

FILE NAME: General Electric (GE)

DATE: 1943

DOC#: GE045

DOCUMENT DESCRIPTION: Book Excerpt - Principles and Practice of Industrial Medicine

The Principles
of
INDUSTRIAL

Edited
FRED J. WAM
Professor, Preventive and
MEDICAL COLLEGE

CONTRIBUTORS

Otis L. Anderson
R. N. Anderson
Anna M. Bactjer
J. J. Bloomfield
J. A. Calloun
J. M. Carlisle
George H. Cross
Donald E. Cumming
Charles F. Engel
John H. Foulger
Augustus Gibson
T. Lyle Hazlett
Albert Henning
F. F. Heyroth
Joanna Johnson
R. T. Johnstone

George Zerk

A William W.

BALTIMORE
THE WILLIAMS & WILKINS

1913

LIST OF CON

ANDERSON, OTIS L., B.Sc., M.D., F.A.
Surgeon, United States Public He
sion of Venereal Diseases, Nati
Maryland

ANDERSON, RICHARD N., B.A., M.A.
Director of the Division of Rehab
tion of the Virginia State Dep
Virginia.

BAETJER, ANNA M., Sc.D.
Associate in Physiological Hygie
Health, The Johns Hopkins Un

BLOOMFIELD, J. J.
Sanitary Engineer, United States
States' Relations Section, Divisi
Institute of Health, Bethesda, D

CALHOUN, J. A., M.D.
Medical Director, American Visco
ware.

CARLISLL, J. M., M.D.
Medical Director, Merck and C
Professor of Industrial Medici
Medicine, Philadelphia, Pennsylv
of Industrial Health and Hygie
of Health.

CROSS, GEORGE H., M.D.
Associate Professor of Ophthalmic
Graduate School of Medicine, C

CUMMING, DONALD E., B.S. *
Associate Professor, Department o
of Industrial Hygiene, Universit
Denver, Colorado.

ENGEL, CHARLES F., M.D.
Assistant Medical Director, Westi
ing Company, East Pittsburgh

FOULGER, JOHN H., M.D., Ph.D., F.A.C.
Medical Director, Haskell Labora
mington, Delaware; Associate
Medical College of Virginia, Ric

* Deceased December, 1942

- GIBSON, AUGUSTUS, M.D.
Physician, Merck and Company, Rahway, New Jersey.
- HAZLETT, T. LYLE, M.D.
Medical Director, Westinghouse Electric and Manufacturing Company; Professor Industrial Hygiene, University of Pittsburgh, Pittsburgh, Pennsylvania.
- HEMMING, ALBERT, M.B., Ch.B.
Physician, Merck and Company, Rahway, New Jersey.
- HEYROTH, FRANCIS F., M.D.
Assistant Professor of Research Physiology, Kettering Laboratory of Applied Physiology, College of Medicine, University of Cincinnati, Cincinnati, Ohio.
- JOHNSON, JOANNA, R. N.
Supervisor, Industrial Nursing Division, Employers Mutual Liability Insurance Company, Milwaukee, Wisconsin.
- JOHNSTONE, RUTHERFORD T., A.B., M.D.
Director of the Department of Occupational Diseases, Golden State Hospital, Los Angeles, California; Formerly Assistant Professor of Medicine, University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania.
- KEHOE, ROBERT A., M.D.
Research Professor of Physiology, Director, Kettering Laboratory of Applied Physiology, College of Medicine, University of Cincinnati, Cincinnati, Ohio.
- KRONENBERG, MILTON H., M.D.
Chief, Division of Industrial Hygiene, and Industrial Medical Supervisor, Department of Public Health, State of Illinois; Assistant Professor of Bacteriology and Public Health, University of Illinois, Chicago, Illinois.
- KULCHIT, B. E., A.B.
Vice-President and Claims Manager, Employers Mutual Liability Insurance Company, Wausau, Wisconsin.
- LUCKIESH, MATTHEW, D.Sc., D.E.
Director, Lighting Research Laboratory, General Electric Company, Nela Park, Cleveland, Ohio.
- MACHLE, WILLARD, M.D.
Associate Professor of Research Physiology, Associate Director, Kettering Laboratory of Applied Physiology, College of Medicine, University of Cincinnati, Cincinnati, Ohio.
- McKEE, R. W., Ph.D.
Instructor in Industrial Hygiene, School of Public Health, Harvard University, Boston, Massachusetts.

