effect of Inhaled Aluminum Dust. O. Ehrismann. Ztschr. f. Hyg. u. Infektionsk. 122, 166-170 (1939). (German).
The author was unable to find injury in the upper or lower respiratory tract in animal experiments made some years before.
192. Profits in Air: Woodworking Plants. T. Hatch and R. B. Northrup. Heating & Ventilating 37, 33-38 (February 1940).
Woodworking plants use exhaust ventilation to prevent clogging of machines, control fire hazards and to eliminate irritating atmospheric dust. This is an outline with illustrations on how to design such an exhaust system.
193. The Detection of Aniline Vapour. Leaflet No. 11. Great Britain, Dept. of Sci. & Industr. Research, H. M. Stationery Office, London.
The immediate toxic effect of aniline is on the blood, and the symptoms which characterize it are a blue-gray discoloration of the lips, ears and cheeks. Depending on the intensity of the concentration, shortness of breath, rapid feeble pulse, nervous excitement, not unlike drunkenness, may occur later. With exposure to one part in 140,000, slight symptoms may occur after several hours, while with concentrations of one part in 10,000 to one part in 6,000, serious disturbances after exposure of more than an hour. The presence of aniline vapor is detected by first drawing a sample of air through dilute hydrochloric acid. A few drops of a dilute solution of bleaching powder is added which produces a purple coloration in the presence of aniline. A more sensitive test results if the acid solution is first made alkaline with ammonia and a dilute aqueous solution of phenol added. Minute quantities of aniline will produce a permanent deep blue color. This may be made quantitative by comparison with standard colors. A range of from one part in 5,000 to one part in 100,000 may be detected.

194. Methods for the Detection of Toxic Gases in Industry. Arsine. Leaflet No. 9. Great Britain, Dept. of Sci. & Industr. Research. H. M. Stationery Office, London, 1939.

The faint garlic smell of arsine (arsenic trihydride) may easily pass unobserved hence no reliance should be placed on the absence of odor as an indication that a suspected atmosphere is safe. Arsine is extremely poisonous to breathe. Repeated exposures to very low concentrations may result in severe poisoning. There does not appear to be any limiting concentration at which the gas can be regarded as harmless for daily exposures, hence continuous work should never be permitted in an atmosphere in which the presence of arsine can be detected by the test described. Two simple tests for small concentrations of arsine are available: (i) silver nitrate test papers, and (ii) mercuric chloride papers. The silver nitrate method is much the more sensitive but it has disadvantages: (i) the stains vary in color according to the temperature at which the papers are dried; (ii) the stains rapidly darken and change color on exposure to light; (iii) the papers become discolored even in the dark and cannot be kept more than 24 hours. Hence mercuric chloride papers are used in the standard method of detection adopted for use in industry. A concentration of arsine of 1 in 200,000 to 1 in 250,000 can be detected by making only 50 strokes of the hand pump, and still lower concentrations can be detected by employing a correspondingly greater number of strokes. The air under test is drawn through the test paper and the resulting stain compared with a standard color chart supplied with the leaflet. Full instructions for preparing test papers and for carrying out the test are given.

195. Neurologic Sequels after Trivial Injuries. Disorders with a Reflex Origin. Nordisk Med., 3, 2804-2812 (1939). Abstracted in Bull. Hyg., 14, 844 (December 1939).

A trauma is occasionally followed by a disease condition which may be both severe and lengthy, and characterized by pain, paresthesias, vegetative and trophic disorders (muscular atrophy, skin atrophy, decalcification of the bones, contractures, edema, cyanosis or flushing, disturbances in the secretion of sweat, etc.) and in some cases mental symptoms (anxiety, irritability, sleeplessness, etc.). The theory most commonly accepted is that the disturbances, chiefly of vasomotor nature, which form the basis of this condition, are the result of reflexes elicited by the trauma. The syndrome is rather difficult to treat, and the prognosis is uncertain. Physical therapy, roentgen, injections of novocaine locally or in the sympathetic ganglia have been recommended, as well as different surgical measures mainly involving the sympathetic nervous system. Acetylcholine seems to have good effects in some cases. The author has observed a dozen cases of this nature for one year, seven of which are described in detail. The symptoms are mainly subjective.

196. Symptoms of Fatigue (Necrosis and Pseudoarthrosis) of the Scaphoid Bone Caused by Repeated Trauma (Compressed Air Tools). R. Andreessen. Fortschr. a.d. Geb. d. Röntgenstrahlen, 60, 253-263 (1939). (German).

Report and description with pictures of injury to the scaphoid bone observed by the author in miners working with compressed air drills for at least a year.

197. Measuring Noise with the Improved Dold-Thiele Apparatus. H. Thiele and K. Holzberg. Ztschr. f. Hyg. u. Infektionsk., 122, 125-145 (1939). (German).

The authors describe the "noise counter" which makes it possible to take account of all noises in a room. The number of revolutions of the counter is the "noise number" and the unit is the "thoryp" which is the effect of 1 phon in 1 min. The instrument is also gaged to measure the strength of sound in thoryps and phons.

