inhalation, intratracheal insufflation, intravenously or intraperitoneally, Vorwald, Durkan and Pratt (1951) recall that ordinary industrial (asbestos) dust and, especially, long fibre asbestos dust from which the small fibres had been separated, produced characteristic peribronchiolar fibrosis which remained static on discontinuance of exposure, whereas to particles of 3 μ and less there was no tissue reaction (King, Clegg and Rae, 1946). On substituting Brucite (native magnesium hydroxide containing only 0·9 per cent silica as silicate—Brucite is a crystalline compound easily split into thin sheets and has a flexibility comparable to that of asbestos fibre), for the asbestos peribronchiolar fibrosis is similarly established, but dust of glass fibre which is not flexible and, of course, cannot be split does not, on long inhalation, lead to fibrosis.

The dependence of the fibrosis on physical form was, however, settled by the failure to induce fibrosis by long inhalation of asbestos which, having been fused and ground, no longer retained its original structure.

The Gardner school held that the combination of size, physical form and immobilization in a rhythmically moving organ is the determinant of the pathogenic effect. Effects somewhat similar to this pulmonary fibrosis can be obtained by injection of asbestos fibres into the peritoneum.

But at no stage in all these impressive researches was any clue obtained which might have offered any support to the possibility that asbestos could act as a carcinogen. There is no reliable criterion by which one can anticipate carcinogenicity and, as is well known, relatively minute changes in the structure of a chemical carcinogen are sufficient to diminish or eliminate carcinogenic action.

If asbestos is indeed to be regarded as a carcinogen, the need is felt to demonstrate some property which can be regarded as something more than inertness. The simplest such property is solubility. Solubility confers some activity on a compound as, for example, in the case of silica, the solubility of which in aqueous conditions is sufficient to found a chemical theory of silicosis.

Asbestos has, however, not given much evidence of a solubility which might be significant.

In analysing the working environment for asbestos dust Sundius and Bygden (1938) made the curious remark that only amphibole asbestos could be recognized in their analyses, in spite of the fact that the asbestos commonly used in industry contains mainly chrysotile and to a considerably lesser extent amphibole asbestos. This statement, if confirmed, might mean that chrysotile is dissolved in the analytical process. In fact, chrysotile is the least resistant of asbestos types to chemical and physical agents: it is decomposed by hydrochloric and sulphuric acids, it loses water at red heat and its fibres can be fused in the bunsen flame. (Crocidolite--blue asbestos—is also fusible to a black magnetic glass but is resistant to chemical agents).

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