

FILE NAME: Industrial Hygiene Foundation (IHF)

DATE: 1940 July

DOC#: IHF030

DOCUMENT DESCRIPTION: IHF Foundation Facts



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.

5900100-884H

Vol. 2

July, 1940

No. 7

Industrial Health --- One of "The Ramparts We Watch"

The health of workers is just as essential as the health of soldiers in this period when production is indispensable to defense. Health of workers, especially skilled workers, is doubly important now. Meanwhile, increased production tends to increase health hazards and illness. World War I proved that. This is a period when "eternal vigilance" is the price of industrial health. Will your protective equipment, like exhaust systems, carry increased loads?

Are you planning plant expansions? If so, remember the "stitch in time." Protective equipment can be built into a building with efficiency and economy that can never be achieved by later "patch work" installations. See abstract No. 522 in the attached Digest of Industrial Hygiene for an account of how the Ford Motor Company benefited from such planning. Feel free to discuss the industrial hygiene aspects of new plant construction with the Foundation. But NOW is the time, not after the plant is built. And please bear in mind the Foundation covers the whole field of chemical hygiene.

Ask the Foundation

The variety of subject matter in the attached Digest shows the scope of the Foundation's interest which ranges the whole field of industrial health and is not restricted to just silicosis, as some unfortunately believe. Member companies are urged to call upon the Foundation for information whether it pertains to chemicals or air-borne infections. For instance, a steel company member writes:

"We would like to take this opportunity to express our appreciation for your very prompt and complete answer to our letter of March 7 requesting information concerning the toxic and other effects likely to be encountered in the use of various chemicals that were itemized in our letter of that date. The information contained has proven very helpful."

Dr. Selby Named to Medical Committee

Appointment of Dr. C.D. Selby, Medical Consultant, General Motors Corporation, to the Medical Committee of Air Hygiene Foundation is announced by Dr. A.J. Lanza, Chairman. Dr. Selby is well known for his contributions to the field of employee health.

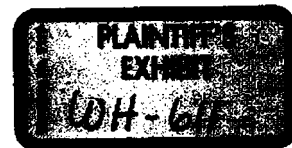
Information on Absenteeism "Audit"

A page of instructions was mailed recently to those member companies which have expressed direct interest in the Foundation's study of "Sick Absenteeism in Industry." For the information of other members a copy of these instructions is attached to this news letter.

Health is the backbone of production and production is the keystone of defense

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UNCLASSIFIED



Victorious Washington Crew Names Shell for Dr. Loyal A. Shoudy

The shell of the University of Washington crew, which won at Poughkeepsie this year, was named the "Loyal Shoudy." The Husky oarsmen named their craft in honor of Dr. Loyal A. Shoudy, Chief of Medical Service, Bethlehem Steel Company. Dr. Shoudy, a graduate of the University of Washington, fetes the Washington crew after the Poughkeepsie races each year. He is a prominent leader in the field of industrial medicine.

Henry D. Sayer Named to Compensation Insurance Rating Board

Henry D. Sayer, Deputy Executive Director of the New York State Insurance Fund, has been appointed General Manager of the Compensation Insurance Rating Board, New York. The Governing Committee of the Board announces that Mr. Sayer is to "take office on a date to be agreed upon but in no event later than December 1." Mr. Sayer was formerly with the Association of Casualty & Surety Executives and served on the Foundation's Board of Trustees.

A Cut Costs \$32

Thirty-two dollars, the insurance director for United Cigar-Wholan Stores Corporation told a meeting of the Greater New York Safety Council, is the average cost for every cut suffered by an employee.

--- Dun's Review.

A New Member Writes:

"May we express our sincere appreciation for the splendid information contained in the literature sent us? It is by far the finest piece of work we have come in contact with and we certainly can recommend it to all industry."

IN RE: ALIBAMIS November 1992

Note to Members Interested in Foundation's Sick Absenteeism Survey

Following up the meeting of companies interested in the Foundation's survey of "Sick Absenteeism in Industry," which was held here on May 27, Dr. William Gafafer, Senior Statistician of the U.S. Public Health Service, gives the following summary and instructions:

"The May 1940 edition of the manual on a proposed plan to record industrial absenteeism was distributed at the meeting of May 27, 1940, among the representatives of various member companies. It was explained that the plan as presented in the manual was the objective which should be aimed at, and that at the present time sufficient data be supplied by the companies agreeing to cooperate to make possible the construction of a table on ended disabilities lasting 8 consecutive calendar days or longer and showing for each color and sex 3 morbidity rates by cause, namely, average annual number of absences per 1,000 employees, average annual number of days per employee, and days per absence. This table would cover the first and second halves of the year and the whole year. The corresponding indexes for all reporting companies would be included in the table for purposes of comparison.

"Thus for the time being rates by age, occupation and department are being reserved for the future, and only disabilities of 8 consecutive calendar days and longer are included. To calculate the rates referred to above the filling in of Forms A and B will not be necessary. However for the calculation of the rates, at least the number of employees under observation, the non-absent as well as the absent, are required by sex and color; if the age distribution, by color and sex, is conveniently ascertainable, it should be made available since such knowledge would be helpful in any attempt to account for rate differences among companies. It is suggested, however, that age be filled in on the punch card; if a company finds it convenient to fill in occupation and department consistently, it is recommended that this also be done.

"It was indicated at the meeting that some of the companies have the facilities to perform their own tabulating. Such companies are encouraged to do so and for the sake of uniformity a blank table and other instructions will be sent to such companies.

"Those companies that are at present reporting to the United States Public Health Service are urged to continue this activity, and where possible their data will be used to supplement the reports from the new companies."

In order that we may plan accordingly, will you please advise us at this time of the number of male and female employees you desire to report on? Also, to facilitate comparisons of absentee rates of different companies it is necessary to know something of the disability plans companies have in force. Will you, therefore, send us a copy of any pamphlet or other material that may have been issued by your sick benefit association, relief plan or insurance company which covers such subjects as requirements for membership, waiting period, benefit period, classes of membership, etc. As soon as this information is received from companies desiring to participate we will be able to proceed with the punch card and we will communicate with you regarding the number desired, cost (they are about \$1.00 per thousand), etc.

Reduction of sick absenteeism is doubly important now when production is the keystone of defense.

NW88-0010067

July, 1940

Air Hygiene Foundation,
4400 Fifth Ave., Pittsburgh, Pa.

NW88-0010869

DIGEST OF INDUSTRIAL HYGIENE
Literature--News--Developments

News Items

490 New Problems of the Defense Program.

"....Another urgent task involves the protection and promotion of the health of industrial workers. With the vast expansion of the war industries, many new industrial hazards appear and familiar ones are intensified. When new factories are designed, expert industrial hygiene advice is required for proper installation of power exhausts of chemical gases. Records of present performance show the need of extended industrial hygiene measures to control and prevent special health hazards. In the recruitment and training of workers, thorough physical examinations are necessary on employment and periodically thereafter. It is wasteful for industry to train a highly skilled employee over long months, only to have him break down suddenly with tuberculosis, mental disease or some other crippling condition. The expansion of war industries will bring acute problems of housing, medical care and health protection for workers and their families. Our industrial machines are the most efficient in the world. The men and women who man the machines must have a comparable efficiency...." Address by Thomas Parran, Surgeon General, U.S. Public Health Service.

491 Electron Microscope.

The Germans are now using the electron microscope (magnifying power 100,000 diameters) to analyze dust in mines and factories, so that better hygienic conditions can be established. Dust particles only five-millionths of a millimeter in diameter can be detected. New York Times, July 14, 1940.