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STIMULANTS

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198. On Neuroses in Industry. F. Koch. Muench. med. Woch., 86, 1161-1164 (1939). (German). Abstracted in Bull. Hyg., 14, 842-844 (December 1939).
A proper assessment of the relation between work and the neurasthenic and neurotic manifestations is essential. In these cases the danger of brief observations which often tend to put undue weight on the workers point of view is apparent. The significance of these nervous disturbances cannot be estimated accurately but is roughly indicated in the following: the largest group in all industrial insurance figures is that of industrial accidents; respiratory disease follows and then for the period of 1936-1938 gastric cases 10%, nervous cases (including nervous exhaustion) 8%, cardiac cases 6%. In general, the increase in nervous conditions is correlated with the increase in working tempo, piece-work and with insufficient attention to the performance powers of the individual worker, at any rate according to the patient's own story. From the medical point of view it is held to be more important to strengthen the psychological resistance of the patient than to support his tendency to avoid the difficulties with which he is faced.
199. Occupational Pathology of Agricultural Workers. G. Hausser. Presse med. pp. 1281-1282 (1939). (French).
A report of all diseases related to agricultural work, their occurrence and the laws on compensation of diseases found among farmers.
200. The Peripheral Type of Circulatory Failure in Experimental Heat Exhaustion. R. W. Keeten, et al. Heat. Piping & Air Cond., 12, 122-126 (February, 1940).
In a previous report the effects of exposure of healthy, human subjects to comfortable, hot dry, and hot wet conditions were noted. Certain physiological results were found. These exposures exact a strain on the circulation and the present report details the studies made on its adaptation in the hot environment. It was found that circulation is well maintained in hot environments by healthy subjects while they are lying down, as was shown by normal arterial and venous pressures. The adjustment of the circulation to the erect position becomes increasingly difficult as the environment becomes hotter and fever develops. This failure leads to symptoms of faintness or fainting, and constitutes, in the opinion of the authors, the clinical result known as heat exhaustion.
201. The Cardiopathology of Heatstroke. G. Wilson. J.Am.Med.Assoc., 114, 557-558 (February 17, 1940).
The predominant feature of the clinical picture is the tremendous rise in body temperature, accompanied by unconsciousness, and both probably caused by cerebral edema and later by petechial hemorrhages in the brain. The most striking, and probably the actually fatal, mechanism is a rather extensive hemorrhage under the endocardium of the left ventricle, especially on the septal wall in the region of the bundle of His.
202. Air Conditioning. A Phase of Industrial Hygiene. E.W. Daken. Calif. State Dept. of Public Health, Weekly Bull., 18, 49-50 (April 22, 1939). Abstracted in Public Health Eng. Abstr., 20, 2 (January, 1940).
Air conditioning includes control of temperature, humidity, movement and purity of air. The control of body odors is one of the main concerns. With concentration of industrial plants the use of some form of air filters is a necessity for the removal of dust and dirt from almost any properly air-conditioned atmosphere. Filters are of the dry or of the viscous type in which glass wool, steel wool, etc., are coated with an efficient material to which fine soot and other dirt adheres.

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STRAUBS LIBRARY

203. Seasonal Variation in Reactions to Hot Atmospheres. F. C. Houghten, A. A. Rosenberg and M. B. Ferderber. Heating, Piping & Air Cond., 12, 139-142, (February, 1940).
Acclimatization to atmospheric environments during different seasons of the year not only affect the desire for some higher or lower effective temperature condition, but also affects certain physiological reactions. Both the body temperature rise and pulse rate increase are greater during the winter than during the summer upon being exposed to the same high indoor effective temperature for the same period of time. Acclimatization has but little effect at the high or effective temperature in regulating body reactions such as temperature rise and pulse increase; at some quite high effective temperature condition acclimatization would probably have no effect at all. After one hour of recuperation, the body temperature was found to return to at least within 0.4 degree of normal; while the leucocyte count was found to return more than halfway to its initial control room value.
204. The Influence of Air Movement upon Heat Losses from the Clothed Human Body. C.-E. A. Winslow, A. P. Gagge and L. P. Harrington. Am. J. Physiol., vol. 127, pp. 505-518 (1939).
The work of these investigators show that the cooling effect varies with the square root of velocity. They also conclude that in evaluating the cooling effect of air movement the air velocity can best be measured in the area to be occupied by the subject before it is occupied and at such a distance from the observer as not to be influenced by his body. The purpose of this work was to determine the correct relationship between heat loss from the clothed body and air movement. For velocities below 20 cm./sec. (39.4 f.p.m.) which are of special practical interest, the existing formulae do not agree well, that is, one relationship that is given is based upon linear variation with V and the other is based upon the square root variation.
205. Air Conditioning Cuts Common Cold. A. G. Young. Heating, Piping and Air Cond., 12, 101 (February, 1940).
The author states that infective agents do not thrive in the respiratory tracts of people under ideal air conditions. Low humidity, overheating and drafts are factors in rendering people vulnerable to infection. The human body functions best when the air temperature is approximately 70°F in winter and when the relative humidity is about 40%, with a slow movement of the air. Absentee records from offices kept before and after installation of air conditioning show that absences due to illness were reduced 29% in a large utility company and 30% in a leading newspaper plant.
206. Ventilating and Heating a Chemical Laboratory. D.O. Hubbard. Heating, Piping and Air Cond., 12, 106 (February, 1940).
As chemical gases and vapors are frequently disagreeable and often dangerous, their removal calls for a well designed ventilating system. Sometimes the gases do not mix readily with the air and tend to hang in a cloud which is not exhausted from the room unless positive air circulation is provided. With a system designed to give 15 outside air changes per hour, heating is a major problem. The solution to this and other problems were solved and are here discussed by the author.
207. Action of Light on the Eyes and Occupational Risks. E. Gandara Yanez. Anal. Sec. Mexicana de Opt. y Oto-Rino-Laring., 14, 7-15 (1939). (Spanish).
A review of this subject with conclusions regarding the effect of infra-red rays upon the conjunctive and lens, the effect of ultra-violet light in general and especially upon welders, and the results of short circuits.

