Constraints in the Third Reich

German National Socialism and the Quest for Nuclear Power, 1939–1949. MARK WALKER. Cambridge University Press, New York, 1989. x, 290 pp., illus. $29.95.

This informative and well-researched book has two main, debunking purposes: to lay to rest variations on "the myth of the German atomic bomb"; and to illustrate that the course of scientific inquiry is not autonomous or self-determining but decisively directed by its historical context.

As to the first point, Walker effectively refutes both the proud American postwar view that scientists in the Third Reich were incapable of creating a nuclear explosive and the apologetic German contention after 1945 that they were unwilling to do so. On the contrary, by detailing German research developments and comparing them with American analyses, Walker establishes that the theoretical dimensions of German work concentrated on the crucial matters (isotope separation, heavy water, and reactor design) and achieved fundamental progress. The relative slowness of German research—and the related failure to apply the results on an industrial scale—reflected differing projections of the future, not theoretical limits or moral objections.

Unlike their American counterparts, Germany's scientists simply concluded by 1941—and then stuck with the judgment—that the war was likely to end before nuclear weapons could make a difference. Deluded at first by prospects of imminent victory, most of these men later felt obligated to devote dwindling resources and time to projects that offered surer, more immediate payoffs. Under the circumstances, Walker thinks, these were rational responses (though the belief that the Allies had reasoned identically was not), but their very professionalism raises troubling issues about complicity.

At the center of this argument stands the figure of Werner Heisenberg. He embodied, in Walker's view, the specious apoliticism of most German scientists, which inclined many of them toward authoritarian nationalism before 1933 and prevented them from reasoning their way out of serving Nazism later. He also exemplified the regime's success in extracting collaboration as the price of preserving professional standards and pursuing individual ambition or achievement. To help his country, to defeat the nonsense peddled as "German physics," and to protect his own standing, Heisenberg felt obliged to curry favor in Berlin, even to represent the Reich's claims to cultural preeminence in occupied Europe by giving lectures at German Cultural Institutes across the continent. Whereas other commentators have interpreted all of this as "window dressing," behind which Heisenberg not only dragged his feet on nuclear weapons research but also tipped off the Allies to that fact, Walker's painstaking examination of the surviving evidence leaves him unconvinced. Eschewing "black-white characterizations" and rejecting attempts to fit the wartime conduct of German researchers into the postwar dichotomy between resisters and Nazis, he credits Heisenberg and others with sometimes standing up courageously for the interests of their fellows and their discipline in Hitler's domains but finds no evidence of wider forms of opposition than that. During the war, most German physicists knew little and asked less about the full horrors of Nazi rule; they hardly acted on the basis of such considerations.

Walker's second thesis, that concerning the social determination of science, strikes me as unexceptionable in the abstract but not fully persuasive in the form presented here. On the one hand, my own work on German big business leads me to concur with his emphasis on the manipulability of organized research—in the Third Reich and elsewhere—and on the way in which patriotism permits driven professionals to evade hard questions about the consequences of their work. Walker also makes a compelling case for the damage done to German physics by Nazi racism, prejudice against science, and hostility toward higher education, all of which combined to create serious shortages of technical personnel during the war years and thus to constrain possibilities. On the other hand, he also wants to show that the organizational confusion and competition typical of the Third Reich hamstrung nuclear development, as when the Army Ordnance Office, the Reich Research Council, and the Kaiser Wilhelm Society vied for control in 1941–43. This line of analysis is not strictly compatible with his predominant argument that German physicists regarded the bomb as impracticable on more fundamental grounds, namely those of cost and resources.

The principal obstacle to nuclear development in Germany—especially in contrast to the United States—was material, not managerial. An installation like the plutonium-producing Hanford Works in Washington State, which covered 600 square miles, cost $350 million, and required 45,000 construction workers, was flatly inconceivable in Germany. It was beyond the Reich's means not only to build but also to defend such a facility against air attack, a problem that did not even arise in connection with the American facility. Walker tries too hard to fit what happened with regard to nuclear energy into prevailing interpretations of the "polycratic" nature of power in Nazi Germany and thus follows numerous scholars in overestimating the consequences of administrative confusion in Nazi Germany.

In general, this is a well-conceived and well-presented book. The initially surprising periodization (1939–49) results in an excellent chapter on the process by which Heisenberg and other leading researchers elaborated an "apologia" for their earlier behavior. The author writes clearly and often nearly succeeds at the impossible task of making complicated technical explanations accessible and significant to the layperson. The index is serviceable, the misprints few and trivial. But the grab-bag system of footnoting nearly defeats the purpose of annotation. Superscripts at the end of each or every other paragraph direct the reader to lists of sources for all material in the text since the last such number. After some inconvenience, experts probably will figure out the right connections in order to trace, check, and follow up on quotations, statistics, and interpretations; novices and non-specialists will be baffled. Either the press or the author, whichever decided on this system of references, should do better next time.

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