492 Can Music Increase Production? American Business, 10, 28 June, 1940.

By using lively music to counteract industrial fatigue American industry can save millions of dollars every year, step up production from 10 to 20 per cent, and reduce errors and wasted effort to a minimum. Numerous plants and offices have already discovered this, and many others are preparing to put rhythm to work for bigger profits. In addition to making possible substantial savings, music in industry has become one of the most modern and successful ways of cementing mutually beneficial employee relations, having won the commendation of both labor and industrial chiefs. In one company the bonus, a comparatively expensive method of stimulating output, was able to add only 20 per cent, while music, costing much less, added 25 per cent. Because of that the bonus has been discontinued but the music remains a permanent part of production routine and has worked satisfactorily over a period of several years. During the Christmas rush in the Minneapolis post office, phonographs were installed. Fifty-five clerks were affected. One day when no music was played they made 420 errors, talked and joked a great deal, and used 50 hours of work time. When music was played, they made

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only 366 errors, a decrease of 12.86 per cent, and finished in 43 hours. Besides its use in offices, music is also widely employed in factories to offset industrial noises and to counteract the fatigue curve. It has been found that after the third hour of work, fatigue reaches its peak and the worker's efficiency begins to decline rapidly. Music used at that point will not only offset that decline but will actually turn the curve up once more and increase the output.

Music is so effective in stimulating output, that for centuries it has been used almost unconsciously to accompany work. Songs of the yo-heave-ho variety have grown spontaneously, and the reason for their growth and continued use lies in the physiological reactions which rhythm produces. Many firms use industrial music continuously throughout the day; others only during regular rest periods timed to coincide with the peak of the fatigue curve, when work begins to slow down. In most cases, records are played on a centrally located machine and the music is sent throughout the plant by a loud-speaker system.

493 Tri-State Health Meeting.

Secretary of Labor, Frances Perkins, called a meeting over which she presided at Joplin, Mo., April 23, 1940. Represented were U.S. Public Health Service, U.S. Bureau of Mines, U.S. Housing Project, State Health Departments, C.I.O. Labor Unions from Missouri, Kansas and Oklahoma, State Medical Assoc., mine operators, members of the Workmen's Compensation Commissions, and social and religious organizations. The group accompanied Miss Perkins on her visit to parts of each of these states and inspected the working conditions in a mine at Picher, Oklahoma. Dr. Alice Hamilton, who also accompanied Miss Perkins, remained in the territory to make dust counts and other experiments.

494 Weil's Disease in Industry. Lancet No. 6081, p 518 (March 16, 1940).

Weil's disease has been added to the schedule of industrial diseases in Great Britain. The prevalence of this disease in certain occupations, notably coal mining, fish cleaning and sewer work, has been long known. The disease is due to contact with urine of an infected rat.

495 Vat Kills Two. Safety Engineering, 79, 26 (June, 1940).

A workman was assigned to clean a vinegar vat containing some 18 inches of wet waste which had formed carbon dioxide gas. His instructions were to descend into the tank, and, if upon lighting a match the flame was extinguished, to climb out right away. He fell dead before he could strike a match. Another man, upon attempting to save him, fell unconscious to the floor of the tank and also died before he could be gotten out. Two men died because someone saw fit to use human lives for air and fume testing devices. Investigations disclosed the complete absence of safety measures and equipment which would have prevented this tragic accident.

Legal Developments

496 Workmen's Compensation Acts: Reemployment of Injured Workmen at Light Work Constitutes Treatment.

If to improve his health an injured workman, on the recommendation of a physician employed by his employer's insurance carrier, is reemployed at lighter work at the same wages, such reemployment, said the Supreme Court of Kansas, is not a medicine but does constitute "treatment" within the meaning of that term, as it is used in the Workmen's compensation act of Kansas. *Rupp v. Jacobs et al.* (Kan.) 88 P. (2d) 1102. (J.A.M.A.)

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- 497 Workmen's Compensation Acts: Death from Perforation of Gastric Ulcer Induced by Worry Compensable. J.Am.Med.Assoc., 114, 1955 (1940).

The claimant, wife of the deceased employee, filed a claim for compensation under the workmen's compensation act of Michigan for the death of her husband. The department of labor and industry awarded compensation and the employer appealed to the Supreme Court of Michigan. For some time prior to Dec. 23, 1935, the employee had suffered from "stomach trouble." On the date mentioned he sustained a hernia in the course of his employment, for which he underwent an operation in February 1936. For this injury, the employee was paid compensation. A few days after the operation, pleurisy developed, but this seemed to clear up and he returned to work about eight weeks after being discharged from the hospital. Though continuing at work, the employee steadily lost weight, complained of pain in the abdomen and was always tired and his appetite was impaired. On Jan. 25, 1937, the employee underwent another operation and it was then discovered that a gastric ulcer had perforated the stomach. He died five days later from general peritonitis. There was medical testimony to the effect that the treatment of a gastric ulcer consists essentially of rest, freedom from worry and generally building up the body vitality; that "worry is one of the prime causes of increasing the acidity of the stomach juice, which is a prime cause in speeding up the cause of ulcer, if not causing it"; that if the employee failed to regain his health following the injury "we have all of the factors which would have activated a pre-existing ulcer or speeding its course whenever it developed," and that, therefore, the perforation of the ulcer was directly connected with the industrial injury suffered by the employee. Although, said the Supreme Court, the testimony of the medical experts relied on by the department may not seem convincing, a court is not at liberty to weigh it or pass on the preponderance. *Richard v. Bridgeman-Russell Co. et al.* (Mich.) 284 N.W. 689.

- 498 Workmen's Compensation Acts: Compensability of Death Following Mental Overexertion. J.Am.Med.Assoc., 114, 1955-1956 (1940).

The employee was a timekeeper for the defendant company. During the latter part of July, 1934, at a time when the temperature ranged from 87 to 90 F., he worked steadily for twenty-three hours in an effort to locate an error in the payroll records. Just as the error was discovered he slumped in his seat and died. The industrial board awarded compensation to the employee's widow and children on a finding that "twenty-three hours of continuous work constituted extraordinary exertion and that this extraordinary exertion is indirectly and causally connected with and responsible for the death of the decedent, said exertion and great mental effort, coupled with the fact that the decedent suffered from arteriosclerosis, resulting in his death from a cerebral hemorrhage." The court of common pleas, Montgomery County, Pa., affirmed the award and the employer appealed to the superior court of Pennsylvania. In sustaining the judgment of the trial court, the superior court said: "The novel feature of this case is that the overexertion relied upon was more mental than muscular. We see no reason for holding that the overexertion which may make an injury or death resulting therefrom compensable must be solely physical in character. Authoritative definitions of 'exertion' do not confine its use to muscular effort As expressed by the court below, there is no fundamental difference in law or principle between an injury or death caused by the cutting or crushing of a blood vessel in the brain through the application of external violence and the breaking of one through increased internal pressure due to the putting forth of an unusual or abnormal mental effort." The employer appealed to the Supreme Court of Pennsylvania.

Of the five medical experts called, the court pointed out, four testified unequivocally that it was impossible definitely to establish any relationship between the extra hours of work and the death. The one physician who attempted to establish such a connection succeeded only in showing that overexertion could have

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brought about the death. To say, therefore, that death resulted from long hours of work, the court concluded, was at most a pure guess. The judgment of the superior court for the claimant was therefore reversed and judgment entered for the employer. *Monahan v. Seeds & Durham et al.* (Pa.), 3 A. (2d) 998; 6A. (2d) 889.

- 499 Workmen's Compensation Acts: Disability Resulting from Inhalation of Paint Fumes Not an Occupational Disease. J.Am.Med.Assoc., 114, 1956 (1940).

