April 7, 1953

Dr. Paul Cartier
Thetford Industrial Clinic
Thetford Mines, Quebec
Canada

Re: Ludger Ainsley
The Saranac Laboratory # P-53-582

Dear Doctor Cartier:

Enclosed is my report concerning the above case. You will note that I consider it to be a straightforward example of asbestosis. With respect to the carcinoma, and its relationship to asbestosis in this case, there is no intrinsic evidence upon which to base an opinion. I have taken the liberty of relying upon your statistical study of the industry in arriving at the impression given in the report that the tumor is probably unrelated to the asbestosis. As noted in the report, I doubt that the tumor is of much significance in regard to the cause of death in this instance.

I have read with interest Dr. Manseau's report concerning Jean B. Ainsley, but have not introduced comment with respect to it into the present report. I have omitted reference to it chiefly because I personally do not agree with Dr. Manseau's views, and I feel that comments concerning them should properly belong in Dr. Vorwald's report on the case of J. B. Ainsley.

For the present, it seems sufficient to say that the pathology in J. B. Ainsley is somewhat peculiar, but that there are many areas of true asbestosis, and that asbestosis bodies are present and much more numerous than Dr. Manseau implies. In the case of Ludger Ainsley, I do not see any areas resembling the peculiar reaction present in the lungs of J. B. Ainsley. Therefore, there seems to be no reason to entertain the possibility that Ludger Ainsley suffered from anything other than asbestosis and its consequences.

I hope this report will meet with your approval and that it will arrive in time to meet your needs.

Sincerely yours,

Philip C. Pratt, M.D.
Pathologist
The Saranac Laboratory

PCP:gn

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Ainsley, Ludger
P-53-582
April 7, 1953

Interpretation of series of single chest roengenograms purporting to be those of one LUDGER AINSLEY, all bearing identification 'Industrial Clinic, Thetford Mines, Que. - #4044'.

ASBESTOS CORPORATION LTD.

Film of 1/31/48 reveals:

The transverse diameter of the cardiac silhouette is less than 50% of the transverse diameter of the thoracic cage. Trachea is in the midline, and the upper mediastinum is not widened. There are no osseous abnormalities of the rib cage.

R. &L. There is mottling thruout the entire lung field, and the right cardiac border is obscured. The medial half of the right hemidiaphragm is irregular. Similar shadows are present on the left, thruout the lower half of the lung field. While the left border of the heart is not obscured, it is not acutely defined.

Subsequent films taken 7/29/49, 3/27/50, 11/15/50, 7/13/51, 2/25/52, and 12/4/52, compared with above:

R. & L. Throughout the series there is some progression of the mottling throughout both lungs, and by December of 1952 the apex of the cardiac silhouette is obscured. Commencing in 1949, there is noted the development of what appears to be a lesion in the right juxta-cardiac region. From this time until December of 1952, there is a slight, insidious increase in the size and density of this shadow.

OPINION: In the presence of an adequate history of exposure to asbestos, the above-described changes are compatible with a roentgenological diagnosis of Asbestosis, Stage II, with a superimposed neoplasm present at the right base, most likely representing a bronchogenicacarcinoma. This latter is first visualized in 1949, and by 1952 has progressed in size, to definitely involve the lung root.

(s) Leonard J. Bristol, M.D.
Director, Department of Radiology

5. PATHOLOGY:

A. Gross Description: The lungs and heart are submitted in a single block. The right lung is voluminous and its pleura is generally slightly thickened and has been largely stripped away in dissecting the lung. There are numerous trocar lacerations throughout all portions of the lung but especially the lower lobe. The surface is somewhat convoluted

by the presence of scattered elevated emphesematous blebs. The tissue is generally firm and essentially homogeneous in consistency. On section the upper lobe is seen to be generally air containing, though the alveoli are distinctly coarse and markedly variable in size. Throughout this lobe there are seen numerous foci and irregular bands of grey scarring, coursing among the dilated alveolar spaces. The secondary lobular septa are thickened and accentuated by excessive scarring. The intrapulmonary bronchi and vessels are of normal sizes and their lumens taper uniformly. The middle and lower lobes, in general, resemble the upper with the exception that a roughly spherical mass of yellowish grey, firm tissue is noted in the hilar portion of the lower lobe. The margins of this tissue are rather poorly defined but are essentially regular. The mass surrounds the major bronchus to this lobe beginning at a distance of about 3 centimeters from its origin. The left lung is rather voluminous and resembles the right externally and on section except that no tumor mass is noted.

