

THE EDWARD L. TRUDEAU FOUNDATION
OF THE
TRUDEAU SANATORIUM

SARANAC LABORATORY
FOR THE STUDY OF TUBERCULOSIS

SARANAC LAKE, N. Y.

OFFICE OF THE DIRECTOR
7 CHURCH STREET



October 23, 1928

Dr. Wade Wright
1 Madison Avenue
New York City

Dear Dr. Wright,

I hope to be in New York next week, and would like to call on you to talk over some matters in connection with our dust experiments. Would it be convenient for you to see me at any time during the week? Will you kindly let me know what time would be most convenient?

Very truly yours,


Leroy U. Gardner, M.D.
Director

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with silicosis; second, at what stage of the disease tubercle bacilli appear in the sputum; and third, whether the bacilli of the silicotic in any way differ from those in uncomplicated tuberculosis.

These questions are suggested by two kinds of observations. It has been noted by most observers since the time of Georgius Agricola in the sixteenth century that the incidence of tuberculosis among the wives and children of workers in dusty trades is not high; and yet more recent bacteriological studies of sputum from the silicotic husbands have shown a relatively large number containing tubercle bacilli.

In the Saranac Laboratory we have been able to demonstrate experimentally that the inhalation of silica and carborundum dusts change the course of a tuberculous infection produced by bacilli of low virulence from a non-progressive, self-limited process to a chronic progressive type of disease much resembling that encountered in human beings.

Gye and Purdy have claimed that the injection of silica into the subcutaneous tissues of a white mouse, an animal not generally susceptible to the tubercle bacillus, in some way alters the tissues so that the organisms multiply without restraint. We have repeated these experiments three times without the striking success which the authors claim. We are still engaged in the study of this problem.

Recent studies by Petroff have shown that many strains of tubercle bacilli can be dissociated into virulent and non-virulent groups (R and S colonies). With the BCG strain of Calmette they have concluded that the bile added to the medium used for growing the culture restrains the virulent members of the strain and allows only the avirulent forms to develop. It has occurred to me that in silicosis possibly some factor is present which may suppress the less virulent forms and allows the virulent to develop. This would be a line of attack which I should consider worth investigating, together with a study of the virulence of a large number of strains from human beings and animals suffering from silicosis.

In this Laboratory, we have two rooms which in each of which we can expose 150 to 200 animals to a fairly constant concentration of dust. We have a Greenburg impinger apparatus for measuring the concentration. We have been engaged during the past ten years in the study of the following dusts: Proctor marble, Barre granite, Carborundum, Thetford asbestos, and quartz dust. By means of a connection with the U. S. Public Health Service, we have been able to expose guinea pigs to soft coal dust in Wyco, West Virginia. We have studied the effects of these dusts both on the normal and infected guinea pig. In the latter group we have data upon primary and re-infections. Much of the material is yet unpublished, as most of the experiments are carried over a period of three or four years, and it has been necessary to repeat some of the work.

We have also attempted to study the reaction to various dusts in other portions of the body, e.g., phagocytosis of dust particles in the peritoneal and pleural cavities; the effect of ingested dust particles upon the phagocytic cell; the migration of phagocytes containing dust particles; the reaction to various chemical compounds of silicon; etc. (It is hoped that when funds become available, we may conduct tissue culture studies on pure cultures of fibroblasts in contact with dusts of various kinds.)

During the past year the gift of \$5,000 a year from Mr. John D. Rockefeller has made possible the employment of a chemist. He has already devised a method for the accurate separation of dust particles of various sizes, and he has perfected a colorimetric method for the detection of dissolved silica. His efforts will be directed to determine whether inhaled silica dust goes into solution within the body, and whether this material is injurious because of its chemical or because of its physical properties. The technical difficulties are many, and we cannot expect immediate results.

I would request the cooperation of the Metropolitan Life Insurance Company in the study of the bacteriological phases of the problem. If we can secure a like amount, I feel confident that the Trustees of the Commonwealth Fund will appropriate \$5,000 a year for five years to carry out such a program. The Saranac Laboratory already has the necessary equipment, and would be in a position to supply animals properly treated for bacteriological study. The investigation of the

Dr. Wade Wright

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Metropolitan Life Insurance Company in the lead mines of Missouri could furnish sputa from human patients. ~~Material~~ from these two sources should properly be investigated in the same laboratory. The bacteriological study is a phase of the problem which has not yet received adequate attention, and is one whose solution might go far in preventing the harm now being done in the dusty trades. ✕

With apologies for my delay in writing you, and with gratitude for your hospitality while I was in New York, I am,

Very sincerely yours,



Leroy G. Gardner, M.D.
Director

Kind regards to Dr. Lanza.
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