During the last four months of his employment as a metal worker and upholsterer the workman was exposed about four times a week for short periods of time to paint fumes discharged from a spray gun used by a fellow worker. On several of these occasions he became ill. After such an exposure on Oct. 9, 1937, he was forced to quit work and procure medical attention. In proceedings which he subsequently instituted under the workmen's compensation act of Oklahoma, based on an allegation that he had sustained an accidental injury as a result of the exposure to paint fumes, the two physicians who attended him testified that he "had a vasomotor disturbance" brought on by the exposure to paint fumes. Medical evidence offered on behalf of his employer and the insurance carrier, according to the reported decision, "definitely excluded any claim that respondent (the workman) might be suffering from an occupational disease." The industrial commission awarded him compensation and the employer and his insurance carrier obtained a review of the award in the Supreme Court of Oklahoma. It was contended, among other things, that the disability of the workman was due to an occupational disease and not to an accidental injury and that a finding by the industrial commission that that disability had resulted from the inhalation of paint fumes established as a matter of law that an occupational disease was the cause of the disability. While it is settled in Oklahoma, said the Supreme Court, that compensation may not be awarded for a disability which results from an occupational disease, that principle is not here applicable, since the medical evidence adduced by the employer and the insurance carrier definitely eliminated from consideration any contention that the workman might be suffering from an occupational disease. It is likewise a settled doctrine in Oklahoma that the benefits of the workmen's compensation act are not confined to cases of traumatic injury and that inhalation of vapors, gas or dust may constitute an accidental injury within the meaning of the compensation act. The Supreme Court believed, accordingly, that there was competent evidence before the industrial commission to sustain a finding of accidental injury. The award in favor of the workman, however, was vacated on other grounds not here material. *Ross v. Ross* (Okla.), 89 P. (2d) 338.

- 500 Heat Exhaustion. Whether Employee Must Be Exposed to a Risk in Excess of that to Which Other Manual Laborers are Exposed Because of Hot Weather.

The trial court held that, if the injury resulted from heat exhaustion "in the course of the employment," and would not have occurred but for the employment at manual labor on a hot day, "it arose out of the employment." Such are not the terms of the Workmen's Compensation Law, nor the construction given it by this court. This court has followed the line of cases holding that, where death ensues from heat exhaustion, it does not arise out of the employment merely because it resulted from manual labor not involving unusual strain or overexertion in the employment. The employment must expose the employee to a risk in excess of that to which other manual laborers are exposed because of hot weather. (*Gulf States Steel Co. v. Christison*, 228 Ala. 622, 154 So. 565.) Judgment below reversed and cause remanded. Ex Parte Pullman-Standard Car Mfg. Co. Ala. Supreme Ct. Decided June 6, 1940. (CCH).

501 Blindness Resulting from Monoxide Poisoning. Testing Motors in Poorly Ventilated Room.

Claimant has an award for permanent total disability arising from blindness in both eyes. The evidence sustains the finding that the blindness resulted from monoxide poisoning contracted while testing a large number of automobile motors each day in an illy ventilated room. Award affirmed. Rosky v. Cadillac Motor Co. et al. N. Y. App. Div., 3rd Dept. (Memorandum Decision) Decided March 15, 1940. (CCH).

502 Lead Poisoning. Whether an Injury Accidentally Suffered Within Coverage of Policy.

The policy indemnified the insured against liability resulting from personal injuries accidentally suffered, or alleged to have been suffered by reason of accident, by any of insured's employees. One Knowles was employed by the insured to scrape the lead sheathing of certain underground cables in Florida. Knowles and his helper performed this work in underground manholes in which the ventilation was very poor. No electricity was available to propel the blowers in this particular series of manholes and, equipped only with ineffective masks, the men worked for almost three weeks in atmosphere laden with lead. Each suffered several attacks of acute lead poisoning, and was taken to the hospital in a serious condition before the work was completed. The insurer declined to make any investigation or to defend the subsequently filed suit, on the ground that the injuries sustained were not indemnified. Thereafter, the insured settled the claim and filed this suit on the insurance contract to enforce reimbursement. The insurer contends that the lead poisoning is an occupational disease, and, if not an occupational disease, still it was not accidentally caused. It offered no evidence on the trial below. This court agrees with the insured that the lead poisoning, so contracted, was not an occupational disease. These were the first cases of lead poisoning among the insured's employees, although the lead conduits required scraping at regular intervals. During a period of three years, these workmen suffered no ill effects from the performance of their duties in manholes where proper working conditions prevailed, and there is no evidence to show that such duties, so performed, normally result in lead poisoning. The chain of causation here began with the performance of the work in the dangerous atmosphere of the unventilated manholes. The cause of the malady was the failure of the company to use reasonable care to provide a reasonably safe place in which to pursue the occupation, or reasonably safe appliances with which to work. A disease which is not the ordinary result of an employee's work, not reasonably to be anticipated as a consequence of pursuing same, but contracted by reason of unusual circumstances connected therewith, is an accidental injury. Also, it is an accidental injury if it occurs unexpectedly, not in the course of natural events, and is capable of being traced to a definite time, place, and cause. In the case at bar the only reasonable inference that can fairly be drawn from the evidence is that the disease resulted from an injury accidentally suffered within the coverage of the policy. The peremptory instruction requested by the insured should have been granted. Judgment for the insurer reversed and cause remanded for further proceedings. Florida Power & Light Co. v. United States Guarantee Co. U.S.C.C.A., 5th Cir. (Fla.) Decided June 7, 1940. (CCH).

503 Silicosis. Partial Disability. Whether Common Law Action Maintainable.

The court below hold that plaintiff's remedy was under the Workmen's Compensation Act of 1915, P.L. 736, as supplemented by the Occupational Disease Compensation Act of July 2, 1937, P.L. 2714, which became effective January 1, 1938. Defendant contends that the Workmen's Compensation Acts provide the only remedy now available and relieve defendant from all liability in any other form of action

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for all disability resulting from silicosis. Plaintiff replies that the Acts provide compensation only for total disability from silicosis and do not take away his common law remedy for partial disability. It is held that, by accepting the provisions of the compensation acts, an employee agreed to look solely to the Act for compensation and to give up any remedy he might otherwise have had. By coming under the Act, plaintiff surrendered his right, in the words of the Act, "to any method of determination thereof, other than as provided in Article three.." He gave up his right to sue in tort for the absolute certainty provided by the Act of receiving compensation on bringing himself within its compensatory clauses.

Plaintiff argues that, even if the above construction is accepted, he would have surrendered his right to sue in trespass only for injury occurring after the effective date of the act, January 1, 1938, but not for so much of the injury, if any, as was negligently inflicted before that. But section 3 provides that "The date when the disability occurs from occupational disease shall be deemed to be the date of injury or accident." Plaintiff's disability occurred on March 8, 1938, when he quit work. The Act of 1937 was then in effect. Judgment affirmed. Moffett v. Harbison-Walker Refractories Co. Penna. Supreme Ct., West. Dist. Decided June 24, 1940. (CCH).

- 504 Pneumoconiosis. When Existence of Disease was Ascertainable. Statute of Limitations. This suit was instituted by plaintiff on July 18, 1934. Plaintiff worked for the defendant company from 1922 to 1926. He claims that he contracted pneumoconiosis, but that this fact was not ascertainable until 1934. The jury returned a verdict for plaintiff for \$8000. Plaintiff remitted \$500. From the resulting \$7500 verdict and judgment, defendant filed a motion for new trial, which was sustained. Plaintiff has appealed. The vital question raised here on appeal is whether or not plaintiff's action, as a matter of law, was barred by the five years' statute of limitations (sec. 862, Rev. St. Mo. 1929). But under the provisions of Section 860, Rev. St. Mo. 1929, plaintiff's "cause of action shall not be deemed to accrue when the wrong is done or the technical breach of *** duty occurs, but when the damage resulting therefrom is sustained and is capable of ascertainment, and, if more than one item of damage, then the last item, so that all resulting damage may be recovered, and full and complete relief obtained." Plaintiff testified that he worked for the defendant company from August 9, 1922 to May 5, 1926; that his work was that of grinding, chipping and filing metals; that there was some one grinding all the time and a constant cloud of dust pervaded the room; that the fan never operated very well; that it was out of repair most of the time; that no signs were posted and that he was not warned of the danger of inhalation of dust; that no medical examination was made of him at the time he began to work or thereafter; that no respirators were furnished him. Plaintiff's testimony was corroborated by three witnesses, each of whom had worked for the defendant during part of the time that plaintiff was working for defendant. In 1926 plaintiff left his employment with the defendant company because his "health was getting bad." Thereafter plaintiff did not engage in any kind of dust work. Dr. Young testified that he had had a great deal of experience in dust diseases; that from X-ray pictures taken of plaintiff in 1934 he found that plaintiff was suffering from pneumoconiosis; that he had examined all of the X-ray pictures taken of plaintiff from 1929 to 1933 in the several hospitals in St. Louis and that he found nothing in those pictures that would warrant a diagnosis that plaintiff then had pneumoconiosis; that he found that plaintiff was suffering with said disease only from the X-ray pictures which had been taken of plaintiff in April, 1934, and that, therefore, in his opinion, the fact that plaintiff was suffering with pneumoconiosis was not ascertainable until sometime between October 3, 1933, and April 4, 1934. Dr. Young testified also that, from his experience and the reading which he had done upon the subject, it was his

