and Erich Schöniger—the most convincing early demonstration of the central role of smoking in the development of lung cancer.[140] We do not know much about Schöniger, the younger of the two men, but we do know a bit about Schairer. Eberhard Schairer (1907–) was deputy director of Jena's Institute of Pathology and a *habilitierter* professor of medicine with a long bibliography in fields like tumor transplant research and pediatric blood biochemistry. Schairer was Schöniger's *Doktorvater* (doctoral thesis adviser) and apparently the one to have suggested the topic in the first place—judging from the acknowledgments at the end of Schöniger's thesis. Schairer applied to join the Nazi party in 1937 and had already entered several other Nazi organizations (he was a *Sturmarzt* for the SA, for example) prior to joining the Jena medical faculty in 1938. He seems to have fallen from favor toward the end of the war and was sent to the Russian front. The historical record is not entirely clear on this point, but his son says that he refused to exonerate a prominent Nazi driver who killed a man in a traffic accident. He also says that his father deliberately halted a series of animal experiments he was working on—exploring whether saccharine could cause liver cancer—fearing that a negative result (no evidence of cancer) might tempt the government to reduce sugar rations and increase production of artificial sweeteners. As of 1997 he was still alive, but not granting requests for interviews.[141]

All we know about Erich Schöniger is what we find on the résumé printed, as was customary, at the end of his 1944 medical thesis. He was born in 1917 in Bad Schwartau near Lübeck and volunteered for military duty in the summer of 1937. Two years later, in the spring of 1939, he began studying medicine at Jena. He reentered the military in 1940 to serve in the campaign against France, after which he returned to finish his medical studies at Jena. There is no record of his having ever joined the Nazi party. His 1944 thesis (*Lungenkrebs und Tabakverbrauch*) has the same title as his 1943 paper with Schairer, though the text is different and there is more historical background. I have not been able to find out how or when he died: he may have died during the war, but he could conceivably still be alive today.

Schairer and Schöniger's paper is remarkable for its subtlety, surpassing even Müller's study of four years previously. The authors concede several different sources of possible bias and develop ways to get around that bias. They begin by noting that lung cancers were increasingly common among the cancers revealed at autopsy and that men were far more likely than women to contract the disease (six times more often, by their count). They reject several of the customary nontobacco explanations of the increase—automotive exhausts, for example—by noting that rural as well as urban lung cancer rates were on the rise and that operators of motorized equipment did not have high rates of the disease. They then draw attention to the fact that a heavy smoker could easily inhale several kilograms of tar over a lifetime, a frightening figure given Roffo's discovery of benzpyrene in cigarette smoke and his demonstration that animals painted with tobacco tars develop high rates of cancer.

The most original aspect of Schairer and Schöniger's study is their analysis of how lung cancer rates correlate with smoking behavior. Following closely the method pioneered by Müller, the authors sent questionnaires to the relatives of 195 lung cancer victims, inquiring into the smoking habits of the deceased. Going beyond Müller, however, they sent an additional 555 questionnaires to the families of patients who had died from other kinds of cancer—320 stomach, 108 colon, 60 prostate, 35 esophagus, and 32 tongue—the presumption being that smokers would be more likely to develop certain kinds of cancer than others. Questionnaires were also sent to 700 male residents of Jena aged 53–54, the average age at death of the lung cancer victims, to determine smoking habits among a population seemingly free of cancer.[142]

The results were clear: among the 109 lung cancer cases for which usable data were obtained, only 3 were nonsmokers, a far lower proportion than among the population as a whole (about 3 percent, versus 16 percent for the noncancer controls). The smokers were not necessarily "cancer prone," because when other kinds of cancer were looked at—stomach, for example—smokers were found to be no more likely to develop cancer than nonsmokers.