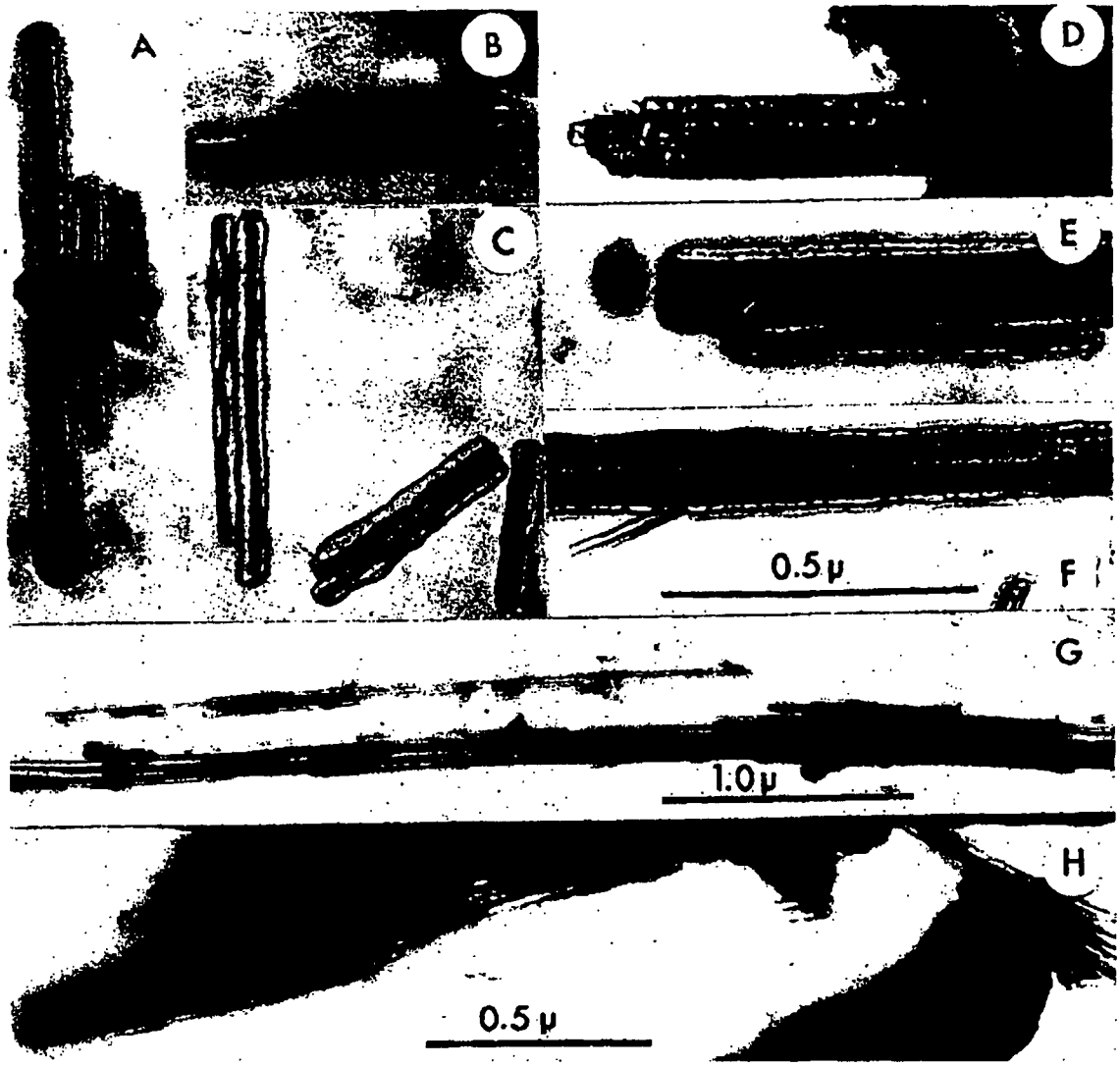

Fig 3.—Chrysotile fiber size range (thickness, length); fibers several fibrils thick (A to F) to fibril bundles (G, H). Fibrils range from well-formed (A) to highly deformed (C). Fiber length ranges from several thousand Angstroms to several microns.

eye. Only 9 of 248 squares of each grid were examined under the EM beam. The technique used in this investigation provides an answer to the qualitative question: is chrysotile a ubiquitous contaminant of the tissue examined? It is evident that only an infinitesimal fraction of lung tissue was scanned (conservatively estimated at 10^{-6} of the total lung burden). Quantitative studies are in progress; these will be useful for epidemiological investigations concerned with the biological significance of the current qualitative findings.

Instrumentation.—Identification and location of asbestos fibers and fibrils required the use of the highest magnification available on the electron microscope (RCA EMU 3G). A fibril is defined as the smallest characteristic fiber unit of chrysotile asbestos, with a thickness of 200 to 400 Angstroms. Scanning was done at magnifications of 31,000X with an acceleration voltage of 100 kv. Identification of chrysotile was confirmed using the 7X binocular attachment, or at 217,000X.

Identification Criteria.—In order to justify identification of chrysotile asbestos as it appears after extraction from lungs, it was necessary to review and extend information concerning the morphological nature of chrysotile. The range of morphological characteristics of chrysotile was studied in considerable detail, and the findings are described