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opinion that it takes from five to twenty years to develop a condition of the character which he found in plaintiff, working under conditions such as had been outlined to him; that in arriving at a diagnosis in a case of this kind "the character of the dust, the kind of dust, the amount of dust, and the physical condition of the patient must be taken into consideration;" that "there is no question but the condition could have been produced by the dust that the man inhaled,....taking into consideration all of the facts, I would have to be of the opinion that it was." The trial court granted defendant a new trial, holding that it should have sustained defendant's demurrer offered at the close of the case on the ground that plaintiff's cause of action was barred by the five years' statute of limitations. It is held that the trial court erred in granting defendant a new trial. Upon the record before this court reasonable minds might reach different conclusions as to whether or not plaintiff was suffering with pneumoconiosis, and if so when that fact was ascertainable. The record presents substantial testimony sufficient to make the question as to when plaintiff's cause of action accrued a question for the jury. The order granting a new trial is reversed and the cause remanded with directions to reenter judgment for plaintiff for \$7500. Clohesy v. Century Electric Co. St. Louis Ct. of Appeals, - Mo Decided July 2, 1940. (CCH).

Papers on Dust, Fume, Gases and General Industrial Hygiene

- 505 Industrial Health in War -- Emergency Report No. 1. Industrial Health Research Board, H.M. Stationery Office, London. Abstr. from Iron and Coal Trades Review, 140, 570 (April 12, 1940).
The Report recommends: (1) Avoidance of over-long hours and continuous work without an interval for rest; (2) Allowance for Sunday rest and ordinary holidays; (3) Use of measures to alleviate boredom, e.g., by varying work and providing distractions, such as music, that do not too greatly alienate the attention; (4) Arrange work to cut out unnecessary movements and effort; and (5) Watch for danger signals such as increase in sickness absence, accidents and labor wastage. The second section of the Report deals with lighting and vision and stresses the necessity of converting improvisations consequent upon blackout conditions. Ventilation is an even more troublesome problem consequent upon the blackout. Recommendations to solve this difficulty are given at some length. There is also a discussion of accident prevention.
- 506 The Modifying Influences of Silicosis and Silicosis with Infection Upon the Healthy Chest. E.P. Pendergrass and P.J. Hodas. Radiology, 34, 400-404 (April, 1940).
The authors look with a new optimism upon the future of patients with silicosis. Fibrosis of any origin, interfering with the normal massage action of the lung, predisposes to the accumulation of silica and pulmonary fibrosis. If factors favoring further fibrosis, such as additional silica, vascular stasis, or infection are avoided, there is no reason why patients with minimal fibrosis may not remain well. On the other hand, if chronic or acute pulmonary infections supervene, there is little that can be done to prevent fibrous over-growth and progression to massive fibrosis. The hazard should be limited in patients with stabilized lesions and men with evidence of superimposed active infection should be removed from industry. These latter, if properly guided, may be returned to health even in the face of an active infection.

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STANFORD UNIVERSITY

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MINING ABSTRACTS

- 507 Respiratory Disturbances Suffered by Cardroom Workers Attributed to a Protein in Cotton Dust. M.F. Trice. North Carolina State Board of Health Bulletin, 13 pp. (September, 1939).
Workers experienced respiratory trouble after the beginning of the processing of a low grade, discolored cotton. The difficulty was confined mainly to the employees of the cardroom and the cotton opening departments. A British article on this subject is discussed at some length. The conclusions reached therein seem to indicate that the irritating substance is contained in the protein fraction of the dust. Statistics of the U.S. Public Health Service show the incidence of sickness among cardroom workers is much greater than among spinners and weavers. Better ventilation and the introduction of exhaust or vacuum stripping is essential in the prevention of this disease. Dust control measures now involve enclosing the carding machines in a metal housing, either partially or completely, and applying suction.
- 508 Investigations on Pulmonary Function in Asbestosis. L. Roemheld, H. Kempf and H.W. Edler. Dtsch. Arch. f. klin. Med., 186, 53 (March 7, 1940). Abstr. from J. Am. Med. Assoc., 114, 2513 (June 22, 1940).
According to these authors, the relatively slight clinical symptoms of asbestosis are frequently in contrast to serious impairment of function. A difference between the x-ray appearance and the clinical picture is also not uncommon. It is difficult to determine the degree of functional impairment. The authors studied the oxygen consumption in nineteen cases of asbestosis. They found considerable conformity between the spirographic data and the severity of the clinical symptoms. This method permits an estimation of the pathologic changes and discloses the extent of pulmonary insufficiency.
- 509 Silico-Tuberculosis as Seen in a Large Industrial Center. B.H. Douglas and E. Tompkins. Radiology, 34, 405-410 (April, 1940).
This is a presentation of 132 cases of silico-tuberculosis which were admitted to the hospital. Their occupations were varied, the largest number, 73, having been foundry workers of various kinds. The authors point out the failure of collapse therapy as a measure to be employed for silico-tuberculosis. They stress the serious prognosis and emphasize the need for an accurate diagnosis in the interest of proper treatment.
- 510 Factory Hazards in Paint and Varnish Manufacture. H.L. Howard. Varnish Making, Oil & Col. Chem. Assoc., 164-177 (1939). Abstr. from J. of Soc. of Chem. & Ind., 59, 294 (April, 1940).
Hazards associated with fire, explosions, fumes, occupational disease, etc., are reviewed.
- 511 Safe Practice in a Brass Foundry. M.A. Gimbel. Penna. Dept. of Labor and Industry Safe Practice Bulletin No. 15, 9 pp., 5 illustrations.
This bulletin, another in a series, describes the safe practices followed by a model foundry. Modern methods of molding, conveying and ventilation resulted in an increase in capacity of 100% and a 10% reduction in manufacturing costs. The expense involved in making the changes in this foundry were written off in one year. Skilled molders are now able to devote practically all their time to molding and less to shovelling and other wasteful operations. Workmen are better satisfied with conditions resulting in higher production.
- 512 Dust in Mine Atmospheres. J.H. Griffiths and T.D. Jones. Iron and Coal Trades Review, 140, 731 (May 10, 1940). (British).
This is a report of the Coal Dust Research Committee of the South Wales Coal Owners Association. The first work of the Committee was on the development of a standard technique for the collection of samples of air-borne dust. The paper thimble type of sampler was used and various factors affecting its efficiency were studied. The authors give the resulting conclusions with accompanying discussion.

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- 513 "Black-Out" and Ventilation. Anon. British Medical Journal No. 4130 (March 2, 1940).

Offices and factories present a special problem owing to the lessening of ventilation by the light-trap arrangements. The provision of a light-trap on a ventilator will so resist the passage of air as to diminish the effective opening by one-half. However, if this is mechanical, the black-out need not interfere; the trouble arises where reliance is placed on natural ventilation. The London School of Hygiene and Tropical Medicine is soon to publish a report on the subject of ventilation during the black-out. It will be abstracted in this Digest.

