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MWBB-0012286

FEBRUARY, 1947

INDUSTRIAL HYGIENE DIGEST

(Vol. 11, No. 2)

Literature Abstracts

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

Industrial Health News



Issued Monthly By
INDUSTRIAL HYGIENE FOUNDATION
4400 FIFTH AVENUE
PITTSBURGH 13, PA.

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PLAINTIFF'S EXHIBIT
WH-629

INDUSTRIAL HYGIENE FOUNDATION

FOUNDATION FACTS

Foundation Facts is a monthly news-letter issued to industrial concerns holding membership in Industrial Hygiene Foundation. The Foundation is a non-profit association of industries for the advancement of healthful working conditions.

MMDB-0012287

IN RE: ABRAMS November 1992

Vol. 9 February, 1947 No. 2

Transactions for Annual Meeting

First copies of the Transactions for the Eleventh Annual Meeting of Members of Industrial Hygiene Foundation are being received from the printer. This important publication, which will be mailed to Foundation members within a few days, includes much new material of note, as

A preliminary report on a Foundation-supported study of industrial health departments, including administrative procedures, departmental relationships, costs...

Respiratory infections and their control in industry

Legal developments respecting occupational health, including health clauses in union contracts

State codes in industrial hygiene, including up-to-date tables summarizing code preventions in various states

The human factor in the design of machines

A report on beryllium, the metal with wide industrial uses which is suspected of toxic properties

A summary of the field researches conducted by the Foundation's staff during 1946.

Other highlights include the opening remarks by Andrew Fletcher, Chairman of the Foundation's Board and Executive Vice President of the St. Joseph Lead Company.....the keynote address by Admiral Ben Moreell, recently elected President and Board Chairman of Jones & Laughlin Steel Corporation.....the story of how one company controlled occupational diseases, told by R.H. Pass, President of Onondaga Pottery Company. A number of companies have already requested copies of these presentations for distribution to their top executives.

For maximum benefit, give the Transactions preferred circulation within your organization. (Members desiring copies in addition to their regular allotment may secure them at $3.00 each.)

...Production Comes from People!...

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February, 1947
Vol. XI
No. 2

Industrial Hygiene Foundation
4400 Fifth Avenue
Pittsburgh 13, Pennsylvania

HWBB-0012289

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INDUSTRIAL HYGIENE DIGEST
Literature and News

News Items

112 Connolly Named Labor Standards Division Director.

Secretary of Labor Schwellenbach has announced the appointment of William L. Connolly of Rhode Island as Director of the Division of Labor Standards in the U.S. Department of Labor. Mr. Connolly succeeds Verne A. Zimmer, who died December 25, 1946. The Secretary also announced the appointment of Clara M. Beyer as Associate Director of the Division. Mrs. Beyer has been Assistant Director. Mr. Connolly has been Director of Labor of the State of Rhode Island for the past six years. He was president of the Rhode Island State Federation of Labor for 10 years. He is a member of the International Typographical Union, AFL, and worked many years on the Pawtucket Times. For four years he was international representative of the Typographical Union covering the territory of New England, New York State, and Nova Scotia. He has also been a high school teacher in Pawtucket and Director of Personnel for the city of Pawtucket. Mr. Connolly will have assumed his new duties about February 1. -- U.S. Department of Labor.

113 New Fellowship in Industrial Medicine at Pitt.

A fellowship in Industrial Medicine has been established at the School of Medicine, University of Pittsburgh, by the Schenley Distillers Corporation. This is the fourth fellowship to be established in Industrial Medicine at the University. The Fellowship carries a residency of 18 months at the School of Medicine, University of Pittsburgh, and is to be known as the Schenley Fellowship. Further particulars may be had from Dr. T. Lyle Hazlett, Director, Department of Industrial Hygiene, School of Medicine, University of Pittsburgh, Pittsburgh 13, Pa.

114 American Standards.

A list of 864 standards approved for national use of industry by the American Standards Association was announced on January 23 and is available for general distribution. P.G. Agnew, Vice President of the Association said: "The revised list of standards, which includes many of those developed under war procedure and now approved for peacetime use, will be made available to interested trade, technical, and governmental bodies and individuals without charge.....Many of the standards have a particular interest to lawyers, legislators and public authorities because they form the basis for municipal, state and federal regulations."

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115 Chemical-Biological Coordination Center.

The Chemical-Biological center of the National Research Council is now an operating organization. Information concerning the relation of chemical structure to biological activity is being collected and filed under a special coding system using punch cards and sorting machines. The center is also sponsoring the screening of chemical compounds on a variety of plants and animals to determine their biological activity. A number of federal, state and non-profit laboratories are cooperating and the Chemical Corps (Medical Division) is determining the toxicity of the compounds. The pharmacology and chemotherapeutic value in cancer, tuberculosis, schistosomiasis, malaria and other tropical and fungus diseases will be studied.

116 Sickness Insurance Starts in California.

Disability pay for time lost from work because of illness is being paid California workers under provisions of state legislation, which became effective in December, the Council of State Governments notes. Benefit payments from $10 to $20 a week up to a maximum of 23 weeks a year are authorized by the state measure enacted last March. This followed passage of federal enabling legislation which permits California to finance the plan from its large unemployment insurance fund which was accumulated from workers' one per cent poll tax. No new taxes are required. Under the California law, commercial insurance firms and voluntary insurance plans can compete with the state-organized Unemployment Insurance Disability Fund for the insurance. The other state providing disability benefits is Rhode Island, where a cash sickness compensation system began in 1943. Payments range from $6.75 to $18 for a maximum of 20 weeks a year. These payments have been financed by a one per cent payroll tax levied upon employees. To meet rising costs, the tax now is being raised to 1-1/2 per cent. Amendments to the Rhode Island Act in 1946 restricted benefits under the system as well as increased revenues. Allowances for administrative costs also were raised from 3 to 4 per cent of receipts. In New Jersey where disability insurance now is being proposed, benefit payments from $7 to $22 a week with a maximum of 13 weeks for each period of disability have been suggested. Coverage under the proposed act would not be provided persons earning less than $12 a week. -- The Labor Union (Feb. 14, 1947)

Occupational Disease Statistics

117 Central Mining -- Rand Mines Group. Health Department. Report for the Year 1945. A.J. Orenstein. Johannesburg. (1946)

A statistical report of disease and accidents in the Rand Mines Group. Fifty-three cases of silicosis were discovered in 1945 giving a rate of 0.56 per 1000 per annum. This is the second lowest rate ever recorded in the Group. Morbidity, mortality, feeding costs and medical costs are all itemized. -- J.I.H.&T.

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118 Occupational Disease Statistics.

	Calif.[3] Nov. 1946	Conn.[2] Jan. 1947	Ind.[2] Jan. 1947	Mich.[2] Jan. 1947	Ohio[1] Nov. 1946	Wash.[4] Dec. 1946	Wis.[2] Dec. 1946	Totals
Arthritis						1		1
Carbon Monoxide	3						8	11
Carbon Tetrachloride	5						1	6
Cellulitis						5		5
Chemical Poisoning (N.O.C.)	13				7		2	22
Conjunctivitis	184					1	1	186
Dermatitis	583	62	26	36	279	45	48	1077
Heart Disease						1		1
Hernia				4				4
Infections						2	6	8
Inflammatory Conditions	130			1		8		139
Lead Absorption			3					3
Lead Poisoning	17				7			24
Miscellaneous					135	9		144
Noise	2							2
Pneumoconiosis				5	13			18
Pulmonary & Bronchial Affections	6					1	2	9
Silicosis		1	2	41‡	36	11‡‡	1	92
Silico-tuberculosis			2			3‡‡	1	6
Synovitis						8		8
Trichloroethylene	1							1
Tuberculosis (due to contact)					3			3
Undulant Fever							1	1
Upper Respiratory Affections	10						2	12
Totals	954	63	33	87	480	93	73	1783

(1) Occupational Disease Claims filed with the Industrial Commission. There were 107,051 days lost, including 13 deaths from silicosis and two from unspecified causes.
(2) Occupational Disease Cases filed with the Health Department.
(3) Occupational Disease Cases filed with the Department of Industrial Relations and tabulated by the Department of Public Health.
(4) Occupational Disease Claims filed with the State Department of Labor and Industries.

‡ See our Abstract No. 1120, Oct., 1946, "Employers Required to Provide Physical Examinations (in Michigan)."
‡‡ This figure represents silicosis and silico-tuberculosis cases reported by the State Department of Health, Seattle City Health Department, and one death due to silicosis reported by Public Health Statistics Section, State Department of Health.

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Legal Developments

119 Causal Connection Between Foot Wound and Typhus Infection--Jury Instructions.
Evidence was sufficient for the jury to conclude that decedent died of a typhus fever infection which had entered his body through a foot wound sustained in the course of employment, and there was no error in refusing the prayer of the employer, where the question was fairly covered by the instructions already given by the court. -- Bethlehem-Sparrows Point Shipyard, Inc. v. Scherpenisse. Maryland Court of Appeals. No. 35. December 13, 1946.(CCH)

120 Hernia--Aggravation of Pre-Existing Tuberculosis.
Evidence supported the contention that an operation for hernia suffered by claimant aggravated a pre-existing condition of tuberculosis. -- In re Steinberg. New York Supreme Court, Appellate Division, Third Department. No. 190-16. September 18, 1946. (CCH)

121 Fatal Stabbing--Accident Arising Out of Employment.
The decedent was stabbed to death by a co-worker while engaged in the course of employment; the accident was held to have arisen out of the employment, and the decedent was not the aggressor. -- In re Cooley. New York Supreme Court, Appellate Division, Third Judicial Department. No. 191-17. September 18, 1946. (CCH)

122 Course of Employment--Death from Altercation.
A messenger boy who died as the result of injuries suffered in an altercation with a fellow-employee, was injured in the course of employment; the fight was an incident of the employment, and may be said to have arisen out of it. -- In re Chanin. New York Supreme Court, Appellate Division, Third Judicial Department. No. 194-22. September 18, 1946. (CCH)

123 Cafe Worker's Cerebral Hemorrhage--Injury v. Disease.
A cafe employee's sudden scalding in hot dish water may or may not have occurred prior to a cerebral hemorrhage which caused death, but the scalding was conceded to be a contributing factor, even though the decedent was suffering from ailments of the circulatory system. -- In re Desimone. New York Supreme Court, Appellate Division, Third Judicial Department. No. 177-5. September 18, 1946. (CCH)

124 Death from Altercation--Course of Employment.
The only question was whether decedent's death due to an assault arising out of an altercation, was an accident in the course of employment; evidence indicated that the injury arose out of the employment. In re Longoria. New York Supreme Court, Appellate Division, Third Judicial Department. No. 185-10. September 18, 1946. (CCH)

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125 Shooting of Machine Operator--Injury Arising Out of Employment.

Claimant's injuries resulting from bullet wounds inflicted by a former employee of defendant who was later adjudged criminally insane were compensable as an accident arising out of employment. -- Whaley v. Patent Button Co. Tennessee Supreme Court. January 11, 1947. (CCH)

126 Employee's Wilful Violation of State Mining Law.

The injuries sustained by claimant were the result of his wilful violation of the provisions of the mining law of this State, and such violation constituted wilful misconduct prohibiting compensation. -- Clendenin v. State Compensation Commissioner. West Virginia Supreme Court of Appeals. No. 9875. December 3, 1946. (CCH)

127 Statute Construed--Ankylosed Fingers.

A claim for the loss of all the fingers of the hand as a result of ankylosis was non-compensable in that the statute required the ankylosed fingers to be "more than useless." -- State, ex rel. Bohan v. Industrial Commission of Ohio. Ohio Supreme Court. No. 30, 613. December 26, 1946. (CCH)

128 Right Inguinal Hernia--Refusal to Submit to Operation--Computation of Award.

In determining a disability award for plaintiff who refused to undergo surgical treatment after sustaining a right indirect inguinal hernia while performing heavy manual labor for defendant, the fact that plaintiff was now able to do average work prevented a 100% award for permanent total disability. The test was not whether the injured workman was able to do the same kind of work as he did before the injury, but whether he was able to do any kind of work, and since plaintiff's refusal to submit to surgery was not unreasonable, the 40% award was affirmed. -- Helms v. New Mexico Ore Processing Co. New Mexico Supreme Court. No. 4927. December 19, 1946. (CCH)

129 Aggravation of Pre-existing Tuberculosis--Negligence in Leaving Hospital.

A dormant tuberculosis condition was reactivated when claimant sustained injuries resulting in fractured ribs, and although claimant left the hospital to which he had been assigned for convalescence against medical advice, and although there was some record of previous injuries, the pre-existing disease was aggravated by the present injury and was therefore compensable. -- Marshall v. Mueller Co. New Jersey Supreme Court. No. 213. December 30, 1946. (CCH)

130 Computation of Award for Silicosis--Res Judicata.

In a case where the controlling question was whether defendant was correct in its contention that because it had paid partial compensation for 116-5/6 weeks that that period should have been deducted from the total number of weeks during which plaintiff would be entitled to compensation, defendant's contention would have resulted in the compensation being governed by the number of weeks during which compensation was paid, which was not provided for in the statute, and the department's award was affirmed. -- Syrjala v. Castile Mining Company. Michigan Supreme Court. December 2, 1946. (CCH)

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131 Granite Cutter's Death from Silicosis--Carrier's Liability.

