

teenth century, but large scale mining only began in the past decade. Amosite, discovered in the Transvaal in 1907, was first commercially extracted in 1908 (2). Milling of the fiber to release it from the ore is usually done at the mine-head, and the fiber is then bagged and exported to the factories of the industrialized world, in particular Britain, other European countries, and the United States.

The world sources of production and use of this mineral are shown in figure 1 in a way that underlines the need for worldwide appreciation of its potential threat to health; figure 2 traces the history of medical recognition of its health effects in relation to the commercial exploitation of the mineral. Thus, adverse effects on health were observed in the early 1900s and first reported in 1907 (1), and it is now recognized that exposure to asbestos may lead to the pathologic conditions listed in table 1. These include fibrosis of varying degrees and virulence of the lungs and pleura; and neoplasms of the lung, pleura, peritoneum, gastrointestinal tract (5-9), and, possibly, the larynx (11-14), ovary (15), and breast (16). Despite legislative action aimed at controlling the health effects in Europe and North America (Gilson, 5, p. 696), deleterious effects on health continued to be reported. Indeed, asbestos-related lung disease has been called "the occupation illness of the 60s," a description that also reflects the extent of current public concern for this health hazard (1).

Although recognition of the association between asbestos exposure and the various health effects listed in table 1 was made initially by shrewd clinical, pathologic, and epidemiologic observation, exploration of the nature of the association with asbestos exposure has subsequently been made by epidemiologic studies. Results of such studies are frequently found in journals of epidemiology, public health, and environmental health, rather than in clinical journals, and in reports of international conferences not covered by the usual clinical reference systems, such as the Cumulative Index (5-9). The published proceedings of these conferences, all internationally supported, in keeping with the international nature of asbestos use, provide excellent source material to which extensive reference is made in this review. For this reason, the proceedings of each conference are cited only once, in references 5 to 9. Individual presentations are subsequently identified in the text by the name of the first author and page number.

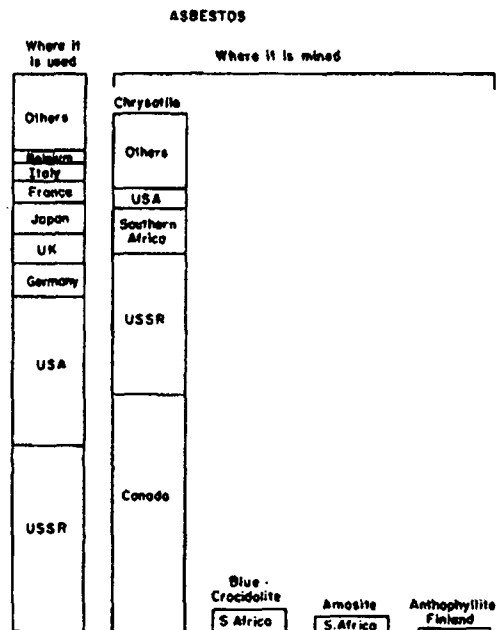


Fig. 1. [From Smither (4); reprinted by permission of publisher.] Asbestos: where it is mined and where it is used. This figure was based on world consumption for 1970, estimated at 3,000,000 tons. The figure for 1974 is estimated at 5,100,000 tons, with Russian production now surpassing the production of the western world.

Nevertheless, the practicing physician is often the first source of medical help for the exposed person whose health is affected, particularly if the exposure is related to the use, rather than production of, asbestos products, or if exposure is nonoccupational, i.e., by neighborhood or household contact.

It has been said by Weiss (17) that "the clinician sees the sick patient against his memories of individuals with a similar constellation of abnormalities half-buried in his apperceptive background and in relation to what he recalls from the literature, usually written by peers with the same small field of vision" and that he "founders into erroneous conclusions because he looks only at the people directly in front of him." By contrast, the epidemiologist sees "the sick patient as an impersonal unit in relation to a populational universe" and "misses a truth because it is buried in a mass of data." Perhaps these remarks apply only to the bad clinician and the bad epidemiologist. Nevertheless, the differences in approach seem to be sufficient to merit a review that attempts to bridge the gap; thus, the

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