

Acceptance of the Distinguished Public Service Medal for 1990

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Samples of rock dust collected from the Hunting Hill Serpentine Quarry, Rockville, Maryland—a quarry that furnishes most of the construction stone for eastern Maryland and the Washington metropolitan area—were found to contain chrysotile asbestos. This information, when reported to the press in 1976, created a near panic. Epidemiologists went searching for mesothelioma cancer patients in the local hospitals, politicians spent \$3 million pouring tar over roads composed of serpentine gravel, a local TV station introduced their daily asbestos news bite with a skull and crossbones, and mothers whose children had walked on pathways covered with crushed serpentine stone became hysterical because they believed that their children might die of some terrible cancer, allegedly caused by the rock dust. I said to myself, after seeing one too many skull and bones on TV, if a bit of dust from garden-variety serpentine can cause disease in the local residents, then the sky is falling. To prove to myself that the sky was not falling, I embarked on a 14-year odyssey into the swamps of public policy—the asbestos controversy. My allusion to Homer's epic poem recounting the long wanderings of a certain Greek is not inappropriate.

In 1978 I gave a paper at the Toronto GSA Meeting (Ross, 1978) in which I defined the relative health effects of the three commercially important asbestos minerals and noted that chrysotile asbestos was far less dangerous than crocidolite. Since then I have elaborated on this subject in numerous papers, abstracts, and Government briefings. For these efforts, I was attacked in the Congressional Record as one who made inappropriate manipulations of health data. The data I quoted in my papers came directly from the primary medical literature, with no manipulation. The attack in the Congressional Record, I believe, was made because of my proposition that it was unnecessary to remove most of the asbestos from schools. At that time (1984) there was a strong movement in Congress to promote asbestos removal.

But help from my mineralogist colleagues was not far behind, for in the 1980s Ann Wylie, Cathy Skinner, Marty Rutstein, and Art Langer were well ahead of the American medical profession in reporting on the fallacy of the federal asbestos policy. And fortunately, in the late 1980s, some well-qualified medical scientists came to the mineralogists' rescue. These scientists did indeed recognize important differences in the degree and type of disease depending on whether the workers were exposed to chrysotile, amosite, or crocidolite asbestos. And now, 14 years later, the EPA states that it is really not necessary to re-



move most asbestos. It is clear that most of the billions of dollars spent on asbestos building abatement was entirely unnecessary and in fact was counterproductive. Many asbestos abatement workers now have been exposed to high levels of asbestos dust through employment in the many very dirty, unsupervised abatement jobs.

For a scientist who worked for so long on such non-controversial subjects as exsolution in amphiboles, mica polytypes, and mineralogy of lunar samples, being involved in scientific controversies that relate to one's physical and economic health is indeed a distressing experience. Yet, we as scientists must at times enter the fray if our knowledge will be of service to our nation. But as advocates of some point of view we must carefully evaluate the merit of other scientific opinions and also consider the social and economic implications of the possible regulatory actions that may be instituted because of our advocacy. We must be able to separate the important problems from the unimportant ones. With each new environmental issue I ask the same question. Is the sky

falling? At present, the federal definition for asbestos is so broad that many mining and construction projects will be affected by asbestos regulations; mine waste dumps will be considered toxic and may be placed on the superfund list for future cleanup. Yes, with regard to asbestos, a now unimportant health problem, the sky is still falling. With regard to radon abatement in homes and schools, with regard to mitigating the alleged global warming, with regard to replacement of all of our chloro-fluoro hydrocarbons with chemicals that allegedly do not destroy the ozone nor affect human health, and with regard to elimination of the use of most pesticides, the sky is falling.

I say this because if we attempt to mitigate simultaneously all of the environmental problems presented to the public in the last few years, the costs will destroy the U.S. economy. We as geoscientists have much to offer to the understanding of many of these environmental problems. Our strength may be that our many-faceted science requires us to consider multiple factors in describing geologic processes. In our effort to improve human health and to clean up our environment, we must be able to make a very strong scientific case when mitigation of the stated problem will dearly cost our economy and social structure.

This Public Service Award from the MSA is most unexpected, for we Don Quixotes of the world can generally expect ridicule rather than reward. I do, however, wish

to thank the members of the Mineralogical Society of America and Don Lindsley, the first chairman of the Public Service Award Committee, who originally proposed such an award, for this honor—it is truly much appreciated. I would also like to acknowledge here the support I have had from so many of my colleagues at the U.S. Geological Survey, particularly our former director, the late Vince McKelvey, who in 1978 was convinced of the need to examine carefully the asbestos problem; our present director, Dallas Peck, and assistant director, Jim Devine; Bob Hamilton, John Filson, Avery Drake, Patrick Muffler, Julian Hemley, E-an Zen, and last but not least Dave Stewart, close friend and my former branch chief, who supported me through some rather uncomfortable times—such as when my records were examined by the Congressional staff. Some believed I was an agent for the Canadian chrysotile asbestos interests; others said I was hired by the U.S. Geological Survey to sell asbestos. And last, I would like to thank Hat Yoder, Jack Kinney, and my wife, Daphne Ross, for their support and wise counsel during this 14-year odyssey.

REFERENCE CITED

- Ross, M. (1978) Asbestos health risks to the mining communities of North America. Geological Society of America Abstracts with Programs, 10, 481.