Where a granite cutter died from silicosis contracted while in defendant's employ, and where liability was denied by defendant because the disability did not begin within one year after the date of decedent's last exposure and because the policy with decedent had expired six months before the disability occurred, an award was affirmed because the criterion was the date when the disease occurred and not the date when total disability began. -- Anderson v. Schroeder-Monumental Works. Pennsylvania Superior Court. Nos. 208, 209. Filed November 20, 1946. (CCH)

132 Death from Silicosis-Tuberculosis--Compensation Payments to Widow.

The fact that decedent died more than three years after his silicosis-tuberculosis commenced did not relieve defendant of making compensation payments to deceased's widow after his death, as the agreement made between deceased and appellant, approved by the board, provided that compensation was to be paid until terminated in accordance with the provisions of the Occupational Diseases Act; this was construed to mean that compensation was to be paid to decedent for 300 weeks from the date disability commenced unless sooner terminated under the provisions of law. -- C. & G. Potts & Co. v. Vortney. Indiana Appellate Court. No. 17,534. November 27, 1946. (CCH)

133 X-Ray Technician's Tuberculosis--Question of Fact.

Evidence proved that claimant, a hospital employee, had contracted tuberculosis, and the award was sustained. -- In re Shepardson. New York Supreme Court, Appellate Division, Third Judicial Department. No. 175-3. September 18, 1946. (CCH)

134 Alleged Silicosis--Insufficient Evidence.

Although there was some evidence that claimant had contracted silicosis, the findings of several doctors were to the effect that claimant had not contracted the disease, and this evidence was sufficient to deny an award. -- Reid v. Ontario Manufacturing Co. Indiana Appellate Court. No. 17,568. January 10, 1947. (CCH)

135 Dermatitis Venanata v. Pre-existing Disease--Medical Testimony.

A case of dermatitis venanata, allegedly caused by contact with chemicals during the course of employment, was not compensable where medical testimony revealed that claimant's condition was not the result of an accident arising out of and in the course of employment, but was due to a pre-existing condition not connected with the employment. -- Johnson v. P.R. Mallory Co., Inc. Indiana Appellate Court. No. 17,529. December 4, 1946. (CCH)

136 Mercurial Poisoning--Course of Employment.

A painter who was exposed to bichloride of mercury fumes during three days of his employment and who, 10 days following this exposure, contracted nephritis, or Bright's Disease, was allowed a permanent disability award for an injury sustained in the course of employment. -- Meehan v. Crowder. Florida Supreme Court. December 20, 1946. (CCH)

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137 Company Physician's Negligence--Doctrine of Respondeat Superior.

The failure of a company physician to diagnose claimant's broken back following an injury sustained in the course of employment constituted negligence, and the doctrine of respondeat superior was held to be applicable. -- Knox v. Ingalls Shipbuilding Corp. United States Circuit Court of Appeals, Fifth Circuit. No. 11,661. January 21, 1947. (CCH)

138 Present Trends Toward Labor Legislation.

The writer sees no prospective legislation that offers an effective remedy to labor management strife. He calls for action that will place labor and management on an even footing. — A.N. Wecksler. Mill & Factory, pp. 89-92 (Nov., 1946)

139 Workmen's Compensation Maps.

The Division of Labor Standards has issued a set of eight maps showing extent of workmen's compensation laws in the States and Territories. The maps, based on acts as of October 1, 1946, give the following information: Compulsory and elective coverage, numerical limitations on coverage; insurance provisions; provisions for medical-hospital care; second-injury funds or equivalent arrangements; type of administration; occupational disease, and silicosis. A revised Chart summarizing main statutory provisions of the acts has also been issued. It shows employments covered, exemptions, and special coverage provisions. — U.S. Dept. of Labor, Div. of Labor Standards. (Copies, not exceeding 10, may be obtained from Division of Labor Standards as the supply lasts. No sales copies were printed.)

Book Reviews and Notices

140 How to Supervise People in Industry. E.D. Chapple and E.F. Wright. National Foremen's Institute, Deep River, Conn. 123 pp. Price $2.50. (1946)

Numerous angles of the "job of being a foremen" -- and they are more numerous than one would suspect — are discussed in this manual, with the application of practical psychology. Under "effective handling of people" are included, dealing with the returned veteran, minority groups, top management, union representatives, and others. A short but pointed final chapter is entitled "Why the Foreman Can Make or Break an Organization."

141 Electrical and Mechanical Hazards in Metal Mines. Metal-Mine Accident-Prevention Course, Section 6. U.S. Bureau of Mines, Miners' Circular 56. 82 pp. (1946) Price 20 cents from Supt. of Documents, Washington 25, D.C.

The hazards of electrical accidents, mechanical accidents and falls of persons are treated separately, with attention to numerous details. The conclusions on electrical accidents say in part: "Electrical installations at a majority of metal mines do not follow established standards of safety. The danger of fire from poorly installed and poorly maintained electrical equipment is greater than generally believed. New types of electrical equipment should be designed for mine use; they should be designed to withstand the necessary hard usage and to be free

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of shock and fire hazards. Until equipment of this description is generally installed, all employees who may come into contact with electrical conductors should be fully informed as to the actual hazards and the practices by which they can be avoided."

142 The International Control of Atomic Energy. Scientific Information Transmitted to the United Nations Atomic Energy Commission, June 14 to October 14, 1946. Prepared in the office of B.M. Baruch, U.S. Representative. The Department of State. 195 pp. (1946) Price 45 cents from Supt. of Documents, Government Printing Office, Washington 25, D.C.

The book consists of six "volumes" dealing with various phases of the control and use of atomic energy. This review is confined to Volume 5 (pp. 133-142) on the Medical Uses of Atomic Energy. Radioactive iodine has been used in a study of the action of the thyroid gland and of cancer in that gland. Thyroid overactivity can be controlled in about 80% of the patients by the use of radioactive iodine. Radioactive phosphorus has had very doubtful success in controlling leukemia, but gives definite relief in polycythemia. There are research programs under way which afford hope for additional applications of radioactive materials. Their use as tracer elements is also discussed briefly in Volume 2, under Beneficial Uses of Atomic Energy.

143 Radiant Heating. T.N. Adlam. Industrial Press, New York. 472 pp. Price $6.00. (1947)

The author was closely associated with early developments in radiant heating in England and more recently in the United States. This book presents practical information on the procedures for calculating radiant temperatures, size and capacity of radiant heating panels and includes an extensive discussion of the various methods of applying radiant heating to residences, public buildings and factories. Radiant heating possesses certain advantages over older methods. A more uniform distribution of heat is obtained and, because of higher mean radiant temperature, a somewhat lower air temperature is required for comfort, thus reducing heat losses. The author emphasizes the need, however, for good insulation, especially of heated surfaces. Radiant cooling and design of snow melting installation for walks, driveways, airport runways, etc. are discussed briefly. The book is practical in its approach and includes many helpful charts and tables and methods of calculation are well illustrated by many examples.

Industrial Medical Practice

144 Time and Cost Standards Set in Hygiene Experiment by Industrial Health Office. Anon. Industrial Bulletin (N.Y.) pp. 44-46 (Dec., 1946)

Small industrial plants can now launch much needed medical departments with assurance that they will not run afoul of exhorbitent expenses. Standards for workable medical office layout and equipment, for doctor and nursing service time schedules, for proper supervision and

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for worker and management cooperation through plant health committees were set up through a study conducted by the wartime office of Industrial Health. — Editors' Summary

145 Our Experience With Physical Examinations. R.L. Shorkey.
Nat. Safety News, 55, 28, 29, 87-90 (Jan., 1947)

Physical examination practice and experience at the Naval Air Station, Pensacola, Florida during the war are described. Approximately 7400 employees in civil service and supplementary branches were employed.

146 Industrial Physical Examinations. Objectives and Methods. F.E. Poole.
J.A.M.A., 133, 91-97 (Jan. 11, 1947)

The former concept of the physical examination as a weeding-out method has given way to a sounder policy which includes proper placement of employees and maintenance of health. A complete examining program required by modern industry and consists of (1) pre-employment, (2) occupational hazard, (3) maintenance of health, (4) management, and (5) special examinations. The author discusses fully each type of examination, with emphasis on the first, with attention to proper placement of workers and classification of handicaps. The medical records obtained in the examination should be shared with placement officials and discussed with them when it will contribute to the usefulness and safety of the worker. The records should be kept in the control of a physician, nurse, or competent clerk. Health maintenance examinations, both for workers and for management, have produced significant benefits for both employers and workers. Under special examinations are included those given to employees who must maintain a high level of fitness, such as test pilots, bus and truck drivers, and locomotive engineers, and those used for continuing placement of workers after employment. Examinations of all types should not be stereotyped but should be suited to every individual case. The medical profession should educate management in small plants to the need of examinations and should encourage grouping of such plants into units for medical service.

147 X-ray Screens Out Chest Cases in Hiring and Placing Employees.
Anon. Factory Man. & Main., 105, 140-142 (Jan., 1947)

The Caterpillar Tractor Company's Peoria, Illinois plant has been hiring between 60 and 80 persons daily for the past eight months. They employed an x-ray program for three purposes: (1) To screen out all persons with active chest disorders, (2) To aid in the placement of those with inactive chest disorders by determining the precise nature of their disability, (3) To check on persons working in dusty occupations. The types of equipment employed are described.

148 Chronic Problems in Industrial Surgery. W.N. Kemp.
Canad. Med. Assoc. J., 56, 41-47 (Jan., 1947)

(1) The frequency and importance of injuries to the hands of working men are stressed and the therapeutic principle of early elevation after injury emphasized. (2) The principles of the diagnosis and treatment of tear of the "rotator cuff" of the shoulder are discussed. (3) Leriche's method of treatment of sprains is reviewed and its application

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to sprain of the ankle discussed. (4) Common low back strain is discussed and its treatment briefly referred to. (5) Traumatic neurosis and traumatic hysteria are differentiated and treatment briefly discussed. — Author's summary

149 Industrial Health Problems Encountered During the War. J.G. Cunningham. Canad. Med. Assoc. J., 56, 34-40 (Jan., 1947)

A wide range of subjects is discussed, including relation of accidents to sickness, sickness in women in industry, personal health, and a number of occupational diseases and miscellaneous exposures. Among the chemical hazards, benzene, TNT, trichloroethylene, tetrachlorethane, cadmium, silica and fluorine are prominently discussed, and bagassosis, byssinosis, sarcoidosis, and treatment with BAL are discussed.