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208. Practical Application of Industrial Exhaust Ventilation for the Control of Occupational Exposures. B.F. Postman. J.Am.Pub. Health Assoc., 30, 149-161 (February, 1940).
An outline of four specific ventilation problems and a description of the control of each. The production of acrolein in the manufacture of strip copper was taken care of by a sheet metal hood located directly over the rolls exhausting most of the air from the front where the greater part of the vapors developed. A lead exposure in the manufacture of an electrical specialty was corrected by careful application of chemical and engineering control. A serious silica exposure was prevented by screen top hoppers attached to work benches and sanding performed horizontally instead of vertically. A rather low velocity of 68 f.p.m. is effective as gravity assists in taking care of the particles. Benzol vapors produced by hand lacquer dipping was another problem. It was recommended that the lacquer be contained in covered crocks set in metal containers in a ventilated metal shell. Vapor escaping from the drying oven was corrected by modifications of the hood which was already in place and by repairs of all leaks. The diversity of these problems emphasizes the error of applying standard solutions to industrial exposures and shows that each situation requires a "tailor-made" analysis.
209. Hygienic Significance of the Effect of Air Douches for the Improvement of Working Conditions in Hot Work Places. W. Liese. Ztschr. f. Hyg. u. Infektionskr., 122, 24-40 (1939). (German).
Men exposed to high temperatures and much radiant heat especially in tinplate and glass industries, have been able to reduce discomfort by directing a stream of air over their bodies. This article describes the effects of these air streams, judging their influence by the forehead temperature of glass workers. Curves are given to show the effect of radiant heat in raising the forehead temperature and of the air douche in reducing it. The velocity of the air stream should not be too high; between 200 and 400 feet per minute is suitable. The temperature of the stream should not be much cooler than the surrounding air.
210. Use of Respiratory Protective Devices under Abnormal Air Pressure. F.E. Griffith and H.H. Schrenk. U.S. Bur. of Mines, Rept. of Invest. No. 3488 (January, 1940). The increase in working under pressure in tunneling operations stimulated these preliminary observations on the use and possible limitations of respiratory protective devices under such conditions. From the mechanical point of view it appears possible to use oxygen breathing apparatus under pressure. However, there is evidence that the toxic effects of oxygen are increased and may be enhanced by exercise and carbon dioxide. The period of exposure should be decreased with increase in pressure. Toxic effects may begin without warning. Gas masks may be worn under pressure, although it appears to be extremely uncomfortable "going under" pressure. There is some increased resistance to inhalation but probably not enough to cause discomfort in every case. If compression is accomplished with uncontaminated air, it is not necessary to wear the protective device in the man or emergency lock.
211. Gas Masks and Correction of Ametropia. Cot, Moynor, Genaud and Robert. Presse Med., 1311-1313 (1939). (French).
There are three ways in which gas masks can be worn along with corrective glasses. The usual spectacles can be made with special thin frames; the proper lenses can be incorporated into the mask; or the lenses can be placed inside the usual mask glasses. Each of these three can be satisfactory, but the authors believe an appliance they have developed for holding lenses inside the mask is the best.

212. The State Labor Department Ophthalmologist and His Functions. M. Davidson. Industrial Medicine, 8, 153-156 (1939).
While eye injuries constitute only 3% of all industrial injuries, the average cost per case (around \$600) is about twice as much as for other injuries. The author outlines the sources of medicolegal controversies in eye cases and suggests a standard procedure of ocular examination for compensation cases.
213. Industrial Hygiene Survey of San Francisco Dry Cleaning Establishments. F.R. Ingram and E.W. Dakan. Industrial Hygiene Service, State Dept. of Public Health, Invest. Rept., No. 4 (January, 1940.)
A survey was made of all dry cleaning establishments located in the city of San Francisco to secure information on processes and operations in various types of dry cleaning plants, the extent of industrial welfare provisions, the number of employees in various occupations who are exposed to materials and environmental conditions which may have a detrimental effect on health, and the control measures provided for health protection. The authors recommend that chlorinated hydrocarbons should only be used in closed systems; that vapors from petroleum solvents should be removed by local exhaust ventilation from near the floor level, thus holding them below the breathing zone; employees using alcoholic beverages in excess or who have chronic liver or kidney disease should not be exposed to solvent vapors. Frequent physical examinations are recommended.
214. Rib Fractures with Typical Localization Caused by Overwork. H.G. Matthes and A. Thelen. Chirurg. 11, 537-542 (1939). (German).
Report of four cases of rib fracture in which muscular overwork was the etiologic factor. All of the patients were young men in good general health who for a short time (2-5 weeks) preceding the disability were performing heavy muscular work to which they were not accustomed. The fractures involved the second or the second and third ribs at their costo-cartilaginous junction. The authors consider the mechanism to be uncoordinated exaggerated pull over a period of time on the insertions of the pectoralis minor and the upper portion of the trapezius muscle. The diagnosis is arrived at from consideration of the history and the appearance on the 7th to the 14th day of a moderately painful swelling at the typical site and on the presence of pain caused by movements of the shoulder girdle, particularly when the above muscles are brought into action. An x-ray is of little value because the fracture is through the cartilaginous portion of the rib. The treatment consists of rest, of local anesthesia of the fractured area in cases of severe pain and later of diathermy and motion. After a month of treatment, patients are recommended for a lighter occupation..
215. Problems of Oxygen Intoxication. H. Becker-Freyseng and H.G. Clamann. Klin. Wochenschr., 18, 1382 (October 28, 1939). (German).
Observations made by the authors in experiments on themselves after staying for 65 hours in an air chamber containing 90% oxygen. For 24 hours there were no symptoms, then there were nervous symptoms, such as crawling sensations in the fingers and toes and paroxysmal tachycardia. There was vomiting and symptoms of febrile bronchitis. A decreased vital capacity was due to inflammation of the lungs.
216. Industrial Medicine. W.I. Clark. N.E.J.Med., 221, 269 (1939).
A discussion of the present views on pneumoconiosis and an interesting outline of cancer of industrial origin. Heat cramps, the toxicology of various vapors, dusts and gases are noted and the usefulness of the Massachusetts list of permissible concentrations of various substances in air is pointed out. An important need in surgery is an intelligent view on the important problem of rehabilitation.

