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admirers, and should not be difficult of attainment. The Herrman L. Blumgart Chair in Medicine will raise to the endowed list and still further dignify a program of medical teaching that has become at the Beth Israel Hospital under Dr. Blumgart an area of learning and research of the highest quality. It will be the first endowed chair to become permanently a part of this important hospital.

Fortunately, the inauguration of the Herrman L. Blumgart Professorship fund does not coincide with any early retirement plan with respect to Dr. Blumgart himself. His academic retirement is still two and a half years distant, and long before that time his chair will have become an established fact.

Dr. Blumgart, who became director of medical research at the Hospital in 1928, has been its physician-in-chief since 1946. He is also the distinguished editor-in-chief of *Circulation* and a member of the editorial board of the *New England Journal of Medicine*.

Successful Treatment of Tetanus, by Chloroform. *The disease supervened forty-eight hours after a wound from a pistol-shot. The remedy was administered, by inhalation, at intervals, for several days, with relief to the symptoms, and the patient recovered.*

Boston M. & S. J. *November 24, 1859*

MASSACHUSETTS MEDICAL SOCIETY

TOXIC HAZARDS*

Talc Pneumoconiosis†

Talc is used extensively in industry as a filler and dusting agent. Most of the yearly domestic production of approximately 500,000 tons is consumed by the following industries: ceramics; rubber; paint; paper; roofing; insecticide; and cosmetics. Although talc is the name for a specific mineral, hydrous magnesium silicate ($H_2Mg_3[SiO_3]_4$), in industry the term talc is applied to various mixtures of a group of minerals including talc, serpentine, dolomite and tremolite that have similar physical properties though they differ in chemical composition. Unfortunately, some commercial talcs contain appreciable quantities of free silica (SiO_2) and may cause silicosis if they are not used cautiously.

*This is one of a series of articles published co-operatively by the Committee on Industrial Health and the Panel on Child Health of the Committee on Public Health of the Massachusetts Medical Society. The panel provides liaison with the Massachusetts Chapter of the American Academy of Pediatrics, whose Boston and Worcester Poison Information Centers are activities of the Committee on Accident Prevention.

†From the Committee on Industrial Health, George F. Wilkins, M.D. chairman; Karl T. Benedict, M.D.; Harriet L. Hardy, M.D.; George E. Morris, M.D.; Robert C. Thompson, M.D.; Robert L. Quimby, M.D.; and Henry F. Howe, M.D.

Although Thorel[1] presented studies of a case of talc pneumoconiosis in Germany in 1896, there seems to have been little interest in the disease in the United States until 1933, when Dreesen[2] reported his studies of workers in the tremolite talc industry. He found that many of the workmen had abnormal chest x-ray films that were consistent with a pneumoconiosis. However, in spite of the fact that a number of additional reports of abnormal films in talc workers appeared, many students of occupational disease were reluctant to accept talc as a cause of pneumoconiosis since so few autopsy data were available to prove that the pulmonary fibrosis was actually due to talc rather than to silica, which may have been inhaled as a contaminant of the talc or in some previous occupation. Now, however, sufficient data have been accumulated to establish the fact that the pulmonary fibrosis seen in talc workers[3] is quite distinct from that seen in silicosis.

Examination of the lungs in advanced talc pneumoconiosis shows that much of the normal lung tissue has been replaced by fibrous tissue containing many talc spicules. Areas of necrosis with cavitation may occur in the masses of fibrous tissue. In some cases fairly large rods resembling asbestos bodies have been found to be embedded in the scar tissue. These have been called talc bodies and seem to be associated with the inhalation of talc that contains a large amount of tremolite. The fibrosis does not have the whorled pattern that is characteristic of silicosis. The amount of fibrosis in talc pneumoconiosis presumably is directly related to the amount of talc inhaled. Although talc, unlike silica, does not cause a proliferative reaction, the retention of large amounts of talc by the lung results in sufficient fibrosis to impair pulmonary function seriously.