150 The Protective Effect of Vaccination Against Epidemic Influenza B in an Industrial Plant. W.D. Norwood and R.R. Sachs. Ind. Med., 16, 1-3 (Jan., 1947)

Three hundred and sixty-six employees were given subcutaneous inoculations of one cubic centimeter of inactivated influenza virus, types A and B, at the onset of an epidemic of influenza B. Thirteen developed influenza B during the following eight weeks, or 3.55%. Six of these developed "flu" during the week following vaccination. The incidence in the group vaccinated in time for antibody response was 1.94%. In the comparable group of 4,280 unvaccinated employees, the incidence was 8.23%. The incidence was 4.25 times as great in the unvaccinated group as in the group vaccinated in sufficient time to give good protection. Loss of time due to sickness was 4.4 times as great in the unvaccinated group as in the group vaccinated early enough for antibody response. The evidence indicates a definite protective effect of vaccination against epidemic influenza B. It is recommended that employees be encouraged to take "flu" vaccine, and that industry made it reasonably easy for them to secure the inoculations. It is hoped that the Influenza Commission will continue to supply information regarding incidence and spread of Influenza A and B so that the plant physician may at least make a reasonable guess as to the optimal time for vaccination of employees. — Authors' summary

151 Disseminated Pulmonary Calcification. A Report of 113 Cases. R.H. High, H.B. Zwerling and M.L. Furcolow. Pub. Health Repts., 62, 20-29 (Jan. 3, 1947)

In a study of 113 instances of disseminated pulmonary calcification, tests with tuberculin and histoplasmin were given to 108. None of the cases reacted only to tuberculin, and 104 cases reacted to histoplasmin. These findings appear to be strong evidence that disseminated calcifications are not frequently caused by tubercle bacilli, but probably by the agent producing sensitivity to histoplasmin. Statistics on frequency, and race and family distribution are given.

152 Tuberculosis as An Occupational Hazard During Medical Training. An Occupational Disease Hazard. Report of a Case-Finding and Follow-Up Study, With an Effective Control Program for Tuberculosis in Women Medical Students. Sarah I. Morris. Am. Rev. Tuberc., 54, 140-158 (Aug., 1946)

A report of a case-finding survey and a follow-up program in a group of 449 women medical students has been presented. The incidence

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of tuberculosis over a period of 12 years has been determined and 56 cases of disease have been summarized and analyzed. Modes of infection, transmission, disease development, prognosis, progression and final results in this group have been considered. An attempt has been made to locate the points of greatest hazard and to determine the underlying reasons for the incidence of disease in women medical students in this institution, with a view to their correction. The need to safeguard future students, interns and residents during training years has been emphasized and the role of the medical profession in such protection has been pointed out. A plan, found effective for undergraduate training years, has been proposed, with recommendations for its extension into intern and resident training periods and for case-finding and follow-up of all hospital and college personnel, including ambulatory and bed patients. — Author's summary

153 Antibiotics—The New Weapon in Tuberculosis. Editorial. H.E. Hilleboe. Pub. Health Repts., 62, 1-3 (Jan. 3, 1947)

The discovery of penicillin and streptomycin and the use of BCG vaccine mark important steps toward the conquest of tuberculosis. However, the central problem still remains. We must discover a specific drug or antibiotic that will prevent and cure tuberculosis. No antibiotic can be of much benefit to far-advanced cases, and the use of an antibiotic must be coupled with sound case-finding techniques, and research is necessary in that field also. The paper by Marshak (Abst. 235, this Digest) is cited as an example of the careful work that needs to be done in laboratory and animal experimentation.

154 Development and Use of BAL. M.B. Sulzberger and R.L. Baer. J.A.M.A., 133, 293-296 (Feb. 1, 1947)

The history of the development of BAL (British Antilewisite) and its important anti-arsenical effects are summarized. Recommended dosages are provided for both severe and mild arsenical poisoning and dermatitis. The undesirable side effects of the drug vary with dosage of the drug and even at high dosage levels are of a temporary nature. They include nausea, vomiting, headache, burning sensation of the lips, mouth, throat and eyes, pain in the teeth, lachrimation and salivation, muscular aches, burning and tingling of the extremities and elevation of systolic and diastolic blood pressure. Applied to the skin BAL is a primary witicariogenic agent (whealing agent), and cutaneous allergic sensitization does occur. Thus far these effects have not interfered with the use of the drug in the treatment of any case of arsenical complications. Barbiturates have been recommended as an antidote for the more severe side affects of BAL.

Have a Badge, Doctor?

The physicians of Chicago enjoy peculiar privileges as regards transportation. For fifty cents he can procure from the city clerk a badge with a red cross which gives him the right of way. The physician can then pin on the badge and mount his wheel or carriage and all vehicles are obliged to yield him preference. ——— Scientific American (May, 1896), via National Safety News (Jan., 1947)

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155 Wound Shock. J.D. Stewart. J.A.M.A., 133, 216-219 (Jan. 25, 1947)

In wound shock the usual findings are reduction in blood volume, reduction in plasma protein concentration and lowering of the hematocrit reading. From the data presented it is concluded that loss of blood is the dominant etiologic factor. Anemia, hypoproteinemia and oligemia may persist during convalescence, which points up the need for complete restoration of blood losses during the management of wound shock. -- Author's summary

156 Methanol Poisoning. M. Kobra. Acta pharmacol.et. Toxicol., 2,95-108 (1946)

Eighteen cases of methanol poisoning are described. An acidosis with great reduction of the alkali reserve (2.6-8.9 millimol carbon dioxide per liter of plasma) was found and large amounts of formic acid were demonstrated in the urine. Twelve patients not treated with sodium bicarbonate died, while five of six patients who were treated with sodium bicarbonate survived although the doses taken ranged from 60 to 250 grams of methanol. -- B.A.

157 The Cause, Relief and Prevention of Headaches Arising from Contact with Dynamite. A.M. Schwartz. New England J. Med., 235, 541-544 (Oct. 10, 1946)

The prime factor in the production of headache following contact with dynamite is its 20 per cent content of nitroglycerin, which can be absorbed through the unbroken skin to produce marked symptoms directly related to vasodilation of the intracerebral vessels. The psychogenic factor of fear did not play a role in the activation of the headache in subjects who were unaware of the nature of the patch test. It is entirely possible that some psychic element is active in subjects who realize the dangers associated with dynamite handling, but such a factor is not considered significant. The intramuscular injection of 0.5 gm. of caffeine sodium benzoate followed by oral administration of 5 to 10 mg. of amphetamine sulfate greatly reduced and alleviated the symptoms of headache and within an hour gave lasting relief in over 95 per cent of the subjects. The administration of 15 mg. of amphetamine sulfate daily for two or three days before exposure completely prevented the occurrence of the headache in all subjects, with minimal side effects. Daily administration of oral prostigmine bromide in gradually increasing doses protected approximately 80 per cent of the subjects from the symptoms caused by nitroglycerin contact. It is quite reasonable to assume that desensitization results from a gradual liberation of minute quantities of acetylcholine that shock the intracerebral vessels to dilatation at regular intervals. -- Author's summary

158 Effect of Citrate on the Reactions of Lead with Blood Cells and Plasma. R.A. Mortenson. Am. J. Med., 212, 315-320 (Sept., 1946)

(1) The effect of sodium citrate on the distribution of lead between the plasma and cells, and on the proportion of diffusible lead in plasma and serum, has been investigated, using the isotope, radium D, as a radioactive indicator. (2) When lead is added to blood in vitro at such concentrations that a large fraction ordinarily remains in the plasma, the presence of added citrate increases the percentage of lead taken up by the cells. (3) The addition of citrate greatly increases the ability of the cells to combine with lead previously mixed with plasma or with Ringer's solution containing phosphate. (4) Lead is readily transferred from cells to plasma, but citrate has little or no effect on the process. (5) Added citrate reduces the proportion of non-diffusible lead in plasma

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and serum, as determined by ultrafiltration. (6) The possible bearing of these results on citrate therapy is briefly discussed. — Author's summary

159 Possible Toxicity of Phenyl-Mercuric Borate Used as Preservative for Plasma. Queries and Minor Notes, J.A.M.A., 133, 214 (Jan. 18, 1947)

The following statement was issued on the toxicity of phenyl-mercuric borate used as a preservative for dried plasma. Phenyl-mercuric borate combines with plasma proteins so that its toxicity is changed and probably lowered. When a patient receives large doses of plasma containing a 1:50,000 dilution of phenyl-mercuric borate, for instance 10 units of 250 cc. each, he receives 50 mg. of phenyl-mercuric borate. With such an amount, especially in the case of burns with already damaged kidneys, the possibility of toxic action cannot be overlooked. It is not necessary to add preservatives to plasma to preserve in the dried or frozen state. With ordinary precautions the stability can be safely maintained without the addition of preservatives. When large doses of plasma are used (over 2,000 cc. in 24 hours), preference should be given to plasma containing no preservatives. For smaller doses such precaution is not needed.

160 Dental Relations in Industrial Health Services. L.D. Heacock. Ind. Med., 16, 5-9 (Jan., 1947)

Minimum recommended services are: (1) Preplacement and periodic oral examination and diagnosis of all employees. (2) Emergency treatment and the treatment of occupational accidents and illnesses affecting the oral tissues. (3) Treatment and elimination of oral sepsis. (4) Adequate recording of findings and recommendations. (5) Referral of the worker for further remedial and restorative care. (6) Dental health education.

161 Laboratory First Aid and Fire Fighting. Anon. The Laboratory (Fisher Scientific Co.), 16, 90-95 (not dated)

This article is a summary of first aid practice for the laboratory. Topics discussed are: general rules of emergency treatment, treatment for shock and burns, warning of toxic atmosphere, artificial respiration, and treatment for poisons.

162 Immunization Against Influenza. J.E. Salk and T. Francis, Jr. Ann. Int. Med. (Sept., 1946)

Reactions to influenza vaccine correspond in severity and character to reactions following typhoid vaccine, and are primarily attributable to the virus content. The undesired reactions include fever, edema, redness and tenderness, and anaphylactic effects from vaccine of egg origin. Plans were made to vaccinate the entire U.S. Army in 1945, using vaccines prepared in the same manner as that employed in field studies by the Commission on Influenza. For the first time development of mass production as well as mass immunization with influenza vaccine was involved and was accomplished successfully. -- From J.A.M.A.

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Industrial Health Hazards and Their Effects

163 Fatal Poisoning from Ethylene Chloride. O. Noetzel. Chem.-Ztg., 68, 146-147 (1944) (German)

Ethylene chloride, supposed to be less toxic than chloroform has been used as an anesthetic. Hager reports that it was useful as a pain-relieving ointment. Recently it has been used as a solvent for varnish and as one of the chief ingredients of certain cosmetic preparations. Fatal poisoning from this chemical has occurred in the United States as reported by W. Hueper. Another case of fatal poisoning was investigated in which two bottles labeled "Frikol" were taken by an individual with fatal results. Autopsy and chemical analysis of the substance showed that Frikol consists mainly of ethylene chloride. Distillates of specimens taken from the stomach and small and large intestines revealed the presence of ethylene chloride. Distillates of blood, liver, urine, and the brain showed no traces of the chemical, which led to the belief that part of this liquid had become decomposed in the body by oxidation, while the other part had evaporated. -- C.A.

164 Clinical and Therapeutic Aspects of the Conflagration Injuries to the Respiratory Tract Sustained by Victims of the Cocoanut Grove Disaster. M. Finland, C.S. Davidson and S.M. Levenson. Medicine, 25, 215-283 (Sept., 1946)

From the data presented it is not possible to state the exact incidence of residual symptoms attributable to the respiratory tract injuries sustained at Cocoanut Grove fire. Such symptoms were neither frequent nor severe. Persistent cough was the most common symptom. Residual chronic nasopharyngitis and possibly the development of mild chronic sinusitis is suggested by the occurrence of post-nasal discharge in a few of the patients. Residual symptoms were more frequent among those who had the severest manifestations soon after the injury. Jaundice, probably attributable to plasma injections occurred in three patients. These patients received 3,500, 1,250, and 1,500 cc. of plasma during the first day after their injury and the symptoms of hepatitis began after 11 weeks, five months and 14 weeks, respectively. Only one of these patients had received injections of blood in addition to the plasma. The manifestations in these cases were similar to those of so-called "catarrhal jaundice" or of "homologous serum jaundice." Two of the cases were relatively mild while the third was moderately severe and had laboratory evidence of liver damage. All have recovered, apparently without residual. -- From Authors' summary

165 Toxicity of Methylene Dichloride and Methyl Chloride. Queries and Minor Notes, J.A.M.A., 133, 145-146 (Jan. 11, 1947)

Neither methylene dichloride nor methyl chloride is important as a source of contact dermatitis, although the questioner reports one suspected case. Methylene dichloride is used in hand metal cleaning on account of its low toxic and skin irritation properties. The chief objection is its skin chilling action, as it boils about 40° C. It has

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limited use as a general anesthetic, but may produce undesired symptoms. The consensus as to industrial usage is that methylene dichloride (dichloromethane) is comparatively innocuous except from gross acute exposures, 300 p.p.m. being tolerable for prolonged periods. Methyl chloride, however, has an acute narcotic action, may produce local freezing, and is dangerous when taken into the body because it readily decomposes with the formation of methyl alcohol. Numerous deaths have followed gross exposures due to leaks in refrigeration lines. However, as a practical danger it falls below carbon tetrachloride. Regular exposure to 200 p.p.m. is probably tolerable.

