The most common complication of asbestosis is cancer of the lung. However, cancer of the lung apparently induced by asbestos may appear unaccompanied by asbestosis.

The association of lung cancer with exposure to asbestos dust has been the subject of many investigations in recent years and extensively documented in the literature. See Ex. 3, Litton; Ex. 19 Nat'l Acad. and a correlation between asbestosis and lung cancer appears definite.

It is recognized that cancer of the lung produced by asbestos needs further study. The latent period between exposure and evidence of carcinoma may be even longer than for asbestosis. Little is known about the dose-time relationship. Cases of lung cancer have been observed when only a very short exposure or no exposure to asbestos was known. Furthermore, the low number of "asbestos bodies" observed in one-fourth to one-half of the urban population may be sufficient to cause cancer. Because the long "asbestos bodies" remain in the lungs, a person who has inhaled asbestos may carry the potential for the rest of his life to develop carcinoma of the lung. Moreover, it has not been determined whether more than one fiber is necessary to induce a malignant tumor. It has been suggested that the probability of cancer induction is proportional to the number of asbestos fibers, number of susceptible cells, the concentration of carcinogens on the fibers, and the time from exposure.

Why asbestos is carcinogenic is not clearly understood. At least three hypotheses have been advanced:

1. That the fibers act as a physical irritant which after 20 to 30 years of constant irritation induces a tumor.

2. That the fibers contain small amounts of carcinogens, such as benzo(a)pyrene, nickel, and chromium which are eluted from the fibers by the serum in the lungs.

3. That the fibers accumulate in the lung and are immobilized as "asbestos bodies" which disintegrate after 20 to 40 years. The resulting free particles cause asbestosis or carcinoma of the lung.

Primary tumors of the pleura and peritoneum are so rare that for years they were considered to be pathologic curiosities. In 1960 the first large series of cases of diffuse mesothelioma were reported, in South Africa. In trying to explain this mysterious epidemic, "asbestos bodies" were found in the lungs of some of these patients. An association with exposure to the Cape of Good Hope asbestos fields, or the industrial use of asbestos, was established in 32 of 33 patients with histologically proved pleural mesothelioma. The majority of these patients had not actually worked with asbestos but had lived in the vicinity of the mines and mills,