Then the book becomes increasingly problematical, as is suggested by its involuted organization (the middle three of the five main parts are Confronting Reality: 1939–1959; New Hopes and Horrors: 1955–1963; and Suspect Technology: 1956–1986). When he gets involved in the issues of actual nuclear arms and power, Weart seems to lose the distance that allowed him to create an effective overview of nuclear prehistory. For example, he unfairly caricatures scholarship about the decision to use atomic bombs, mocks the mass protests against atmospheric testing, seeks Freudian explanations for popular concern about fallout (though conceding that in a few years the concentration of strontium-90 in the bones of American children doubled), and frequently drifts away from his subject into irrelevant anti-Communist fulminations.

A long apologia for nuclear power is the weakest section of the book, for here the author's shift from historian to partisan skews his analysis. Proponents of nuclear power and weapons are characterized as "calm and refined, intensely civilized," having a "calmer rationality," "tending more to logical analysis," whereas opponents tend more to "intuition," openly display "anger and anxiety," are "preoccupied with individual human feelings," vent "adolescent fantasies about inadequate and destructive adults," and even show hostility toward "all rational knowledge, technical progress, and organized decision making" (pp. 339–40, 348, 351, 359). Though he claims not to perceive all rationality on one side and all emotion on the other, Weart's history of the controversy follows his own extended argument that all objections to nuclear power are irrational or, at best, poorly informed. Even if this is true, his view of the cultural images integral to the controversy is still one-sided, for (as has been demonstrated abundantly by Hilgartner, Bell, and O'Connor in *Nukespeak*) the proponents of nuclear power manipulated mass emotions with comic books, radio, television, and toys that drew directly on powerful, irrational symbols imbedded in the culture. And after all, as Weart discloses in one of the triumphs of his neo-Jungian methodology, the ringed atom promulgated by the Atomic Energy Commission as its official symbol, bearing no resemblance to any real atom, may be best understood as a mandala.

The history of nuclear images is wrapped up with some suggestive but scattered comments on a few literary and other artistic responses to nuclear energy. Unfortunately, Weart omits the very artists whose work speaks most eloquently to his concerns, such as Masuji Ibuse, J. G. Ballard, Theodore Sturgeon, Judith Merril, and Philip K. Dick. Their images and insights would have added considerable substance to the book's conclusion, with its admirable call for synthesis of art and science in a true transmutation that takes us beyond nuclear fear.

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Chemistry at War

Industry and Ideology. IG Farben in the Nazi Era. PETER HAYES. Cambridge University Press, New York, 1987. xxviii, 411 pp., illus. $39.50.

I.G. Farbenindustrie A.G., which came into existence in 1925, comprised the most technologically advanced chemical corporations in Germany. From its inception, the firm's fate was intertwined with that of its native country. Farben executives allegedly paved the way for the Nazi seizure of power. After 1933, the firm profited from Nazi expenditures to rearm Germany (for example by producing explosives) and to make it self-sufficient (for example by manufacturing synthetic petroleum and rubber). But Farben's association with Nazi policies extended beyond mere profit-making: managing board member Carl Krauch assisted in Nazi economic planning; once German arms had overtaken them, I.G. raided its European competitors; and, symbolic of its descent into the worst practices of the Nazi regime, I.G. managers used concentration camp inmates to construct a synthetic rubber plant at Auschwitz. As a result, 23 Farben executives stood trial in Nuremberg after the war; 13 were found guilty on one or more counts. The firm itself was broken up.

Not surprisingly, Farben has figured prominently in analyses of the Nazi period. Such accounts generally rely, however, upon one of two sets of polemical studies: critics of the firm have stressed the identity of Nazi and I.G. policy and practice; its apologists emphasized the inability of Farben executives to oppose Nazi policies. Peter Hayes, in *Industry and Ideology*, provides the first full-length scholarly study of the firm during the Nazi period. His well-written and carefully researched account sets the standard for future examinations of the relationship between business and the state in Nazi Germany.

