

due to a maintained mechanical irritation produced by the insoluble amorphous, or to a chemical effect brought about by the dissolving silicate. It may be recalled that Alden and Howell (1944) stated that amosite needles are capable, when embedded in epithelial tissue in the skin, of eliciting a non-inflammatory epithelial proliferation. This statement was made from observations on amosite workers who developed hyperkeratotic epithelial thickening after penetration by a small splinter-like fibre. X-ray examination and biopsy show no evidence of a foreign body in these "corns".

Solubility of asbestosis bodies

More work is required on this problem especially quantitative studies of the solubility of asbestos types in a variety of conditions, together with an identification of the products after solution. The question is not one of explaining fibrosis of the lung by a chemical process, for this is almost decisively negated by the undoubted fact that the smallest particles of asbestos have not in fact produced a fibrosis in the experience of most investigators. The question is rather one of finding a product of solution which, by entering the modified squamous epithelium of the lung, or by changing its environment, can lead to de-differentiation or to tumour formation. The majority of pulmonary tumours in men are anaplastic or undifferentiated or (epidermoid) squamous epitheliomata and they constitute a type of new growth in the lung which has hitherto eluded the experimentalist. Probably the only claim to have induced a true cancer in the lungs of mice was that made by Nordmann and Sorge (1941) who exposed 100 mice to undefined asbestos dust and stated that 20 per cent of the animals developed cancer. There is considerable doubt, however, whether the evidence presented is really acceptable.

In fact, cancer of the lung (truly so called—not adenomas as found and induced in mice) has not hitherto been produced by inhalation of any material. W. E. Smith (1952) in a very forceful consideration of the experimental aspects of cancer of the lung concludes "that we are singularly ill-equipped for the experimental study of one of the chief problems of human cancer".

Until this charge is successfully answered we may for practical purposes regard asbestos or a derivative of asbestos as a probable co-carcinogen in that proportion of cases of diffuse fibrosis of the lung in which the necessary preparedness of the lung has been brought about, probably endogenously. Such a view has, at least, the merit of less sterility than the common panacea for carcinogenic dilemmas, irritation.

AROMATIC AMINES

Of the few identifiable chemical agents which may without doubt be accepted as standing in the line of causality of particular types of human neoplastic disease, certain aromatic amino intermediates in the dyestuffs industry occupy the most interesting and, from the point of view of the experimentalist, the most fruitful position. Not only have they been repeatedly reported in

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