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217. Experimental Radiological Observations on the Action of Electric Current upon the Respiratory and Circulatory Organs. I. Respiratory Organs. A.W. Greenburg. J. Ind. Hyg., 22, 104-110, (March, 1940).
Observations by means of the x-ray method upon the shape, size, position and motor phenomena of the heart and lungs. It is very useful in studying the action of electrical current upon respiration and circulation; the results being compared and supplemented by data obtained by spirometry, laryngoscopy and pneumatometry. Electrical stimulation elicits a powerful expiration and respiratory standstill in the expiratory phase lasting as long as the current is applied. It also produces atelectasis, as well as narrowing and shortening of the bronchi.
218. Industrial Occupation and Pregnancy. J. Amer. Med. Assoc., (Queries and Minor Notes) 114, 603 (February 17, 1940).
Pregnant women should discontinue their occupations if they are exposed to toxic hazards, especially lead and the heavy metals. They should not be exposed to increased hazards of infection. Work which may subject them to muscular efforts by which intra-abdominal pressure might be increased should be avoided. Moderate amounts of physical exertion do not increase the hazards of pregnancy, in fact are often desirable, since they tend to maintain a well balanced state of mind. Normal pregnant women who have worked before the onset of pregnancy can usually continue until the beginning of the last trimester.
219. Industrial Hygiene in Canada. Can. Pub. Health Jour., 30, 517-557 (November, 1939).
Industrial Hygiene from the Public Health Aspect. J.A. Baudouin.
The Scope of Medical Services in Industry. A.M. Mitchell.
Industrial Hygiene in Ontario. J.G. Cunningham.
Industrial Hygiene in the Province of Quebec. F.J. Tourangeau.
The Industrial Poisons Problem in Canadian Industry. F.G. Pedley.
Neuroses in a Large Office Group. F.S. Parney.
The Practice of Preventive Medicine by a General Practitioner among Employees in a Small Factory. H.M. Harrison.
Provision of Nursing Services and Medical Care in a Group of Small Factories. F. R. Griffin.
Control of Sickness in a Large Group of Lumber-Camp Workers. W.I. Taylor.
Cardiovascular Disease among Railway Employees. K.E. Dowd.
Gastro-intestinal Diseases among Steel Workers. F.E.H. Day (See Item No. 103, This Digest, February, 1940).
This is a collection of papers given in June at a meeting of the Advisory Council on Industrial Hygiene of the Department of Pensions and National Health, Ottawa, and at the June meeting of the Industrial Hygiene section of the Canadian Public Health Association.
220. Bibliography of Industrial Hygiene. International Labour Office, Geneva, Vol. 13, No. 3, pp. 58 (September, 1939).
Printed in French, English and German, this publication contains a large number of references to the general subject of industrial hygiene and medicine. It is evidently brought up to about the middle of the summer of 1939 and according to a notice in the front, publication will be suspended until further notice. Published quarterly heretofore, copies may be obtained for 40 cents from the Branch Office, at 734 Jackson Place, Washington, D. C.

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IN THE ABRAHAM

221. Economy of Health. G.W. Cannon. Safety Engineering, 79, 37-38, 40 (February, 1940).
The author, vice president of a foundry company, quotes from his records to show that well organized health and safety programs pay, no matter whether one looks at the subject from the humanitarian viewpoint or from the standpoint of net savings in operating expense. A savings on liability insurance costs provided a sum large enough to pay for the entire health and safety program. Pre-employment and periodic physical examinations are given and by a system of classification, sub-standard groups can be given more medical supervision. Careful dust counts, control, correction and good housekeeping have resulted in better, healthier working conditions and decreased occupational disease coverage cost.

222. American Public Health Association Year Book, 1939-1940, Supplement to American Jour. of Pub. Health 30, (February, 1940).
This publication covers practically the entire field of public health but the Industrial Hygiene Section will be of special interest to our readers. It mentions articles on anthrax and volatile solvents by H.F. Smyth, Sr., and H.F. Smyth, Jr., respectively, both of which were delivered at the Annual Convention in September, 1939. The first paper has been mimeographed by the U.S. Public Health Service and is being distributed by J.J. Bloomfield, Chairman of the Industrial Hygiene Section. The year book also contains reports of the various sub-committees. Of interest are those on Physical and Chemical Methods of Air Analysis, Gases Determined by Various Absorbing Devices, and Dust Procedures in Air Analyses.

223. Diseases of Occupations and Other Non-Accidental Injury Cases Settled Under Workmen's Compensation Act of Wisconsin in 1938. Industrial Commission of Wisconsin, (June 7, 1939).
This report includes the following statistical tables on Diseases of Occupations and Other Non-Accidental Injuries analyzed by: Type of Disease; Type and Occupation; Type and Industry; Type and Cause; Industry, Occupation, Type and Cause; Type of Disease (with special analysis of Dermatitis Cases); Type, Industry, Occupation and Cause. (The last two tables are for women only.) The number and cost of occupational diseases and other non-accidental injuries in comparison with all compensable cases settled, for the years 1937 and 1938, is given below:

	Total -- All Compensable Cases Settled	Occupational Disease and other Non-Accidental Injury Cases Settled	Percent of Total
Number of Cases Settled:			
1937.....	25,140	753	3.0
1938.....	20,383	652	3.2
Total-Indemnity and Medical Benefits:			
1937.....	\$4,999,670	\$311,478	6.2
1938.....	4,695,493	205,471	4.4

224. Compensation for Industrial Injuries and Occupational Diseases. E.R. Koontz. J. Amer. Med. Assoc., 114, 563-569 (February 17, 1940).
An excellent discussion of a few of the many legal and medicolegal phases of compensation laws of prime importance to physicians interested in the field of industrial medicine. There are tables of compensability of occupational diseases and of limitations of time and cost of medical and hospital benefits in compensable injuries and diseases, also for the determination of medical matters under compensation laws; all given by states.

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225. Adequate Nutrition for the Industrial Worker. L.E. Booker. J. Amer. Med. Assoc., 114, 548-553, (February 17, 1940).
A plan of food selection offered as a sample to show how industrial workers and their families may solve the problem of adequate nutrition without undue expense. The weekly cost of this food will vary somewhat depending on current prices in different localities but would be somewhere between \$6 and \$9.50. The practical problem of good nutrition is often, as has been shown in various studies, a combination of educational and economic factors.
226. The Teaching of the Occupational Diseases. R.T. Johnstone. J. Amer. Med. Assoc., 114, 546-547 (February 17, 1940).
A plea for the inclusion of the teaching of occupational diseases in the present medical curriculum as a solution to the problem of supplying trained general practitioners for smaller industrial plants. A plan is outlined for the creation of a division of occupational diseases in outpatient departments as a source of teaching material. The author is obsessed, and rightly, with the belief that action in this matter is imperative.
227. Röntgenologic Demonstration of Localized Gas in Caisson Disease. J.O. Gordon and C.H. Hencock. J.Am.Med.Assoc., 114, 570-571 (February 17, 1940).
This is evidently the first report in the literature in which x-ray examination was used to support the diagnosis of caisson disease. Gas was demonstrated in the synovial sacs of both knees of a tunnel worker who, because of injury, had been too rapidly removed from the pressure area.

Papers on Industrial Poisons, Cancer, Dermatitis, etc.