The x-ray findings in talc pneumoconiosis are not specifically diagnostic. The early changes consist of some hilar enlargement, together with an accentuation of the bronchovascular markings. As the disease progresses rather poorly defined, flakelike areas of increased density appear in both lung fields, and, finally, these seem to coalesce into large dense masses. In some cases the x-ray film of the chest has a dappled appearance, suggesting the presence of many small blebs. Cavities may occur in advanced disease. A high incidence of pleural calcification has been found in tremolite talc workers.[4] Interestingly enough, there does not seem to be a direct correlation between the presence of pleural plaques and pulmonary fibrosis.

The clinical picture of talc pneumoconiosis resembles that of other chronic pulmonary disease. The onset is insidious, with gradually increasing dyspnea. A dry cough may be present initially, but usually a chronic bronchitis develops and the cough becomes productive. Hemoptysis may occur. As with other pulmonary disease, cor pulmonale may appear, with eventual failure of the right ventricle. It is not known whether patients with talc pneumoconiosis have an increased susceptibility to tuberculosis as patients with silicosis do. There is no specific treatment for talc pneumoconiosis. Control of the frequently superimposed acute and chronic pulmonary infections presents the major problem in the medical care of these patients.

Prolonged and intense exposure to talc is necessary for the production of a pneumoconiosis. Unfortunately, until recently, talc has been widely regarded as innocuous

so that suitable precautions to prevent talc pneumoconiosis have not been taken in many cases. In view of present knowledge concerning talc pneumoconiosis it is obvious that workers exposed to the risk of talc inhalation should be protected by adequate exhaust ventilation, or, if this is not possible, they should wear proper dust respirators.

ALBERT O. SEELER, M.D.
Medical Department
Massachusetts Institute of Technology

REFERENCES

1. Thorel, C. Die Speicksteinlunge: ein Beitrag zur pathologischen Anatomie der Staublungen. *Beitr. f. path. Anat.* **20**:85-101, 1896.
2. Dreesen, W. C. Effects of certain silicate dusts on lungs. *J. Indust. Hyg.* **15**:66-78, 1933.
3. Schepers, G. W. H., and Durkan, T. M. Effects of inhaled talc-mining dust on human lung. *Arch. Indust. Health* **12**:182-197, 1955.
4. Smith, A. R. Pleural calcification resulting from exposure to certain dusts. *Am. J. Roentgenol.* **67**:375-382, 1952.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

COMMUNICABLE DISEASES IN MASSACHUSETTS FOR OCTOBER, 1959

RÉSUMÉ

DISEASE	OCTOBER 1959	OCTOBER 1958	SEVEN-YEAR MEDIAN
Brucellosis	0	1	1
Chancroid	0	1	1
Chicken pox	170	251	264
Diphtheria	0	1	2
Dog bite	1271	1210	1107
Dysentery, bacillary	80	14	14
Encephalitis, infectious	4	2	2
German measles	34	96	59
Gonorrhea	167	212	212
Granuloma inguinale	0	0	0
Hepatitis, infectious	49	25	34
Lymphogranuloma venereum	0	0	0
Malaria	1	0	0
Measles	151	109	76
Meningitis, meningococcal	7	6	5
Meningitis, Pfeiffer bacillus	3	4	3
Meningitis, pneumococcal	2	1	1
Meningitis, staphylococcal	1	0	0
Meningitis, streptococcal	0	0	0
Meningitis, undetermined	16	42	10
Mumps	226	183	404
Poliomyelitis	29	5	109
Salmonellosis	34	45	23
Scarlet fever	76	102	110
Syphilis	236	210	191
Trichinosis	0	1	1
Tuberculosis, pulmonary	118	117	145
Tuberculosis, other forms	3	6	9
Typhoid fever	0	1	2
Whooping cough	44	121	121

COMMENT

Diseases below the seven-year median were chicken pox, German measles, mumps, poliomyelitis, scarlet fever and whooping cough.

During October the incidence of scarlet fever was at its lowest level in the State's history.

With but one exception (1957) whooping cough was at its lowest level for the month of October in the State's history.

During October chicken pox and German measles were at their lowest levels for this month since 1918 and 1940 respectively.

Diseases above the seven-year median were bacillary dysentery, infectious hepatitis, measles and salmonellosis.

During October bacillary dysentery was at its highest incidence for this month since 1942.