- 514 Downdraft Ventilation. W.C.L. Homeon. Safety Engineering, 79, 12,14 (April,1940).

It is usually assumed that the vapors of most of the solvents are heavier than air. In actual practice, however, the vapors mix with air at once and the resulting difference in density between this mixture and the surrounding pure air is so slight that it is practically negligible. The edges of tables used for the cleaning of fur coats with carbon tetrachloride had barriers which supposedly blocked the heavy vapors and directed them toward exhaust slots. Studies of the work-room environment disclosed that there was twice as high a concentration of the vapors in the air as there should have been. To be effective, a local exhaust system for solvent vapors must have its inlet as close as possible to the source whether it results in downdraft, crossdraft or updraft. The article stresses the danger of making assumptions as to the probable efficiency of an exhaust system for toxic substances in the absence of proper technical knowledge.

- 515 Dust Control. C.J. Alger. American Millor, 68, 24-25 (May, 1940).

A description of effective methods for the control of dust in the milling industry. Wherever feasible, of course, the dust should be controlled at its source but this is not always possible. For the best industrial "housekeeping," heavy duty vacuum cleaning equipment is the logical solution. This may be either of the portable or stationary piped-up system. Plants which have installed this apparatus have found it of value in control of infestation and salvage of valuable materials.

- 516 Profits in Air -- Cummins Engine Company. C. Strock. Heating and Ventilating, 37, 33-35 (May, 1940).

This is No. 17 in a series of articles showing how industrial plants promote processes and profits by scientific control of air conditions. Fuel economy and greatly improved working conditions have resulted from the operation of a vapor collecting system in the injector test room in this new plant. Blower type unit heaters have connections to the outside and have sufficient capacity so that, altogether, they provide three air changes per hour in the building. All air, both outside and recirculated, is also cleaned in passing through the heaters. Motorized ventilators are installed in the roof to allow for the exhaust of vitiated air in quantities equal to that supplied through the unit heaters from the outside.

- 517 Dust Control. Part III. Hood, Inspection, Maintenance, Respirators and Sources of Information. F.F. Kravath. Heating and Ventilating, 37, 36-38 (May, 1940). The hood is the most important single item in dust control. As complete enclosure as possible is the most important rule to remember. Adequate illumination must be provided in enclosing any process. Exhaust equipment should be inspected and tested regularly. Respirators find their place as an adjunct to, in place of, or during servicing of the exhaust system. The author lists sources of information on various phases of dust control.

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- 518 Dust Control. Part I. Exhaust Devices for Hand Pneumatic Tools. W.C.L. Hameon. Heating and Ventilating, 37, 41-45 (June, 1940).

A description of the problem of dust control among stone cutters in the granite monument and building stone industry. Technical developments are summarized and the limitations of present day exhaust equipment are outlined. The operations which generate dust in large amounts are the various chiseling operations employing pneumatic hammers, sandblasting and, to a far lesser extent, hand chiseling. Some of the older, more or less inadequate installations are described and the more modern successful systems illustrated. Laboratory studies have shown that a linear air velocity of 200 f.p.m. induced at the point of the tool by an exhaust hood is adequate to capture the dust formed by hand pneumatic tools. Equations are given for calculating the necessary volume of air to produce a desired air velocity at any given distance from the hood face. Power requirements beyond a radius of six or seven inches increase to unreasonably high values. This is taken into consideration in the Massachusetts standard of recommended practices for the installation and operation of banker exhaust devices. Difficulties with tool-attached exhausts have not yet been surmounted. Exhaust booths present disadvantages which may eventually be overcome but as yet are not used commercially to any extent. Velocities of 3000 f.p.m. are usually given for the transportation of granite dust. In the author's opinion, there is little advantage to be gained by attempting to balance the flow in exhaust systems of this type by increasing frictional resistance in branches nearest the fan. Under the stated conditions, an exhaust fan with an inlet diameter about equal to that of the final section of the main duct will usually be of proper size.

- 519 The Venturi Ejector for Handling Air. Part I. Experimental Study of the Ejector. F.F. Kravath. Heating and Ventilating, 37, 17-21 (June, 1940).

In an effort to answer questions which might be raised by an engineer, the author conducted a series of experiments on what is considered the most efficiently shaped venturi ejector. The results indicate that the induced air volume is virtually a straight line function of the jet volume. Resistance applied on the induction side of the ejector resulted in an expected decrease in induced air volume. Under identical conditions, a 2 inch jet induces 600% of the air of a 6 inch jet and 250% the volume of a 4 inch jet. However, as the induction resistance is increased, the relative superiority of the smaller jets decreases somewhat, but at free delivery it is possible to induce an air volume of approximately 5-1/2 times the volume of the jet air. The author emphasizes the reduction of resistance at the ejector discharge to an absolute minimum. Even a small amount of additional resistance, such as would only decrease the induced air by 25 to 40%, if applied at the induction or secondary end, is enough to destroy completely the effectiveness of the ejector if applied at the discharge end. In fact, not only is there no air induced, but some of the jet or primary air actually reverses direction and comes out the secondary end. This can be avoided by making any length of pipe as large in diameter as is practicable, elbows should be of the long radius, multi-piece type, and weather caps should be streamlined to avoid unnecessary shock losses. If resistance cannot be avoided, the jet velocity must be increased.

- 520 Determination of Carbon Disulfide in Air. F.F. Morehead. Ind. & Eng. Chem., (Anal. Ed.) 12, 373-374 (June, 1940).

The article describes a modification of the copper-diethylamino method which has been made sufficiently sensitive for the determination of low concentrations in small samples of air by the use of 2-methoxyethanol as the reaction medium. The results compare favorably with those obtained by the xanthate method when used on air and very good agreement with Beer's law has been shown. The author describes a new and very satisfactory type of absorption tube.

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- 521 Profits in Air -- C. G. Conn, Ltd. F.A. Westbrook. Heating and Ventilating, 37, 39-40 (June, 1940).

By the use of unit heaters an economical scheme was worked out for heating the buildings and at the same time providing make-up air when one or more exhaust systems were in operation. Whenever the exhaust fan for a particular group of buffing machines is turned on, a relay in the motor circuit is actuated and causes a motor to position the dampers so that all the air handled by the unit heater is drawn from the outside. When the exhaust fan is not operating, the damper motor swings to the other position so that the heater is now supplied entirely with recirculated air. The volume delivery of heated air from the unit is approximately the same as that handled by the exhaust fan for that group. This system has the economic advantage of not heating more cold make-up air than is required to compensate for that removed by each exhaust fan.

- 522 Profits in Air -- Ford Motor Company. C. Strock. Heating and Ventilating, 37, 32-38 (June, 1940).

This is a description of an extensive exhaust system for 235 pieces of equipment by which the author terms "a strikingly smart and clean job of engineering." One section of the building required the exhausting of grinding machines; the other, where heat treating and hardening was carried out, necessitated the removal of gases from the numerous furnaces. A remarkable feature of the exhaust system serving the grinding department is the almost total absence of visible duct work. This is achieved by carrying the exhaust connection under the floor to a main located under the aisle, and thence to a riser located along the side wall of the building. As the risers are relatively flat and located along the wall, they are practically unnoticed. The method of concealing the branches and main duct under the floor is illustrated. The problem of clean-out doors in the under-floor duct system was nicely solved. On the roof are 15 banks of dust collectors consisting of 92 units capable of handling 92,000 c.f.m., each bank serving an aisle. To maintain a constant static pressure, the filter bags are cleaned automatically by a pneumatic shaking mechanism which agitates the bag. The heat treating equipment is arranged longitudinally through the hardening room. An enclosure was built in front of all the furnaces extending over their tops in order that they might present a uniform appearance and be heat insulated from the working space. Each of the furnaces is heavily insulated. Three exhaust systems serve the furnaces and have a combined capacity of 58,100 c.f.m. Gas explosions are eliminated by automatic gas escape valves. The ducts are also provided with back pressure dampers to prevent the fan from discharging back into the building when one is shut down -- this also prevents heat loss by stack action. Where the vapors are hot and liable to discolor, an inside casing with air space is provided. This system effectively eliminates any potential hazards without obstructing light or sacrificing appearance. In the author's words "It is no overstatement to say that the exhaust systems in the Ford Tool and Die Shop approach the ultimate in good plant housekeeping."