228. Lead Poisoning. Part II. Precision Method for Lead. Edited by R.L. Houtz. Safe Practice Bulletin #52. Pennsylvania Dept. of Labor & Industry.
A description of precision tests for extremely small amounts of lead developed at the Jefferson Medical College Hospital, Philadelphia. The method, a modification of the diphenylthiocarbazone type, is carefully described and illustrations of apparatus are shown.
229. Age and the Lead Content of Certain Human Bones: A Compilation and Statistical Analysis of Recently Published Data. H.P. Morris. J.Ind. Hyg., 22, 100-103 (March, 1940).
"By means of simple correlation applied to existing data it has been shown that there is a significant increase with age in the lead content of four different human bones from different subjects, when expressed as milligrams of lead per kilogram fresh bone. This increase is less marked in the rib and vertebra than in the femur and tibia. The increase in lead per year in the femur was 0.810 mgm. per kilogram of fresh bone while for rib it was 0.060 mgm. and for vertebra, 0.044 mgm."
230. Absorption of Lead and Arsenic Through Skin. J.Am.Med.Assoc. (Queries and Minor Notes) 114, 604 (February 17, 1940).
Lead and arsenic absorption through the skin does not occur to an appreciable extent in contact with aqueous solutions of these compounds in concentrations below 0.5 mgm. per 100 cc. of solution. Nor is it likely that significant quantities could be ingested because of contaminated hands.

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231. Plumbism and Chronic Nephritis in Young People in Queensland. R.E. Murray. Method for Estimation of Lead in Biological Tissues. R.E. Murray and I.F. Stephens. Comm. of Australia Service Publ. No. 2 pp. 119 (June, 1939).
In an attempt to correlate excessive plumbism in children with high statistical prevalence of chronic nephritis among young people, the author seems to find that house paint is the source of lead. Weathered paint which has become powdery is more dangerous than fresher paint. The second part of the article deals with the application of the dithizone method to analysis of tissue and body fluids for lead. Wet ashing with nitric and perchloric acids is recommended. Acid solutions of methyl orange were found to give suitable permanent color standards for comparison.
232. High Calcium Therapy. I. Gray and I. Greenfield. Industrial Medicine, 8, 507-510 (December, 1939).
An account of several instances of the unfortunate results of deleading by the administration of large doses of calcium. The effect was to produce an irreversible reaction of the lead with the nervous system producing neuritis and paralysis. A definite ratio between calcium and phosphorus appears to be necessary for calcification and must be maintained if lead is to be deposited in bone. Emphasis is placed on the danger of administering agents which are believed to promote the quick release of lead from the tissues. The effect of vitamin D in increasing the susceptibility to lead poisoning and in increasing the symptoms in those so poisoned is also discussed.
233. Critical Examination of Skin and Venereal Diseases. F. Koch. Dermat. Wehnschr., 108, 222-224 (1939). (German).
The remarkable results of examinations of men who had been advised to give up their work because of occupational illness: Group I. Ten bakers and 8 other men showed improvement without having changed their work. Group II. Nine bakers and 24 other men showed no improvement whatever in spite of having given up the work. Group III. Twenty-nine bakers and 23 other men who changed their occupation showed improvement. Probably the cases in Group I became desensitized after continued exposure, and in Group II, perhaps the new occupation was not the right one for these men.
234. Dermatitis from Figs. Investigation of the Chemical, Physical and Allergic Influences Producing the Dermatitis. H. Behiet, et al. Ann. de Dermatol. et de Syphilol., 7, 32-48 125-138 (1939). (French).
Workers with figs are subject to two kinds of skin disease: dermatitis provoked by working with green figs (eruption of vesicles), and a dermatosis caused by handling and packing of ripe and dry figs -- a sort of eczema and inflammation of the nail bed. Dermatitis may sometimes be caused by figs and fig products in the diet, but more often an intestinal disturbance. The milky sap of Ficus carica is the cause of the disease and the chlorophyll has only a minor role. Treatment of the skin with the fig sap and by ultraviolet rays seems to cause afterwards, in some cases, a photo-dermatitis.
235. Etiological-Pathogenetical Experiences of Professional Skin Diseases with a View to their Prophylaxis. P. Bonnevie. Acta dermato-venereol., 20, 633-649 (1939). (Scandinavian).
A discussion of the physical and chemical influences which may cause occupational eczemas and infections. The writer emphasizes the point that all skin diseases caused by exogenous circumstances may be occupational. There is an important part played by the innate quality of the skin and the physico-chemical damage done to the horny layer by water, soap and acids. He feels that the protective quality of the skin should be studied more closely, but the sensitizing capacity is the more important.

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IN THE AIRS

236. Sensitization of Flour and Flour Illnesses Among Flour Workers. H.H.E. van Dishoeck and D.J. Roux. *J.Hyg.*, 39, 674-679, (November, 1939). (British). These are the results of scratch tests on 262 bread bakers, cake bakers and millers. The materials used were the dry pure proteins of wheat, barley, oats, buck wheat, rye, corn, rice and yeast. Sensitization to flour was found in 25%. Nearly all who showed positive reactions either were suffering or had suffered from one or more flour diseases, whereas in those giving negative reactions respiratory illness or eczema were seldom found. Hypersensitiveness to flour is probably an inhalation allergy in which heredity is of very little importance. A large proportion (44%) of workers in small bakeries soon become sensitized, but in the large, more hygienic factories a smaller proportion (12%) become sensitized and the symptoms appear later in life. Desensitization therapy using the proteose constituent of wheat has been tried with satisfactory results.
237. Dermatitis among Plate Printers. P.A. Neal. *J.Am.Med.Assoc.*, 114, 558-560 (February 17, 1940).
A considerable percentage of the plate printers in a large printing establishment had suffered for many years from recurrent lesions of the hands and arms. Although the establishment employs 1,058 workers, most of the dermatitis occurred among the group of 318 plate printers and their 47 skilled helpers. This group of men lost 13 man years of working time during the period 1900-1936 at an estimated cost of \$50,000 in lost time, not counting compensation, cost of medical treatment and the sufferings of the workers. Pre-employment and periodic physical examinations were recommended, also the wearing of rubber gloves and the avoidance of harsh and abrasive cleaning agents.
238. Professional Dermatoses and their Combating. J. Strandberg. *Acta dermatovenereol.*, 20, 613-631 (1939). (Scandinavian).
This is a statistical study based upon the State Insurance Institute and the largest insurance company of the employers. The author also writes about skin diseases and the necessity of performing skin tests most exactly. Certain substances used to impregnate wood are said to have caused 75% of all occupational diseases which are known to the insurance companies and those do not fall under the insurance law. These substances, composed partly of chlorinated compounds of naphthol or phenol and their derivatives, must be taken up as causes of occupational diseases in Sweden, and should be compensated.
239. Tests of Hypersensitivity in Occupational Eczema, their Applicability and Sources of Error. G. Bostroom. *Acta dermatovenereol.*, 20, 650-657 (1939). (Scandinavian).
A discussion of the sources of error in positive and negative test results. Many physicians do not have enough information about the technical process for choosing the proper test material; also the actual testing is not simple and therefore should be performed in clinics.
240. Eczematous Dermatitis Caused by Work with Vanilla. Immunization Among other Employees by the Work. H. Gougerot and A. Basset. *Bull. Soc. franç. de Dermatol. et de Syphil.*, 46, 1329-1331 (1939). (French).
Workers testing vanilla became ill (eczema) after a 2-3 week exposure but recovered after continuing to work. Recurrence is frequent. The vanilla from Tahiti is more toxic than that from the Ile de Bourbon.
241. Hematological Changes in Cadmium Poisoning. A. Briganti. *Folia. med.*, 25, 1108-1115 (1939). (Italian).
Animal experimentation shows that cadmium injures the blood marrow and causes hypoglobulia, leucopenia, granulocytopenia and thrombocytopenia.

