FILE NAME: Metropolitan Life (ML)

DATE: мфор

DOC#: MLлуу

DOCUMENT DESCRIPTION: . ƨƨ⅂ 9ÈŎŜ№LJǘ π LyŘdzăǘ№ƛI·f a ŜŘƛŎƛyŜ

617 356 4887 P.02/04
S.S. HEALTH CTR.
MAR-09-1995 13:23

NATIONAL MEDICAL MONOGRAPHS

ABNORMAL ARTERIAL TENSION
By Edward J. Stieglitz, M.S., M.D., F.A.C.P.
Assistant Clinical Professor of Medicine, Rush Medical College, Univ. of Chicago

OBSTETRICS FOR THE GENERAL PRACTITIONER
By J. P. Greenhill, B.S., M.D., F.A.C.S.
Professor of Gynecology, Loyola University School of Medicine, Chicago

INDUSTRIAL MEDICINE
By W. Irving Clark, A.B., M.D.
Assistant Professor, Industrial Medicine, Harvard School of Public Health, Boston
and
Philip Drinker, S.B., Ch.E.
Associate Professor Industrial Hygiene, Harvard School of Public Health, Boston

THE MANAGEMENT OF COLITIS
By J. Arnold Bargen, M.D., F.A.C.P.
Division of Medicine, the Mayo Clinic

COMMONER DISEASES OF THE SKIN
By S. William Becker, M.S., M.D.
Associate Professor of Dermatology, School of Medicine, University of Chicago

DISEASES OF THE CHEST
By J. Arthur Myers, M.D.
Professor of Medicine, Preventive Medicine and Public Health, Univ. of Minn. Medical School

NATIONAL MEDICAL MONOGRAPHS

INDUSTRIAL MEDICINE

By

W. IRVING CLARK, A.B., M.D.
Assistant Professor of the Practice of Industrial Medicine, Harvard School of Public Health, Boston, and Medical Director of The Norton Company, Worcester, Mass.

and

PHILIP DRINKER, S.B., Ch.E.
Associate Professor of Industrial Hygiene, Harvard School of Public Health, Boston, Mass.

Edited by
MORRIS FISHBEIN, M.D.

NATIONAL MEDICAL BOOK COMPANY, INC.
New York, N. Y.
1935

03/09/95 14:25 TX/RX NO.1272 P.002

MAR-09-1995 13:23 S.S. HEALTH CTR. 617 356 4887 P.03/04

which the engineer welcomes as an objective of cleanliness for which to strive. Some of these figures are founded upon reliable data and some are frankly estimates.

Legge and Duckering [104], [46] suggested 0.5 mg. per cu.m. for lead dust which Russell and his colleagues [146] lowered to 0.15 mg. for litharge indicating that this figure might be scaled up or down with changes in the solubility of the lead compound in serum.

The South African authorities, for their high quartz rock in the Witwatersrand gold mines, have gradually arrived at a figure of about 1 mg. per cu.m. and silicosis, under their conditions, has not been eliminated (although greatly reduced). Higgins, Lanza, Laney and Rice [81] suggested 10 mgs. per cu.m. for the high quartz rock of the Joplin, Missouri, zinc and lead district. In both of these examples the standards suggested are both practicable and attainable.

Russell et al [145] in their granite study in Barre, Vermont, suggested 9 to 20 million particles per cubic foot by the impinger sampling

technic and light field counting. Here the dust contained about 35 per cent quartz. In sandstone working, where there is a high percentage of silicates, Badham, in Australia [5] advocated 200 particles per cubic centimeter by Owens' jet dust counter, but hinted that 100 would be better. In Great Britain, perhaps wisely, no figures for permissible dustiness in connection with silicosis have been suggested.

In their cement dust study Thompson and his associates [164] investigated one of the most harmless inorganic dusts of modern industry. The effects upon the chests of workers with abundant dust exposure were in no way comparable to the chests of the granite workers depicted by Russell. Nonetheless, Thompson advocated 10 to 20 million particles per cubic foot as compared with 9 to 20 million for granite.

In the case of asbestos dust no figures have as yet been suggested but on the basis of abundant experience McConnell [116] of the Metropolitan Life Insurance prefers to see the dust count below 5 million and welcomes still

03/09/95 14:25 TX/RX NO.1272 P.003

MAR-09-1995 13:23 S.S. HEALTH CTR. 617 356 4887 P.03/04

which the engineer welcomes as an objective of cleanliness for which to strive. Some of these figures are founded upon reliable data and some are frankly estimates.

Legge and Duckering [104], [46] suggested 0.5 mg. per cu.m. for lead dust which Russell and his colleagues [146] lowered to 0.15 mg. for litharge indicating that this figure might be scaled up or down with changes in the solubility of the lead compound in serum.

The South African authorities, for their high quartz rock in the Witwatersrand gold mines, have gradually arrived at a figure of about 1 mg. per cu.m. and silicosis, under their conditions, has not been eliminated (although greatly reduced). Higgins, Lanza, Laney and Rice [81] suggested 10 mgs. per cu.m. for the high quartz rock of the Joplin, Missouri, zinc and lead district. In both of these examples the standards suggested are both practicable and attainable.

