

PLAINTIFF'S EXHIBIT

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Air Hygiene Foundation of America, Inc.
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REFERENCES TO RECENT LITERATURE ON INDUSTRIAL DISEASES

(A) News Items

258 RECENT COURT DECISION IN OHIO.

The Supreme Court of Ohio rendered a decision on March 22, 1939, which is important with respect to common law recovery for occupational disease. Ohio has always been one of the few states in which the courts have held that there was no common law right to recover for occupational disease. A firm of lawyers in Marion, Ohio, has, over a period of years, filed numerous actions seeking to recover for silicosis and pneumoconiosis. They uniformly failed. Many of these cases were carried to the Supreme Court of Ohio and several efforts were made by them to get into the Supreme Court of the United States. Last fall they made an application in the Supreme Court of Ohio for a rehearing of two cases, to-wit, Triff v. National Bronze & Aluminum Foundry Co., and Smith v. Loud d.b.a. Marion Brass & Bronze Foundry, and the Court granted the application for the rehearing. The cases were reargued in the Supreme Court on January 17th. The employers of Ohio, acting through the Ohio Manufacturers Association, intervened, participated in the argument, and filed an elaborate brief. By a four to three decision, the Court on March 22nd rendered final decision in both cases specifically overruling former decision of the Court and holding that there is a common law right to recover in Ohio for occupational disease. The effect of the decision with respect to silicosis is somewhat limited in view of the fact that silicosis has been compensable since the adoption of the amendment to the Ohio Occupational Disease Act, which amendment became effective July 31, 1937.

259 TOWARD CONTROL OF SILICOSIS IN CALIFORNIA. Labor Standards, 2, 24, (Feb. 1939). About three years ago silicosis claims were being filed in large numbers, sometimes as many as 50 a month, but this number has gradually been reduced and is now about 3 per month, on the average. It is thought that the reduction has been the result of extensive preventive operations carried on during the past 15 years.

260 ORGANIZED LABOR ON INDUSTRIAL HEALTH. Labor Standards, 2, 24, (Feb., 1939). Attention is called to an editorial in the January issue of the American Federationist which states the interest of labor in the promotion of industrial hygiene. The editorial asserts that technical information now exists that would protect workers and that it can be put to service through those governmental agencies charged with promoting the welfare of labor.

(B) Papers on Dust, Dust Diseases and General Industrial Hygiene.

- 261 SILICOSIS-CASE REPORTS. M. Conrozier and J. Magnin. Industrial Medicine, 8, 114-20, (March, 1939).

This article, a short notice of which appeared in our January, 1939 Abstracts (No. 16), has been translated from the French and is reproduced in part in Industrial Medicine for March, 1939. Some of the case-histories of the original paper are presented together with x-ray reproductions. The article, as translated, makes interesting reading inasmuch as it is necessary for the authors, in their presentation, to prove to French physicians that silicosis is a separate disease entity.

- 262 VENTILATION IN THE GRANITE INDUSTRY. E.C.J. Urban. Journal Industrial Hygiene and Toxicology, 21, 57-66, (March, 1939).

This article describes the dust control methods in the granite industry in Vermont. The two most dusty operations are drilling at the pit and finishing in the shops. Without local exhaust each operation develops concentrations far above a safe limit, set at 10 million particles per cubic foot. The most common pit drill is the leyner drill, a long horizontal bar along which a vertical pneumatic drill is moved, drilling holes every 3.5 inches around the sides of the block. The exhaust on this drill consists of a specially designed hood built around the drill rod, exhausting 400 cu. ft. of air per min. Portable exhaust units consisting of hood, hose, box for dust-separating screens or bags, exhaust fan and motor, are available and in common use. In the finishing shops, specially designed hoods on flexible rubber hose are supplied for each machine. Photographs and sketches are included with the article to aid in the descriptions. Proper operation of the available equipment will reduce the operators' dust exposures to far below the accepted standard of 10 m.p.p.c.f. Included also are the approximate costs of the equipment.

- 263 PREVENTION OF SILICOSIS IN SANDBLASTERS. H. Sauerteig. Zbl. f. Gewerbekyg., 25, 297-305 (1938) (German).

The article describes the new regulations for combatting silicosis by the Association of German Iron and Steel Trade Groups, which were published to go into effect in August, 1938. Following the regulations, the results of the examination of 4916 sandblasters is given, 1220 of whom (24.6%) were forbidden further work because their x-rays showed light to severe silicosis. The article also describes the various types of sandblasting, and the necessary technical preventive measures, including many illustrations. Included also is a description of the use of steel shot. Regarding the men employed, all must be over 21, must pass a pre-employment examination and a subsequent examination after two years. No worker shall be employed as a sandblaster more than two years, after which time he must do non-dusty work for another two years. He may then return to sandblasting, after another examination. The examinations are to be given by physicians authorized by the Association.

- 264 ASBESTOSIS. R.R. Sayers and W.C. Dreessen. American Journal Public Health, 29, 205-14, (March, 1939). Read before the Industrial Hygiene Section at the American Public Health Association Meeting, Kansas City, Mo., October 28, 1938.

This paper is a review of the material contained in U.S. Public Health Bulletin No. 241 (See Abstract 804, 1939). It describes an extensive survey made by the U.S. Public Health Service together with the North Carolina State Board of Health in the asbestos textile industries. Asbestosis, a comparatively modern disease, is caused by chrysotile, a hydrated magnesium silicate containing no quartz.

References to Recent Literature - 3.

Its uses have increased greatly during the past 20 years. According to the results of the survey, cases of asbestosis develop quite rapidly where exposure to the dust is over 5 million particles per cubic foot. No cases were found where exposure was less than this figure and it has been accepted as a limit. Definite clinical and roentgenographic evidences of asbestosis has been observed in exposed persons after 5 to 10 years of work in exposures exceeding 5 m.p.p.c.f.

- 265 A STUDY OF QUARTZ-FUSING OPERATIONS WITH SPECIAL REFERENCE TO THE MEASUREMENT AND CONTROL OF FUMES. E.C. Riley and J.M. DallaValle. U.S. Public Health Reports, 54, 352-8, (March 3, 1939).

No cases of silicosis have been reported among fused quartz operators in the United States, although evidences have been found among these men in European countries. The very short hours of daily exposure may account for the lack of silicosis among them in this country. Fused quartz is blown at temperatures between 2700° and 3000° F., at which temperatures it has been shown that the vapor pressure is quite high. The authors collected the fumes in regular impingers (two in series), estimated the amount in solution by the method of King and Dolan. During operations they found from 116 to 341 micrograms per cubic foot, but it is impossible to correlate these findings because of the lack of other similar studies. Because of possible toxic effects of the fumes and the discomfort of the excessive heat, it is recommended that quartz fusing operations be carried on under exhaust hoods.

- 266 CENTRAL MINING -- RAND MINES GROUP. HEALTH DEPARTMENT REPORT FOR THE YEAR 1937. A.J. Orenstein. Johannesburg, So. Africa.

