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PLAINTIFF'S EXHIBIT
UC-3664

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NIAGARA FALLS, N.Y.

11 July 1978

MEMORANDUM FOR: EXECUTIVE COMMITTEE

SUBJECT: Editorial prepared by Dr. Enterline for American Review of Respiratory Disease

Phil Enterline forwarded the attachment advising that the "editorial" following from the study he did for us has been submitted to the American Review of Respiratory Disease.

Please recall that I mentioned Phil had this action in mind, further, he plans to write a full paper to "come out in some form and by some publisher yet to be identified." Your comments are invited through me or direct to Phil.

R. H. Mereness
Executive Director

Enclosure
cc: Dr. Weill

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Editorial

Asbestos and Cancer -- the International Lag*

By the early 1940's the question of whether asbestos caused lung cancer seemed to have been settled. Asbestosis, the fibrotic changes in the lung resulting from the inhalation of asbestos fibers, had been recognized for over 40 years. In 1934 in England, Wood and Gloyne reported two cases of lung carcinoma seen at autopsy in 43 cases of asbestosis, and in 1935 Gloyne gave a complete description of these two cases (1, 2). Also in 1935, Lynch and Smith reported one case of lung cancer in an asbestosis case in the United States, and in 1936, Egbert and Geiger reported a case -- also from the United States (3, 4). In Germany, Nordmann added two cases of lung cancer in two cases of asbestosis, making a total of six and concluded, "A cause-effect correlation must be present here, even if I had been the only observer. We are indeed facing an occupational cancer which affects asbestos workers" (5). German writers quickly accepted Nordmann's views (6, 7, 8). They were reinforced by an animal study in which Nordmann and Sorge reported pulmonary carcinomas in two white mice as the result of asbestos dust inhalation (9). Other German writers considered this experimental evidence needed for proof and gave Nordmann credit for discovering the relationship between asbestos and lung cancer (10, 11). Meanwhile, in the United States, Hueper declared that, "Asbestosis cancer of the lung is the most recent newcomer among the occupational cancers of this organ" (12). In 1950, West Germany declared cancer of the lung, when associated with asbestosis (of any degree) an occupational disease.

*Based on an unpublished manuscript: Asbestos and Cancer, the First Thirty Years.

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presented, merely a squamous cell metaplasia, while the other, asserted to be an adenocarcinoma, "is a type of tumor that can arise spontaneously from the mouse adenoma"(25). Even Hueper seemed to agree with this, and outisde of Germany, Smith's views on Nordmann's work gained some acceptance (19, 26-27).

Another problem in the United States was the attitude of leaders in the field of pneumoconiosis -- particularly, Vorwald, Lanza, and Gardner (20, 22, 28-32). Their expressed concern was the lack of experimental data. In addition, the different relationship between asbestosis and lung cancer as compared with silicosis and lung cancer must have been disturbing. Lanza was also concerned about the same selectivity that worried Gloyne and Lynch, and he wondered, in regard to English claims of an association in autopsied cases of asbestosis, how many cases of lung cancer would be found if lungs from any sort of population were subject to the same minute scrutiny (29).

The situation could have been resolved, from the American point of view, by a report by Merewether, who in 1949 compared lung or pleural cancer in cases of asbestosis reported for compensation with lung or pleural cancer in cases of silicosis (33). This was clearly the most important single study in bringing about a concensus in Great Britain. In America, however, this seems to have given birth to a new idea: there is a relationship between asbestosis and cancer in England and in Germany but not in the United States. This idea apparently originated with W. E. Smith; however, another Smith (K. W.) enlarged on this, stating that there was a difference due to the type of fiber used in England and Germany as compared with the United States (34, 35). Italian writers picked this up as an argument for a difference between Italy and England (36, 37). The argument was also repeated by Eckhardt, Gilson, and Johnstone and Miller (38-40).

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So what ended the debate in the United States? Probably three things: positive epidemiological studies in the United States in 1963 and 1964; a widely read 1960 study that showed that asbestos was associated with a rare tumor -- malignant mesothelioma; and experimental evidence in 1962 and 1964 that asbestos had carcinogenic properties (47-51). So the kind of evidence demanded by Bridge and Henry, and which would have satisfied Gloyne, was finally developed 30 years after Gloyne made his initial observations, and over two decades after the acceptance of a relationship between asbestos and lung cancer in Germany.

Clearly, the matter involved a question of what is acceptable and conclusive evidence. Perhaps a special set of rules are needed for relationships like asbestos and lung cancer where some other biologic response, such as asbestosis, can be used as evidence of significant exposure, and the rules proposed by Bridge and Henry were not appropriate after all. Many writers were convinced of a relationship long before epidemiological and experimental evidence was available. Aside from the high incidence of lung cancer in asbestotics, they were impressed by the predominance of cancer in the lower lobes, the time lapse between exposure and disease, the high incidence in females, and the young age of many of the cases seen. Moreover, there were reasonable theories regarding mechanisms by which asbestos could cause cancer. It would be of interest to test the generic criteria for a carcinogen now being proposed by the U.S. Department of Labor against this kind of evidence (52).

In any event, the issue was definitely settled for the United States at a conference on the Biologic Effects of Asbestos held in New York City in 1964 (53). At that conference additional epidemiologic evidence was presented, and of 26 papers presented in which an opinion was expressed, none dissented from the view that asbestos is a cause of cancer.

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