TRACHEOBRONCHIAL LYMPH NODES: These are of a normal size and are rather heavily pigmented. They are slightly more firm than normal but on section there is little resistance to cutting and the surface is moist. Several of the nodes on the right side are mottled with grey foci perhaps representing metastases from the tumor noted in the lower lobe.

HEART: The heart is moderately large and the chambers of the right side are distinctly prominent. The epicardium and endocardium are everywhere smooth and thin. The valve rings are of normal relative sizes and their cusps are delicate and freely movable. The coronary arteries arise normally and follow normal courses, the walls being irregularly thickened by scarring and yellow sclerotic plaques. The lumen is patent throughout though it tapers somewhat irregularly as a result of the presence of the sclerotic plaques. The myocardium is homogeneous in color and consistency and measures 1.8 cm. in thickness at the base of the left ventricle and 0.8 cm. on the right.

SPLEEN: Not remarkable in the gross.

LIVER: The specimen of liver submitted is only partially fixed. Its capsule is smooth and through it the lobular markings appear excessively prominent. On several crossections this appearance is uniform throughout.

KIDNEYS: Not remarkable in the gross.

B. Microscopic Description: Large sections are prepared from each lobe of the lungs and are stained with hematoxylin and eosin. Smaller sections are stained also for elastic tissue and connective tissue. Examination of these slides reveals the major portion of the pulmonary tissue in each of the various lobes to be involved with diffuse collagen

deposition located about the smaller bronchioles,and in the region of secondary lobular septa and even in alveolar septa. In many areas this collagenous tissue is so extensive as to have replaced small zones of pulmonary tissue with complete obliteration of previous structure. In other areas the collagen fibres have been deposited within alveolar septa preserving their pattern. In the areas of extensive involvement and obliteration of pulmonary architecture the collagen fibres are dense and partially hyalinized but they are everywhere oriented in a diffuse pattern. It is noted that occasional alveolar spaces remain within rather wide zones of such scarring. These spaces are almost uniformly lined by cuboidal or columnar epithelium. A few are lined by stratified squamous epithelium. In the areas of less dense involvement, with delicate collagen fibres occupying previous alveolar septa, the alveolar lining membrane is thin. Scattered groups of alveoli show slightly thickened septa with a rather prominent capillary network within.

Moderate numbers of entirely typical elongated, segmented, brownish asbestosis bodies are noted throughout all involved portions of each lobe. These structures can be identified with ease in almost every field examined.

In the sections of lung stained specifically for connective tissue, smooth muscle fibres are well demonstrated by their contrast to collagen. Examination of these slides reveals numerous clusters of smooth muscle fibres within some of the larger foci of diffuse collagen deposition which obliterates pulmonary structure. The impression is gained that these clusters of smooth muscle fibers represent the sites of bronchioles which have been ulcerated with subsequent complete obliteration of the lumen by collagen deposition. In the sections stained specifically for elastic tissue, surprising numbers of such fibers are found within some of the areas of diffuse collagen deposition.

The tumor mass noted on gross examination in the right lower lobe is confirmed as such microscopically. The tumor is made up of cords and nests of well differentiated squamous cells, the central portions of many of the nests showing keratinization or "pearl"formation. There is moderate variation in nuclear size and chromatin content. At the margins of the tumor, strands and cords of cells extend outwards into the surrounding tissue and often into lymphatic channels in perivascular and peribronchial areas.

TRACHEOBRONCHIAL LYMPH NODES: These are densely infiltrated with black, opaque pigment material but the lymphoid tissue is generally preserved. Several nodes on the right side contain small foci of squamous cell tumor metastases.

SPLEEN: The splenic sinusoids are congested with blood.

LIVER: Sections of the liver reveal a pronounced atrophy of the cells in the central portion of the lobules. This atrophy extends outwards from the central vein to the midportion of the midzone of the liver lobules.

KIDNEYS: Aside from rather slight intimal thickening of the larger intrarenal arteries, the kidneys reaveal nothing of significance.