This report deals with the various activities of the Department, particularly with the health conditions of the native labor force employed in the gold mines of the Witwatersrand. The total mortality from all diseases for the year has reached the record low level of 6.82 per 1000 and mortality due to accidents was 1.97 per 1000. The principal disease is pneumonia, the mortality rate for which was 2.60 per 1000. Although the pneumonia rate still remains high, a notable improvement has been achieved when it is noted that the mortality rate for this disease in 1911 was 13.0 per 1000. An analysis, taking into account meteorological conditions, shows that the highest incidence of pneumonia is during seasons of low temperature and high wind velocity. The incidence of pulmonary tuberculosis has also been reduced notably. In 1915 the rate was 12 per 1000, and in 1937 was 1.84 per 1000. At the same time the mortality rate for the disease has dropped from 1.48 to 0.43. The Department maintains 11 hospitals, rescue training stations and supplies the workers with adequate, fully cooked rations.

- 267 TUBERCULOSIS IN INDUSTRY. G.C. Ornstein and D. Ulmar. Quarterly Bulletin, Sea View Hospital, 4, 164-81, (January, 1939).

The writers take exception to the generally accepted views as to the high incidence of tuberculosis in industry. They recommend caution in attributing an abnormal incidence of tuberculosis to environmental factors in a particular industry when its labor is recruited from sections where the incidence of such infection is abnormally high. They do not subscribe to the opinion that silicotic subjects are more susceptible to tuberculosis than others; they believe that error has arisen in mistaking the lesions due to silica for those of tuberculosis and find it impossible to diagnose tuberculosis in the absence of demonstrable tubercle bacilli. They conclude that the present positive opinions are based only on vital statistics and not on autopsy statistics. This assumption is incorrect as there is in existence sufficient autopsy data upon which to base opinions. The relation of trauma and exposure to obvious causes to tuberculosis

References to Recent Literature - 4.

- 268 TUBERCULOSIS INCIDENCE IN PHILADELPHIA'S INDUSTRIES. Charles-Francis Long. *Industrial Medicine*, 8, 93-6, (March, 1939).
A compilation of data from some of Philadelphia's industries shows the incidence of tuberculosis in those industries to be better than that of the general Philadelphia population. The contribution of industrial medicine to the community tuberculosis campaign lies in the physical examinations of large employed groups with prompt reference of the tuberculous cases to the proper channels. Most large industries now have pre-employment and periodic examinations but suggestions are made for the extension of this service to the smaller companies. Chest x-ray films should be made a routine part of such examinations. The benificent effect of plant sanitation is cited.
- 269 INDUSTRIAL ASPECTS OF THE REHABILITATION PROBLEM OF THE TUBERCULOUS. E. Hochhauser. *Trans. of the Thirty-fourth Annual Meeting, National Tuberculosis Association*, B38. This paper is a study of the present practice in industry as to the re-employment of workers with pulmonary tuberculosis after treatment and arrest of the disease. The author summarizes his conclusions based on 219 replies to a questionnaire sent out to plants in the United States and Canada. The best treatment from every point of view is to get the arrested cases back to work and the real object is not obtained until they are again gainfully employed. In the cases reemployed the loss of time compares favorably with that of other employees. Most companies will re-employ arrested cases, while about one-half of those answering the questionnaire would not accept them as new employees, largely because of the character of the work at those plants.
- 270 THE PRACTICAL USE OF RESPIRATORY FUNCTION TESTING BY MEANS OF HISTAMINE. Peter Muller. *Deut. Tuberk.-Blatt.*, 12, 267-73, (1938) (German).
Histamine causes (1) increased respiratory frequency through spastic contraction of the small bronchioles, (2) a decrease of vital capacity, through pulmonary stasis and (3) a temporary shortening of the apnea. The effects occur in pathologically changed lungs, but not in healthy lungs. The changes produced by histamine parallel the severity of the conditions effecting the respiratory organs, and therefore the method is serviceable for testing respiratory function. Several cases of silicosis and silico-tuberculosis were tested by using 1 mg. histamine (1 cc. Inido Roche) subcutaneously. Valuable information on the extent of pathological change can be obtained, and in silicosis cases it can be of diagnostic value.
- 271 OCCUPATIONAL DISEASES, PAST AND PRESENT, IN GERMANY. F. Koelsch. *Deutsch. Med. Wchnschr.*, 64, 1435-6, (1938) (German).
A short survey is presented of the development of occupational disease in Germany. In the "Iwein" of a minnesinger, Hartmann von der Aue, in 1204, the poor social conditions of women spinners and weavers are described. The first German article on industrial hygiene "Regarding Poisonous Fumes and Vapors", was written in 1473 by Ulrich Ellenbogen, physician of the town of Augsburg. He mentions the exposure of goldsmiths to coal fumes, lead, mercury, and aqua fortis.
- 272 MEDICAL RESEARCH AND REPORTS ON OCCUPATIONAL DISEASES. REPRINTED FROM MAIN REPORT OF THE FACTORY INSPECTION FOR 1937. 46 pp., Gravenhage, (1938) (German).
Material regarding the prescribed examination of certain groups of workers is given together with reports of certain occupational diseases, as poisoning by benzene, carbon monoxide, lead, nicotine, and other substances. Of 248 sand-blasters examined, 33 had definite silicosis, 12 were doubtful cases and 8 had silico-tuberculosis.

References to Recent Literature - 5.

- 273 THE DURATION OF INCAPACITATING SICKNESS. A.B. Walker. Journal Royal San. Inst., 59, 511-26, (January, 1939) (British).

This paper, based on the returns of incapacitating sickness in the insured population of Scotland, shows that such sickness has tended to rise. On the whole, there has been a rise in both sickness and disablement benefit payments from 1921 to 1933 but the rise has been proportionately greater in disablement benefit. The average disability for the year 1935-6 was 12 days longer than the average for the years 1930-5, and the increase was mainly due to an increase in chronic incapacities, i.e., incapacities of 1 year or more.

- 274 INDUSTRIAL DISEASES AND EFFORTS TO PREVENT THEM BY INDUSTRIAL ASSOCIATIONS IN 1937. (FROM THEIR ANNUAL REPORT). Arbeitsschutz, pp. 330-8, (1938) (German). The report presents material on the frequency of industrial diseases in certain industries. Altogether there were 13,566 cases reported and 1,267 compensated for the first time, with 164 fatal cases. Valuable individual reports on diseases and protective measures are included in the second part. Researches on printing dyes made without benzene and its homologs are important, but these dyes evidently give good results only if the edition printed is not too large. The discussion on the prevention of silicosis calls attention to the fact that some industries are substituting artificial grinding stones for sandstone ones, and using steel shot in sandblasting in place of quartz sand.

- 275 DANGER OF DUST IN OBERLAUSITZ FACTORIES MAKING FIRECLAY AND SILICA BRICKS. R. Maassen and H.E. Buttner. Arch. f. Gewerbepath., 9, 179-97 (1938) (German). The article reports the work done in two factories in Silesia and the examination of 508 workers of whom 91 showed silicosis with an additional 50 being doubtful cases. The authors state that training is much more highly essential in making the diagnosis than ever before. The silica brick plant employed 79 men and had been in operation 15 years; the fireclay plant employed 191 men and had operated 29 years. There happened to be the same number of silicotics in each plant and from this the authors conclude that the silicosis hazard was about equal, a conclusion which does not seem reasonable. Dust hazards can only be evaluated by taking dust counts.

- 276 WHY NOT A DUST-FREE FOUNDRY? C. B. Gordy. Factory Management and Maintenance, 97, 79-80, (March, 1939). Description is given of an extensive dust and smoke control system in a large foundry which maintains dust free atmospheres in all locations. The system handles over a million cubic feet of air per minute and requires 13 men to operate it over a three-shift period. The investment was made, not especially to gain a specific saving in operating costs, but to insure a clean working place for the employees.

