persons who had lived in Paris or near to a large factory manufacturing brake linings in which asbestos is used.

The asbestos bodies in the lungs of persons not normally handling asbestos are presumably derived from fibres present in the urban atmosphere but the widespread reports suggest that most atmospheres are contaminated. We obtained samples of dust from the air of several cities by drawing about 50 l. of air through a millipore filter (type VF) by means of an Austin diaphragm pump. The filters were used face downwards to prevent large particles from settling on the membrane. The specimens were transferred to grids by forming a carbon deposit about 200 Å thick over the dust, transferring small pieces (1·5 × 1·5 mm) cut from the filter onto the grids, carbon downwards, then dissolving the filter away with acetone. The dust was left on the carbon membrane on the grid. A careful search of these specimens was made with the electron microscope. Blank millipore filters treated in the same way were examined to ensure that the filters themselves were not contaminated.

The sampling points chosen were well above street level and, so far as could be ascertained, away from any direct source of contamination. In London samples were taken from the top of a five-storey building, in Reading from the top of a two-storey building situated in a park and also inside the building. Sampling positions well above street level were also chosen in Rochdale, England, in Bochum and Düsseldorf in Germany, in Prague and Pilsen in Czechoslovakia, in Johannesburg, South Africa, and in Reykjavik, Iceland. Only Rochdale, which has the largest asbestos textile factory in Europe, can be regarded as having an important asbestos industry.

A careful search of some of the grids revealed no true fibres, but on other grids there were fibres or agglomerates of fibres. It was seldom that more than one or two windows of a grid revealed fibres. Usually the fibres were single, but occasionally large agglomerates were observed. Some appeared to be coated with soot or other material. Fibres were present in the specimens from every sampling point but no fibre was found on any blank filter.

Chrysotile is the most widely used variety of asbestos. The chrysotile crystal has a characteristic appearance in the electron microscope. The lattice is in the form of a tube that may be hollow or filled with amorphous material and the ultimate fibril has a diameter of about 0·03–0·06 μm. Electron diffraction studies made on some fibres having this appearance confirmed that they were in fact chrysotile asbestos. Other fibres were identified as amphibole asbestos. Amphibole asbestos was identified in the air of Bochum and Johannesburg.

Compared with other contaminants the amount of asbestos is very small. A part of a grid as seen in the electron microscope is shown in FIG. 1. Many similar fields contain no fibres. There appears to be no way in which the concentration of fibres can be expressed satisfactorily. RICKARDS and BADAMI (1971) found chrysotile asbestos in the air of Rochdale and attempted to estimate the mass concentration by an X-ray technique based on the measurement of the integrated area under the (002) peak. They were able to determine only the upper limit which was 100 μg of chrysotile m^{-3} of air. GADSDEN, PARKER and SMITH (1970) described an infra-red technique for the measurement of the mass concentration of asbestos dust in air but they found the concentration too low for the application of their method even in a car park with a foundation of asbestos waste and a tip used for dumping asbestos waste. They did however, detect fibres on their millipore filters by electron microscopy.

FIG. 2. A single fibre ... dorf. Most fibres ap...

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