166 Possible Late Mustard Gas Keratitis.
Queries and Minor Notes, J.A.M.A., 133, 145 (Jan. 11, 1947)

A case of corneal ulcers with subsequent clouding of the cornea, first appearing in 1937 and recurring in 1946, may have been the result of mustard gas burns in World War I, but a definite diagnosis cannot be made from the information given. Contact glasses are suggested as the best method of relief.

167 Cerebral Intoxication the Result of Trichloroethylene.
N.K. Rickles. Northwest Med., 44, 286-287 (1945)

Marked disorientation and maniacal behavior resulted from the oral administration of about five times the maximum recommended dose of trichloroethylene. Recovery took place gradually over a period of three days. It is pointed out that this remedy has previously been regarded as free from untoward effects. -- B.A.

Editor's Note: Trichloroethylene is used for treatment of trigeminal neuralgia.

168 Hematuria Due to Picric Acid Poisoning at a Naval Anchorage in Japan.
A.H. Harris, O.F. Binkley and B.M. Chenoweth, Jr. Am. J. Public Health, 36, 727-733 (July, 1946)

An outbreak of hematuria involving many of the personnel aboard ships at Wakayama anchorage, in Japan, was due to the ingestion of picric acid in the drinking water. All evidence indicated that acid dumped in large quantities near the anchorage was distilled with harbor water, thus contaminating the fresh water supply. -- Authors' summary

169 Toxic Psychosis Associated With Administration of Quinacrine.
M.L. Sheppeck and L.E. Wexberg. Arch. Neurol.& Psychiat., 55, 489-510 (1946)

A series of 19 cases of toxic psychosis following quinacrine treatment of malaria are described. The rate of incidence was 0.39%. The clinical picture showed confused mania, sometimes regular toxic delirium of two or three days average duration. There was one fatality with essentially negative autopsy findings. This condition seems more frequent following estivo-autumnal malaria than following tertian. The prognosis is good. Conservatism in the dosage of quinacrine is recommended for prevention. Substitution of quinine sulfate therapy, high doses of vitamin B preparations and forced fluid intake are recommended for treatment. -- From B.A.

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170 Chromic Acid Mist. Anon. Safety Rev. (U.S. Navy), 4, 12 (Jan., 1947)

Attention is called to an earlier article (Abst. 603, June, 1946) describing the reduction of chromic acid spray in plating tanks. A constant check should be made on the effectiveness of the ventilating system. In the plating shop at Naval Air Training Bases, at Pensacola, a number of cases of chromium ulcers led to an investigation. Adequate lateral exhaust ventilation was found at the tanks, but when the cylinders were lifted two or three feet above the fluid level, fumes from the cylinders were apparently dissipated. The mixing vat, not equipped with lateral exhaust, also contributed to the fumes. Appropriate changes in procedure were made.

171 Foundry Dust. Anon. Safety Rev. (U.S. Navy), 4, 13 (Jan., 1947)

Attention is called to the necessity of periodic removal of dust from girders, conduits, catwalks, etc. Some Navy Yards use vacuum cleaning systems for its removal from such places. Analysis of deposited dust in a foundry showed 9.6% tin, over 2% each, lead, copper, and silica, 4.5% sulfur, and the remainder zinc, as oxides and sulfides. Such a composition would call for protection against metal-fume fever.

Editor's Note: Studies by Drinker and his co-workers indicate that metal fume fever is caused only by freshly formed fume. It is questionable whether dust of the type described could be resuspended in the air in a form capable of eliciting fever response.

172 Wet Sandblasting Operations. Anon. Safety Rev. (U.S. Navy), 4, 11 (Jan., 1947)

It is not always realized that wet sandblasting involves a silicosis hazard. Control methods should include segregation from non-hazardous working areas, and use of approved respiratory protective equipment. In the wet-blasting shed at one of the Naval Shipyards, between 5 and 10 m.p. cu. ft. were found, and respirators were not worn. Subsequent recommendations called for the use of regulation sandblaster hoods and appropriate respirators.

173 Silica. Ind. Health Bull., New Jersey Dept. of Health, Div. of Ind. Health, 1, 11 pp. (1946)

This pamphlet presents the essential facts about the silica hazard and silicosis, including incidence, etiology, clinical course, diagnosis, prophylaxis, therapy (including a note on aluminum therapy) and medico-legal aspects.

174 The Pathological Effects of an Instantaneous Dose of Radiation. S. Warren. Cancer Research, 6, 449-453 (1946)

Injuries produced by heat, short-wave radiation, and neutrons resulting from the atomic bombing of Hiroshima and Nagasaki are described. No deleterious effects (as from residual radioactivity) were observed in persons who entered the bombed areas soon after the explosion and remained there. — C.A.

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175 Pneumonia Following Non-Penetrating Pulmonary Injuries.
E. Phillips. J.A.M.A., 133, 161-169 (Jan. 18, 1947)

In 73 cases of pneumonia following non-penetrating injuries to the chest, 45 had fractures of the thoracic cage. Of the cases of primary pneumonia under observation, 2.4% were post-traumatic. In 54 patients, pneumonia developed at the site of the direct trauma only; in the remainder, it developed at the site of the "contrecoup" pulmonary injury, alone or in addition to the direct trauma site. The "higher type" pneumococci are the organisms usually found in post-traumatic pneumonia. The prophylaxis of post-traumatic pneumonia depends on: (1) the prevention of reflex pulmonary atelectasis, (2) the restoration of normal vital capacity, (3) the attenuation of thick, tenacious bronchial mucus, (4) protection of the patient from respiratory pathogens harbored by others, and (5) prophylactic chemotherapy with adequate doses of penicillin or sulfadiazine.

176 Studies on Explosives and Explosions (1945). W.J. Huff.
U.S. Bureau of Mines, R.I. 4031. 57 pp. (Oct., 1946)

Ignition temperatures and limits of flammability were determined for a number of gases and vapors. The prevention of vapor-air explosions by nitrogen and carbon dioxide and by reduction of oxygen are also described. Other investigations are: hazards from common gases and vapors encountered at surface disasters; hazards in the use of Diesel engines underground; research on the properties of materials that may be involved in accidents in the transportation, manufacture and use of high explosives; sensitivity of explosives to initiation by electrostatic charges; effect of sheaths on gaseous products from permissible explosives; the electronic chronoscope (for measuring rate of detonation of explosives over a very short distance) awards; chemical and physical tests on explosives.

177 Relation Between Illumination and Visual Efficiency.
G. Rand. Arch. Ophth., 35, 509-513 (May, 1946)

Results of studies on interrelationship of the variables--size of object, contrast with background, and level of illumination--made by Ferree and Rand in America and Weston in England are reported and compared. Results show that the level of illumination cannot compensate entirely for adverse conditions of small size of detail and poor contrast in the work. When the task is such that these factors cannot be improved the level of illumination should be made as high as is compatable with other factors regulating good lighting, such as freedom from high brightness and high brightness ratios in the field of view. Most favorable illumination in such cases will usually be furnished by a good general level of background illumination, free from glare and high brightness ratios, supplemented by local lighting of the immediate task. The source of the local light must be well shielded from the eyes of the worker. -- J.I.H.&T.

One Is to Ten Thousand

Senator Edwin C. Johnson (D., Colo.) in a letter to Karl T. Compton, Chairman of the President's Advisory Commission on Universal Training, summed up his views on the subject recently in the following words: "One chemist or one physicist is more valuable to our defenses than are 10,000 foot soldiers." -- Chem. & Eng. News, 25, 136 (Jan. 13, 1947)

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Skin Diseases and Burns

178 Medical Progress: Occupational Dermatoses. J.G. Downing and S.J. Messina. New Eng. J. Med., 235, 416-422 (Sept. 19, 1946); 235, 472-480 (Sept.26,1946)

During the war dermatologists were overwhelmed with work involving care of workers, inspection of plants and consultations with sanitary engineers and insurers. It is hoped that the considerable knowledge resulting from this work will be made generally available. Downing and Messina review the literature of the last few years providing a summary of published information. Dermatitis is considered under the following classifications: (1) Mechanical and physical agents. These include discussions of vibrating tools, glass fiber, asbestos materials, chlorinated waxes, cutting oils and abrasions, cuts, friction and pressure. (2) Flowering plants and their products. Besides woods and weeds, numerous extracts and resins are implicated. The latter class includes: cashew-nut oil, synthetic resins, lemon grass oil, and fruits and vegetables. (3) Vital agencies. Bacterial and mycotic infections and insect infestations occur in this grouping. (4) Chemical agents. This class is the largest and includes acids, alkalies, dural, aluminum, selenium dioxide, cobalt, silver, beryllium, sodamide, methyl bromide, zinc chromate, lead arsenate, vinyl carbazole, tricresyl phosphate, trichloroethylene vapor, benzidine, tetryl, T.N.T., fulminate of mercury, ammonium picrate and picric acid, butadiene, tertiary butyl catechol, styrene, phenylbetanaphylamine, hydroquinone, aluminum chloride, bardol, chlorobutadiene, acrylonitrile, soapstone, mercaptobenzothiazole and rubber gloves. Consideration is also given to diagnosis, differential diagnosis, patch tests, legal aspects and treatment.

179 Use of 5-Nitro-2-Furaldehyde Semicarbazone in Dermatology. J.G. Downing, M.C. Hanson and M. Lamb. J.A.M.A., 133, 299-306 (Feb. 1, 1947)

(1) Two hundred normal volunteers were patch tested with 5-nitro-2-furaldehyde semicarbazone and its soluble base, with results that would indicate little or no sensitization of normal skin. (2) Two hundred and twelve patients have been treated with this compound in a soluble base. (3) The drug does not interfere with granulation or epithelization of ulcers. (4) There is no clinical evidence of toxicity from absorption of the drug when it is used in large amounts over long periods. (5) Studies of cultures showed a high percentage of control of gram-positive and gram-negative strains by the drug. (6) The drug has value in the treatment of superficial infectious eczematoid dermatitides but must be used carefully, owing to the danger of producing sensitization. (7) Although the drug is capable of sensitizing abnormal skins, in our experience to date this tendency is less than that of sulfathiazole or penicillin when used for topical application. However, in inexperienced hands the percentage of reactions may be greatly increased if the drug is used in subjects affected by mycotic infection or by industrial chemicals. (8) The drug shows excellent possibilities in the treatment of superficial infection of the skin, such as impetigo and ecthyma. (9) According to Meleney's classification, this drug has been found to be of value in the treatment of cutaneous diseases due to infection with lower organisms and ulcers resistant because of secondary infection.

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No therapeutic value has been demonstrated in fungous infections, industrial dermatoses, acne vulgaris and other miscellaneous dermatoses, such as psoriasis and pemphigus. -- Authors' summary

180 Hydrofluoric Acid Burn. A.N. Flack and P.D. Scofield. Ind. Med., 16, 17-18 (Jan., 1947)

The case history of a worker whose hand was severely burned by hydrofluoric acid is described. Experience with this and four other hydrofluoric acid burns have lead to the following procedure: (1) Infiltration with calcium gluconate; (2) Iced magnesium sulfate soaks and paste; (3) Blood paste; and (4) Minimal surgery. Immediate cessation of pain and prompt healing were reported from the therapy.