- 277 RESEARCH ON THE CAUSE AND PREVENTION OF PNEUMONIA IN A FACTORY. M. Gundel and W. Heine. Arch. f. Gewerbepath., 9, 248-68, (1938) (German). Among 400-500 workers in a steel factory, there were 35 cases of pneumonia, with 25 deaths, over a period of six and one-half years. Careful investigations of the chemical and physical causes were made without results. In nearly every case the pneumonia developed from a cold or exposure to cold. In 18 of 30 cases it was shown that after working in an oven, the men washed up and then drove home on motorcycles. In other cases the disease appeared shortly after the men resumed work following a long period of unemployment. General hygienic rules for combating the disease are suggested. Such investigations are valuable, since the high incidence of pneumonia in certain industries is not unusual.

References to Recent Literature - 6.

- 278 AN INDUSTRIAL HYGIENE CLINIC FOR IRON WORKERS. W. F. Gries. Mining and Metallurgy, 20, 205, (April, 1939).
Preventive medicine is less costly than corrective medicine. The healthy workman is the efficient workman and new programs to make him more health-minded are being put into operation. The author gives a description of a New Industrial Hygiene Clinic being established in one of the iron mining companies in Northern Michigan. Regular physical examinations which have been made during the past will be continued but more emphasis will be placed on early diagnoses so that immediate medical care may be given.
- 279 ROENTGEN STUDY OF THE LUNGS OF BUFFERS AND DRY GRINDERS IN THE REMSCHEID TOOL INDUSTRY. W. Bergerhoff. Arch. f. Gewerbepath., 9, 167-78 (1939) (German).
Artificial grinding wheels are used in this industry. Eighty subjects employed in the work from one to 41 years were studied, and the results confirm all that was found about 10 years ago -- that among these workers one finds only a light fibrosis. Silicosis is found only if the men work near sandstone grinders. The author emphasizes the importance of the ultramicroscopic dust particles.
- 280 CHANGES IN THE HEART AND PULMONARY BLOOD VESSELS IN EXPERIMENTAL SILICOSIS AND SILICO-TUBERCULOSIS. G. Hegemann. Arch. f. Gewerbepath., 9, 228-37, (1939) (German).
In an attempt to study heart changes in silicosis, the author compared the weight of the heart with that of the kidneys in a series of experiments with rabbits. He found no evidence, however, that the weight of the heart had changed in relation to that of the kidneys. Only two of the 70 rabbits examined, however, had symptoms of serious silicotic nodulation.
- 281 THE SPUTUM IN SILICOSIS. A. Ingelman-Sundberg. Nord. Med. Tid., 16, 1619-26, (1938) (Norwegian).
In recognition of the difficulty of establishing a positive radiological diagnosis in silicosis, the author searches for other diagnostic methods by an investigation of sputum tests. Employing a modification of Burke's method for the detection of mineral particles in sputum, he has investigated four cases of known silicosis and two each of suspected silicosis, using six persons without dust exposure as controls. The four silicotic patients had 170, 280, 170 and 540 particles per cc. of sputum. The two suspected cases had 50 and 250 particles per cc. The mineral particle count of the controls ranged from 30 to 70 particles per cc. The experiments and procedure are being continued with hope of better result.
- 282 USEFULNESS OF LEHMANN'S APPARATUS FOR TESTING NASAL FILTRATION IN ORDER TO SELECT PERSONS NOT ENDANGERED BY DUST EXPOSURE. V. Reichmann. Arch. f. Gewerbepath., 9, 43-57 (1939) (German).
The noses and lungs of 392 miners and stonecutters were examined by using Lehmann's method. It was found that the number of "good" noses was small and that the owners of such noses do acquire silicosis, although not as often. The author maintains that working age is of greater significance. All men performing hard work breathe through both the nose and the mouth. The examinations showed that the same individual varied a great deal at different times so that the method was not a sound one in selecting men for dusty work.
- 283 SCLEROSIS AND ANTERACOSIS IN THE PULMONARY LYMPH NODES. G. Mottura. Rass. Med. Industr., 9, 330-44, (October-December, 1938) (Italian).
This is a pathological study. The author states that his paper is designed to re-examine published material and to study the various aspects of sclerosis (hardening) of the lymph glands of the lungs. Examination of the lungs of autopsied industrial workers indicated that the chronic irritative factor from coal dust was relatively unimportant, but that the dust tended to accumulate in the lymph glands.

References to Recent Literature - 7.

- 284 THE CHEMICAL STUDY OF SILICEOUS INDUSTRIAL DUSTS. H.V.A. Briscoe. Science Progress, 33, 447-61 (January, 1939) (British).

This paper is a short summary of the work which the author and his co-workers have done up to date. To collect samples of the dust "as the worker breathes it", it has been stipulated that the dust must be secured without contamination, not wetted with water and must not be heated above 100°C. Three methods of collection are used; volatile solid filters which can be sublimated away from the collected dust at relatively low temperatures (as naphthalene, acenaphthalene or anthracene); soluble solid filters as salicylic acid from which the dust can be centrifuged; and the labyrinth, wherein the dust is trapped by impingement on baffles. Thus far most of the tests have been confined to loss on ignition and to solubility of the various types of dust collected, although the latter has not been investigated thoroughly.

- 285 METHODS OF MEASURING SMALL DUST SAMPLES. O. M. Faber. Staub., 8, 4-46 (1938) (German).

It is desirable for many purposes to have a method which will quickly evaluate the dust in the atmosphere. Such a method is necessary for testing respirators. Actual counting is very troublesome and other methods are much preferable. The author first reports on various kinds of micrometers, then on methods and instruments for rapid measurement of dust on konimeter slides by photographic methods. He then selects the method of Walton as the best of this sort and a description of it is given. This method is described in this country in Journal Industrial Hygiene & Toxicology, 18, 689-92 (December, 1936).

- 286 INCREASING THE PORTABILITY OF THE BAUSCH & LOMB DUST COUNTER. L. Silverman and C. R. Williams. Journal Industrial Hygiene & Toxicology, 21, 67-71, (March 1939).

The portability of the Bausch and Lomb dust counter has been increased by two minor changes. First, the pump mechanism has been moved from a horizontal position to a vertical one alongside the microscope tube. Second, the base of the counter has been changed to contain/flashlight-battery powered lamp to enable the instrument to be used at the site of sampling without an electric current. A series of tests with the redesigned instrument shows that its efficiency in the same of that of the original counter.

- 287 THE FLOW OF AIR AND ITS DISTRIBUTION THROUGH DUCTS. Part 2. FLOW WITH FRICTION. DUCTS WITH EQUAL FRICTION. J.R. Zwickl. Heating & Ventilating, 36, 49-52, (March, 1939).

A previous article in the February issue described and developed formulas for flow without friction. The present paper continues the series with attention to flow with friction. The series of articles is a good discussion of the hydraulics of duct systems.

- 288 CLEANING OF DUST RESPIRATORS. Hetzel. Dragerhefte, 198, 3949-52 (1938) (German).
Cleaning dust masks used in mineral dust exposure was 90-100 per cent effective, provided, however, that the filter had not been used for too long a period. Cleaning was not effective after the respirators had been used on ammonium chloride or other such aerosols.