- 523 Triangle of Responsibility. A.S. Johnson. American Mutual Magazine, 19, 11-16 (June, 1940).

The author describes the interdependence of the doctor, the safety engineer and the plant operating head. He directs the attention of the plant physician to the position he can occupy to best advantage in the problem of occupational disease control, without becoming a prevention specialist. It is his conviction that the doctors can assist tremendously by translating their medical findings into directly useful data for the engineer and operating divisions, and by making recommendations for treating the workmen who are susceptible to, but not disabled by, the toxic exposure.

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- 524 Tanks for Industry. S. Saltonstall. *Safety Engineering*, 79, 11-12 (June, 1940). The author describes the necessary equipment and gives instructions for the cleaning of bulk plant tanks without the use of steam. He estimates the cost of cleaning a 15,000 gallon tank at \$12 - \$15. He warns against cleaning operations during electric storms.
- 525 Integrating Industrial Hygiene with Local Health Service. L. Graves, A. Fletcher and C. Pharris. *J. Am. Pub. Health Assoc.*, 30, 493-498 (April, 1940). Duplications of service are pointed out which would result if a broadened industrial hygiene program was begun where a well organized public health program already existed. The authors feel that the development of industrial hygiene in some communities has been delayed by the confused and erroneous conception of this work held by some health officials. An outline of the general qualifications for personnel in industrial hygiene are given -- in the author's opinion, the public health engineer best fits the requirements. Illustrations are given to show how an industrial hygiene service might be added to the program of local health departments.
- 526 A New Modification of the Patch Test (The Chamber Method). I. Rokstad. *Arch. Derm. & Syphil.*, 41, 649-653 (April, 1940). The patch test method commonly employed in eczema tests is unreliable for examination of the nonspecific (i.e., allergic) effect on the skin exerted by certain volatile substances (e.g., terpenes). In this new method a celluloid chamber replaces the cellophane plate (or impregnated cambric). The chamber exerts a suction effect on the skin when applied correctly, not only providing an airtight space that prevents escape of the volatile test substance but inducing the formation of a papule within a certain length of time. The papule constitutes the criterion of a successful test technique and it may also be assumed to facilitate the absorption of the test substances through the horny and sebaceous barrier of the skin. This method has given constant results in studies of the toxicity of the terpenes.
- 527 The Determination of Small Amounts of Formaldehyde in Air. R.W. Kersey, J.R. Maddocks and T.E. Johnson. *The Analyst*, 65, 203-206 (April, 1940). The Association of British Chemical Manufacturers have set a limit of tolerance for formaldehyde in air at 0.025 mg. per liter. The authors found that most of the available methods for its determination were inadequate. They devised a method for absorbing the formaldehyde from the air in a dilute aqueous solution of phenylhydrazine hydrochloride which seemed free from the disadvantages associated with absorption in water alone. Full directions for the procedure are given.

Papers on Industrial Poisons, Cancer, Dermatitis, Etc.

- 528 Health Hazards in Electroplating. J.P. Russell. *Metal Finishing*, 38, 321-324, 328 (June, 1940). Health hazards in the electroplating industry may be encountered in grinding, polishing and buffing; in degreasing; in acid dipping or pickling; in plating; and in spraying with lacquers and enamels. Chromic acid, cyanides, nickel solutions, cadmium, arsenic, lead and mercury are all substances which may result in pathological conditions.

- 529 Occupational Poisoning in the Viscose Rayon Industry. A. Hamilton. With an appendix on "A Study of Cases of Psychosis Among Viscose Rayon Workers" by L. Erskine. U.S. Dept. of Labor, Div. of Labor Standards Bulletin No. 34, 79 pp., (1940). For sale by the Supt. of Documents, Washington, D.C., price 15 cents. This report describes the type of occupational poisoning found in the viscose rayon industry, primarily those due to carbon disulfide and hydrogen sulfide. The processes in the departments where these substances are used are described in some detail. There is a discussion of the type of medical care supplied in the industry which in some of the smaller plants is of a superficial character and has resulted in some serious cases of occupational poisoning. The larger plants have recognized the inherent dangers and provide careful medical supervision. There is a resume of the study on carbon disulfide made by the University of Pennsylvania Medical Group and a discussion of the various pathological results of poisoning by this substance -- the psychoses, neuritis, disturbances of vision, effects on the ear, gastro-intestinal disturbances, effects on the skin, and certain types of unusual symptoms. Hydrogen sulfide also receives lengthy attention. In the appendix, Miss Erskine presents 27 cases of psychosis in an endeavor to learn whether probable connection existed between their mental condition and their exposure to carbon disulfide previous to commitment.
- 530 Controlling Health Hazards in Pickling Departments. M.A. Snell, Steel, 106, 66, 68 and 76 (May 20, 1940).
Gases carried up in mists from pickling vats may include, in addition to hydrogen, hydrogen sulfide, mercaptans (from the sulfur in the iron), phosphine, silicon hydride and hydrocarbons. Sulfur dioxide, arsine and hydrochloric acid may also be present. Irritation of the eyes and respiratory tract, dermatitis, and even systemic poisoning may result from exposure to these substances. Sulfuric acid containing more than 1/2 of 1 part per 1,000,000 parts of acid should never be used for pickling purposes. The various inhibitors, especially the synthetic organic, are effective as one means of control of the exposure to toxic gases. Good ventilation, however, is an essential. The author describes several good methods -- general room ventilation, overhead hoods (of which he describes several types), and slotted ducts located at each side of the tank. The volume of air exhausted should be from 200 to 250 cu. ft. per minute per square foot of tank surface for overhead hoods and slightly more for the slotted ducts. The air velocity at the slotted ducts should be from 1500 to 2000 feet per minute. Push pull systems are very effective and do not require the large volumes of exhausted air necessary in straight exhaust systems. The apparatus should all be of acid-resisting materials. Respiratory protective devices should never be used as a substitute for effective ventilation. Protective clothing and skin creams should receive consideration.
- 531 Rat Mortality Following Sodium Tungstate Injection. F.W. Kinard and J. Van der Erve. Am. J. Med. Sci., 199, 668-670 (May, 1940).
The median lethal dose (LD50) for 66-day-old rats, injected subcutaneously with sodium tungstate after a 24-hour starvation period, appears to lie between 223 and 255 mg. (equivalent to 140 to 160 mg. of W). The authors point out that there is a definite age effect and that post-prandial (after meals) conditions markedly influence results.
- 532 Mercury Poisoning. A.C. Giese. Science 91, 476-477 (May 17, 1940).
Vaporization of mercury takes place rapidly at room temperature and one cubic meter of air saturated with mercury vapor at 25°C contains 19.5 mg. of mercury. When a stream of air passes over a 10 sq. cm. surface of mercury at 25°C at the rate of one liter per minute it becomes about 15% saturated and will contain

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about 3 mg. of mercury per cubic meter. Scattered droplets of mercury on the floor of the laboratory may soon result in toxic amounts in the air. Since mercury poisoning is cumulative, even very small amounts must be guarded against. Mercury may be detected in dust from laboratories where the element has been handled in a number of ways and may be demonstrated visually by the use of a mercury resonance lamp and a screen of anthracene. Precautions against the poisoning are enumerated.

- 533 Chronic Manganese Poisoning In An Ore-Crushing Mill. J.M. DallaValle, et al. Public Health Bulletin No. 247, 77 pp. (1940). For sale by the Superintendent of Documents, Washington, D.C., price 15 cents.