181 Neurodermatitis and Occupational Dermatitis. O.L. Levin and H.T. Behrman. N.Y. State J. Med., 46, 2160-2163 (Oct., 1946)

Neurodermatitis is a chronic skin disease which may be circumscribed or diffuse, and has a predilection for the neck, anticubital and popliteal areas. The eruption is usually dry, but it may be moist, or slightly scaly and excoriated. It usually itches, and the resulting scratching makes the skin leathery. Neurodermatitis may precede, appear with, or it may follow the outbreak of a regular occupational dermatitis. This may be entirely of neurogenic origin as are other recognized dermatoses such as urticaria, angioneurotic edema, prurigo, dysidrosis, rosacea, alopecia, and neurotic excoriations. It is obvious for compensation reasons, that such a disease which may first appear associated with an occupational dermatitis, but which may later recur as the result of any number of circumstances, is a problem to industry. It is suggested that legislation is needed to limit strictly the period of compensability in such cases. — J.I.H.&T.

Control Methods

182 Eighteenth Report of the Coal Dust Research Committee. The Use of Wetting Agents for the Suppression of Air-Borne Dusts. Further Report. Monmouthshire & South Wales Coal Owners' Assn. 20 pp. (Jan., 1946)

The incorporation of small percentages of wetting agents (substances which promote the spreading of water over solid surfaces) in the water fed to coal-cutting machines is shown to diminish the quantity of coarse dust produced but to have little effect on the particles below five microns in size. When, however, an aqueous solution of "soluble oil" was employed, it is claimed that an equal reduction was obtained both for the total mass of dust and for the mass in particles below five microns. The volume of emulsion needed to secure the same standard of dust suppression given by pure water was only about one-sixth of the volume of water required. Details of the method of introducing the fluid at the cutting edge are not supplied. The sampling periods extended over entire shifts, and the results are remarkably consistent; however, in view of the large range of particle sizes accepted by the Soxhlet thimble sampling apparatus, and of the doubts attaching to photoelectric sedimentation analysis of the smaller sizes, these results require confirmation by thermal precipitator samples. -- Bull. Hyg.

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183 Dust Control in Iron Ore Mines. E.C.J. Urban. Mining Tech., Tech. Pub. No. 2087 (Jan., 1947); Nat. Safety News, 55, 24-25, 81-86 (Jan., 1947)

The rocks encountered in Lake Superior underground mines differ mineralogically but most of them are of sedementary origin. Silicon dioxide, a principal constituent of these sedementary rocks, occurs largely in the form of quartz or chert. The total silica, determined chemically, ranged from 38 to 68%. The proportions of total silicas present as free silica varied from 54 to 93% (median 88%). The dust control program was inaugurated in 1934 and continuous records of dust concentrations have been obtained to date. The average of concentrations since 1941 has been between 5 and 10 M.P.C.F. The trend is continuously downward. Wet drilling and forced ventilation are employed for drifting operations and the men wear filter respirators. The methods of ventilating sub-level cave mines are described in detail.

184 Manual of Suggested Safe Practices for the Control of Toxic Dusts, Fumes, Mists, Vapors and Gases in Industry. Bureau of Industrial Hygiene, Connecticut Department of Health, Hartford 1, Conn. (1945)

This loose leaf manual will be revised and added to from time to time. The proper design of hoods with adequate velocities for the control of toxic substances are presented in some detail. Included are sketches, design notes and descriptive information for the following operations: Booths for spray coating, grinding and metallizing; grinding and buffing wheels; electroplating; canopy type hoods; surface grinders; solvent tables; and ventilated tunnels. A table of maximum allowable concentrations is provided.

185 Industrial Hygiene: Importance of Dust. N.V. Hendricks. Southern Power and Ind., pp. 61-64, 80 (Nov., 1946)

This is a summary of the subject of industrial dust. The use of modern engineering methods for dust control is illustrated by a description of the program of a manufacturer of heavy road equipment. Electric arc furnaces are ventilated by roof fans which handle 60,000 C.F.M. each. The foundry shakeout is conveyorized with a canopy hood over the shakeout grate. The fan for the hood delivers 35,000 C.F.M. Three bag type filters handling 6,000 C.F.M. each are used for the ventilation of sand conditioning. Floor maintenance is accomplished by two five-horsepower vacuum cleaners. Periodic dust counts indicate that atmospheric concentrations are well below maximum safe working limits.

186 The Role of Air Jets in Mine Ventilation. G.E. McElroy. Am. Inst. of Mining and Met. Engineers, Tech. Pub. No. 1912. 16 pp. (1945)

Jets and injectors occupy only a minor role in the ventilation of mine openings and similar enclosures but have particular characteristics that make them applicable to special conditions and for special jobs. Some of the little known ways in which they operate are discussed in this paper. As their modes of operation become more widely known, new and original methods of application can be expected to evolve. A recent innovation mentioned is that of the ventilation of an enclosure without ducts and with all ventilation openings on one wall, a method suitable to the ventilation of gas tanks and tank cars during cleaning or repairing operations. Injector methods have special application to the ventilation

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of railroad and vehicular tunnels, to which they could be more efficiently applied than in the past. A method is proposed of using easily constructed injectors to regulate split flow in coal mines in a way that conserves some of the energy now lost at regulators. Attention is called to the pressure change in a diverging discharge to atmosphere as offering a means of securing pressure and exhaust in close juxtaposition. — Author's summary

187 Dust Control in Ceramic Plants—Industrial Housekeeping Pays Dividends. E.P. McNamara. Ceramic Age, 47, 246-248, 256 (June, 1946)

From the standpoint of dust control, ceramic industries may be considered in three primary groups: heavy clay products and refractories, where clays and other materials usually are prepared at company plants; pottery and whiteware, which use, for the most part, materials prepared by the producer; and glass and enamels, which use prepared materials in the granular form, although some crushing and grinding must be done for preparation. Grain size of the raw materials is the principal factor in their contributing to atmospheric dust. Ball clays are 50% minus 0.5 micron, kaolin 30%, potter's flint 15%, and whiteware body feldspar 18%. Glass sand is 30 to 150 mesh while glass feldspar and ground limestone are minus 20 mesh, 50% through 200 mesh and minus 20 mesh and fines, respectively. The hazards of dust are: (1) silicosis and metal poisoning, (2) loss of product from defects and low quality, (3) abrasion, and (4) low morale and consequently impaired production. Dust control embodies elimination at its source, segregation of dusty processes, and prompt removal of spills and wet materials before they dry.

188 Silicosis Can Be Controlled. W.A. Betz. Ceramic Ind., 47, 63-64 (Dec., 1946)

The dinnerware industry has adopted a two-fold program for the control of their No. 1 health problem, silicosis. Their "Plant Hygiene Committee" concludes that the disease can be completely eradicated by the following practice: (1) rigid and effective dust control and plant hygiene; (2) continuation of aluminum therapy as a prophylactic and an alleviant.

189 A Successful Dust-Removal Installation. A.M. Morris. Ceramic Ind., 47, 84, 86 (Aug., 1946)

This is a description of a patented system for control of dust in a clay batch plant. "Dusty" materials are stored in steel tanks capable of holding 175 tons. Materials are charged into a weigh car by screw conveyor with suitable exhaust ventilation. Clays (non-dusty) are stored in horizontal bins. They are shoveled into the car. An apron at the front of each bin, with a lip overhanging the edge of the charging car, prevents spillage to the track below. Tests of the atmosphere show that dust counts at no time exceed 5 or 10 million particles per cubic foot.

190 Effective Exhaust of Tanks, Part I. B.F. Postman and W.P. Battista. Heat. & Vent., 44, 53-56 (Jan., 1947)

This is the first of a two-part article in which the authors describe hoods for exhaust from cleaning, plating and other tanks.

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The streamlining of modern tank operations, entailing mechanization or tank units and the use of overhead conveyor and monorail systems either manually or automatically operated, normally precludes the use of overhead or canopy type hoods. Several rear type exhaust hoods are described in detail.

191 The Value of Good Housekeeping. J.S. LeMunyon. Finish, pp. 23-25 (Jan., 1947)

"Cleaning up dirt is janitor work, but preventing disorder is management." The author describes the organization and rules used in an orderliness program of the Tappan Stove Company. The rules assign responsibility to foremen and employees for cleaning any type of disorder. A committee of three workers and three from management makes regular inspections. Spraying is done in a plenum chamber with filtered air under pressure. As a result of the program the accident rate was reduced by 50%, and loss and waste by 45%. The absentee record was reduced to 2.5% and labor turnover to less than 1%. A general efficiency increase of 15%, an output twice that provided for, and reclamation of 80 to 90% of the unused enamel, are additional results of the program.

192 Systematic Removal of Oil Fumes from a Grinding Department. W. Moore. Occ. Hazards, 9, 11 (Jan., 1947)

Oil is removed from grinding operations at a particular plant by suitable hoods fitting over the machinery, and conveyed by soldered pipes at a velocity of 4000 feet per minute in the main piping, to a large collector in which 450 gallons of water containing a cleaning compound are circulated. Removal of the oil prevents coating of glasses, damage to electrical equipment, and skin diseases.

193 Coating For Air Duct Systems. Anon. Heat. & Vent., 44, 68 ff. (Jan.,1947)

Protective coatings are necessary to prolong the life and retard corrosion of ferrous metal ducts which carry abrasive-laden air. A relatively new coating from neoprene surfacing materials or solutions of unvulcanized compositions of neoprene is described. The films are elastic and can withstand temperatures between 58° and 250° F. The films are vulcanized or cured at temperatures exceeding 210° F. The adhesion between metal and film (cured) exceeds 1000 lbs. per square inch. Methods of application are described.

194 Dehumidification--Methods and Applications. J. Everetts, Jr. Heat., Pip. & Air Cond., 18, 121-124 (Dec., 1946)

The author discusses the use of sorbents in static and dynamic applications for preserving material and equipment. Advantages of solid and liquid sorbents are considered. Charts are presented for determining relative costs of sorbents versus refrigeration for dehumidification. Caution is advised in the use of rule-of-thumb methods, now common, for the analysis of dehumidification problems. Much grief will be avoided by the application of proper engineering analysis.

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195 Is Air Conditioning Profitable in Industry. N.N. Wolpert. Heat. & Vent., 43, 65-66 (Dec., 1946)

Heating and Ventilating magazine sent letters to a number of key industrial plants that had data on the results of air conditioning. Factories which functioned solely as war plants were excluded. Seven specific questions were asked including the following topics: productivity, absenteeism, labor turnover, efficiency, morale, spoiled or sub-standard merchandise, cost versus productivity gains, object of air conditioning i.e. temperature, humidity or cleanliness and suggested changes and comments. Of the replies received over 95% indicated increased productivity of workers. Other advantages had lesser specific support. As examples: reduction in absenteeism, 15%, no reduction, 5%; labor turnover, no reduction, 5%; and increase in efficiency and morale, 20% each. One concern reported improvement in its office but none in its shop. There was a 100% favorable response on improvement in quality of products. The vote on gain in productiveness versus cost was 89% favorable, 11% not favorable. There were many interesting suggestions for changes and improvements.

196 Manufactured Weather for Industrial Efficiency. Anon. Am. Machinist, pp. 117-122 (Oct. 10, 1946)

Air conditioning was used in factories two decades before it came into popular use. A few of the advantages of plant air conditioning are shown in the quality of the product: (1) closer tolerance; (2) protection against corrosion; (3) uniformity; (4) clean air; (5) prevention of static; (6) air circulation; and (7) reduced cleaning cost. The human effects include: (1) better health; (2) increased efficiency; (3) increased comfort; (4) decreased absenteeism; and (5) increased production. — From Management Rev.

197 Protection Against Industrial Poisons. H.C. Stephenson. Chem. Age, 55, 701-702 (Dec. 7, 1946)

This is a general article discussing industrial exposure to gases, vapors, dusts and fumes. Control by enclosure, substitution, ventilation and personal protection are described for a number of common exposures.

198 Prevention of Fires and Explosions in Chemical Works. J.H.F. Smith. Man. Chem. & Man. Perf., 17, 541-542 (Dec., 1946)

It is stressed that many minor fires or explosions become major catastrophes as they race from a small source throughout an entire plant. As example a minor fire or dust explosion can dislodge dust from rafters, etc. which will then become a major explosion. Housekeeping can prevent secondary propagation. Liquids in containers should be carefully considered from the viewpoint of what will happen if leakage occurs. Repair work on flammable solvent containers requires precautions against fire or explosion.