GEOGRAPHIC DISTRIBUTION OF CERTAIN DISEASES

The following diseases were reported from the communities named:

Dysentery, amebic: Worcester, 1.

Dysentery, bacillary: Arlington, 3; Boston, 42; Brockton, 1; Cambridge, 6; Chelsea, 1; Framingham, 1; Groton, 1; Haverhill, 6; Lynn, 3; Malden, 2; Marblehead, 2; Natick, 1; Peabody, 1; Quincy, 3; Reading, 1; Revere, 1; Salem, 1; Somerville, 1; Watertown, 1; Wellesley, 1; Woburn, 1; total, 80.

Encephalitis, infectious: Charlton, 1; Danvers, 1; Lunenburg, 1; New Bedford, 1; total, 4.

Hepatitis, infectious: Abington, 1; Athol, 1; Bernardston, 1; Brockton, 1; Cambridge, 5; Chelsea Naval Hospital, 1; East Longmeadow, 2; Fitchburg, 1; Fort Devens, 3; Haverhill, 1; Holyoke, 8; Lowell, 2; Lynn, 10; Malden, 1; Medford, 1; Nahant, 1; Peabody, 1; Saugus, 1; Springfield, 2; Stow, 1; Taunton, 1; Westover Air Force Base, 1; Westport, 1; Worcester, 1; total, 49.

Lymphocytic choriomeningitis: Cheshire, 1; Everett, 1; total, 2.

Malaria: Boston, 1.

Meningitis, meningococcal: Agawam, 1; Bourne, 1; Lowell, 1; Lynn, 1; Medford, 1; Somerville, 1; Spencer, 1; total, 7.

Meningitis, Pfeiffer bacillus: Arlington, 1; Chelmsford, 1; Salem, 1; total, 3.

Meningitis, pneumococcal: Brockton, 1; Southbridge, 1; total, 2.

Meningitis, staphylococcal: Worcester, 1.

Meningitis, undetermined: Boston, 3; Cambridge, 1; Dighton, 1; Framingham, 1; Haverhill, 1; Lynn, 2; Medford, 1; Somerville, 2; Swampscott, 1; Wakefield, 1; Worcester, 2; total, 16.

Poliomyelitis: Amesbury, 1; Attleboro, 2; Boston, 2; Cambridge, 1; Concord, 1; Deerfield, 1; Fairhaven, 1; Falmouth, 1; Holyoke, 1; Medford, 1; New Bedford, 1; Pittsfield, 1; Quincy, 1; Salem, 1; Somerset, 1; Springfield, 1; Sutton, 1; Waltham, 2; Watertown, 1; Wellesley, 1; Wenham, 1; Westboro, 1; Worcester, 4; total, 29.

Salmonellosis: Boston, 12; Brookline, 2; Fall River, 3; Leicester, 1; Lynn, 4; Marblehead, 1; Natick, 1; Newton, 1; Quincy, 2; Shrewsbury, 1; Springfield, 1; Worcester, 5; total, 34.

CORRESPONDENCE

OBSERVING THE PATIENT

To the Editor: Dr. Dorn's article, "Some Problems Arising in Prospective and Retrospective Studies of the Etiology of Disease," which appeared in the September 17 issue of the *Journal,* made interesting reading — pleasant, profitable and easily accessible even to one not properly schooled in these matters.

The nature of his paper, delivered as a lecture in preventive medicine on ways of learning about the occurrence of illness, may not have permitted Dr. Dorn to dwell upon one distinction of importance in clinical studies of the natural history of disease. This is the difference between observing one's own patients and studying hospital charts of patients one has not seen; the term "retrospective studies" appears to apply to both these methods.

The study of disease is the study of sick people; the more of them he has seen, the better a doctor is, other matters remaining the same. Continual critical attention to all his cases, the commonplace as well as the unusual, continuously corrects or corroborates his clinical knowledge; it strengthens beliefs confirmed by experience, and shakes some that are not. Medical books are a substitute for observing patients, as travel books are for traveling; authority properly belongs to "the man who has seen for himself."

Chance, combining opportunity and vision to see it, may help a doctor find a few cases that resemble no known pattern but themselves; a new entity is recognized and re-