PLAINTIFF'S EXHIBIT

MET-325

OFFICE OF INDUSTRIAL HYGIENE AND SANITATION

TREASURY DEPARTMENT

UNITED STATES
PUBLIC HEALTH SERVICE

WASHINGTON, D. C

February 6, 1935

Dr. A. J. Lanza,
Assistant Medical Director,
Metropolitan Life Insurance Company,
New York, N.Y.

Dear Dr. Lanza:

I am enclosing the report of Dr. Miller, Mr. Froske, Mr. Drubach, and Mr. Stoll, for the month of January, 1935.

Sincerely yours,

R. R. Sayers
Medical Officer in Charge

January, 1936. Monthly Report of Dr. J. W. Miller, Mr. H. C. Preslm, Mr. H. F. Brubaek, and Mr. H. N. Stoll.

Intraperitoneal injection tests. 90 day injection tests were completed on 3 samples of asbestos, viz. Canadian, Crocidolite, and Amosite. These tests showed that the material produced an inert type of reaction. This response has been interpreted as characteristic of a dust capable of producing pneumoconiosis other than silicosis.

30 day tests were completed on a sample of dolomite submitted for test as to its suitability for use in rock dusting. The tests showed this material to be absorptive in character and therefore not of any great potential harmfulness.

Experiments with variable quantities of dusts. Three groups of animals injected respectively with 0.005, 0.001 and 0.0005 gm. of air separated quartz were killed and examined 30 days after injection. Dust nodules were seen in the animals, injected with the larger dose group, but were absent in the 0.0005 gm. group. This presumably indicates that 0.005 gm. of silica can be absorbed without gross injury in 30 days. Another series of experiments of 90 days duration are now on test.

Pathological examinations. A set of lungs were received for examination. History has not yet been received but is reported to be on the way. Sections and museum specimens were prepared. The gross appearance is that of silicoanthracosis.

Photomicrographs. A series of 15 photomicrographs showing the histological development of nodules produced by quartz, limestone, and anthracite coal were made. These pictures are 633 magnifications and show the nodules 7, 30, 90, 180, and 360 days after injection. They will be used as illustrations for the paper on the histology of dust nodules.

Konicide Club meeting. A paper on the peritoneal response to various dusts was given at the meeting of the Konicide Club in Washington. Museum specimens of the gross tissues and photomicrographs were used.

Spectroscopic work. Mr. Armstrong continued experiments on the spectroscopic determinations of minute quantities of silica, both soluble and insoluble. A qualitiative method is complete and a quantitative determination method is in progress.

Microscopic examinations. The histologic study of nodules produced by various dusts in the peritoneal cavity was continued.

Laboratory administration. The shop was removed from the present laboratory to a recently acquired room next door. A dark room for spectroscopic work was constructed in another room adjacent to the new shop.

Three hundred and sixty day tests were completed on Metrosite white (a silicate used as a paint base and filler) and talc. The metrosite white showed a very slow absorption reaction. Less of the dust was present than was originally introduced, though it had not entirely disappeared in 360 days. The talc was typically inert in its reaction in the peritoneum. As much of the talc was found in the tissues in 360 days as was introduced into the peritoneal cavity.

SUBCUTANEOUS INJECTION TESTS

A series of rats were injected subcutaneously with four different dusts according to the technique of Gye and Kettle. They were killed and examined 100 days after injection. The results were as follows:

Calcite. All of the original dust has disappeared, only a few small areas of dark brown pigment at the site of injection in the subcutaneous tissue remained.

Bituminous coal. The coal dust was found dispersed throughout the subcutaneous tissue around a large flattened area of dust at the site of injection. As much dust was present as was introduced.

Quartz. A moderate sized nodule consisting of a central mass of unaffected dust, surrounded by a fairly thick fibrous capsule was found at the site of injection. The size of this nodule was only slightly larger than the bleb formed by the injected dust.

Chert (Chat). Produced nodules identical to those of quartz.

The calcite and bituminous coal behaved in the subcutaneous tissues similarly to their action in the peritoneal cavity. The response to quartz and chert was not as well defined. Because of their encapsulation there is no doubt that some irritative response was elicited, yet the nodules were not cellular in structure like those found in the peritoneum. The action in the peritoneal cavity seems much more desirable for use as a biological test of the harmfulness of a dust.

PUBLICATIONS

The paper for presentation at the Cleveland meeting of the American Medical Association was completed and was submitted to the editor of the Journal of the American Medical Association for publication. It covers the series of dusts reported in the Public Health Reports, Jan. 19, 1934 and in addition includes the 180 and 360 day tests, thus completing the phase of study.

PETROGRAPHIC ANALYSES

Petrographic analyses have been made on all dusts used in these studies. The analyses were supplied by the courtesy of the U. S. Bureau of Mines.

The sericite sample submitted by Dr. W. J. McConnell contained: Quartz 50%; Muscovite (var. sericite, 45%; Fibrous sericite 5%.