Hayes uses documentation from industrial archives and the voluminous files of the Nuremberg trials to scrutinize conventional wisdom about Farben. He convincingly overturns the allegation that within the I.G. there was an "ascending curve of support for Nazism from 1930 to 1933"; instead, "the pattern of corporate interest in Nazism resembled a 'fever chart,' which moved in direct relation to the election returns and inverse relation to the economic indicators" (pp. 67–68). In other words, Farben became interested in the Nazis when the economy was on the decline and when they registered electoral gains through mid-1932; with the incipient economic upturn and the apparent cresting of party support, the firm turned away from the National Socialists on the eve of Adolf Hitler's seizure of power.

Once Hitler came to power, however, relations between the firm and the party improved tremendously: Farben profited enormously; the party and state obtained substitute materials that would otherwise remain unavailable. Yet, Hayes argues, this should not be confused with identity of interests between Farben and the Nazi government. The two clashed over location of new factories, with the regime stressing development of new regions and protection from air raids and the firm emphasizing availability of raw materials and transportation. Plans to expand production capacity provoked further disagreement: the state insisted on immediate output and the corporation favored ensuring ultimate competitiveness.

Clearly "relatively traditional commercial and technological considerations . . . underlay the combine's conduct" throughout most of the Nazi period (p. 161). To bolster this contention, Hayes draws numerous parallels between the conduct of Farben and that of its British and American rivals, Imperial Chemical Industries and DuPont. The terms of Farben's 1933 contract with the German state to guarantee synthetic fuel sales were "virtually identical" to those of a contract signed the same year between ICI and the British government (p. 118). Carl Krauch and other Farben personnel who were seconded to government service from 1936 on were analogous to the American dollar-a-year men (p. 158). The militarization of Farben's chemical production during the 1930s and 1940s paralleled developments at ICI and DuPont (pp. 327ff.).

But we all know that the experiences of Farben differed fundamentally from those of other chemical firms, and the difference is symbolized by one word—Auschwitz. Hayes's treatment of this much-discussed and less clearly understood problem is characteristically thorough and balanced. Farben's choice of a site for a massive synthetic rubber facility near Auschwitz was almost surely *not* determined by the presence of the nearby concentration camp; rather, availability of raw materials, fuel, and transporta-

tion—as well as pressure from the state—decided the issue. This does not exonerate Farben executives: in fact Farben's choice of the site itself led to the expansion of the camp and "its eventual evolution into a manufacturer of death. As on other occasions under the Third Reich, Farben's response to politically ordained choices accelerated the dynamic that produced them" (pp. 350–351).

Setting the stage for a crime and committing it are, of course, not the same thing. Farben executives, though, did more than inadvertently facilitate mass exterminations at Auschwitz. A subsidiary produced Zyklon B, the gas used in the camp. No one bothered to question the increase in orders for the powerful poison. The Auschwitz factory worked inmates nearly to death. When they disappeared to the main camp a few miles down the road, no one inquired about their fate. The inaction of Farben executives in the face of mounting evidence about the mass exterminations at Auschwitz was their most significant failing. Indeed, there is no evidence that any of them even contemplated doing anything about the killings.

Industry and Ideology does not exhaust the historical work that remains to be done on the Farben concern; Hayes devotes very little space to its place in the history of technology, for instance. His treatment of the most important issues surrounding the relationship between Farben and the Nazi regime is, however, definitive.

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German Eugenics

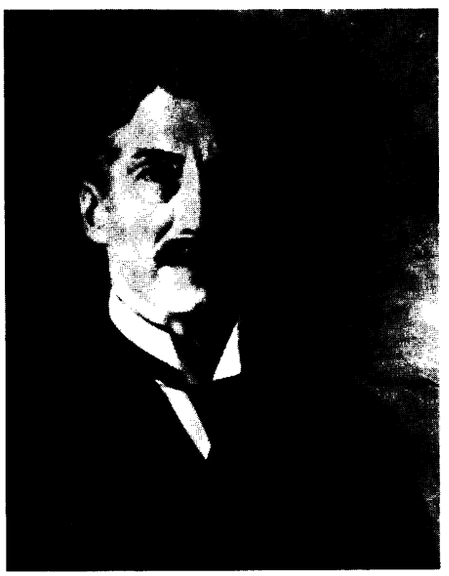
Race Hygiene and National Efficiency. The Eugenics of Wilhelm Schallmayer. SHEILA FAITH WEISS. University of California Press, Berkeley, 1988. xii, 245 pp. $35.

