

The Third Reich itself cannot be thought of as an icebound retreat into intellectual slumber: think of television, jet-propelled aircraft, guided missiles, electronic computers, the electron microscope, atomic fission, data processing, industrial murder factories, and racial research—all of which either were first developed in Nazi Germany or reached their high point at that time. (The recent sci-fi film *Contact*, based on Carl Sagan's novel, reminds us that the first television broadcast strong enough to escape the planet featured Hitler's speech at the opening of the 1936 Berlin Olympics.) There are innovations in the area of basic physics (nuclear fission, discovered by Otto Hahn and Lise Meitner in 1938), hormone and vitamin research, automotive engineering (the Volkswagen was supposed to be the "people's car"), pharmacology, and synthetic gasoline and rubber (I. G. Farben in 1942 controlled more than 90 percent of the world's synthetic rubber production).⁸ The nerve gas sarin and the chemical warfare agent tabun are both I. G. Farben inventions of Third Reich vintage—as is the opiate methadone, synthesized in 1941, and Demerol, created about this time with the name "pethidine."⁹

There are many other examples. Nazi aeronautic engineers designed the first intercontinental ballistic missiles—never actually assembled—and it was Germans in the 1940s who built the first jet ejection seat. German engineers built the world's first autobahns, and the world's first magnetic tape recording is of a speech by Hitler. American military leaders knew that German scientists had not slept through the Hitler era, and after the war commissioned dozens of leading scholars to write book-length summaries of their fields, a veritable *Encyclopedia Naziana* with entries on everything from biophysics to tropical medicine. It is interesting what fields they chose to ignore: occupational health and antitobacco research, for example.¹⁰

It is therefore surely not enough to say that the human inventive spirit was suppressed or even that it survived as "pockets of innovation" immune to Nazi influence.¹¹ The story of science under German fascism must be more than a narrative of suppression and survival; we have to find out how and why Nazi ideology promoted certain areas of inquiry, how research was turned and twisted,

how projects and policies came and went with the movement of political forces. If we find that certain sciences flourished, we then have to ask: What was science that it so easily adapted to fascist politics?

Little has been written on Nazi cancer research and policy,¹² and there are interesting reasons for the neglect. Historians who have focused on Nazi medicine have tended to concentrate either on political and racial ideology, or on the complicity of physicians in Nazi campaigns of sterilization, segregation, and medicalized killing (e.g., the "euthanasia" operation).¹³ These deadly aspects of medicine under fascism are far better known than many other aspects—addiction or vitamin research, for example—that were also woven into Nazi ideology. Public health professionals have paid little attention, both because of the distance of history and because little might appear to be gained by pointing to Nazi success in fighting food dyes, tobacco, or occupational dust. The forgetfulness is especially strong in Germany itself, where the predictable ahistoricity of cancer researchers is compounded by their unstudied aversion toward anything that went on in the 1930s and 1940s. Nazism, for many Germans, is still a dirty word.

The topic is sobering, given that Nazi health activists may well have developed the most aggressive and successful cancer prevention program of the era. This should not be too surprising, since German cancer research—and medical research more generally—was the most advanced in the world by the time of the *Machtergreifung* (1933). German scientists were the first to discover skin cancers caused by coal tar distillates, and the first to show that uranium mining could cause lung cancer (both in the 1870s). Germans were the first to identify a bladder cancer hazard of aniline dye manufacture (in 1895),¹⁴ a lung cancer hazard from chromate manufacture (1911),¹⁵ and a skin cancer hazard of sunlight exposure (1894).¹⁶ German physicians were the first to diagnose an X-ray-induced cancer (in 1902) and the first to prove, by animal experimentation, that X-rays could cause leukemia (1906). They were even the first to suggest that domestic indoor radon might prove to be a health hazard, in 1907.¹⁷

There are many other examples one can name¹⁸—and in the