This is a report of the engineering and medical studies made in two manganese-ore-crushing mills. In one of the mills, which had been in operation for about twenty years, average concentrations of 173 mg. of manganese per cubic meter of air were found in the vicinity of the pulverizer. In the newer plant, some effort was made to control the dust and here the dustiest operation, that of filling bags or barrels, exposed the operators to 6 mg. per cubic meter.

Physical examination of the employees of the older plant revealed 34 cases of chronic manganese poisoning. No cases were found among men exposed to less than 30 mg. of manganese per cubic meter but the report cautions against establishing this figure as a threshold limit because of the small number of cases and intermittent character of the exposure. Muscular stiffness and incoordination are typical symptoms of this disease, first apparent as disturbances in gait and difficulty in stepping backward without falling down, speech disturbances including stuttering and running together of the words, muscular twitchings or tremors, and occasionally a mask-like facial expression. The differential diagnosis of the disease, which has much in common with multiple sclerosis, paralysis agitans, and progressive lenticular degeneration, is discussed as are the various methods of control.

- 534 Exposure to Fluorine in Industry. W. Machle and E.E. Evans. J.Ind.Hyg. & Toxicol., 22, 213-217 (June, 1940).

A study of osteosclerosis caused by industrial exposure to fluorine. In view of the varying manifestations in animals and man it seemed desirable to establish quantitatively the levels of absorption at which these conditions occur. The examinations have been given over five years of intermittent exposure and it has been found that concentrations of fluorine harmful to experimental animals have been tolerated by workers without evidence of damage. Analytical determinations show that the exposure of these workmen has resulted in absorption of more than three times the normal amounts of fluorine, but no clinical evidence of abnormally large deposits in bones and teeth has appeared.

- 535 Lead Poisoning in Infants Due to "Lead-Painted" Toys and Cribs. F.H.Lewy. Penna. Dept. of Labor and Industry, Safe Practice Bulletin No. 8, 5 pp. (April, 1939). Colic, anemia, and peripheral nerve disease such as wristdrop are comparatively infrequent in children, while involvement of the brain and disturbance of its function are in the foreground. Hence the importance of preventing children, especially infants, from contact with the lead painted surface of toys, cribs, and woodwork. Children seem more susceptible to small quantities of lead than adults and the specific sensitivity of the infantile brain may be caused by its lesser resistance to partial oxygen lack. The treatment of lead encephalopathy is very unsatisfactory. The author urges Child Welfare Organizations to crusade for the exclusion of harmful paints in the manufacture of toys and nursery furniture.

- 536 Molten-Lead, Lead Oxides, White Lead and Lead Dry-Colors. F.W. Eckfeldt. Penna. Dept. of Labor and Industry, Safe Practice Bulletin No. 19, 10 pp., 11 illustrations (February, 1940).

This is another in a series of bulletins on safe practices. It treats the procedures carried out by one company in the manufacture of metal products, lead oxides, white lead, lead paints and lead dry-colors. Lead melting kettles are provided with hoods connected with an exhaust system to remove fumes given off from the surface of the molten metal. Furnaces for oxidizing pig lead to the powdered oxide are hooded to prevent dispersion of the dust into the workroom. Steel drums containing oxide are provided with rim-type portable exhausts which are controlled in position with counterbalances, acting on chain and pulley. Flexible connections aid in quick removal when drums are to be weighed. Corroded buckles of white lead (in Old Dutch Process) are dumped into a covered metallic crane-bucket which is furnished with portable exhaust to remove lead dust. Filling of barrels is accomplished in an enclosed packing machine which effectively eliminates the dust. Workmen mixing batches of dry-colors containing lead are provided with positive pressure respirators. Personal hygiene is fostered by giving additional compensation to those who take showers.

- 537 Effect of Calcium and Phosphorus on Retention of Lead by Growing Organism. L.G. Lederer and F.C. Bing. J.Am.Med.Assoc., 114, 2457-2461 (June 22, 1940).

Studies made with young albino rats lead to the conclusion that the amount of lead stored in the body is decreased when calcium carbonate is added to the diet. Phosphates have no significant effect. Lead is found stored chiefly in the bones, and the kidneys have relatively high contents compared to the liver. Calcium appears to exert its beneficial action by preventing the absorption of lead from the intestinal tract as the calcium in the diet seems to have no effect on the retention of lead administered by injection into the abdominal cavity.

- 538 The Biochemical Behavior of Lead. I. Influence of Calcium, Phosphorus and Vitamin D on Lead in Blood and Bone. A.E. Sobel, H. Yuska, D.D. Peters and B. Kramer. J. Biol. Chem., 132, 239-265 (1940).

1. Experiments were designed to study the influence of dietary Calcium, Phosphorus, and vitamin D on the biochemical behavior of lead in young rats. The diets used varied with respect to these three factors but were similar in their lead content. 2. The results show that influence of all three dietary factors, namely Calcium, Phosphorus and vitamin D must be considered in the biochemical behavior of lead. 3. Lead deposition in the bones may be explained by postulating that lead phosphate and vitamin D form a system of lead deposition analogous to the system of calcification. The addition of Calcium tends to remove Phosphorus from the system for lead deposition. 4. Blood lead values obtained may be explained by assuming a relationship between blood lead and dietary lead to Phosphorus ratios similar to the relationship between blood Calcium and dietary Calcium to Phosphorus ratios. The influence of vitamin D upon blood lead is similar to its influence on blood Calcium on corresponding dietary metal to Phosphorus ratios. 5. It was experimentally demonstrated that simultaneous lead deposition and removal of Calcium from the bones is possible. Furthermore, it was shown that increased calcification does not necessarily mean increased lead deposition. 6. It is concluded therefore that lead deposition is directed by a system of its own, which is governed by the same laws as is Calcium deposition but does not necessarily go in the same direction. The effect of Calcium on the deposition is essentially competitive, because it tends to remove Phosphorus available for lead deposition. -- Author's summary.

- 539 A Single Trauma as an Etiological Factor in Carcinoma. W.E. Leighton and E.C. Schmidtke. J. Missouri State Med. Assoc., 37, 267-277 (July, 1940). The authors present seventy-nine cases of superficial cancers initiated by a single trauma which were not biased by a medical-legal phase. The authors

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believe that although trauma in itself does not produce a cancer, it apparently sets off something, and that in certain cases it is the inciting cause or instigation of the cancer.