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Methods of Detection and Determination

199 Sensitive Carbon Monoxide Indicator. Nat. Bur. Stands. Tech. News No. 354 (Oct., 1946); via Chem. Age, 56, 16 (Jan. 4, 1947)

The National Bureau of Standards' Gas Chemistry Section has announced a colorimetric indicating gel that will detect 10 p.p.m. of carbon monoxide in less than one minute. Physiologically significant amounts (100 p.p.m. to 4000 p.p.m.) may also be determined rapidly. The indicating material, yellow in color, is a silica gel impregnated with a complex silica-molybdate compound, catalyzed by palladium sulfate. Various shades of green and bluish green are produced by carbon monoxide. The color is a function of time by concentration of carbon monoxide, a direct parallel to physiological response to that gas. In making a test, the ends of a sealed tube are opened and known air volume is drawn through it by means of a calibrated aspirator bulb with a rate controlling device. The color produced is compared with a set of standard color chips. Correction factors for altitude are provided for use in aircraft. The complete equipment can be carried in a box which will fit the pocket of a field jacket.

200 Determination of Carbon Monoxide--A Microgravimetric Method. J.M. Salsbury, J.W. Cole and J.H. Yohe. Anal. Chem., 19, 66-68 (Jan., 1947)

A microgravimetric method, accurate to about 2%, is described for low concentrations (20 to 1000 p.p.m.) of carbon monoxide in air. The gas is drawn over Hopcalite at 195° C. and the carbon dioxide thus formed is absorbed in microabsorption tubes containing ascarite, the volume being measured by a flowmeter and stop watch. From the weight of carbon dioxide absorbed in the tubes the percentage of carbon monoxide is calculated. — Authors' summary

Human Factors Affect Efficiency and Costs

Chemical processes of the future must be designed with more appreciation of the human factor. Regardless of how a design corresponds to the various codes, it will not run at top efficiency if it does not take into account the safety and health of the people who have to operate it. With the industrial trend toward higher operating pressures, the production and transporting of more highly flammable and more highly toxic substances, the need for greater emphasis on chemical process safety becomes imperative. Greater emphasis should be placed on safety in engineering in the professional schools, however, it should be an integral part of all courses rather than a separate study in itself. Much more progress in industrial safety will be made when the emphasis is shifted from the humanitarian point of view, commendable as it is, to the production point of view of efficiency and cost. ---- William F. O'Connor, New York University, before the Industrial and Engineering Division, American Chemical Society, Chicago, Sept. 9, 1946. —— Chem. Eng. (Nov., 1946)

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201 Colorimetric Method for Determination of Traces of Carbon Dioxide in Air. N.A. Spector and B.F. Dodge. Anal. Chem., 19, 55-58 (Jan., 1947)

A colorimetric method for determining traces of carbon dioxide, using a Lumetron photoelectric colorimeter, depends upon the decrease in color intensity of a solution of sodium hydroxide colored with phenolphthaleim indicator. The alkalinity of the solution decreases as it absorbs carbon dioxide from the gas sample to be analyzed and consequently the depth of color decreases. The change in the amount of light which the solution transmits is made a measurement of the carbon dioxide concentration. The accuracy of the results is considered to be of the same order as the precision. A one liter gas sample is sufficient to determine a carbon dioxide concentration in air of 0.0010% (10 p.p.m.) with a precision of 10%. -- From Authors' summary

202 A Microanalyzer for Very Small Gas Samples (0.4 to 1 cu. mm.) W.E. Berg. Science, 104, 575-576 (Dec. 13, 1946)

The apparatus described was developed to determine the composition of small bubbles formed in animals decompressed to simulated high altitudes, but is suitable for general use in determining oxygen and carbon dioxide in very small samples of gas, and probably, with modifications, for other gases. It consists chiefly of capillary thermometer tubing, with an absorption chamber at the end corresponding to the thermometer bulb. Saturated lithium chloride solution is used to fill the portion of the tube unoccupied by the gas, and a mixture of lithium chloride and potassium hydroxide is the carbon dioxide absorbent. Alkaline pyrogallol is used for oxygen as usual. Methods of operation and sources of error are discussed. Under the most favorable conditions the error of analysis is less than 0.3%.

203 Determination of Acetylene Tetrachloride in Air. Protection Afforded by Gas Mask Cannisters Against Acetylene Tetrachloride. J. Goldenson and J.W. Thomas. J.I.H.&T., 29, 14-22 (Jan., 1947)

A simple, portable, rugged, and inexpensive combustion apparatus has been developed for the rapid estimation of low concentrations of acetylene tetrachloride in air. The apparatus involves the use of a quartz combustion tube packed with platinum foil. Chlorides formed from the combustion of the vapors are absorbed in alkaline arsenite solution and determined volumetrically with 0.01N hydrochloric acid. Laboratory and chamber tests proved that with this method acetylene tetrachloride recoveries of 95 per cent or better can be obtained in the range of 10 p.p.m. A commercial type "organic vapor" canister containing activated charcoal has been found to have a very high capacity for absorbing acetylene tetrachloride. Tests have shown that a good gas mask canister should provide almost permanent protection against the concentrations of the gas usually found in and around plants using this solvent. -- Authors' summary

204 Methods for Determining Toxic Substances in Industrial Atmospheres and Materials. Prepared by the Chemical Division, Bureau of Industrial Hygiene, Connecticut State Department of Health, Hartford 1, Conn. (July, 1945)

This loose leaf compilation of methods of analysis of toxic substances describes procedures which have been used successfully by the

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Bureau of Industrial Hygiene. As new methods are developed, additional sheets are published. At the present time 33 methods have been released. They include analyses of ketones, benzene, carbon bisulfide, chlorinated naphthalenes and diphenyls, chlorine containing waxes, chromic acid, cyanides, free silica, fluorides, formaldehyde, hydrogen sulfide, lead, manganese, mercury, methanol, oxides of nitrogen, cutting oils, phenols, solvent vapors, sulfur dioxide, toluene and xylene.

205 The Urinary Fluoride Excretion Among Men Employed in Alkylation Plants Using the Hydrogen Fluoride Process. E.J. Largent. J. Ind. Hyg. & Tox., 29, 53-55 (Jan., 1947)

If the data of Machle are used to estimate the extent of storage of fluorine that is indicated by the excretion of fluorine by the refinery employees investigated, it would appear that a very slight storage occurred. On the basis of the data of McClure, et al., it would appear that no storage occurred. — Author's conclusions

206 Solid Polyethylene Glycols (Carbowax Compounds)—Quantitative Determination in Biological Materials. C.B. Shaffer and F.H. Critchfield. Anal. Chem., 19, 32-34 (Jan., 1947)

Two methods are described for the quantitative determination of the solid polyethylene glycols (carbowax compounds) in biological materials. These methods, one gravimetric, the other colorimetric, are based upon a reaction of the polyglycols with the heteropoly acids, silicotungstic and phosphomolybdic. Certain features of this reaction are discussed, and evidence is presented to demonstrate its applicability to the estimation of the polyglycols in plasma and urine. — Authors' summary

207 A Mixed Color Method for the Determination of Cadmium in Air and Biological Samples by the Use of Dithizone. F.W. Church. J. Ind. Hyg. & Tox., 29, 34-40 (Jan., 1947)

A method has been presented for the determination of micro amounts of cadmium in air and biological samples. The mixed color of cadmium dithizonate and dithizone in chloroform solutions is used as a means of a quantitative determination. As with most colorimetric procedures, the method is empirical, and its successful application requires careful adherence to the procedure details. A preliminary means of approximating the cadmium present in an unknown sample is given. A wide spread of color for a small cadmium concentration range is provided which gives accuracy. Interferences are eliminated in the conventional manner by regulating the pH. The partitioning of dithizone into the aqueous phase at elevated pH is inhibited by the use of citric acid. Excellent determinations are obtained when interfering elements are present in only a moderate excess. Fair results are obtained in the presence of considerable excesses of interfering elements with the final results tending toward slightly high values. A considerable number of samples have been analyzed with results comparable to those shown in the Tables. The values in the Tables were chosen with a view to showing the versatility of the method. — Author's summary

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Industrial Relations, Personnel

208 Health Plan Works. Anon. Business Week, pp. 88-90 (Jan. 18, 1947)

A Labor Health Institute was established in late 1945 by the St. Louis Joint Council of C.I.O.'s Retail, Wholesale and Department Store Union. It has enrolled more than 5000 of the Union's 6500 members in the St. Louis area. The cost of operation of the Institute is borne by employers through contributions equal to 3-1/2% of annual payrolls. A board of trustees, made up of union officers, employer representatives and medical men, administers the plan. Staff members are associated with local hospitals and are required to maintain private practices in addition to their institute assignments. It is said that employers now describe the plan as: ".....insurance for a stable, healthy, working force, and say that it already has paid dividends by reducing absenteeism and raising production levels."

209 Validating the Patterned Interview. R.N. McMurry. Personnel, 23, 263-272 (Jan., 1947)

Many psychologists and personnel men believe that the potentialities of the employment interview are best realized through use of a standardized or patterned interviewing procedure. The patterned interview is a printed form containing specific items to be covered and providing a uniform method of recording information and rating the interviewees' qualifications. In assessing the worth of the patterned interview, Dr. McMurry cites several controlled studies which revealed the extent to which interviewers employing this approach were able to predict ultimate job success. He concludes that the standardized interview eliminates a large part of the guesswork from employment. — Editor's summary

210 Winning Workers to Productivity. Anon. Mod. Ind., 12, 49-58,62,64 (Dec.1946)

One year ago employees of Bundy Tubing Company were told: "Far from being able to grant a raise, the company is planning to get out of the fabricating business. But if a way could be found to increase production, raises would be in order." Over Union objection, the employees voted favorably to support a plan. The plan was to be devised jointly by Union and management. The final plan, a bonus system, has shown the following results: Productivity up 45%, overall efficiency up to 74.25% from 55%, absenteeism down to 6% from 9.3%, scrap down 7%, time off from grievances down 900 hours in three months, and average hourly pay up to $1.534 from $1.125.

211 I Know Our Workers and Their Problems. C.G. Watkins. Factory Man. & Main., 104, 94-95 (Dec., 1946)

This is the description of the methods employed by the author in the advancement of employee-employer relations. The basis of the program is education of the worker in facts about the company, the provision of good working conditions, attention to employee welfare and extensive personal contact. During the last three years the average increase in individual worker efficiency has been 102%.

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212 Gaining Friends for Your Plant. Anon. Mod. Ind., 13, 34-39 (Jan., 1947)

Better community relations can ease labor shortages, reduce strike threats, strengthen loyalties of workers and supervisors in your shop. This article tells how a number of companies, large and small, are doing this important job. Community relations are advanced by: (1) adequate industrial relations policies. Wages, hours and working conditions should be up to community standards. The plant should be a safe, healthy place to work. (2) Contribute to community funds and other non-special interest activities, adequately but without fanfare. (3) Top managers should be residents of the community and should participate actively in community affairs. (4) Consider the economic welfare of the community as a whole in planning plant operations i.e. job stability, hiring within population patterns. (5) Don't be responsible for public nuisances such as smoke, noise, stream pollution, odors, traffic congestion or unsafe drivers. (6) Educate the public on what, how and why you function. (7) Donate facilities, talents, recreation program and products to the community.

213 Human Engineering. R.L. Demmerle.
Chem. & Eng. News, 25, 14-18, 44 (Jan. 6, 1947)

Among the attempts to classify persons according to personality and ability, one of the best known is the method of the Human Engineering Laboratory of the Johnson O'Connor Research Foundation, which was organized in 1920 and has conducted much research on the subject. Their methods and results are discussed in this paper. Some of the general aptitudes in terms of which classifications are made are called: (1) personality; (2) accounting aptitude; (3) structural visualization; (4) analytical and inductive reasoning; (5) tweezer dexterity; (6) observation; and (7) creative imagination. (These seven of the total 13 are of most use in the chemical industry.) The distribution of the now measurable 13 aptitudes in the general population is surprisingly high, 99% of the people scoring above average in three or more. This indicates the fact that contrary to popular notion, there is a wealth of talent to be found in the mass of the people. The problem lies in uncovering these hidden gifts and directing their possessor to the position where he can best use them. The organization responsible for the method realizes the need of much additional research and warns against overenthusiastic acceptance of the results. It is intended mainly for the individual to judge his capabilities, and the tests must be given by a trained person; therefore the organization does not send out tests to be used as screening media by personnel officers.

