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June 23, 1982

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*Please Refer
to File No.*

10,712

Barry Castleman,
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1722 Linden Avenue
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Re: "Bystander" Asbestos Exposure

Dear Barry:

Thank you for your letter of June 3, 1982. In my asbestos publication index, I have run across several articles which I would appreciate if you would look at to determine whether they would be applicable. They are as follows:

1932, Stewart, Tallersall & Haddow - The name of the article is "On the Occurrence of Clumps of Asbestos Bodies in the Sputum of Asbestos Workers", Journal of Pathology and Bacteriology Volume 35, Part II, 737-741. (Workers not involved in the manufacturing process with only occasional presence in asbestos factory. Article may also deal with a man who lived close to a factory.)

1933, Ellman - The name of the article is "Pulmonary Asbestosis: Its Clinical, Radiological and Pathological Features and Associated Risk of TB", The name of the magazine is "Infection", Journal of Industrial Hygiene, Volume 15, July, 1933, pages 165-183. Article deals with two office workers, a cashier and a warehouseman.

1933, Gloyne, Morbid Anatomy and Histology of Asbestosis: The name of the journal is "Tubercle", Volume 14, July, 1933, pages 445-451.

1937, KM Lynch - the name of the article is Pulmonary Asbestosis IV: The Asbestos Body and Similar Objects in the Lung, Journal of the American Medical Association, Volume 109, pages 1974-1978. (Three workers with asbestosis who did not work in an asbestos factory.)

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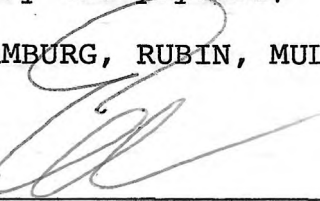
1931, Stewart - The name of the journal is Archives of Pathology, Volume 12, pages 909-916. (A factory worker with nine months exposure.) ✓

1935, Egbert, D.S. - The name of the article is Pulmonary Asbestosis. The name of the journal is American Review of Tuberculosis, Volume 31, pages 25-34. (Article deals with minimal exposure cases.) ✓

Please advise after you have reviewed these articles whether you believe that they may be helpful.

Very truly yours,

HAMBURG, RUBIN, MULLIN & MAXWELL

BY 

EDWARD RUBIN

ER/jms
cc: Thomas J. Mullaney, Jr., Esq.

August 9, 1982

Edward Rubin

Dear Ed,

This is in response to your inquiry about the potential value of six references in connection with "bystander exposure to asbestos" (June 23). Sorry I am a bit slower than usual in handling this, but summer is a time of year when we do less and take longer to accomplish it.

1932, Stewart et al. -- "asbestosis bodies" in the sputum are not held to be any more than evidence of exposure ("they do not show that a diseased condition of the lungs necessarily exists.") Similarly, these formations in lung tissue weren't held to mean the person had asbestosis of the lungs; "certainly, no such significance can be attached to their mere presence."

Keeping this in mind, note again on the cover page of the article that asbestosis bodies (later just called asbestos bodies) were readily demonstrated in lung tissue of 1) a patient with only two months' exposure, 2) a guinea pig of the rodent species with three months exposure in an asbestos factory, and 3) in a man who lived close to a factory but had never been inside it. Asbestosis bodies were found in sputum of a worker with only 5 months' exposure.

These authors contend that the mere finding of these "bodies" is diagnostic of exposure but not disease; but clumps of "bodies" are another matter, indicating disintegration of lung tissue (740).

1933, Ellman -- aside from asbestos factory workers, this writer describes only a case of early asbestosis in a man who was a pipecoverer for 10 years (181). Your comments suggest some confusion of this article with the Wood and Gloyne (1934, Lancet) and Page (1935, Amer. J. Med. Sci.) ones.

1933, Gloyne -- to my surprise, he does mention "asbestosis bodies in .. the lung" of a metallurgical research worker who died of an unrelated fibrosis. And, asbestosis bodies in the sputum of a boiler riveter (447) "years after his short exposure". The latter is almost certainly the same boiler riveter mentioned in the Wood and Gloyne report, and I think Gloyne assumes his exposure occurred during the man's apprenticeship in a shop where insulation materials were fabricated. Gloyne appears to overlook the continuing bystander exposure sustained by a man in this trade -- and this man did have asbestosis, according to the 1934 report (W & G).

Further down page 447, he notes that some of the tidal air "must strike right down to the alveoli at each ordinary respiration." He goes on to say that lymphatic clearance of asbestos fibers is much more limited than is the case with minute carbon and silica dusts.

