and extent of exposure may be prognosticative, but such data are not available.

- Examination of work histories in a case-control context is useful when a casual relationship is suspected or unknown, but it has been firmly established that exposure to asbestos is necessary for development of asbestos-related medical conditions. What remains undetermined, however, is how the extent and duration of asbestos exposure affect the development of the disease, and what cigarette smoking contributes to this process. We have essentially no data available that will enable us to answer these questions. We may be able to identify jobs with potential asbestos exposure, and a case-control analysis would probably show that pipefitters were at a greater risk of developing asbestos-related medical conditions than were chemical operators, which we already knew without coding 1,000 work histories. We may also find lots of other interesting odds ratios which will probably have little ramifications given the current status and use of personal protective equipment in the Company, and which will contribute little or nothing to our understanding of the questions currently at hand. Regarding the relative contributions of asbestos exposure and cigarette smoking to the development of disease, again I believe that without quantitative measures of asbestos exposure, this question cannot be resolved. If we assume, as I did above, that all controls were exposed at some point to some level of asbestos, we can evaluate the contribution of smoking to the development of asbestos-related medical conditions, given a "fixed level of asbestos exposure. If we want to stretch our assumptions, let's say that all cases had high exposure and all controls had low exposure. Still no need to code work histories, and the guesswork involved is about equivalent. I maintain that it is not possible to obtain valid, or even reasonable, estimates of asbestos exposure from job titles listed on employment histories, especially given the intermittent nature of asbestos exposure in the Company, as opposed to that found in, for example, an asbestos manufacturing facility.

My experiences with plant personnel have been somewhat limited to date, but I do feel that most are willing to cooperate if they see the need for the data being collected. Collection of the medical data for this study will require substantial effort by plant physicians and nurses, which is justified given the importance of the subject and the fact that useful information can result from their efforts. If I felt that useful information could be obtained from the employment histories, I would not hesitate to include such a section in the questionnaire.