- 540 Cancer Incidence Among Lead Workers. B.J. Black. J. Missouri State Med. Assoc., 37, 298-299 (July, 1940).
The author concludes that there is no available body of data which can be used to answer the question "Is there a smaller incidence of cancer among workers exposed to lead poisoning or plumbism than among workers not so exposed?" The interest in this problem is initiated in the speculation that lead might be an effective agent in the destruction of the embryonal type of cell that constitutes cancer. Studies of the incidence of cancer among workers in industries allied to lead manufacturing give but inconclusive results. However, mortality records of two smelting plants indicate that the cancer deaths for these men, who are subject to lead fumes, is relatively small.
- 541 An X-ray Study of the Effects of Industrial Gases Upon the Human Lung. E.E. Evans. Radiology, 34, 411-424 (April, 1940).
Serial x-rays of the chests of a large number of men in the chemical industry were begun five years ago. During this period approximately 17,000 chest x-rays have been made. The cases are discussed in four groups, depending on chemical exposure. The program has been carried out to determine the effects of low concentrations of various gases upon the human lung, namely, hydrofluoric acid, chlorine, hydrochloric acid, sulfur dioxide and sulfur trioxide, phosgene, phosphorus oxychloride, and phosphorus trichloride. (No data is given as to the concentrations of the gases these men were exposed to.) In the author's opinion, the x-ray films show no visible evidence indicating lung changes.
- 542 The Response Attending Exposure of Laboratory Animals to Vapors of Methyl Bromide. D.D. Irish, et al. J. Ind. Hyg. & Toxicol., 22, 218-230 (June, 1940).
The possibility that this substance may attain widespread use as a fumigator stimulated this investigation into the physiological effect of its vapors on man and other animals. It was found that animals could tolerate quite large doses for short periods of time but eventually showed severe lung irritation. However, they tolerated a daily 8-hour exposure for a long period of time to a concentration not far below the maximum tolerated for a single exposure of 8 hours. Also, recovered animals showed no functional or physiological abnormality. Although it is less toxic to man than some fumigants, the authors warn that with proper precautions it may be used without serious damage.
- 543 Hematologic Control of Intoxications by Volatile Hydrocarbons. A. Langelez, G. Peremans and H. Bastenier. Brussels-Medicale, 20, 430 (January 28, 1940).
Abstr. from J. Am. Med. Assoc., 114, 1702 (April 27, 1940).
The authors review the cases of industrial hydrocarbon poisoning which have occurred in Belgium during the years 1932-1938. Nearly all were due to "benzol" which was probably the coal tar derivative and not benzine. A complete picture of the blood changes involved is given.
- 544 Eruptions and Photosensitivity Due to Dyed Fabrics. E. Epstein. Arch. Derm. & Syphil., 41, 1044-1052 (June, 1940).
This is a presentation of a review of the literature and a discussion of eight cases of eruptions due to dyed clothing. This condition is, of course, quite often of industrial importance. Dyed fabrics may cause dermatitis venenata, photosensitivity, pyoderma, hidradenitis suppurativa, lichen simplex chronicus and urticaria. The author stresses the importance of hyperidrosis and of "bleeding." He questions the importance of sex and polysensitivity in the production of these dermatoses.

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- 545 Role of Vitamin C in Various Cutaneous Diseases. W.F. Lever and J.H. Talbott. Arch. Derm. & Syphil., 41, 657-663 (April, 1940).
The authors find no direct correlation between the level of vitamin C in the blood and the development of the several diseases of the skin which were investigated. Low levels of vitamin C in the blood of most patients with pemphigus, purpura or generalized exfoliative dermatitis is believed to be due to the fact that most of these patients had been ill for a long period with an elevated temperature. Eighteen patients with various diseases of the skin showed no coincidental improvement under treatment with large amounts of vitamin C.
- 546 Cutaneous Hypersensitivity to Triethanolamine. G.H. Curtis and E.W. Netherton. Arch. Derm. & Syphil., 41, 729-731 (April, 1940).
A report of two cases of cutaneous hypersensitivity to triethanolamine, one due to shaving cream, the other to an ointment. However, on the basis of patch tests on one hundred other persons without a positive reaction, the authors believe it is safe to assume that this condition is rare.
- 547 A Twenty Year Survey of Anthrax in the United States. (Sixth Report of the Committee on Anthrax). H.F. Smyth, Sr. American Public Health Assoc. Bulletin, B-3087, 16 pp. (October 18, 1939).
There have been 1,683 cases of anthrax with 353 deaths in the period 1919-1938. Since 1928, there has been a decrease in the number of cases but this has probably been due to the industrial depression with a corresponding decrease in the number of employees and also in imported hides and skins, with a greater use of packer-killed hides which are usually from Government-inspected anthrax-free animals. Further proof of this is to be found in the fact that the decrease comes only from industrial groups. The drop in fatality rates comes practically all from the cases in organized industries where earlier diagnosis, more prompt treatment, and extensive use of serum and arsenicals are employed. This report shows that there is still a decided need for prophylactic measures to be taken in the prevention of anthrax. If hides and skins, the largest single cause of anthrax, had been properly sterilized, there would have been saved in the 20 years a large number of deaths and over 10,000 days' lost time but as yet there is no accepted method for carrying out such sterilization.
- 548 Photosensitization by Phenothiazine. F. DeEds, R.H. Wilson and J.O. Thomas. J. Am. Med. Assoc., 114, 2095-2097 (May 25, 1940).
This substance is one of the more promising organic insecticides developed as a substitute for lead and arsenic. Reports of irritation among men using it for spraying purposes have been made, although laboratory workers have used it with impunity and it has even been administered orally as a urinary antiseptic without untoward results. The explanation for this seeming contradiction apparently lies in the end-products to which the substance is oxidized in the body. After oral administration, phenothiazine is oxidized to the reversible oxidation-reduction system thionol-leukothionol. This system will sensitize individuals to sunburn. The fact that the orchard workers who use the spray are subjected to environmental conditions sharply contrasting with those of the tested laboratory workers and hospital patients is also a determining factor in tracing the source of the difficulty. Laboratory tests conducted on the basis of these facts showed that the trouble was due to the resulting photosensitization and not to local irritation by the phenothiazine.
- 549 Cheilitis and Dermatitis from Toothpaste. L.B. Beinbauer. Arch. Derm. & Syphil., 41, 892-894 (May, 1940).
A presentation of two instances of cheilitis and dermatitis following the use of toothpaste. In one case, thymol was the offending drug; in the other, alpha naphthol was suspected.

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- 550 Dermatitis From Elasti-Glass Garters and Wrist Watch Straps. E.P. Zeisler. J. Am. Med. Assoc., 114, 2540-2542 (June 29, 1940).
This is a report of two cases of dermatitis resulting from the wearing of garters and wrist watch straps of "elasti-glass," made from a new synthetic resin. In the author's opinion, the affection is due to a specific sensitivity induced by intimate and prolonged contact with the material. Negative patch tests are not a sufficient criterion of noninjurious effects, as the method would not correspond to the long wearing of a constricting band against the skin over a long period of time. Mechanical friction and overheating of the skin are also determining factors. The author believes that hydrolysis takes place and that in this way irritating compounds are produced. Although this is the first report in the literature, the author mentions 28 other cases which have come to his attention.
- 551 Industrial Dermatitis. Committee on Healthful Working Conditions. National Association of Manufacturers. Safety Engineering, 79, 35-37 (June, 1940).
Claims for compensation due to skin damage in industrial work reported in incomplete state reports and to the Office of Dermatoses Investigations of the U.S. Public Health Service have constituted about 65% of all reported occupational disease cases. The economic loss to employees and employers is largely preventable. Although the information in this summary is, of necessity, general in character, nevertheless, an effort has been made to treat the subject so that not only the control of a specific dermatitis problem can be set up, but that the control shall be practical. The publication lists in detail the industries most affected by dermatoses.
- 552 Popular Lesion in Chicken Feather Pickers. J.Am.Med.Assoc., (Queries & Minor Notes) 115, 76 (July 6, 1940).
Warts noted on the hands of girls engaged in picking chicken feathers are no doubt the result of a foreign body reaction resulting from the embedding of particles of feathers. Lesions of a similar type have been noted in asbestos workers. For prevention, the workers should wear sturdy gloves made of rubber or one of the newer elastic fabrics.
- 553 Mite Dermatitis. D.E.H. Cleveland. Arch. Derm. & Syphil., 41, 831-834 (May, 1940).
Although its nature and source are commonly unrecognized, dermatitis in handlers of copra and cheese due to irritation by mites found in these materials is not uncommon. Secondary infection usually complicates the eruption and therefore regular handlers of these materials require some protective measures. Thorough advance greasing of the exposed parts with an inert fatty substance and cleansing with soap and water after working appear to give efficient protection.
- 554 Dermatitis Due to Safety Pins: Interesting Sequence of Sensitization Due to Contact with Nickel. J.G.Downing. Arch.Derm.& Syphil., 41, 568-569 (March, 1940).
This is a report of a case of nickel sensitivity in a woman due first to safety pins and then to nickel plated garters. It has been noted in nickel platers that those who have suffered from an eruption as a result of their trade become secondarily sensitive to leather and have a dermatitis on their foreheads and on the dorsa of their feet. The author believes that some of the eruptions of the hands and feet which have been called fungous infections without cultural proof have started as a nickel dermatitis of the ginners with a secondary sensitization of the feet due to leather.

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