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ASBESTOS FIBRES IN THE AIR OF TOWNS

P. F. HOLT and D. K. YOUNG
Department of Chemistry, University of Reading, Berkshire, England

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Abstract—Many observers have reported that asbestos bodies are present in the lungs of town dwellers who have had no industrial exposure to asbestos, suggesting that asbestos may be a normal contaminant of the urban atmosphere. The air of several cities—London, Reading, Rochdale, Bochum, Düsseldorf, Prague, Pilsen, Johannesburg and Reykjavik—has been sampled using millipore filters. The samples were transferred to carbon film on a grid and they were examined by electron microscopy. Asbestos fibres were found in samples from every town. They were mostly present as single fibrils but some were in agglomerates that contained many fibres.

ASBESTOS fibres that have been inhaled often become coated in the human lung with a material that is largely ferroprotein, giving characteristic structures called asbestos bodies. Some other fibrous materials may also become coated to give pseudo asbestos bodies. CAUNA, TOTTEN and GROSS (1965) found asbestos bodies in 41 per cent of lung smears taken from 100 autopsies of adults who had had no known connection with the asbestos industry. THOMSON and GRAVES (1966) examined lung smears obtained at 500 autopsies in Cape Town and 500 in Miami, Florida. The results were similar in the two cities, specimens from 30 per cent of the males and 20 per cent of the females showing asbestos bodies. Some 15 per cent of the positive cases had very many asbestos bodies and it was considered that these had been exposed to an industrial risk. In 85 per cent of the positive cases there were few bodies and there were no associated pulmonary changes.

ANDELVEL and THURLBECK (1966) in Montreal found asbestos bodies in 48 of 100 random necropsies. They also found pseudo asbestos bodies but believed they could differentiate between bodies produced from asbestos and those from other sources. ROBERTS (1967) found asbestos bodies in lung smears from 23 of 100 consecutive hospital necropsies in Glasgow, Scotland, near an industrial area where shipbuilding is an important industry, GHEZZI, MOLTENI and PUCCETTI (1967) found asbestos bodies in 51 out of 100 random subjects who died in Milan. WEBSTER (1965) reported asbestos bodies in the lungs of 47 per cent of a group of patients who had had no direct connexion with the asbestos industry. TABERSHAW (1968) found asbestos bodies in 41 per cent of the lung smears he examined, and POLLIACK and SACKS (1968) in 26 per cent of 100 consecutive adult autopsies in Jerusalem.

PENMAN and THOMSON (1970) obtained similar results in Dunedin, a town in New Zealand without heavy industries. They showed that the number of asbestos bodies found in a lung was related to the method of examination; presumably most lungs contain asbestos bodies. An examination (UM, 1971) of histological slides kept in the Central Histological Laboratory of the Archway Hospital, London, suggested that the number of asbestos bodies in lungs is increasing; when 100 lung sections cut from blocks made in each of the years 1936, 1946, 1956 and 1966 were examined, asbestos bodies were found in 0, 3, 14 and 20 per cent respectively.

In France, BIGNON *et al.* (1970) found structures similar to asbestos bodies in tissue from every lung examined. In general, there were more such structures in the lungs of

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