Intellectual Spoils

Science, Technology, and Reparations. Exploitation and Plunder in Postwar Germany. JOHN GIMBEL. Stanford University Press, Stanford, CA, 1990. xvi, 280 pp. $29.50.

Since the end of the Second World War, rumors have abounded about the seizure of scientific and technical information from defeated Germany by the United States and its allies. How extensive was this intelligence effort? How did it affect the postwar scientific, technological, and economic development of East and West Germany? How useful was such information to the former allies? Except for some attention paid to German scientists who came to the United States (primarily aeronautical engineers and rocket scientists under the auspices of Project Paperclip), scholars have given us only a few intriguing hints about the organization, scale, and significance of the military and commercial exploitation of German scientific and technological secrets. John Gimbel has now provided us with a definitive study of this significant subject. The result of over 10 years of intensive research by a historian who has studied the American occupation for over 30 years, the book is an impressive addition to the historiography of that era. It should also prompt other scholars to explore related aspects of this long-neglected subject.

Gimbel concentrates for the most part on the U.S. side of the exploitation effort, which grew out of wartime scientific and technical intelligence operations. By spring 1945, a large number of investigators of military-related German science and technology accompanied advancing U.S. troops in Europe. Their purpose was to find useful information to help in the still-ongoing war against Japan. Even before the war against Japan ended in August 1945, however, the purpose began to shift: wartime efforts, which were dictated by military expedience, became commercial exploitation programs sponsored by the Commerce and War Departments in the postwar period.

Policy shifted gradually and for a number of reasons. For one thing, the commercial possibilities of the information collected became apparent to investigators, most of whom were seconded from large corporations: companies could save on research-and-development costs by avoiding dead ends discovered by German scientists; investigators could garner ideas for new products and processes; and they could also gather industrial intelligence for use against once and future German competitors. Another factor in the policy shift was increasing competition among the former allies—and not just between the Americans and the Russians—for German scientific and engineering talent. Project Paperclip grew out of the American desire to "deny" such talent to other countries. Gimbel underscores the commercial as well as the military impetus behind Paperclip.

From the beginning of the occupation, German industrialists and politicians complained about the exploitation program. Military government personnel responsible for controlling, and eventually rebuilding, the shattered German economy echoed their complaints. Gimbel details the clash within the American camp between the "governors" and the "exploiters"—the latter primarily Commerce Department employees, backed by American industrialists. Shifts in U.S. policy on Germany that occurred as the Cold War escalated combined with continued pressure from occupation authorities to force an official end to the program in mid-1947.

Some of the most striking of Gimbel's findings come from his analysis of the extent of the plundering operation. Hundreds of technical investigators from FIAT (the Field Information Agency Technical) visited thousands of university and industrial targets and collected millions of pages of documents, blueprints, and drawings. Microfilms of much of this material were made available to U.S. industry. The investigators also produced summary reports that the Commerce Department's Office of Technical Services offered to the public in the United States and abroad at the cost of reproduction. Gimbel marshals a number of examples to illustrate the complexity and variety of these efforts, the German response to them, and their value to U.S. industry.

Why is this analysis of the extent of exploitation significant? For one thing, it demonstrates the dubiousness of subsequent U.S. claims of commercial distinterestedness in the occupation of Germany: just like the Russians, and to a lesser degree the British and the French, the Americans seized enormous quantities of reparations from the defeated country. Gimbel explains in detail why placing a precise value on these "intellectual" reparations is impossible, but gives some credence to the Russian claim that Anglo-American seizures amounted to about $10 billion. In addition, Gimbel argues that the significance of the exploitation effort extended beyond 1947. He suggests that the FIAT experience, by providing concrete evidence of the sophistication of German science, technology, and industry, helped convince U.S. policymakers of the centrality of German recovery to European recovery, an idea that became a key feature in the implementation of the Marshall Plan. FIAT was also a "conveyor-belt for future business connections" between American and West German industrialists. Finally, the material collected by FIAT certainly affected the pace and direction of postwar U.S. technological development in a number of firms.

Precisely how the exploitation program affected the course of U.S. technological progress after 1945 is not the subject of Gimbel's book. But he provides the background for investigation of this question. We also need to know more about the effects of FIAT and other programs on West German industrial development during the 1950s and beyond, and detailed examinations of the French, British, and even the Russian counterparts to the American programs would be useful. In his study of the U.S. case, Gimbel has accomplished a great deal: he has simultaneously produced a definitive analysis of a key, yet long-neglected problem and challenged scholars to extend his analysis to related issues.

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Trends in Morbidity

Sickness, Recovery and Death. A History and Forecast of Ill Health. JAMES C. RILEY. University of Iowa Press, Iowa City, 1989. xvi, 295 pp., illus. $27.50.

In the past two centuries, mortality has declined drastically. Since 1900, for example, expectation of life at birth in the United States has increased by some 30 years. For a large majority of the population at present, death has been postponed until old age.

With this reduction in the risk of death, one might think that the incidence and duration of sickness, a typical antecedent of death, would have also decreased. Indeed, there are plausible reasons for accepting this

conjecture. First, a considerable part of the reduction in mortality is due to a reduction in the incidence of specific infectious diseases rather than to lower case fatality rates. Second, the congruence of the age patterns of sickness and of death, especially the exponential increase of each through the adult years, also serves to link the phenomena of morbidity and mortality. Finally, the reduction in the incidence of disease has delayed effects. According to this "insult accumulation" hypothesis, episodes of disease at younger ages weaken the capacity of the organism to resist sickness and cope with life-threatening experiences at older ages. In sum, Americans today should live not only longer lives but healthier ones as well.

