

increasing coincidentally, but not in association, is ruled out because comparisons have been made between non-smoking and various smoking groups.

A common criticism was that although skin cancers have been produced in mice by repeated applications of tobacco tar, it has not been possible to produce lung cancer on a consistent and predictable basis in experimental animals breathing cigarette smoke. Dr. R. M. Taylor, Executive Director of the National Cancer Institute of Canada reported to the Committee:

"Up until now it has been hard to convince animals to smoke, to follow the same habits that humans do, to produce the experiment. It would be much simpler in solving this problem if we did have an experimental animal that was susceptible to cigarette smoke. But when we have a biological group, and humans are animals also, which have divided themselves so nicely into groups of people who do smoke and who do not smoke, who smoke varying quantities and who smoke in different manners, it seems unnecessary really to have other experimental animals."<sup>18</sup>

It would seem in fact, that to assess human cancer hazards, studies of men are superior to those in animals because they demonstrate the effects of various environmental influences on man in the milieu in which he lives and works.<sup>19</sup>

The Committee is aware that inflammatory and other changes have been produced in the lungs of animals exposed to cigarette smoke or to cigarette smoke constituents.<sup>20</sup>

The Committee recognizes that planned experimentation with humans is impossible, that it is necessary to observe what happens to those who choose themselves to smoke or not to smoke. It is obviously out of the question to randomly determine who will and who will not, throughout their lifetimes, smoke; and smoke a prescribed quantity of a certain type of cigarette in a specific manner. Therefore, large prospective studies of the type already carried out in connection with smoking seem to be the sources of information we have or can expect to have regarding the effects of environmental influences on humans.

It was suggested to the Committee that lung cancer should be more common among women if cigarette smoking were an important cause of this disease. While the lung cancer death rate is higher among men than among women, it is increasing among women, is higher among women who smoke and is higher among women who smoke heavily than among those who are light or moderate smokers. The difference between the male and female rates is compatible with the fact that female cigarette smokers (as a group) have been far less exposed to cigarette smoke than male cigarette smokers of the same ages, as judged by the number of cigarettes smoked per day, degree of inhalation, and the number of years they have smoked.<sup>21</sup>

<sup>18</sup> Minutes—No. 44—Thursday, June 19, 1969, page 1972.

<sup>19</sup> Hueper—W.C., Occupational and Environmental Cancer of the Respiratory System, Springer-Verlag, New York, Inc., 1966.

<sup>20</sup> The Health Consequences of Smoking, 1969 Supplement to the 1967 United States Public Health Service Review.

<sup>21</sup> Epidemiological Study of Cancer and Other Chronic Diseases, Monograph 19, January, 1966, National Cancer Institute, United States Public Health Service.