- 289 HEALTH INJURY FROM FORMALIN RESULTING FROM ITS USE AS A DISINFECTANT OF GAS MASKS. Hetzel. Dragermittel., 41, 7-8, (1938) (German).

When masks are cleaned with formalin solution or formaldehyde gas, they must be thoroughly rinsed with water and well aired. Instances of injury have been noted when these precautions were not followed.

References to Recent Literature - 8.

- 290 AMERICAN STANDARD SAFETY CODE FOR THE PROTECTION OF HEADS, EYES, AND RESPIRATORY ORGANS. U.S. Bureau of Standards, Handbook H24, U.S. Dept. Commerce, Washington, 95 pp., (1938). Obtainable from Supt. of Documents, Washington, D.C. price 15¢. This booklet, superseding H2, was prepared under the chairmanship of Dr. M. G. Lloyd of the Bureau of Standards. Manufacturers, insurance companies, labor organizations, technical societies, etc., were represented on the committee. While there is nothing especially new in the handbook, it contains the various governmental specifications for masks, respirators, goggles, welding helmets, air masks, and has an excellent index. The result is a practical and handy manual.

(C) Papers on Industrial Poisons, Cancer, Dermatitis, etc.

- 291 INDUSTRIAL HYGIENE SURVEY OF CALIFORNIA WINERIES. Industrial Hygiene Service. Dept. of Public Health, California. Investigation Report No. 2, 36 pp. (February, 1939).

This bulletin describes the wine industry in California, the classifications of wine, the processes in its production, together with the potential health hazards that are involved in the processes. The materials and environmental conditions to which winery employees are exposed to some degree, and which may have a detrimental effect on health, include alcohol vapors (76% of all employees); carbon dioxide (53%); excessive dampness (51%); sulfur dioxide gas (24%); alkalis (14%); and carbon monoxide (12%). A set of provisions for protecting employee health is suggested.

- 292 FROM THE SWISS FACTORY INSPECTORS' REPORTS FOR 1937. E. Bitterli. Arbeitsschutz, pp. 278-30, (1938) (German).

A short survey of the activity of factory inspectors revealed some interesting observations. There were found some cases of addiction to trichlorethylene in workers in that department of a factory. Cases of poisoning from hydrogen sulfide developed when a sodium sulfide lye was allowed to run into a trough containing acid water. A case of death from nitrogen dioxide from autogenous welding is described.

- 293 WORK WITH PNEUMATIC TOOLS IN IRON AND STEEL INDUSTRY AS CAUSE OF DISEASES OF MUSCLES, BONES AND JOINTS. H. Schramm. Arch. f. orthopä. u. unfall-Chir., 39, 248-57, (November 17, 1938) (German).

Disabilities caused by pneumatic tools have been reported chiefly in men who work in mines and in the stone industry, not so much in the men who use such tools in the iron and steel industries. In this paper the author describes his observations on 58 iron and steel workers who operated pneumatic hammers and riveters. It was found that defects caused by pneumatic tools are not less common in these workers than in workers in mines and quarries. Typical changes were found in the elbow joint, shoulder joint and in the scaphoid (wrist) bone. That predisposition plays a part is proved by the fact that some workers who had used pneumatic tools for 25 years were free from complaints, whereas a young worker had noticeable defects after 3 years. Discussing the prevention, the author stresses the importance of selecting the right type of tool in accordance with the hardness of the material to be worked upon. Men who work with pneumatic tools should be subjected to examinations at regular intervals in order that possible impairment may be recognized early.

References to Recent Literature - 9.

- 294 AFFECTIONS OF THE SHOULDER JOINT IN RELATION TO OCCUPATION. L. Teleky. Trans. 5th Internat. Congress on Rheumatism, Stockholm, September 1936. Mercators Tryckeri, Helsingfors, (1938) (Sweden).
The components of the shoulder joint are described in some detail. The bones and ligaments of many persons frequently show changes caused by extensive lifting of heavy objects. They occur frequently in longshoremen, porters, blacksmiths, miners, and those who work with compressed air tools. Injury to the elbow joint is, however, more common among the latter.
- 295 INFECTIONS OF THE HAND. R. Pilcher. Indust. Welfare, 20, 476-80, (December, 1938) (British).
This paper gives a short analysis of cases dealt with at a special Whitlow Clinic started at University College Hospital, London, in 1933. Of 192 patients with a history of injury, only three had received first-aid treatment and this stands out as the most important necessity for rapid recovery. Certain features of treatment of different types of injury are also discussed.
- 296 ELECTRIC OPHTHALMIA AS IN INDUSTRIAL ACCIDENT. E. Avalos. Rev. Cubana Oto-Neuro-Oft., 7, 41, (1938) (Cuban).
The effects upon the eye of electrical energy of varying intensities are described, and prophylactic measures suitable for workers exposed to such harmful effects are proposed.
- 297 WHAT THE PHYSICIAN SHOULD OBSERVE IN GIVING ARTIFICIAL RESPIRATION. G. Pflesser. Med. Welt., 12, 1600-1 (1938) (German).
The author tested whether the fatal effect in animal experiments is caused by the oxygen itself or by faulty technic. When he used pure oxygen the animals died after a few hour's inhalation. With the usual oxygen apparatus, 80 per cent oxygen at most is inspired; with the inhalation apparatus, 55-65 per cent, and with the pulmator 40-60 per cent. Only with the so-called automatic lung apparatus does it rise to 99 per cent. These automatic devices must be employed with care. In toxic pulmonary edema, the pulmator should not be used, because excess pressure and too low pressure are too difficult to avoid. In all cases without lung tissue injury it can be used with good results.
- 298 PNEUMOTACHOGRAPHIC RESEARCH ON ARTIFICIAL RESPIRATION. L. Fischer and I. Engeser. Med. Welt., 12, 1664-7 (1938) (German).
With a tachograph the authors took respiration curves on a patient trained to submit to artificial respiration without breathing himself. They show the results of various methods of artificial respiration. That for Sylvester's method deviates substantially from the normal; that for the Howard method gives very unsatisfactory results; and that for the biomotor gives a curve corresponding to the normal. The Hans bellows are also satisfactory. When possible, manual methods should be replaced by mechanical ones.
- 299 CONTINUOUS RECORDING OF THE SKIN TEMPERATURE OF MAN. H. Anton. Arch. f. Hyg., 120, 63-104 (1938) (German).
An apparatus is described for the continuous registration of the temperature of a number of spots on the skin. The change of potential developed by thermocouples is followed with a string galvanometer and reproduced photographically. By means of a revolving drum, contact is repeatedly made with each of the thermocouple leads. A circuit for calibration is embodied in the arrangement. Apparatus for ensuring that the standard temperature remains steady throughout the recording is also described.

References to Recent Literature - 10.