James Riley's examination of the historical record of morbidity in Britain fails to bear out this optimistic conjecture. Low-mortality populations are also characterized by low fertility, the demographic condition that has been responsible for the aging of populations. (Because the average age of those not dying as mortality declines differs little from the mean age of the living population, the reduction of the death rate has had only a minor impact on the age distribution.) Because of its age composition, an older population has more sickness than a younger one. Even if fewer insults are accumulated over time by a cohort in a low-mortality situation, at the same time a larger fraction of frail individuals fail to be eliminated early in life. The greater heterogeneity of frailness in a low-mortality population may mean that the level of sickness will be higher than in one whose cohorts have been more severely winnowed by death.

Finally, the quantitative behavioral evidence on morbidity does not support the belief that health improves as mortality declines. Riley measures morbidity by wages lost from work owing to injury and illness that were compensated for by insurance. Data from several insured groups between the mid-17th and early 20th centuries supply the principal empirical basis for this study. Riley correctly notes that measurement of sickness in this manner is considerably more problematic than the recording of mortality. Although deaths may be incompletely registered, they are unambiguous vital events. In contrast, both cultural and economic factors contribute to the measured incidence and duration of work time lost that was compensated for by insurance.

Necessarily relying on the best available empirical evidence, Riley wants it to have validity. His claims sustaining this hope are not persuasive. Actuarially, the expenditures on funded sickness must balance the revenues provided by the premiums of the workers; the insured thus could only afford a certain amount of sickness among their fellow policyholders. Riley shows that the average duration of sickness episodes increased before the final decade of the 19th century in England, but he is not convincing that the reason for this change was longer periods of ill health in a biological sense. He also attempts to distinguish morbidity patterns in the era of high and highly variable mortality before 1800 from those in the long period of moderate and more stable death rates in the 19th century. The apparent reduction in annual variability in sickness between the two eras may be an artifact of much larger base populations of insured individuals in the 19th century compared to those in the pre-1800 era.

Quantitative evidence on morbidity in the 20th century is even less consistent over time than it is for earlier centuries. Compensation for work-related accidents has been spun off into separately funded workman's compensation schemes. Various welfare-state programs, especially pensions for the old, have altered the relationship between income for work and stipends for non-work. More precise medical categorization and an increasing awareness in the population of novel types of sickness, such as mental depression, have altered the boundaries between good and ill health. Prolonged episodes of sickness, like a short work week and paid vacations, are luxuries of economically advanced societies. It is quite possible that historians will never be able to provide reasonably certain estimates about the long-run trend in morbidity. Nevertheless, this wide-ranging volume usefully lays out the issues and provides a first survey of the relevant historical record.

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The Civics of Science

Teaching the History of Science. MICHAEL SHORTLAND and ANDREW WARWICK, Eds. British Society for the History of Science and Basil Blackwell, New York, 1989. viii, 281 pp. $29.95. Based on a conference, Oxford, U.K., 1987.

Concerned about the quality and the effectiveness of science education, historians, scientists, and other educators on both sides of the Atlantic in the past few years have tried to define scientific literacy and to determine how it can best be achieved. The issue has not been an easy one to resolve, in part because the scientifically literate individual is often depicted as both an insider and an outsider: as someone who not only possesses a certain mastery of scientific knowledge and an ability to think and work scientifically but who can also formulate critical judgments and informed opinions about applications of science and technology in society. Especially in recent discussions on the revision of pre-college science and history curricula, educators have turned to the history of science as one source of alternative approaches to science teaching and, perhaps more appropriately, as a rich repository of material concerning how science operates in its own community as well as in the larger political, economic, and social contexts.

The papers in this volume represent the first effort of the Education Section of the British Society for the History of Science to relate the history of science to school science and history courses. They are divided into three sections: on perspectives, practice, and sources. The last section, listing multimedia resources in the history of science available in Great Britain, is least useful for an American audience, although it should inspire the Committee on Education of the American-based History of Science Society to produce a similar compilation.

The papers in the first two sections of the volume, which either discuss examples of how the history of science can be used in the classroom or examine past and present historiographical trends in the history of science, are of mixed quality. They do more to dismantle stereotypical images of science and scientists than to make convincing arguments about how lessons and materials drawn from the history of science offer compelling advantages over more traditional pedagogical approaches to learning science. Thus valuable political and ideological purposes are served by Piyo Rattansi's sensitive exploration of the ways in which school science could unwittingly underestimate non-Western approaches to the study of nature when the value-laden conceptual frameworks within which Western science functions are ignored; by Roger Hennesey's challenge to the Marxist view that technology is unnatural and enslaving; and by Stephen Brush's unforgettable discussion of how history reveals the racial biases built into the Stanford-Binet IQ test. Richard Jones's thorough review of the historiography of science—covering not only the well-known Anglo-American traditions but also the lesser-known French, Marxist, and critical theorist strands—is intellectually stimulating but of marginal value for the schoolteacher, even for those who deal with precocious teenagers.

In recent years British historians of science, primarily those associated with the so-called "Edinburgh School," have strongly