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STRAUBS
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242. Manganese in Factory Smoke and Pneumonia in Sanda. J. Am. Med. Assoc., (Oslo Letter) 113, 1427 (1939).
Sanda was one of the healthiest towns in Norway before the introduction of the electric smelting of ore. The mortality from croupous pneumonia is now 22 per 10,000 among persons between 15 and 29 years, whereas it is only 1 for Oslo and for the country as a whole. Several attempts to solve the problem have been made; the latest points to manganese as the offender.
243. New Questions in the Field of Industrial Hygiene. V. Manganese. O. Ehrismann. Deutsch. med. Wchnschr., 65, 1605-1607 (1939). (German).
A discussion of the very frequent pneumonias among manganese workers. The author declares that it is not yet clear whether manganese alone is responsible. He considers the typical form of manganese poisoning with the Parkinson syndrome. He is attempting to discover early symptoms by animal experimentation.
244. Influence of Manganese on Body Weight and Reproduction. O. Ehrismann. Ztschr. f. Hyg. u. Infektionsk., 122, 171-188 (1939). (German).
The growth of young white mice was favored and the weight of adults was increased when fed with manganese dioxide. The number of offspring fell, however, and the number of still-born increased. Chemical examination showed Mn storage; 0.0137 mg. in poisoned animals as against 0.0047 in the controls.
245. Hydrocyanic Acid Poisoning: Acute Segmental Edema of the Cornea, Kayser-Fleischer's Ring and Renal Diabetes. M. Amsler. Schweiz. med. Wchnschr., 69, 1012-1015 (1939). (German).
Exposure to hydrocyanic acid vapors in disinfection work, produced important corneal changes in a 43 year old worker. These were a milky opacity and radial stripes. In one eye the vision was 1/300, in the other 1/10. The urine contained 5% sugar and, although this proved transient, functional disturbances were still present in the kidneys one year later. The corneal changes disappeared gradually, and after a year, a gray-green ring could be seen at the periphery.
246. The Effect of Copper in Hydrocyanic Acid Poisoning. R. Walther and K. Byer. Biochem. Ztschr. 301, 315-320 (1939). (German).
Certain observers have recommended the treatment of hydrocyanic acid poisoning by intravenous injection of cupric chloride on the basis of animal experimentation. These authors carried out further experiments and found that no effect could be obtained after serious poisoning; injections delayed the symptoms but did not hasten recovery.
247. Prophylaxis of Ankylostomiasis in the St. Etienne Coal Basin. P. Mathy. Lyon Thesis, Lyon, 1939. (French).
A discussion of the organization necessary for rigid control of ankylostomiasis in the mines and the prophylaxis employed. Several drugs are not used because of their expense, slow action or toxicity. Others such as pyrethrum extracts, ethereal aspidium extract and carbon tetrachloride were not employed because of the difficulty of procuring them in sufficiently pure state. Thymol and tetrachlorethylene were the two drugs used, the latter almost exclusively now. The percentage of carriers has been markedly reduced: from 29% in 1927 to 3% in 1938.
248. Hematological Changes in Selenium Poisoning. A. Vesce. Folia. med., 25, 1014-1025 (1939). (Italian).
The author presents a survey of industries employing selenium and a description of the chemical symptoms of the poisoning. He reports on his animal experiments in which he found secondary anemia as a direct effect on the blood cells.