- 300 FOURTH REPORT OF THE DEPARTMENTAL COMMITTEE ON LIGHTING IN FACTORIES. Home Office. H. M. Stationery Office, London, 1938.
Regulation of industrial lighting was begun for the first time in Great Britain in 1937. The object of the report presented here is to review the recommendations of previous committees and to make recommendations as to standards for the new code. It is stated that the effects of bad lighting are: (1) increased accident rate; (2) damage to eyesight and health; (3) insanitary conditions; (4) effect on discipline; and (5) diminished output and quality of work.
- 301 EPIDEMIOLOGY OF FIELD FEVERS IN SOUTHERN BAVARIA. W. Rimpau. Munch. med. Wchnschr., 85, 1979-81 (1938) (German).
This disease of harvesters in certain parts of Germany has been shown to be caused by leptospira, a subgroup of spirochetes. The difference between this disease and Weil's disease (icterus infectiosus) is still not clear as to the infective agent and epidemiology. Of those with field fevers, about 2 per cent develop icterus.
- 302 CLINICAL ASPECTS AND SPECIFIC THERAPY OF FIELD FEVERS. G. Jordens. Munch. med. Wchnschr., 85, 1979-81 (1938) (German).
The author reports on a number of cases, mostly among harvest workers, who work barefoot or with inadequate shoes. The disease begins suddenly with chills and high fever. Most of the patients showed marked stupor, conjunctivitis, gastric symptoms, bronchitis, frequent hyperesthesia of the bones, and occasionally an exanthema like measles. The fever falls by crisis in most cases, but the patients recover very gradually. Fatal cases are rare. In many areas in Lower Bavaria at harvest time, hundreds of workers are incapacitated for 2-3 weeks, and only gradually recover complete ability to work.
- 303 DISEASES OF THE KIDNEYS AMONG STREETCAR EMPLOYEES. R. Civatta. Med. del lavoro, 29, 302-5, (1938) (Italian).
Of 248 employees, the author found 56 with urine changes; 35 with phosphaturia, 6 with a slight albuminuria, and some with the two combined. The incidence seems high to the author, and he discusses the possible causes.
- 304 THE WHITE BLOOD PICTURE IN GENERAL CHILLING OF THE BODY. A. Frohlich. Dtsch. Ztschr. f. d. ges. ger. Med. 30, 199, (1938) (German).
Rabbits were held up to their necks for 8 to 15 minutes in ice water (10°C). Blood samples were taken just before the experiment, about 15 minutes after it, and again about an hour later. A total leucocyte decrease was found in 10 animals and in 5 others there was a definite increase. The leucocytosis developed in especially strong animals which had better resistance to cold than the others; the temperature drop they suffered was less, also.
- 305 CHEMICAL CHANGES IN THE CENTRAL AND PERIPHERAL NERVOUS SYSTEM AFTER ELECTRIC ACCIDENTS. F. Masella. Folia med., 24, 1121-31 (1938) (Italian).
The author examined the blood, brain and nerves of rabbits killed by electric currents or killed after prolonged electric dosage. There were changes in the amounts of calcium, potassium, magnesium, phosphate and cholesterol, but increases or reactions in these materials were not regular.

References to Recent Literature - 11.

- 306 THE CHRONIC EFFECTS ON DOGS OF FEEDING DIETS CONTAINING LEAD ACETATE, LEAD ARSENIATE, AND ARSENIC TRIOXIDE IN VARYING CONCENTRATIONS. H.O. Calvery. E.P. Laug and H.J. Harris. J. Pharm. Exp. Therapy, 64, 364-87, (December, 1939).

THE EFFECT OF LEAD ON RATS FED DIETS CONTAINING LEAD ARSENIATE AND LEAD ACETATE. E.P. Laug and H.P. Morris. Ibid., 64, 388-410.

THE STORAGE OF ARSENIC IN RATS FED A DIET CONTAINING CALCIUM ARSENIATE AND ARSENIC TRIOXIDE. H.J. Morris and E.W. Wallace. Ibid., pp. 411-19.

THE GROWTH AND REPRODUCTION OF RATS FED DIETS CONTAINING LEAD ACETATE AND ARSENIC TRIOXIDE AND THE LEAD AND ARSENIC CONTENT OF NEWBORN AND SUCKLING RATS. H.P. Morris, E.P. Laug, H.J. Morris and R.L. Grant. Ibid., pp. 420-45.

THE INFLUENCE OF CALCIUM AND PHOSPHORUS ON THE STORAGE AND TOXICITY OF LEAD AND ARSENIC. R.L. Grant, H.O. Calvery, E.P. Laug and H.J. Morris. Ibid., pp. 446-57.

VARIATIONS IN THE ARGINASE CONCENTRATIONS IN THE LIVERS OF WHITE RATS CAUSED BY THE ADMINISTRATION OF ARSENIC AND LEAD. H.D. Lightbody and H.O. Calvery. Ibid., pp. 458-64.

When lead or arsenic was incorporated in the diet of rats and dogs, there was clear evidence of storage, even at the lowest levels fed. Rats proved relatively less sensitive to lead, tolerating amounts up to 213 mg./kg. in their diet. At this high level, there was impairment of growth, and marked hypertrophy of the kidneys. At somewhat lower levels of intake, no effects were noted on fecundity or fertility. Dogs were very sensitive to lead and showed the characteristic symptoms associated with lead poisoning on intakes as low as 0.33 mg./kg. per day, an amount well within the range of possible toxicity for the human. It was found that when the level of calcium was reduced in the diet, both rats and dogs were not only much more sensitive to lead, but also stored from 300 to 400 per cent more lead in their tissues. The largest storage of lead occurred in the bones, kidneys and livers. Storage of lead in the long bones favored the epiphyseal region and in the kidneys, the cortex. Clear evidence was also obtained that both lead and arsenic pass from the maternal tissues to the fetus, and in the case of lead a measurable amount passes into the milk (arsenic was not determined in the milk) whence it is absorbed and stored by the rat from birth to weaning. In contrast to dogs, rats proved to be somewhat more sensitive to arsenic than to lead. Calcium arsenate, in the amounts fed in these experiments, proved to be more toxic than arsenous oxide. Arsenic, while exerting little or no hypertrophic effect on kidneys, did produce, in rats, a marked effect on the liver. It was also found that both lead and arsenic lowered the arginase concentration in the livers of rats, as well as the response of arginase increase in starvation.

- 307 CHRONIC LEAD POISONING. H.B. Williams. Journal American Medical Association, 112, 534-7, (February 11, 1939).

A physician tells of his own experience in developing a chronic lead poisoning without the well-known classic symptoms of constipation, colic, blood changes, and lead-line on the gums. He and members of his family used water from a copper tank that had been reinforced in certain places with a wiping solder containing two-thirds lead, which dissolved quite readily in the slightly acid water. The amount absorbed daily was very small but was sufficient, in addition to the other ordinary sources of lead, to produce noticeable nervous disorders without the other classic symptoms.

References to Recent Literature - 12.

- 308 CHRONAXIMETRIC INVESTIGATIONS OF LEAD WORKERS BEFORE AND AFTER WORK. H.I.Schutz. Arch. f. Gewerbepath., 9, 198-227, (1938) (German).

The author examined by chronaximetry (the measurement of the time required for the excitation of a nervous element by a definite stimulus) the flexor and extensor muscles of 26 women typists before their work and after 9 hours of work. In the evening the average time required was 36 per cent longer than in the morning. He then examined 25 white lead workers who had been employed in this work for several years. Their chronaxy values were considerably higher than those of the non-lead workers and the author concludes that this measurement is valuable in diagnosing lead damage. This point was first brought out by F. H. Levy in America and the present work serves to support Levy's view. The value of the measurement in the recognition of impending damage is not as yet determined.

- 309 BLOOD PROTEINS IN LEAD COLIC AND MERCURY POISONING. M. Renato. Med. del lavoro, 29, 363-72, (December, 1938) (Italian).

