"This differentiation of inhaled fibers is a screening procedure not free of error, particularly for fibers substantially thinner than 1μ in diameter. However, the error may be reduced by increasing magnification correspondingly."

Although identification of the central fiber of ferruginous bodies and of naked fibers has been accomplished by electron diffraction[2] and electron microprobe analysis,[3] these techniques are laborious and time consuming processes. Furthermore, for a large-scale investigation such as becomes necessary to obtain statistically reliable data, the extensive use of the above techniques could prove enormously expensive since it would tend to monopolize the costly equipment involved and the time of trained technicians.

Also, the need has existed for a method which would (1) facilitate acquisition of the necessary data, and (2) do so rapidly and economically. The purpose of this communication is to suggest a means for satisfying these needs.

To test the validity of these concepts, electron photomicrographs were made of the ends of several chrysotile, amosite, and crocidolite fibers as well as the ends of a similar number of glass, ceramic aluminum silicate, and silicon carbide fibers, all of which had diameters within the range of 0.1μ to 2.0μ. Without the observer's knowing the identity of the fibers on the photographs, the latter could be sorted easily, quickly, and correctly into asbestos and non-asbestos categories on the basis of the above concepts. A magnification of X 20,000 or X 25,000 appeared to be optimal for this purpose.

If a fiber is classified as asbestos, it may be desirable not only to confirm this, but also to determine whether it is of industrial origin (i.e., chrysotile, amosite, or crocidolite) or non-industrial origin (i.e., tremolite or actinolite). In such cases, use of electron diffraction and/or microprobe techniques would be required, but for a much smaller number of examinations, in all probability.

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