The significance of this is that 1) pathologists recognized that asbestos fibers could and usually did reach the deepest recesses of the lungs, 2) that this would be the case whether there was much or little asbestos in the inspired air, 3) that lung clearance by mucociliary transport was nonexistent in the deep lung and clearance by the lymphatics was very limited. Thus, there was no "threshold of safety" whereby someone could be exposed to low concentrations of asbestos dust and not retain any in the lungs. This had been demonstrated in general as well as in the lungs of asbestos factory neighbors in particular by the early 1930's.

1937, Lynch -- asbestos bodies in sputum "indicates only of asbestos dust of sufficient duration for them to be formed." (1975) He refers to two reports of what looked like asbestos bodies seen in the lungs of coal miners (1976). He adds a coal miner of his own (end of p. 1976) and a maid (1977) with some coal dust in her lungs, both with asbestos-like-appearing bodies in the lungs but no asbestosis. A third case also had these forms in lung tissue, but no asbestosis or known exposure working with asbestos (case 4, on 1977). "Similar brown bodies have been observed in the lungs of a considerable number of subjects (who died of other causes than asbestosis)," he continues. Still, he expresses confidence that similar can be distinguished from asbestos bodies "because of the larger sizes and translucent needle centrum of the latter."

Discussion with Dr. Henry Sweeney of Chicago who has read US, UK, and German reports on asbestos. I think he may have worked at J-M's Waukegan plant company doc, will check.

Lynch's report may indicate the limited appreciation at that time of just how little one had to be exposed to asbestos to get asbestos bodies -- I mean, he may not have taken careful enough histories in these cases. They may well have at some time, maybe unknowingly, been exposed to some asbestos -- and the forms in their lungs could thus have included asbestos bodies. Or, maybe Lynch's Negro patients in South Carolina and the coal miners here and in England were forerunners of society at large. In 1963, Thomson and others had no problem finding asbestos bodies in lung tissues of random urban dwellers at autopsy.

1931, Stewart et al. -- This isn't the same Stewart as in the first paper. He is (I mean is) a leading American pathologist in the field of cancer and environmental diseases. Case 1 was "a spinner in an asbestos mill for nine years. Although the atmosphere was very dusty, he wore silver dust protectors in his nostrils." (910) This was a milder case of the disease. The other patient was densely exposed for 9 months, and had advanced disease from asbestos (and TB). This report should be read carefully, especially the last two pages ("Comment"). They say after describing the first case that "further precautionary means are necessary" than those applied. After describing the other case, they say, "This...emphasizes again the absolute necessity for wearing masks in even the less dusty atmospheres." (915) A powerful statement.

Here they make the connection between what was known about short but heavy exposure having implications for the risks of longterm, lower exposure. This is the lever for rendering relevant the reports of asbestosis from brief, high exposure (as little as 6 months, in Wood and Gloyne) to the exposure of neighbors.

You may wish to check the Pennsylvania hospitals where these patients were treated -- both look like Jefferson hospitals of some sort.

Ed Rubin

1935, Egbert -- case reported is nothing new, but table of "fatal cases of asbestosis" is interesting. In at least one of these, the asbestosis was seen at autopsy of a man shot to death (#17). Still, there are cases here with exposure periods measured in months (the least was 1 year, and acute TB seems to have been a main cause of the death).

He also refers to asbestos bodies or something very much like them being reported in the lungs of non-asbestos workers.

I am on good terms with Dr. Harold Stewart, main author of the 1931 report, semiretired from the National Cancer Institute. You may wish to contact him directly or ask him something through me (301-496-6047). I met him through Dr. Hueper, they were good friends.

I may have mentioned this, but neighbors' exposures could have actually been increased by the installation of dust controls in the plant. Early ventilation systems for dusts did not include dust collectors for exiting air streams emitted outside. This may not have even occurred, since they generally try to save on the heating bill in winter by recirculating some of this air (especially if there ~~was~~ is a dust collector on the exhaust air from the plant). To complicate matters further, dust collection equipment varies widely in efficiency of air filtration. You may wish to inquire of the company, what was the history of installed ventilation controls? When were filters or collectors first used on air exhausted from the workplace? What was the type (baghouse, cyclone, settling chamber,...) and size (in cubic feet of air per minute handled) of each unit in use?

The "bystanders" subchapter of my book will be typed in draft soon, and I'll send you a copy.

One other item published in Reading may be of use to you (The Very Least an Employer should Know about Dust and Fume Diseases, 1931). Also, a note of foresight from The Industrial Bulletin, 1934.

Do keep me posted on developments as your trial dates approach, and let me know if I can be of help in any way.

With best wishes.

Sincerely,

Barry