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249. Fatal Poisoning with Oxynacetylene Welding. H. Kienitz. Zeit fur komprimierte u. fluessige Gase, 34, 97-103 (August, 1939); 113-7 (September, 1939). (German)
A report on investigations made of one serious and one fatal accident to welder while working on the inside of a boiler. A chemical analysis of the absorbed gas and quantitative determinations of carbon monoxide and nitrous gases were made. There is a medical report and discussion of recommendations for the protection of operators.
250. Lung Cancer Among Mine Workers in Joachimsthal. S. Peller. Human Biology. 2, 130-143 (February, 1939).
The miners in Joachimsthal have a high percentage of malignancies (53%) among their deaths; a several times increased cancer mortality rate due to an enormous frequency of pulmonary cancers in the age period 35-54; an exceptionally high proportion of primary lung cancers; and a reduced incidence of cancer in non-respiratory organs. The active factor in the radium mines presumably increases the number of men who suffer from cancer by increasing the tumor susceptibility of the younger and middle age groups almost to the level of the higher ages, and presumably changes the organ distribution of the primary tumors. The age distribution of cancer cases depends to a high degree on extrinsic factors.
251. Changes in the Brain in Experimental Phosphorous Poisoning. Takeya-Siko. Arch. f. Psychiat., 109, 113 (1939). (German).
Animal experiments with an 8% mixture of yellow phosphorus showed severe hemorrhages but no tendency towards fatty degeneration. The large pyramidal cells showed so-called fissuration in some cases. In other cases there occurred fading of the large and middle-sized ganglion cells, which was regarded as an advanced stage of vacuolar degeneration due to direct effect of the poison. A large number of small foci of necrosis developed in the brain, affecting chiefly the cells, but sometimes also the white matter. These were probably caused by the phosphorus, but the possibility that they could be produced by secondary circulatory disturbances cannot be entirely ruled out.
252. Methods for the Detection of Toxic Gases in Industry. Phosgene. Leaflet No. 8. Great Britain, Dept. of Sci. & Industr. Res., H.M. Stationery Office, London, (1939).
Exposure to concentrations of phosgene which are just detectable by smell or lachrymation may prove fatal. A two minute exposure to a concentration of 1 part in 30,000 may cause serious lung injury, and for prolonged exposure the maximum permissible concentration is 1 p.p.m. The standard method adopted for the detection of phosgene in industry consists of drawing a known volume of the air under test through a fixed area of test paper by means of a standard hand-pump. The test paper, which contains diphenylamine and p-dimethylamino-benzaldehyde, becomes stained yellow or orange and the concentration is determined by comparing the stains with the standard color chart supplied with the leaflet. By making not more than 85 strokes of the pump concentrations as low as 1 p.p.m. can be estimated. The leaflet contains full instructions for preparing the test papers and for carrying out the test.
253. Eliminating Refrigeration Hazards. C.A. Peters. Power, 84, 60-61 (March, 1940).
A discussion of, among other potential hazards of refrigeration systems, the injuries due to the use of toxic or irritant refrigerants. This danger may be largely avoided by the substitution of non-toxic, non-irritating and non-inflammable compounds such as Freon-11 and Freon-12. Exposure to rather high concentrations of the vapors is not attended with danger and since they are quite heavy, will tend to lie at the floor level.

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254. Arslane Poisoning in Dissolving Zinc Ash in Sulfuric Acid Containing Much Arsenic. K. Humpferdinck. Arbeitsschutz, pp. 345-346 (1939). (German). A report of two moderately severe cases in men who carried out this work. The zinc ash was free of arsenic but contained a considerable amount of lead. The sulfuric acid contained 594 mg. of arsenic per liter.
255. Gastrointestinal Symptoms Simulating Ulcer in Chronic Carbon Monoxide Poisoning. H.G. Beck. Rev. of Gastroenterol., 5, 196-206 (1939). The author discusses almost exclusively the gastrointestinal aspects of chronic carbon monoxide anoxemia with strong emphasis on a syndrome closely simulating peptic ulcer. The chronic condition may be divided into simple anoxemia (without any demonstrable tissue changes) and hematologic, cerebrospinal, cardiovascular, respiratory, urogenital and gastrointestinal anoxemia in which definite morphologic changes occur. In a clinical study of a group of 140 individuals with daily exposure to varying amounts of carbon monoxide over considerable periods of time, gastrointestinal symptoms were frequently manifested. Statistics show that nearly twice as many workmen employed in gas plants become ill as those engaged in occupations not involving exposure to carbon monoxide and that the incidence of gastrointestinal diseases is 2-1/2 times greater in the first group than in the second. The chief symptoms were anorexia, nausea, vomiting and abdominal pain. The pain was frequently associated with cardio-spasm or pylorospasm. In several instances it was due to enterospasm or anospasm. The condition cannot readily be differentiated from peptic ulcer clinically, as hemorrhage, pylorospasm and filling defects occur in both. The history of exposure to carbon monoxide and the prompt relief of all symptoms incident to a change to a pure atmospheric environment without specific ulcer treatment should exclude the latter. This condition should not be regarded as a clinical entity but rather as a syndrome developing from a state of chronic anoxemia. It may cause symptoms simulating other diseases: in the central nervous system it may resemble epilepsy, chorea, encephalitis and multiple sclerosis, and in the cardiovascular system, symptoms of angina pectoris, coronary thrombosis, infarction and myocardial degeneration have been observed.
256. Oxidation of Carbon Monoxide and Hydrogen by Bacteria. G.W. Jones and G.S. Scott. U.S. Bur. of Mines, Rept. of Invest. No. 3466 (September, 1940). This is the report of an investigation into the elimination of hydrogen from a sealed fire area of mines. The problem of elimination of hydrogen and carbon monoxide in manholes was also studied. It was found that these gases are oxidized by certain soil bacteria which appear to be identical with B. oligo-carbophilus.
257. Nicotine Poisoning. F.D. Gindhart. Industrial Medicine, 8, 515-516 (December, 1939). The author describes a case of nicotine poisoning for each of its portals of entry: through the skin, by inhalation, or by contact with an open wound. The symptoms are severe prostration, weak pulse, low blood pressure and substernal pain. Collapse is evidenced by paleness, nausea and vomiting. The symptoms may return if the patient smokes or chews tobacco. There is a distinct hazard for those who make insecticides containing a high percentage of nicotine and also for those whose occupation brings them in frequent contact with such substances, namely gardeners, florists and chemists. The treatment is supportive, using both caffeine and adrenalin. In severe collapse strychnine gr. 1/60 is given in repeated doses.