6. COMMENT: The lungs in this case present a rather straightforward example of asbestosis recognizable roentgenologically, macroscopically, and microscopically. The disease is rather extensive and pronounced and is associated with the presence of moderately extensive emphysema as is often the case. As a result of the extensive scarring together with developing emphysema the heart, especially the right side, has undergone excessive strain with resultant hypertrophy and finally failure which has resulted in the signs of chronic passive congestion noted in the spleen and liver.

The tumor in the right lower lobe is a well differentiated squamous cell carcinoma and has metastasized to tracheobronchial lymph nodes on the right side but not to any of the other organs submitted for study. The possible relationship of the onset of this tumor to the presence of asbestosis must be mentioned. It is considered likely by many individuals that asbestosis predisposes to the development of pulmonary carcinoma. Evidence has been presented to show that this may well be the case in the asbestosis of industry in England. However, a recent statistical study carried out by Dr. Paul Cartier, of Thetford, failed to reveal evidence that asbestosis has been associated with an excessive incidence of pulmonary carcinoma in the Canadian mining industry. It is only on the basis of such evidence, and not on the basis of evidence derived from microscopic and other study of an individual case of asbestosis, that the decision can be made as to the relationship of asbestosis to pulmonary malignancy. At the present time and on the basis of the statistical evidence available it appears that the tumor should be considered to be unrelated to the presence of asbestosis.

In the present instance that matter seems to be of relatively slight importance since it appears to be unlikely that the tumor played any large part in the clinical symptoms or cause of death of the individual Ludger Ainsley. It appears that the extensive asbestotic fibrosis with associated emphysema, resulting in cor pulmonale and heart failure constituted the sequence of events leading to the death of this individual.

April 7, 1953

LUDGER AINSLEY Age: 59

(Saranac Laboratory Number P-53-582)

1. Source of Material and Data: The following material and data relative to the above individual were submitted by Dr. Paul Cartier to The Saranac Laboratory for study and interpretation:

   A. A copy of a claim case history, identified as Number 1168901, and dated March 5, 1953.

   B. A series of seven chest roentgenograms covering the period from 1948 to 1952 and bearing the number 4044.

   C. Both lungs, the heart, spleen, kidneys and a portion of the liver, removed at autopsy on March 6, 1953.

2. Occupational History: From the Claim Case History it is learned that this man's occupation has been as follows:

1916	to	1929	Millwright
Jan. 1/26	to	Dec. 31/30	Millwright
Jan. 1/31	to	June 14/35	Mine closed down during which period he worked 265 days on odd jobs.
July 15/35	to	May 31/36	Mill Assistant Foreman
June 1/36	to	Mar. 15/37	Millwright
Mar. 16/37	to	Nov. 23/44	Grading Fibre

In summary this employee has worked 22 years in a significant exposure of asbestos fibers.

3. Clinical History: From the Claim Case History it is noted that symptoms were first reported in 1944 and consisted of cough and dyspnea. It appears that the dyspnea progressed during subsequent years. The terminal symptomatology in 1953 is not presented.

4. Chest Roentgenograms: The interpretation of the series of chest roentgenograms by Dr. Leonard J. Bristol of the Department of Radiology of The Trudeau Foundation, is as follows:

Ainsley, Ludger
P-53-582
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FINAL IMPRESSION

1. Asbestosis.
2. Emphysema.
3. Cor pulmonale, with dilatation, right heart.
4. Chronic passive congestion, spleen and liver.
5. Squamous cell carcinoma, bronchogenic, right lower lobe.

Respectfully submitted,

Philip C. Pratt, M.D.
Pathologist
The Saranac Laboratory

PCP:gn

THE TRUDEAU FOUNDATION
FOR THE CLINICAL AND EXPERIMENTAL STUDY OF PULMONARY DISEASE

SARANAC LABORATORY
TRUDEAU LABORATORY
TRUDEAU SCHOOL

OFFICE OF DIRECTOR
P. O. BOX 591
SARANAC LAKE, N.Y.

DEPARTMENT OF BIOCHEMISTRY
DEPARTMENT OF PHYSIOLOGY
DEPARTMENT OF RADIOLOGY

April 7, 1953.

DEPARTMENT OF RADIOLOGY
TRUDEAU, N.Y.

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