The author notes a diminution in the globulines and a light hyper-albuminemia in 5 cases of lead colic and 4 cases of mercurialism studied. In all cases of lead poisoning, after the disappearance of symptoms, various protein fractions returned to their normal values, while in the mercurialism they persisted or even increased.

- 310 LEAD POISONING AMONG WORKERS MAKING PROJECTILES. U. de Peppe. Med. del lavoro, 29, 257-68, 306-11, 332-40 (1938) (Italian).

The author examined 53 workers in ammunition factories and presents the blood findings and material on porphyrinuria for each man. He concludes that such work is only mildly dangerous, but that many workers develop a hyposaturnism with no clinical symptoms but with slight blood changes: slight diminution of hemoglobin content and a real polyglobulia.

- 311 AN UNUSUAL CASE OF LEAD POISONING. G.E. Beaumont and R. Fyburn-Mason. British Medical Journal, pp. 150-3, (January 28, 1939) (British).

A full clinical record is given of a case which was determined to be lead poisoning before the source of contamination was discovered. Encephalopathy, transient blindness, oliguria, raised blood urea and abdominal pain were present, and also anemia and slight jaundice. No history of occupational risk was obtained as the patient was a railway signal clerk, but the symptoms had preceded this occupation. The domestic water supply was from a well, and was pumped through lead pipes. Water allowed to stand in these pipes showed 4 parts of lead per 10 million parts water.

- 312 RISK OF LEAD POISONING OCCUPATIONALLY INCURRED IN PREPARING "ETHYL" PETROL. F. Coste. Arch. Mal. Profess., 1, 281-93, (1938) (French).

Motor fuel containing tetra-ethyl lead is prepared in 41 stations in France where ethyl fluid imported from America is mixed with gasoline. During the last four years 179 men have been employed in this work. The men are provided with entire outfits of working clothes, rubber aprons, gloves and boots, which are inspected daily. All workers are carefully selected by medical examination and must pass subsequent examinations two or three times a year. Because of the careful medical supervision, no cases of poisoning from the highly toxic tetra-ethyl lead compound have occurred in this industry.

References to Recent Literature - 13.

- 313 BOOK REVIEW -- CARBON MONOXIDE ASPHYXIA. Cecil K. Drinker. Oxford University Press, New York. 276 pp. (1939) Price \$4.50

The book is a valuable source of information for those with a practical or theoretical interest in carbon monoxide poisoning. The author begins by giving a complete description of the physiology of respiration and the exchange of gases in the lungs as a basis for the text that follows. Other chapters are devoted to statistical and general information, pathology of asphyxia, treatment, the controversial subject of chronic poisoning, and discussion of methods of detection. The work is especially valuable for those in fields of industry having a carbon monoxide problem.

- 314 CARBON MONOXIDE FILTERS AND VARIOUS EXPERIMENTAL CLAIMS. H. Muschenborn. Dragerhefte, 198, 3959-61 (1938) (German).

Experiments show that the length of time a carbon monoxide filter can be used depends not so much on the carbon monoxide content (at least from 0.1 to 2.0 per cent) as on the moisture content of the air. For instance, at 25 per cent relative humidity a filter is good for 15.2 hours in 0.1 per cent carbon monoxide, 12.8 hours in 2.0 per cent. With a relative humidity of 90 per cent the respective periods of effectiveness for these concentrations is 9.8 and 8.3 hours.

- 315 CARBON MONOXIDE POISONING. S. E. Schartz. Viestrik Ophth., 16, 370 (1938) (German)

The symptoms of carbon monoxide poisoning are very bizarre generally, as well as in relation to ocular manifestations. The author's case was unusually severe, with edema and ecchymosis of the lids, chemosis, exophthalmos, limitation of movement, superficial keratitis, and rise of intraocular tension. The final result was loss of vision in the right eye and recovery in the left.

- 316 CARBON DISULFIDE POISONING. R. McDonald. Arch. of Ophth., 20, 838-45 (1939).

The author was among those who collaborated on the viscose rayon study made recently in Pennsylvania (Abstract 826, 1938) and the material is the same as that on which the Pennsylvania report is based. The literature on ophthalmologic effects of carbon disulfide is reviewed and the author's experience in examining 120 men from viscose rayon plants is given. More than half of those examined had been employed for 10 years or longer, and approximately 75 per cent had ocular complaints of various sorts. Enlargement of the blindspot, which has not previously been reported in the literature, is believed by the author to be the most significant early ocular sign of chronic carbon disulfide intoxication. It was found in 22.5 per cent of all workers examined. Diminution of the corneal reflex was the most constant finding, occurring in more than one-half of the cases. Diminution of the light reflex was the second most common finding. Vascular changes of the usual nature were found in about one-third of the cases. Although amblyopia was a common symptom in the previously reported literature, it was not present in any of the cases in the author's series, and no scotomata were demonstrable.

- 317 DETERMINATION OF CARBON DISULFIDE AND CARBONYL SULFIDE IN GASES IN THE PRESENCE OF EACH OTHER. A.V. Avdeeva. Zavodskaya Lab., 7, 279-81, (1938) (Russian).

The gas is aspirated through 3 connecting absorption flasks in the order given. Sulfur dioxide and hydrogen sulfide are absorbed in a standard iodine solution; titrating the solution with sodium hydroxide to methyl orange gives hydrogen sulfide directly and sulfur dioxide by difference. Carbonyl sulfide is absorbed in 7.5 per cent calcium chloride containing 1 per cent ammonium hydroxide, and the carbon disulfide in alcoholic 15 percent potassium hydroxide. The solutions are then oxidized with hydrogen peroxide or bromine as usual and the contents of carbonyl sulfide and carbon disulfide are determined by precipitating the sulfurous acid with barium chloride.

References to Recent Literature - 14.

- 318 SPECTROGRAPHIC METHOD FOR IDENTIFICATION AND DETERMINATION OF SMALL QUANTITIES OF BENZENE; DETERMINATION OF BENZENE VAPORS IN AN ATMOSPHERE. P. Lurian. J. Pharm. Chem., 27, 561-77 (1938) (French).

The ultraviolet absorption spectrum of benzene in alcoholic solution permits identification of benzene down to a dose of 0.1 mg. The absorption curve of this alcoholic solution is obtained by means of the apparatus of Fabre and Amy (see Chem. Abstr., 31, 6109). By calculating the optical density of the maximums, benzene can be determined for quantities equal to 2 mg or more, with an approximation of 5 per cent. The technic is applied to the detection and determination of benzene in the atmosphere by condensing it at low temperature in the presence of 95 per cent alcohol, which under these conditions collects it completely.

- 319 THE PROBLEM OF APLASTIC BONE MARROW AND PSEUDO-APLASTIC LEUCEMIA FROM BENZENE EXPOSURE. F. Pennit and E. C. Vigliani. Rass. Med. Industr., 9, 345-61 (October-December 1938) (Italian).

Chronic benzene poisoning divides itself into four categories: (1) cases that are clinically, hematologically and anatomo-pathologically typical of aplastic anemia; (2) cases clinically typical of aplastic anemia but showing an active hemopoiesis especially in the bone marrow, with numerous undifferentiated blood cells (pseudo-aplastic anemia); (3) atypical cases of aplastic anemia with myelitic hyperplasia or metaplasia, having a leucemic appearance, especially in the spleen and liver; and (4) cases of certain chronic or acute leukemia not infrequently appearing as a leukemia. The above classification was capable of being experimentally demonstrated in animals. They are stated to be a direct effect of toxic action of benzene and should be so designated.