Sheila Weiss's fine book is much more than a scientific biography of the German doctor and eugenicist Wilhelm Schallmayer. *Race Hygiene and National Efficiency* also contributes to the study of ideology and science. Whereas eugenics in Britain and America have been studied on their own terms, unfortunately German eugenics is usually examined in a teleological fashion, as little more than one of the roots of the murderous National Socialist racial policy. But the work of Schallmayer and others should be taken out of the shadow of Auschwitz, as Weiss has done, in order to illuminate German eugenics as well as biology and medicine under Hitler.

German eugenics was a product of its social, industrial, and professional contexts. The rapid industrialization of Germany during the 19th century brought with it disturbing social problems—including alcoholism, juvenile delinquency, and prostitution—that challenged the German medical community. Social "degeneration" was seen as a straightforward medical problem, indeed often as a question of heredity, for the writings of Charles Darwin and subsequent Social Darwinists were influential in Wilhelmian Germany. These three main concerns, social, professional, and "selectionist," led Schallmayer and other German intellectuals to turn to a study of "race hygiene and national efficiency." Only by an efficient management of the hereditary resources of the nation, Schallmayer argued, could the German Empire prosper.

One of the most interesting aspects of Weiss's story is the conflict between eugenicists such as Schallmayer, advocates of the enlightened regulation of the biological wealth of *all* races in the nation, and Aryan supremacists, who both believed in and sought to buttress the inherent superiority of their race. In a sense, it was a struggle between race hygiene and the hygiene of races. Schallmayer could and did argue that all races contain individuals with superior or inferior traits, and eugenics therefore had to transcend racial boundaries. However, other eugenicists claimed that since some races *were* superior, they should be favored at the expense of their countrymen. But as Weiss points out, it would be wrong to imply that there were two separate schools of race hygiene, one meritocratic, the other racist. All German eugenicists shared a technocratic logic and advocated a program of hereditary efficiency and managerial control in order to reduce future social costs. Inevitably, these programs included "negative" as well as "positive" eugenics: proscription of reproduction for inferior humans, and encouragement of procreation for those perceived as superior.

Throughout the German Empire and the Weimar Republic, the eugenicists' dire forecasts of hereditary degeneration and calls for a renewal of the biological strength of the German nation were generally disregarded. Thus many race hygienists were pleased when the National Socialists seized power. Finally, a German government recognized the significance of eugenics. It was no coincidence that racism and race hygiene became inextricably intertwined *after* 1933. But perhaps Weiss's greatest service to the reader is her demonstration that the most important aspect of continuity between pre- and post-



Wilhelm Schallmayer, 1918. [From *Race Hygiene and National Efficiency*; courtesy of Frederick Schallmayer]

1933 German eugenics was not race but logic. Race hygiene implied a relationship between population and power, a technocratic conception of population as a natural resource subject to some form of rational control. Eugenicists placed people into the categories of "valuable" and "valueless," and such a distinction was employed to horrific effect during the Third Reich.

At first glance, a reader might wonder why Weiss did not include a fuller treatment of eugenics after Schallmayer's death in 1919, especially given that this book is of modest length and Weiss has examined this subject elsewhere (*Osiris* **3**, 193–236 [1987]). In fact, Weiss's decision to concentrate on Schallmayer's race hygiene and to devote only a 16-page epilogue to eugenics in Weimar and under the swastika is an effective literary device that helps the reader recognize that race hygiene, a necessary, but not sufficient, portion of National Socialist biological policy, was not the work of ideologues or ethnocentric extremists alone, but also of respectable scientists. Race hygiene was a result of class bias, professional arrogance, and optimistic scientific naïveté—hardly factors peculiar to Germans in the late 19th and early 20th centuries. Weiss remarks that her book may be provocative. I hope so, in the sense that it be widely read and critically discussed. But what she has to tell us should be no surprise. A better reaction would be recognition of what should have been obvious: when science and ideology interact, neither remains the same.

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