- MORRIS, SARAH L., M.D., F.A.C.P.
Professor of Preventive Medicine, University of Pennsylvania, Philadelphia, Pennsylvania.
- MORSE, KENNETH, M.S.
Industrial Engineer, Division of Public Health, Department of Public Health, Cleveland, Ohio.
- MOSS, FRANK K., E.E.
Physicist, Lighting Research, Nela Park, Cleveland, Ohio.
- PETERSON, C. M., M.D.
Secretary, Council on Industrial Hygiene, Chicago, Illinois.
- ROBERTSON, D. F., M.D.
Associate Medical Director, Jersey.
- ROSSITER, FRANK S., M.D.
Medical Director, Carnegie Foundation, Pennsylvania.
- SAWYER, WILLIAM A., M.D.
Medical Director, Eastman Hospital, New York, New York.
- SCHWARTZ, LOUIS, M.D.
Medical Director, United States Department of Health, Dermatoses Investigations, National Institute of Health, Bethesda, Maryland.
- THOMPSON, LORIN A., Ph.D.
Director, Population Study, University of Virginia, Charlottesville, Virginia.
- WAMPLER, FRED J., M.A., M.D.
Professor, Preventive and Industrial Hygiene, Out-Patient Clinic, Medical Department, Southern Biscuit Company, Birmingham, Alabama.
- WILLIAMS, GEORGE ZUR, M.D.
Associate Professor of Pathology, University of Virginia; Member of

VII. OTHER PNEUMOCONIOSES

There is considerable disagreement in the medical literature concerning the exact etiology of certain types of pulmonary fibrosis due to dust inhalation other than silica dust. Asbestosis, siderosis, and anthracosis are the most important of these fibroses.

Asbestosis

It has been well proven that a peculiar type of linear pulmonary fibrosis is caused by minute asbestos fibers inhaled by workers in industries utilizing asbestos for the manufacture of fire resisting material, insulation, certain fabrics and ropes, paints, roofing, tile, etc., as well as the manufacture of asbestos itself.

Asbestos is magnesium silicate and is the only silicate which has experimentally been proven to produce a pulmonary fibrosis without exposure to silica.

The onset and clinical course of asbestosis is similar to that of slowly progressing silicosis and the symptoms in the later stages are identical. Fatal termination is usually by complicating pneumonitis, cardio-vascular decompensation, or tuberculosis. The roentgenopathology is typical and not difficult to differentiate from silicosis. Gloyne and Merewether state that the roentgenological appearances of asbestosis are revealed typically as a general lack of translucency with a fine pinhead mottling. This is the characteristic "ground glass" appearance. The film should always be compared with a film of a normal patient and a film of a silicotic patient taken with the same exposure.

The diagnosis depends upon a definite history of exposure to asbestos dust including sufficient period of exposure, roentgenological appearance, decreased pulmonary capacity, and the finding of asbestos bodies in the sputum of patients not yet removed from exposure to the dust. These asbestos bodies are well described and usually illustrated in most text books of clinical pathology. The pathology may be summarized in the single statement that it consists of a persistent, progressive, diffuse perialveolar fibrosis of the lungs. The fibers may be seen on histological examination to be embedded in the fibrous walls of alveoli and bronchioli and each fiber appears to be encrusted by an iron-containing yellow pigment. As would be expected, in the later stages the fibrosis becomes confluent and massive.

Siderosis

Siderosis is chiefly a red pigmentation of the lung tissue due to inhalation of iron-containing dust frequently found in hematite miners. Experimentally, fibrosis has not been produced by pure iron or iron oxide dust

and only when mixed with haz fibrosis result. Therefore, unless siderosis by itself is asymptomatic clinical findings.

A

Black pigmentation of the lung types of carbon particles is common in industrial cities. Most marked. There is some controversy concerning whether carbon dust of itself can produce fibrosis. There is some exclusive experimental evidence that it can. It is the author's opinion that all cases of black lung are due to an admixture of silica and carbon. Pure carbon fibrosis due to respiratory disease produces no clinical findings or disability.

REI

American Public Health Association: *Asbestosis and the Committee on Stationary Diseases, Year Book, 1933*, BELT, T. H., IRWIN, D., AND KING, E. persons without occupational exposure, *J.*, 34 (2): 125-133, 1936.

BURKE, H. E.: The detection of miner's disease, *Hyg.*, 17: 27, 1935.

COLE, L. G., AND COLE, W. G.: *Dyspnea*, 113: 1216, 1939.

CUMMINS, S. L.: The augmentation of tubercle bacilli. *Brit. J. Exp. Pathol.*, 1934. DRINKER, P., AND HATCH, T.: *Industrial Diseases*, 1934. ELLMAN, P.: Pulmonary asbestosis: its features, and associated risk of tuberculosis, *Am. Rev. Tuberc.*, 1240, 1933.

GARDNER, L. U.: The pathology and pathogenesis of asbestosis. *J. A. M. A.*, 114: 535-54, 1934.

GARDNER, L. U.: Recent developments in asbestosis. *Am. Rev. Tuberc.*, Feb. 1940.

GARDNER, L. U.: Studies on experimental asbestosis. *Am. Rev. Tuberc.*, 1934. GLOYNE, S. R., AND MEREWETHER, E. R.

HATCH, T., AND THOMPSON, E. W.: A rapid method for the quantitative estimation of iron in dusts. *INTERNATIONAL LABOUR OFFICE: Pneumoconiosis reports, series F (Ind. Hyg.), No. 1*