- 320 CLINICAL ASPECTS OF POISONING BY SOLVENTS OF THE AROMATIC SERIES. E. C. Vigliani. Rass. Med. Industry., 9, 303-29 (October-December 1938) (Italian).

This article is a summary of present knowledge with regard to benzene and its derivatives. Stress is laid on the action of these substances on the blood. Secondary effects are discussed at some length. The author points out that care should be exercised in identifying the specific solvent which is used, since symptomatology varies with the different homologs and derivatives of benzene.

- 321 EXAMINATIONS OF LEIPZIG PHOTOENGRAVERS WITH SPECIAL REFERENCE TO HEMORRHAGIC TENDENCY. S. Kahle. Arch. f. Hyg., 121, 67-88 (1938) (German).

Following a review of the literature the author gives a careful description of the results of examining 20 photoengravers. Symptoms referable to the central nervous system were very numerous: headache, dizziness, fatigue; others referable to the digestive tract were eructations and heartburn. The many findings on hemorrhagic tendency and vasolability were striking. The thrombocyte values in half of the cases lay in the lowest normal range, but definite thrombopenia was not seen. In 75 per cent of the cases, the Rumpel-Leede test was positive, suggesting injury to the vascular endothelium. The dermographia found in all cases points to damage to the capillary function. In 30 per cent, and, in a later examination, 40 per cent, there was found leucopenia and neutropenia (with the latter a relative lymphocytosis). In conclusion the author reports on a case of fatal aplastic anemia in a 60-year old photoengraver who had worked for 19 years.

References to Recent Literature - 15.

- 322 THE "TOLERANCE CONCENTRATION" OF RADON IN THE ATMOSPHERE. J. Read. and J. C. Mottram. Brit. J. Radiol., 12, 54-60 (January, 1939) (British).
Radon, the gaseous substance that emanates from radium, is said to cause leucopenia among workers handling radium or working in atmospheres where radium is stored. Concentrations found in various working places were taken, and experiments on mice were carried out. From the results the allowable limit suggested is 10-11 curies per cc. This allows for a safety factor of 10. Proper ventilation can keep the concentration down to 10-12 curies per cc. It is suggested that radium safes be ventilated continually or just prior to opening. Workers exposed to radon should be examined periodically in order to establish definitely the safe concentration.
- 323 A CASE OF MYELOTTIC LEUCEMIA IN AN X-RAY ASSISTANT OBSERVED FROM THE BEGINNING. W. Weitz. Klin. Wchnschr., 17, 1579-80 (1938) (German).
The patient, born in 1901, began work in 1928 with x-rays, worked extensively with them after 1930. Since then her blood has been examined regularly. In August, 1932, there was a considerable increase of eosinophils, and in June 1933 she gave up the work entirely. At that time there were 25,000 leucocytes, of which one-half of one per cent were immature myelocytes, 2 per cent metamyelocytes, 9 per cent eosinophiles, 6 per cent basophiles, 11 per cent monocytes, 19 per cent lymphocytes, and 52 per cent neutrophiles. There was a slight increase in the spleen, which since then has continued to increase gradually. In January 1935 there were 74,000 leucocytes, and in the summer of 1935, the spleen was enlarged two fingers above the center line and one finger below the navel. She was treated with x-rays, but died in April 1936.
- 324 POISONOUS GASES IN THE LEATHER INDUSTRY. J.A.S. Morrison. Leather World, 30, 886,7, (1938).
Ammonia, hydrogen sulfide and hydrogen arsenide may be formed if waste lime liquors/in contact with acid liquors from the tan yards. Carbon monoxide and methane may be liberated by fermentation of waste vegetable tanning materials. Dangerous concentrations may occur in sumps, pits, sewers, etc. The simplest precaution is to flood with water to replace the foul atmosphere before allowing men to enter. If this is not practical, the men should wear approved masks supplied with oxygen or pure air.
- 325 HEMOGLOBIN CHANGES AND THE BEHAVIOR OF PORPHYRINE IN URINE AND FECES IN EXPERIMENTAL ANILINE POISONING. C. Seglini. Med. del lavoro, 29, 289-301, (1938) (Italian).
Aniline was injected into rabbits, and was found to appear first in the blood and later in liver and nervous system. Porphyrine increases in urine and feces as the poisoning continues. In chronic poisoning the increase is greater because the liver changes are greater.
- 326 STUDIES ON PHENOTHIAZINE. V. FATE OF PHENOTHIAZINE IN THE BODY. F. DeEds, C.W. Eddy and J.O. Thomas. J. Pharm. Exp. Therap., 64, 250-62 (November, 1938).
VII. THE BACTERIAL PROPERTIES OF URINE AFTER ORAL ADMINISTRATION OF PHENOTHIAZINE. J.O. Thomas, F. DeEds and C.W. Eddy. Ibid., 280-97.
In the first paper it is demonstrated that the urine of animals ingesting water-soluble phenothiazine contains in addition to the soluble oxidation derivatives, thionol-leuco thionol, some water-soluble form of phenothiazine, possibly conjugated or in some loose chemical combination. This latter product is precipitated from the urine on strong acidification. The effects of phenothiazine are discussed in earlier papers. No mention is made of the amounts of phenothiazine recovered in the urine. In the second paper the authors show that urine containing the phenothiazine derivatives above named shows strong bacteriostatic action.

References to Recent Literature - 16.

for E. Coli, both in vitro and in vivo under the proper conditions of pH concentration. Thionol appears to be the active reagent.

- 327 THE PHYSIOLOGICAL RESPONSE TO ISOPROPYL ETHER AND TO A MIXTURE OF ISOPROPYL ETHER AND GASOLINE. W. Machle, E.W. Scott and J. Treon. *Journal Industrial Hygiene & Toxicology*, 21, 72-96, (March 1939).
Improved methods of production have increased the field of uses of isopropyl ether, especially as a fuel in internal combustion engines. Like most ethers it is an anesthetic, but, because of its toxic and deprecassant effects, it has not been used as such. Because greater potential exposures to this substance are probable in the future, the present investigation was conducted to gain a more definite knowledge of its physiological action. Isopropyl ether is a simple aliphatic ether which at ordinary temperatures is a colorless liquid, boiling at about 68°C. The experiments show that ingestion of the liquid in small amounts (7-9 cc. per kilogram body weight) causes rapid intoxication and death. As a vapor it is anesthetic to animals (rabbits and monkeys) at about 3 per cent concentration, lethal at about 6 per cent, and only mildly toxic at 1 per cent. No permanent pathological characteristics were noted on animals that were exposed to, and survived, a 3 per cent concentration in air. Isopropyl ether is explosive in mixtures of from 1.5 to 2.0 per cent in air and it is unlikely that higher concentrations will be encountered because of this fact. Mixtures of 40 per cent isopropyl ether with gasoline were less toxic than the pure substance.
- 328 SPECTROANALYSES IN THE DIAGNOSIS OF SOME INDUSTRIAL POISONINGS. EXPERIMENTS ON THALLOUS CHLORIDE POISONING. F. Capelli. *Med. del lavoro*, 29, 321-32, (1938) (Italian).
The author writes first about spectroanalysis and then shows that after the injection of 5.6 mg. thallous chloride over a period of 5 days, thallium can be found in the urine of rabbits by spectroanalytic methods.
- 329 HEART INJURY FROM NICOTINE. F. Lassing. *Med. Welt.*, 12, 1485-7, (1938) (German).
Recently acute poisoning has occurred from the use of nicotine as an insecticide. A case is presented with the following symptoms: weakness, no pulse, fall of temperature, tonic-clonic cramps, sugar in the urine, arrhythmia and bradycardia in the electrocardiogram, lengthening of the transfusion time, disturbance of the conduction of stimuli, and injury to the heart muscle. There was some improvement, but even after nine months certain of the symptoms were still noticeable. Another case was that of a tobacco cutter who complained of heart pains and bradycardia. In the electrocardiogram there were seen slight fluctuations of the vestibule, and there was slightly augmented bilirubin in the blood.
- 330 EXPERIMENTAL CONTRIBUTION TO THE STUDY OF VANADIUM POISONING. F. Molfino. *Rass. Med. Industr.*, 9, 362-73 (October-December, 1938) (Italian).
The following are the author's conclusions based on experiments performed on rabbits: (1) vanadium anhydride is absorbed and eliminated in the urine where it can be demonstrated; (2) vanadium anhydride exerts a strong irritant action on the respiratory organs; and (3) except for its irritating action, vanadium anhydride simulates zinc oxide in its after effects..
- 331 VASCULAR DISEASES AFTER MERCURY POISONING. K. Fellingner and F. Schweitzer. *Arch. f. Gewerbepath.*, 9, 269-75 (1938) (German).
The authors present the cases of 3 men who had worked with mercury and suffered mercury poisoning. Later they showed signs of endarteritis, beginning with - claudicatio intermittens and followed by gangrene in the toes or feet. They were cured by vasodilator treatment.

