in the study of coal miners' lung residues. The use of antifoaming agents (Talvitie & Brewer, 1962) has changed the situation, and it is likely that destruction of the lung tissue with hydrogen peroxide or anhydrous formamide would be better methods than ashing, although the residues would still have to be freed from carbonaceous materials and, if present, hydroxyapatite; asbestos bodies do not seem to be attacked by hydrogen peroxide.

In the study of asbestos lungs from South Africa the acetic acid method was used because we wished to avoid ashing and because this method was used as a routine, at the time, in the study of coal miners' lungs. Although not suitable for the isolation of chrysotile, it seems to be a possible method for isolating amosite and crocidolite. It seems to remove most of the material that forms asbestos bodies, but it leaves carbonaceous material intact. "Coal" is in fact determined by the loss in weight found on ashing the acetic acid residues.

The acetic acid method was used on 13 samples of the previously examined asbestosis lungs from Great Britain. The yield was, on average, about half of that given by extracting the 380° ash with 0.1 N hydrochloric acid. Although the acetic acid residues contain more carbonaceous material, they weigh less because most of the iron compounds are missing.

Separation of chrysotile. Electrophoresis of dust in 0.001 molar sodium chloride at pH5 was used in the Sheffield laboratory in the study of silica modifications. Observations by Bergman and Langrish suggest that it may be possible by this technique to separate chrysotile, as this mineral carries a strong positive charge in contrast to amosite, crocidolite, quartz, silica, and kaolin, which are all negatively charged.

Identification of Asbestos

In general, the more the asbestos can be concentrated in a sample the easier is its identification. Microscopy with polarised light and suitable immersion liquids and X-ray or electron diffraction are probably the most reliable methods. Samples of appropriate size (fiber length of the order of 50 μ) of the different minerals after treatment in exactly the same way as used in the preparation of lung residues, should be used as standards for determining optical and X-ray diffraction properties. Phase contrast microscopy has been recommended (Schmidt, 1960), but we do not know how well this technique works with fibers of the size found in lung residues, nor have we any experience with interference microscopy.

Electron microscopy has been used to a limited extent. Strongly curved fibers seem indicative of chrysotile although Huggins (1959) has shown that crocidolite (from Bolivia) may also occur in curved form.

Conclusion

The most interesting result of this study is that in over half the lungs