214 The Human Side of Engineering. W.J. King.
Chem. & Eng. News, 25, 152-153 (Jan. 20, 1947)

An engineer is defined as "a human being, with special technical training, engaged in the application of science to the solution of the material problems of society." Within the past few years it has been increasingly realized that the human side of engineering has been grossly neglected. Since World War II there has been a shifting of attention to sociological and political phases of progress; first, greater attention by engineers in civic affairs; second, a shift to the humanistic subjects in the engineering college curricula; and third, more attention to working conditions for the engineer. It is suggested that the engineering colleges, industrial and governmental employers,

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the national engineering societies, collective bargaining agencies, and a unified national society on the professional level contribute to the solution of the personal, professional and economic problems of the individual engineer.

215 Industrial Medicine in Peacetime Production Planning. R.B. O'Connor. Personnel, 23, 256-262 (Jan., 1947)

Many of the by-products of reconversion have created certain managerial problems that directly involve each company's employee medical program. Typical problems are increased compensation claims, job adjustments for the physically disabled, and the introduction of new accidents and health hazards. Until provision has been made for these problems, no company's reconversion is complete. The author discusses some recent advances in industrial medicine—increase in the knowledge of toxicology, methods of analysis of capacities and of job demands, proof that physically defective persons are good workers, progress in occupational therapy, knowledge of the cost of industrial medical programs, and discusses their implications for sound peacetime planning.

Rehabilitation

216 Accent on Ability. Anon. Ind. Bull. (N.Y.), pp. 12-13 (Dec., 1946)

In cooperation with rehabilitation agencies, the Employment Service staff (N.Y.) is overcoming employer's reluctance to place handicapped workers. Statistics of increased work opportunities for disabled reveal psychological assistance in form of renewed confidence and independence of handicapped persons. The Employment Service placed 2600 workers in October, 1946. — Editors' summary

217 Opportunities for the Deaf and the Hard of Hearing Through Vocational Rehabilitation. Federal Security Agency, Office of Vocational Rehabilitation. 12 pp. (1946)

This booklet explains the program of rehabilitation of the deaf and the opportunities that are open. It is estimated that there are 239,000 persons between 16 and 65 whose deafness or difficulty of hearing constitutes a job handicap. Each state has a vocational rehabilitation program, uniform in scope and coordinated with and largely supported by the National organization. The State provides all examinations, services, hearing aids, training, tools, placement, and follow up, at a cost regulated by the financial condition of the client. The care and training are obtained from existing facilities in communities. The step-by-step rehabilitation of a totally deaf person is described. The first four steps are the same for a hard of hearing person, and hearing aids are provided if necessary. There are 1,260 jobs, skilled and unskilled, that do not require hearing. Brief statistics showing a great increase in earning power after rehabilitation, and a partial list of jobs filled, are greatly encouraging to anyone in need of rehabilitation.

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218 Efficiency of the Impaired Worker. A Review of Information on the Experience of Employers of Handicapped Workers. OVR 33:1:S:1, Rehabilitation Service Series No. 1, Federal Security Agency, Office of Vocational Rehabilitation. 12 pp. (June, 1946)

Numerous studies of efficiency, absenteeism, accidents, and turnover lead to the same conclusion, that the handicapped are dependable, regular in attendance, careful in observance of safety regulations, loyal, and, given proper placement, satisfactory in the amount and type of work they turn out. Special skill is needed in preparing and placing them. For the most part these services are provided by Federal and State Governments.

219 Jobs for the Handicapped. From, "At Press Time". Employment Ser. Rev. (U.S. Dept. of Labor), 14, 1 (Feb., 1947)

"Jobs for the handicapped" was given further support when the Secretary of Commerce released a policy statement prepared for the Department of Commerce by the Business Advisory Council after a study of the employment of handicapped veterans and the experience of businessmen who hired handicapped individuals. The policy statement maintains that: (1) It is sound economically and important socially to employ a handicapped person in a job assignment the duties of which he is capable of performing. (2) With adequate placement procedures and special tools and devices, it is possible to neutralize most physical handicaps so as to make the impaired worker a useful and productive person. (3) A handicapped person should not be refused employment in a suitable position because of apprehension that he may become the subject of a compensation case. (4) Employers should urge the enactment of adequate Second Injury Fund Laws in the States where they do business. (5) A study should be made of the best placement practices and the most successful mechanical devices developed for handicapped workers. The results of this study should be made widely available so that industrial establishments in all communities may be helped to do their full share in providing useful work for the handicapped.

Centralized safety promotion is common practice in the chemical industry. It is essential as a means of standardizing measures to prevent accidents and of relieving production executives of minor administrative work. Many executives think, however, that the creation of a safety department relieves the department head entirely of the responsibility of making employees safety-conscious; this point of view had caused the abolishment of many good centralized safety organizations. A safety director in the chemical industry should be considered as a coordinator of safety problems and not as an overall cure for reducing the number of accidents. Production executives should be conscious of the fact that safety measures cannot be properly executed unless a certain amount of authority is exercised over workers. Personnel of the safety department cannot be given this authority, because at certain times such action would entail direct interference with production. Therefore, the supervisory personnel must administer and maintain the safety measures. — From "Current Developments in Plant Management" by W. von Pechmann. Ind. & Eng. Chem. (Nov., 1946)

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220 Sightless Workers in Industry. K.M. Jones and F. Polansky. Mod. Man., 7, 5-8, 30 (Jan., 1947)

Already 5000 blind persons are working in industry, yet 15,000 remain unemployed although they are capable of performing equally effectively. Although blind persons have lost their sight they retain, and can increase by proper training, their power of perception. Memory and habit, not sight, lead to identification as surely as if the eyes were used in sorting processes. During the war millions of soldiers learned to take apart and reassemble small arms of all types while blindfolded. "The sightless should compete with the sighted worker on equal terms. No blind person should be left on a job if he cannot earn the same wages as sighted production employees." The article discusses safety, diversity of jobs, false impressions about the blind, placing the blind, re-engineering the job, on-the-job assistance, and limitations in employment. There is a foreword by Dr. Lillian M. Gilbreth. She says in part: "We who are in Management have special opportunities to be useful. We can find jobs; we can adapt jobs; we can train people; we can help determine who is fitted for what; and we can insist on 'equal pay, for equal work,' both in money and in a chance to be treated like one's fellows."

Laboratory Toxicological Studies

221 The Biological Assay of Inhaled Substances by the Dosimetric Method. L. Karel and R.E. Weston. J. Ind. Hyg. & Tox., 29, 23-28 (Jan., 1947)

(1) No increase in toxicity of phosgene with increase in concentration was observed in goats. The retained median lethal dose of phosgene for 31 normal, unanesthetized goats dosimetrically exposed to a mean contact concentration of 1.19 mg./l. was 0.86, with a range of 0.78-0.96 mg./kg. for P = 0.01; and for 31 goats exposed to a mean contact concentration of 6.88 mg./l., the LD_{50} was 0.84, with a range of 0.54-1.30 mg./kg. for P = 0.01. (2) Comparison between the LD_{50}'s for goats and dogs exposed to mean contact concentrations of approximately 6.9 mg./l. revealed no species difference in susceptibility. However, because of the decreased toxicity of phosgene in dogs at the lower concentration, there is a significant difference between the LD_{50}'s for goats and dogs dosimetrically exposed to mean contact concentrations of 1.19 and 1.38 mg./l., respectively. (3) The mean percentage retention of phosgene in goats was 62.8 per cent (standard deviation = 14.0 per cent and standard error = 1.8 per cent). This mean is significantly different from that previously reported for dogs. (4) During exposure to phosgene, respiration in goats was markedly inhibited, particularly with higher phosgene concentrations. — Authors' summary

222 The Adaptation of Dosimetric Method for Use in Smaller Animals. R.E. Weston and L. Karel. J. Ind. Hyg. & Tox., 29, 29-33 (Jan., 1947)

(1) A satisfactory method for the dosimetric exposure of small animals has been developed and the application to normal, unanesthetized monkeys described. (2) The median lethal dose, the per cent of inhaled agent retained, and the respiratory changes during exposure

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to phosgene were determined in a group of 37 normal, unanesthetized monkeys. (3) The retained median lethal dose of phosgene for normal, unanesthetized monkeys exposed to phosgene at a mean contact concentration of 1.60 mg./l. was 0.20 mg./kg. body weight (Std. Err. = 0.02 mg./kg.), indicating that the monkey is markedly more susceptible to phosgene poisoning than the dog or the goat. (4) The mean percentage retention of inhaled phosgene for the monkeys was 79.2 per cent (Std. Dev. = 11.7 per cent and Std. Err. = 2.0 per cent). This value is not significantly different from that reported for dogs but is significantly greater than that for goats. (5) The monkeys exhibited statistically significant inhibition of respiration during exposure to phosgene at a mean contact concentration of 1.60 mg./l. This inhibition was reflected by decreases in the respiratory rate, the tidal air volume, and the minute volume. -- Authors' summary

223 A Dynamic System for Establishing Known Toxic Vapor Concentrations by Controlled Humidity and Temperature. O.G. Kellick. Australian Chem. Inst. J. & Proc., 13, 333-344 (1946)

Details are given of the construction and operation of a system for rapidly establishing and maintaining in a chamber, having a capacity of 100 l., mustard gas vapor concentrations in the range of 0.3-50 gamma per l. Concentrations above 2 gamma per l. are maintained within ± 5% and concentrations below 2 gamma per l. within ± 10%. The humidity in the chamber can be controlled at 0-100% relative humidity and the temperature within a range extending 25° above room temperature. -- C.A.

224 Arsine Poisoning; Mode of Action and Treatment. C.J. Kensler, J.C. Abels and C.P. Rhoads. J. Pharmacol., 88, 99-108 (1946)

Of the 150 compounds tested "fat soluble" monothiols and dithiols were found to give the best protection against the lysis of erythrocytes by arsine in vitro. Most effective are 2,3-dimercaptopropyl ethyl ether and 1,2-dimercaptopropane and least effective are butyl mercaptan and 1,3-dimercaptopropane. Ascorbic acid and sodium thiosulfate were also effective in sufficiently high concentrations. Several of the dithiols protect tissue respiration from inhibition by arsine and arsenite, and several are effective in saving the lives of rabbits, dogs, and monkeys given lethal doses of arsine. The effectiveness of thiol therapy in vivo in protecting renal function is largely due to prevention of lysis of erythrocytes. 2,3-Dimercaptoprcpyl ethyl ether is effective in treating arsine poisoning in animals when administered intra-muscularly or percutaneously; intravenously it may injure the central nervous system. -- C.A.

225 Changes in the Blood Picture in Chronic Carbon Disulfide Poisoning. L. Binet and F. Bourliere. Arch. d. mal. prof., 6, 12-17 (1944) (French)

The authors report observations on the hematological and metabolic effects of a chronic carbon disulfide poisoning produced in dogs. A slight anemia was observed, the red-cell level in one animal falling from 5.49 to 3.95 million, but little alteration in the white cells, monocytes being only slightly increased. Urinary sulfate and total-sulfur levels were somewhat increased, while the sulfite level in the urine was slightly decreased. A marked rise in blood glutathione was observed during and after exposure to carbon disulfide. -- J.I.H.&T.

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226 Pyroninophilic Structures of Liver Cells in Carbon Tetrachloride Poisoning. A. Rosin and L. Doljanski. Proc. Soc. Exptl. Biol. Med., 62, 62-64 (1946)

There exist in the hepatic cells of various mammals and lower vertebrates peculiar protein granules which stain an intense red with methyl green-pyronine mixture. In animals on high protein diets the granules are especially numerous; during protein inanition they disappear. Young rats were given an intraperitoneal injection of 0.1 ml. of carbon tetrachloride per 100 g. body weight. About one hour later the pyroninophilic granules had completely disappeared from the hepatic cells in the central part of the liver lobules. This indicates that disturbed protein metabolism is one of the first effects of carbon tetrachloride poisoning. -- C.A.