Russell et al [145] in their granite study in Barre, Vermont, suggested 9 to 20 million particles per cubic foot by the impinger sampling

technic and light field counting. Here the dust contained about 35 per cent quartz. In sandstone working, where there is a high percentage of silicates, Badham, in Australia [5] advocated 200 particles per cubic centimeter by Owens' jet dust counter, but hinted that 100 would be better. In Great Britain, perhaps wisely, no figures for permissible dustiness in connection with silicosis have been suggested.

In their cement dust study Thompson and his associates [164] investigated one of the most harmless inorganic dusts of modern industry. The effects upon the chests of workers with abundant dust exposure were in no way comparable to the chests of the granite workers depicted by Russell. Nonetheless, Thompson advocated 10 to 20 million particles per cubic foot as compared with 9 to 20 million for granite.

In the case of asbestos dust no figures have as yet been suggested but on the basis of abundant experience McConnell [116] of the Metropolitan Life Insurance prefers to see the dust count below 5 million and welcomes still

03/09/95 14:25 TX/RX NO.1272 P.003

MAR-09-1995 13:23 S.S. HEALTH CTR. 617 356 4887 P.04/04

lower figures. Merewether [120] gives figures on asbestos dust concentrations but no indication of permissible dustiness.

In studying metal fume fever caused by breathing freshly formed zinc oxide (Fig. 10), Drinker, Thomson, and Finn [43] found that concentrations of 14 mgs. of zinc per cu.m. for 8 hour exposures or 45 mgs. for short exposure could be tolerated without causing the "shakes" to the average worker. Drinker believed that figures could easily be obtained for other metallic fumes but the required experiments have never been done. Prodan [138] found that cadmium oxide fume, which is close to zinc oxide metallurgically, was far too toxic to permit breathing measurable amounts.

To insure the avoidance of trouble from chromic acid mist Bloomfield and Blum [15] suggest that continuous daily exposures be kept below 1 mg. per cubic meter and show in their report that this figure is readily attainable by proper transverse ventilation.

Cummings [32] sees no need to require the manufacturer of materials with well established

harmless effects to maintain air as clean as that demanded in granite cutting. However, there is no longer any excuse for excessive dustiness in any process—it merely represents slovenly practice. A few years ago it was not uncommon to see workmen employed in an atmosphere so thick with dust that a 50 watt lamp was obscured at a distance of 10 feet. In a recent lawsuit a witness testified that he had to sweep up every hour because if he waited longer it was necessary to use a shovell Industrial physicians and engineers have seen these conditions but they cannot defend them.

The only justifiable conclusion to be drawn from such apparent inconsistencies is that generally we lack data for defining rigidly permissible dustiness. The application of medical and engineering knowledge and common sense to dust control is highly commendable but the point has not been reached where a manufacturer can be told with certainty that his plant will have no silicosis, no asbestosis, or no lead poisoning if he keeps dustiness down to some definite figure. He can be told only that the maintenance of certain

TOTAL P.04
03/09/95 14:25 TX/RX NO.1272 P.004

MAR-09-1995 13:23 S.S. HEALTH CTR. 617 356 4887 P.04/04

lower figures. Merewether [120] gives figures on asbestos dust concentrations but no indication of permissible dustiness.

In studying metal fume fever caused by breathing freshly formed zinc oxide (Fig. 10), Drinker, Thomson, and Finn [43] found that concentrations of 14 mgs. of zinc per cu.m. for 8 hour exposures or 45 mgs. for short exposure could be tolerated without causing the "shakes" to the average worker. Drinker believed that figures could easily be obtained for other metallic fumes but the required experiments have never been done. Prodan [138] found that cadmium oxide fume, which is close to zinc oxide metallurgically, was far too toxic to permit breathing measurable amounts.

To insure the avoidance of trouble from chromic acid mist Bloomfield and Blum [15] suggest that continuous daily exposures be kept below 1 mg. per cubic meter and show in their report that this figure is readily attainable by proper transverse ventilation.

Cummings [32] sees no need to require the manufacturer of materials with well established

harmless effects to maintain air as clean as that demanded in granite cutting. However, there is no longer any excuse for excessive dustiness in any process—it merely represents slovenly practice. A few years ago it was not uncommon to see workmen employed in an atmosphere so thick with dust that a 50 watt lamp was obscured at a distance of 10 feet. In a recent lawsuit a witness testified that he had to sweep up every hour because if he waited longer it was necessary to use a shovell Industrial physicians and engineers have seen these conditions but they cannot defend them.

The only justifiable conclusion to be drawn from such apparent inconsistencies is that generally we lack data for defining rigidly permissible dustiness. The application of medical and engineering knowledge and common sense to dust control is highly commendable but the point has not been reached where a manufacturer can be told with certainty that his plant will have no silicosis, no asbestosis, or no lead poisoning if he keeps dustiness down to some definite figure. He can be told only that the maintenance of certain

TOTAL P.04
03/09/95 14:25 TX/RX NO.1272 P.004