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INT. REPT. ABSTRACTS

HWB-000991

258. Antimony in Occupational Pathology. A. Feil. Presse med. pp. 1133-1134 (1939). (French).
In smelting an ore composed of quartz and antimony sulfide (15-50%) containing a small amount of gold and traces of arsenic, the white oxide is obtained by condensation of the fumes. The vermillion, which apparently is not toxic, is produced by double decomposition. Among 15 workers exposed to the fumes, 7 had a rash when examined, and 14 gave a previous history of it. It consisted of pustules very similar to smallpox. Neck, forearms and legs are usually affected. Half the workers had conjunctivitis, and half had anemia and other complaints.
259. An Investigation of the Various Eye Diseases in Artificial Silk Factories. G. Akagi. Reports Japan Inst. Sci. of Labour, Inc., No. 41, 9-14 (1939). (German). Abstracted in Bull. Hygiene, 14, 870 (December, 1939).
Of 2,399 employees of a factory making artificial silk, 1,354 showed some abnormality; the most frequent anomaly was some disturbance of muscle balance; after this came disease of the conjunctiva, changes in the fundus, disease of the cornea, changes in accommodation, and in pupil action. Fifty-nine per cent were heterophoric, 35 exophoric, and 24 esophoric. An investigation of the relation between the incidence of fundus lesions and various conditions showed that smokers and drinkers to be much affected; beriberi is a frequent concomitant and neurasthenia a common complaint. Animal experiments show that both carbon disulfide and hydrogen sulfide produce degeneration of the retina and optic nerve. The former is the more active agent; carbon disulfide and hydrogen sulfide are often the cause of inflammation of the anterior segment of the eye; but other agents, caustic potash and sulfuric acid, used in the preparation of artificial silk, are more active. The author has examined 8 cases of amblyopia due to carbon disulfide poisoning; the visual fields show a scotoma with or without concentric contraction. The fundus shows anaxial neuritis. Diseases of the anterior parts of the eye are often the cause of photophobia, lachrymation and the sensation of a foreign body; these symptoms last only a short time. Conjunctivitis is more common in winter, and lessens in frequency in summer.
260. Toxicology, Clinical Aspects and Pathologic Anatomy of Nickel Carbonyl Poisoning. O. Bayer. Arch. f. Gewerbepath., 9, 509-506 (October 30, 1939). Abstracted in J. Am. Med. Assoc., 114, 700 (February 24, 1940).
The author finds that in the majority of cases the symptoms disappear in from 8-14 days. The pulmonary symptoms increase and lead to a secondary involvement of the heart and circulation only in the severe cases, and death follows under the signs of cardiac failure. The necropsy is given in two cases. The author concludes that nickel carbonyl acts as an inhalation toxin on the large surface of the respiratory epithelium and produces the aspects of a toxic pneumonia, with simultaneous involvement of all parts of the lung. It is difficult to explain to what extent the frequent cerebral hemorrhages are caused by absorbed nickel carbonyl or to what extent they may be asphyxiation hemorrhages. The pulmonary symptoms in the form of dyspnea, irritative cough and pains along the costal arches dominate the clinical picture. The pathology is characterized by a peculiar coagulation process in both lungs. In the treatment the author obtained favorable results with the intravenous administration of large quantities of dextrose solution and by medication with calcium, strophanthin and circulatory stimulants of the camphor series.
261. Use of "Eau de Javel" in Hairdressing Establishments. H. Rabeau and Ukrainczyk. Bull. Soc. franç. de Dermatol. et de Syphil., 46, 875-876 (1939). (French).
Used in many shops for bleaching purposes. "Eau de Javel" (hypochlorite solution) may be the cause of occupational eczema. This is the report of such a case.

IN THE ALIBRAMS November 1992

262. Examinations of printers and Female Assistants at Machines with Sprayers. K. Humperdinck. Arch. f. Gewerbepath., 9, 559-565 (1939). (German).
 Printers and assistants exposed to paraffin or gum arabic in alcohol complained of headache, fatigue and irritability. There was some asthma and bronchitis and x-rays showed more than the normal amount of fibrosis. Blood examinations showed that not only the eosinophils but also the lymphocytes were increased.
263. Determination of the Thoron Content of Air and its Bearing on Lung Cancer Hazards in Industry. R.D. Evans and C. Goodman. J. Ind. Hyg., 22, 89-99 (March, 1940).
 This study was stimulated by the paucity of quantitative data on the hazardous gases which are present in the industrial refining and application of radioactive substances. One of the reasons for this scarcity of information has been the lack of detecting apparatus of sufficient sensitivity. The authors describe a portable apparatus for collecting reproducible samples of thorium B, on which alpha and beta ray analyses can be quantitatively interpreted in terms of the thoron concentration of the air originally sampled. Human clinical evidence and animal experiments have led to the suggested permissible limit of 10 microcuries 10^{-11} curies) per liter of air. Exposure to greater concentrations results in a high incidence of lung cancer. Typical plant measurements are reported which show the thoron concentration to be from 23 to 400 times this recommended value.
264. Summary of Comparative Examinations of the Effects of Benzene and of Thorium X on Leucocytic Reactions. G. Wallbach. Sang, 13, 719-738 (1939). (French).
 The author concludes, from various experiments, that thorium X is undoubtedly capable of producing a therapeutic leucopenia but that it will progress to a complete agranulocytosis, whereas the effect of benzene can be stopped.
265. Present Status of Benzene. P.A. Davis. J. Am. Med. Assoc., 114, 553-557 (February 17, 1940).
 The treatment of patients exposed to benzene consists of: (1) elimination of the hazard; (2) aeration, oxygen inhalations; (3) treatment of gastric disturbances; (4) treatment of secondary anemia; (5) supported measures for the heart and protection of the kidneys; (6) stimulation of the blood-forming organs by use of iron compounds, reticulogen, liver and spleen substances, transfusions and roentgen therapy to the long bones; (7) nourishing food with an excess of animal fats; increase of the calcium intake, and (9) intravenous saline and dextrose. Procedures for the control of this hazard are outlined.
266. Cataract Following Inhalation of Paradichlorobenzene Vapor. M.L. Berliner. Arch. of Ophthal., 22, 1023 (December, 1939).
 The changes in the lens appeared in these patients some months after the exposure had ceased, an effect very similar to that shown by cataracts due to dinitrophenol. The clinical symptoms of these cases is suggestive of a toxic hepatitis. Because of its wide spread use as a moth-repelling compound, warning should be given the public of the toxic character of this substance.
267. Toxicity of Coal Tar Naphtha Distillates. H. Taylor. Chem. & Ind. 58, 1078-1080 (December 16, 1939). (Author's Summary). (British).
 Various samples of naphtha distillates were tested for physiological effect on rats. The absence of deleterious action previously reported by other workers has not been confirmed. All samples tested showed definite narcotic action at concentrations greater than 0.10% by volume, and in one experiment a single exposure to 0.16% caused the death of all experimental rats in less than 8 hours. There was considerable variation in the effect on internal organs with different samples, but definite liver degeneration was caused by two out of four samples, and slight effects were noted in the case of a third.

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