227 The Effect of Carbon-Tetrachloride-Induced Liver Injury on the Acetylcholine-Hydrolyzing Activity of Blood Plasma of the Rat. R.W. Brauer and Mary A. Root. J. Pharmacol., 88, 109-118 (1946)

Changes in acetylcholine-hydrolyzing activity of rat plasma during growth and after administration of carbon tetrachloride were determined. The changes in activity reflect changes in the amount of enzyme circulating in the plasma. The decrease observed after liver injury by carbon tetrachloride suggests, but not conclusively, hepatic origin of the circulating enzyme. 22 references. -- C.A.

228 The Acute and Chronic Toxicity of Methyl Chloride. I. W.W. Smith and W.F. von Oettingen. J. Ind. Hyg. & Tox., 29, 47-52 (Jan., 1947)

Mortality data have been presented for several species of animals exposed to methyl chloride in concentrations ranging from 4,000 to 300 p.p.m. on a schedule of six hours per day six days per week. Several factors have been studied in relation to susceptibility. Exposure schedule, age, and certain dietary constituents have been found to modify survival time. The influence of intervals free from exposure have been to some extent evaluated. The question of the influence of an earlier exposure persisting over a relatively long interval has been investigated in several species. Recommendations have been made concerning the application of these observations to human exposures. -- Authors' summary

229 Observations on the Effects of Diphenyl and Related Compounds Upon Experimental Animals. W.B. Deichmann, K.V, Kitzmiller, M. Dierker and S. Witherup. J. Ind. Hyg. & Tox., 29, 1-13 (Jan., 1947)

The toxic effects of diphenyl and its derivatives are described for rabbits, rats and mice. The LD_{50} of the purified compounds given orally in 25 per cent preparations in olive oil are for rabbits: 2.41 g. diphenyl, 1.58 g. o-nitrodiphenyl, 1.97 g. p-nitrodiphenyl, 1.2 g. o-aminodiphenyl, 0.69 g. p-aminodiphenyl and 0.20 g. dihydroxyoctachlorodiphenyl. For rats the LD_{50}'s were in a similar manner: 3.28, 1.23, 2.23, 2.34, 0.50, and 0.36 gs. per kilogram of body weight. The technical preparations appeared slightly less toxic than the pure compounds. The maximum safe concentration of diphenyl in air (50 per cent diphenyl on celite) lies above 0.3 mg. of diphenyl per liter for rabbits. For rats it is between 0.005 mg. and 0.04 mg. while for mice it is somewhat below 0.005 mg. per liter of air. Speculation places the maximum safe concentration for humans below 0.005 mg. per liter for the present. Similar data allows the assumption that prolonged exposures to o-nitrodiphenyl should not exceed 0.003 mg. per liter of air.

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230 The Inhalation Toxicity of Ketene and of Ketene Dimer. H.A. Wooster, C.C. Lushbaugh and C.E. Redemann. J. Ind. Hyg. & Tox., 29, 56-57 (Jan., 1947)

Experiments on animals indicate that freshly generated ketene (CH_2:CO) is as toxic as, and comparable in action to, phosgene. Ketene acts locally on the upper respiratory tract causing deaths from pulmonary edema and the consequent anoxia in the same manner as phosgene. Exposure to concentrations as low as 0.2 mg./l. (116 p.p.m.) for 10 minutes have been fatal to laboratory animals. The dimer is much less toxic. Rigorous precautions should be taken by any establishment generating this material. -- Authors' summary

231 Efficacy of 2,3-Dimercaptopropanol (BAL) in Therapy of Poisoning by Compounds of Antimony, Bismuth, Chromium, Mercury and Nickel. H.A. Braun and others. J. Pharmacol., 87, Suppl. 119-125 (1946)

BAL is an effective antidote in acute poisoning of rabbits by toxic doses of salts of antimony, bismuth, chromium, mercury, and nickel. It was ineffective in acute poisoning by salts of lead, thallium, and selenium. With lead and selenium its own toxic action was additive. -- C.A.

232 The Pathology and Therapy with 2,3-Dimercaptopropanol (BAL) of Experimental Cadmium Poisoning. J.M. Tobias and others. J. Pharmacol., 87, Suppl. 102-118 (1946)

Symptoms in mice and dogs fatally poisoned by inhalation of cadmium compounds are described. The most marked damage is in the lungs. BAL given in small repeated intramuscular doses immediately after exposure to the cadmium compound markedly reduced the mortality. A few other thio compounds had some protective action. Selenium dioxide was also effective both prophylactically and therapeutically; it merits further study. -- C.A.

233 The Evaluation of the Minimal Prophylactic Dose of Antirachitic Radiation for Rats with Observations on Antirachitic Wavelength Absorption by Smoky Atmospheres. K.K. Kay and H.M. Barrett. J. Ind. Hyg. & Tox., 29, 41-46 (Jan., 1947)

The amount of ultraviolet radiation of wavelength 2967-3024 angstrom units necessary to prevent rickets in rats has been determined. 1,700,000 ergs per square centimeter of energy of these wavelengths administered in 30 daily doses to unshaved rats, resulted in a bone ash value of 46 per cent and normal calcification as indicated by x-ray photographs. 4,300,000 ergs per square centimeter produced normal bone ash levels. The results of earlier experiments from this laboratory regarding the effect of smoke on the absorption of ultraviolet energy have been confirmed and extended. The determination of the spectral transmission of wood smoke for regions from wavelength 2967 angstrom units to wavelength 6000 angstrom units indicates that no considerable change in transmission occurs with change in wavelength for smoke atmospheres in which the diameter of particles lies between 0.5 and 2.0 microns. On the basis of this observation the use of non-selective methods should give correct values of the absorption of solar ultraviolet energy by atmospheric smoke. -- Authors' summary

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NWBB-0012323

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234 Effect of Asbestos, and of Asbestos and Aluminum, on Lungs of Rabbits. E.J. King, J.W. Clegg and V.M. Rae. Thorax, 1, 188-197 (Sept., 1946)

The purpose of the experiments described by King and his associates was to test whether short fiber asbestos is less damaging in the lungs of the rabbit than is long fiber asbestos and whether metallic aluminum will suppress any toxic effect produced by fiber asbestos. Four groups of animals were tested. All groups showed a foreign body reaction in the lungs. In animals in the long fiber experiments there developed a nodular reticulinosis comparable with the experimental silicotic nodule. In animals in the short fiber experiment there developed a diffuse interstitial reticulinosis. The addition of aluminum did not afford any benefit in any group. — J.A.M.A.

235 A Crystalline Antibacterial Substance from the Lichen Ramalina Reticulata. A. Marshak. Pub. Health Repts., 62, 3-19 (Jan. 3, 1947)

A crystalline substance has been isolated from the lichen ramalina reticulata, with a melting point of 191-192° C. and an empirical formula of $C_{16}H_{14}O_6$. It can be administered subcutaneously in oil, daily, at a rate of 10-20 mg. per 350-400 g. guinea pig for a period of three weeks without obvious toxic effects. When so administered to guinea pigs infected intraperitoneally with human tubercle bacilli of the strain $H_{37}RV$, it appears to retard the progress of the disease. -- Author's conclusion

Public Health

236 New Aspects of the Food Poisoning Problem. D.L. Husseman and F.W. Tanner. J. Am. Diet. Assoc., 23, 16-21 (Jan., 1947)

The number of cases of food poisoning caused by bacteria have more than doubled in the last five years. The five organisms most commonly responsible are: staphylococcus, streptococcus (septic sore throat), salmonella, the shigella (dysenteries) and Eberthella typhosa (typhoid fever). Prevention of food poisoning includes the following factors: (1) highest standards of cleanliness for personnel, equipment and foods; (2) stored foods should be kept at refrigeration temperatures at all times (50°F. or below); (3) training of food handlers to avoid contamination. Once toxins are formed in food there is no reliable method of removing them. The article is illustrated by numerous instances of food poisoning and references are provided.

Editor's Note: The problem of food poisoning is a concern of companies which serve food to employees from cafeterias, lunch rooms or lunch carts.

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Nutrition

237 Absorption and Excretion of Trace Elements. E.M. Widdowson and R.A. McCance. Proc. Nutrition Soc., 1, 220-223 (1944)

The most soluble ions are the most readily absorbed though complicated by physiological effects, e.g. precipitation and complex formation in the gut and differential absorption of ions of different valency, and ions that are readily absorbed are readily excreted by the kidney. Elements in group I and VII are absorbed to at least 90% but with the bivalent metals the value varies between 20 and 70%. Most of the fraction which leaves the intestine is excreted by the kidney though a small amount, which does not vary with the amount absorbed, finds its way back into the digestive juices. Zinc, manganese and iron are absorbed with difficulty even on injection into the blood stream and excreted only in traces probably due to the formation of complexes with protein. The intestine plays an important part in excretion of zinc, lead and manganese, zinc being found mainly in the pancreatic juice and manganese in the bile. — Brit. Absts.

Accident Prevention

238 How Two Men Store and Distribute Millions of Gallons of Liquids. J.E. Meyer. Factory Man. & Main., 105, 98-101 (Jan., 1947)

All liquid chemicals are delivered and stored in a tank farm. Distribution is by underground pipelines to the surrounding manufacturing buildings. The chemicals include ethanol, methanol, acetone, benzene, chloroform, muriatic acid, bleaching solution and caustic soda. Solvents for underground storage are drained into tanks by gravity. Above ground tanks are filled by compressed air (acids and caustics) or by pumping (solvents). The flow of chemicals to the plant is controlled by a meter house attendant and can be checked in the factory.

239 Safeguards from Flammable Liquid Fires. P.W. Eberhardt. Mill & Factory, pp. 143-144 (Nov., 1946)

Flammable liquids have been an important factor in about one-fifth of the fire and explosion losses during the last four years. Some safeguards against solvent fires are described in this article.

240 Guard for Disc Sanders. Anon. Safety Rev. (U.S. Navy), 4, 8-9 (Jan.,1947)

A guard which is recommended by some government inspectors is illustrated by photograph and drawing.

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241 Amenities, Safety, Health on House-Construction Sites. Dept. of Labour and National Service. Leaflet No. 13, Commonwealth of Australia. 28 pp. (1946)

This leaflet offers some recommendations for the improvement of working conditions on house construction sites. Included are sections on: shelter, change and dining accommodation; drinking water; washing facilities; sanitary conveniences; protection of workers' property; safety organization; accident records; safe working and the reduction of hazards; protective clothing; and first aid. The text carries illustrations.

Miscellaneous

242 Inflammability of Gasoline Vapor-Air Mixtures at Low Pressures. G.W. Jones and I. Spolan. U.S. Bur. Mines, Rept. Invest. No. 3966. 5 pp. (Oct.,1946)

Data in this field are useful in their relation to the operation of internal combustion engines at high altitudes. The experimental results are presented by table and graph. The lower limit of explosibility remains near 1.4% gasoline down to an absolute pressure of about 75 mm. mercury. The upper limit, slightly over 7% gasoline, begins to decrease at 350 mm. and more rapidly at 250 mm. until it meets the lower limit. At pressures lower than 35 mm. mercury, no explosion is possible.

243 War Against Insect Pests. Anon. Ind. Bull. (N.Y.), 25, 44-46 (Nov.,1946)

Experimentation began in September, 1945 on the development of means of destroying insects nested in tall trees. A mortar was improvised which will fire a DDT shell with a timed burst. It is now possible to release DDT dust at any desired height, blanketing the tops of trees. The technique has been shown to be effective at distances 50-100 feet from the center of the burst. The insect destroyer was developed through the instigation of the Department of Labor. It was anticipated that commercial units would be in production in January, 1947.

244 The Effect of Moisture Content on the Diffusion of Odors in the Air. R.L. Kuehner. Heat., Pip. & Air Cond., 18, 115-120 (Dec., 1946)

It is claimed that the spread of odors, and thereby the intensity of odors in air conditioning systems, cannot be controlled with any degree of success by the simple control of relative humidity. The data indicate that relative humidity does exert an effect on the ability of odors to permeate, but the effect is not predictable. Some odors gave increased diffusion at 100% relative humidity while others showed increased diffusion at 0%. Since most odor problems involve odor aggregates, one cannot expect a uniform depressant effect with either high or low humidity. Furthermore effects on diffusion rates are of low magnitude. It was also found that normal temperature variations had no significant effect.

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