References to Recent Literature - 17.

- 332 KIDNEY FUNCTION AFTER DAMAGE BY HEAVY METALS (MERCURY, KOLLARGOL, WITH A NOTE ON CLINICAL ASPECTS OF BANG'S DISEASE). P. v. Monekow. *Deutsch. Arch. f. klin. Med.*, 193, 155-70 (1938) (German).
The author calls attention to the resemblance in poisoning by mercury, uranium, bismuth and gold insofar as kidney changes are concerned. The histological and functional changes are described. Blood and urine data are given in the case of a woman with Bang's disease who was given 0.04 Kollargol (colloidal silver) intravenously. The clinical course was quite similar to that seen in mercury poisoning. There was an immediate anuria; thereafter the slight amount of urine was pale and of low specific gravity. It contained a good deal of albumin and many cylinders but no blood. In poisoning by heavy metals the kidneys behave characteristically, but quite differently than in other kidney ailments. There is an unusually low concentration of urea in the urine at the height of the poisoning, extremely little difference in concentration between blood urea and urine urea, and in spite of a drop in blood chloride, often below the threshold value, the chloride excretion is maintained at a concentration only slightly below that of the blood.
- 333 DOES MANGANESE CAUSE PNEUMONIA? E. C. Vigliani. *Folia Med.* 23, 451-8, (1937) (Italian).
Pyrolusite (an ore of manganese) is suspected as a cause of pneumonia. There have been, in the past, noticeably high incidences of pneumonia among pyrolusite miners and those who handle the ores in mills. The rates of pneumonia are high in other similar industries but do not account for the correspondingly higher rates among pyrolusite workers in particular.
- 334 NASAL CHANGES IN CHROMIUM WORKERS. G. Manciola. *Rass. Med. Indust.*, 9, 258-71 (1938) (Italian).
Injury from chromium in the plating industry is both from inhalation of fumes and from contact with the solutions. The very best of exhaust systems are required, as cases of poisoning were found even in locations where better than average exhaust systems were in operation. Chromium poisoning is characterized by greenish chrome sores in the nose and septum and the absence of serious discomfort misleads the patients and makes them careless. During the period of ulceration they are only conscious of a burning sensation in the nose which causes them to put a finger (usually covered with chromium solution) into the nose, thus bringing the poison in direct contact with the mucous membrane. Prophylaxis includes powerful exhaust systems, use of boric vaseline or salicylic ointment on or in the nose, the use of respirators and rubber gloves.
- 335 EXPERIMENTAL INVESTIGATION ON OCCUPATIONAL CHROMIUM POISONING IN THE ELECTRO-CHROMIUM PLATING INDUSTRY. St. Galloro. *Folia med.*, 24, 1256-65 (1936) (Italian).
The author reviews the literature and then reports on experiments with guinea pigs that were kept over a chrome bath from one-half to three hours daily up to 45 days. Changes of the mucosa and submucosa of the respiratory tract were observed and examined histologically, as well as changes in the spleen and kidneys.
- 336 FACTORS IN CARCINOGENESIS. R.D. Passey. *J. Roy. Inst. Publ. Health & Hyg.* 2, 16-63, (January, 1939) (British).
This article deals with chemical and physical carcinogenetic agents, viruses, parasites, and genetic factors. Lengthy bibliographies are given. In a short section various types of industrial cancer are enumerated. A question is asked whether there is any osteogenic sarcoma among the Schneeberg miners, where the lung cancer is thought to be caused by radioactive substances. The exact cause of bladder cancer among dye workers has as yet not been determined, and extensive experiments with these materials have failed to find the compound or com-

References to Recent Literature - 18.

pounds responsible for the cancer. Exposure to ultraviolet light may induce epithelioma of the skin. Heat has been known to cause cancer on the shins of engine drivers, and cold may also act as a carcinogenetic agent.

- 337 INTRODUCTION TO THE STUDY OF INDUSTRIAL DISEASES OF COTTON SPINNERS. U. Thiry. Arch. de Med. Soc. et d'Hyg., 1, 749-51 (1938) (French).
The author examined 125 workers in a cotton spinning factory. In those who had worked only a short time, he found no lung abnormalities, but of those with a longer exposure, 88 per cent had inflammatory diseases of the respiratory tract. Exposure of Petri dishes showed the presence of bacteria pathogenic to guinea pigs.
- 338 DERMATOSES IN SUGAR WORKERS. Journal American Medical Association (Queries and Minor Notes), 112, 264 (January 21, 1939).
The question concerns "sugar boils" among men working for 20 years in a beet sugar mill. It seems especially prevalent among workers exposed to the juices. Lesions that have been described in the literature are so varied that it is doubtful if a specific agent is responsible. Perhaps the sugar provides a good medium for bacteria. Keeping the skin clean is of prime importance; juices should not be allowed to dry on the skin.
- 339 METHODS FOR TESTING LOTIONS FOR PROTECTING THE HUMAN SKIN. L. Peuckert and W. Schneider. Arch. f. Gewerbepath., 9, 288-94 (1938) (German).
The authors studied various lotions in different dilutions, by photographing the forms of drops on the skin. They describe another method which tests the lotions' capacity for moistening other materials; the results give an idea of how these materials would act on the skin.
- 340 STRUCTURE OF THE SKIN SURFACE AND ITS SIGNIFICANCE IN INDUSTRIAL HYGIENE. R. and F. Jager. Arch. f. Gewerbepath., 9, 276-87 (1938) (German).
The authors describe methods which give a clearer picture of the skin surface than is usually gained. They employ a fluorescent analysis, a fluorescent microscopical method; the apparatus is described and pictures of the skin made in this way are described. The authors claim that their method, which shows roughness of the skin, collected dirt, and the effect of washing, offers a valuable prophylactic aid.