Science, Technology, and Reparations

EXPLOITATION AND PLUNDER IN POSTWAR GERMANY

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Preface

IN DOING THE research for this book I discovered that most reasonably informed people know something about Werner von Braun and the team of German rocket scientists and engineers whom the Americans brought to the United States under Project Paperclip after the Second World War. Most of them also know about the race for German scientists that occurred at the time, a competition that perhaps explains the widespread currency of a quip, following the successful Russian launch of Sputnik in October 1957, that their Germans were better than our Germans. What virtually no one seems to know, however, is that Project Paperclip was but one aspect of a much more comprehensive and systematic "intellectual reparations" program to exploit German scientific and technical know-how, not only for military purposes but also for the benefit of American science and industry. That broader program, and the way in which Project Paperclip dovetailed into it, is the subject of this book.

I am myself unsure when I became aware of the broader program, but I do know that it did not happen during my immediate postwar service as translator and interpreter for the military government detachment in Friedberg, Hessen. Neither did it occur during my research in the 1950's on the impact of the American occupation on the town and county of Marburg. Gradually, but only gradually, during the 1960's and 1970's—when I continued my research on the American occupation of Germany and on the German problem and the origins of the Marshall Plan—did I come to realize that there was a story here, and that it was worth telling. Perhaps my nagging curiosity about the basis of Russian and East German charges that the Western Allies had taken billions of dollars in reparations influenced me, even though I was

initially inclined to accept—without much thought—the official American line that the amounts mentioned were simply "fantastic," that the charges were designed to distract attention from the Soviet Union's own extensive reparations removals and could therefore be dismissed as little more than propaganda. In any event, documents and other materials referring to the existence and work of the Field Information Agency, Technical (FIAT), that I discovered occasionally in both the American and German records I was privileged to use in the 1960's and 1970's inspired me to investigate the story in detail.

Four such discoveries stand out in my mind as having been particularly compelling. First, there were two similar messages from General Lucius D. Clay, the American Military Governor in Germany, to the War Department in Washington. In them Clay said that the United States, through FIAT, was taking all the information it could "with respect to trade processes and advanced scientific thought," that "we are taking the thought of German scientists and fashioning it to our own purpose," and that once the war with Japan had ended, the United States entered "squarely into the commercial field." In so doing, Clay concluded, "we are perhaps doing the same thing that Russia is doing in taking current production . . . and that France is doing in removing capital equipment from Germany."[1]

Second, there were two letters from Edward M. Groth, the American Consul General in Hamburg, to the Secretary of State. In them Groth reported on a speech and a newspaper article by a Socialist member of the Hamburg city council (Bürgerschaft), in which the latter talked about "creeping reparations" of great value that were being removed from Germany by private industrialists and capitalists from abroad. They come to Germany, he reportedly said, in order to rifle secret files of their competitors and take them back to their own countries to enhance their own economic progress at the expense of their German competitors. "The foreign capitalist," Groth quoted the council member as having written in the *Hamburger Echo*, the Social Democratic party's newspaper in the city, receives his German competitors' "secrets and enriches himself by them, but he does not reimburse his country . . . with the result that the foreign taxpayer is the primary sufferer who in the guise of occupational costs is actually subsidizing his own capitalist."[2]

Third, there was the so-called "Harmssen Report," a study on reparations removals from Germany, prepared by Senator Gustav W. Harmssen, the Economics Minister of Bremen. In it he estimated the total value of the patents, industrial secrets, and similar assets removed from Germany by the occupation forces to be about $5 billion.[3]

Finally, there were the circumstances and the many unanswered questions surrounding the decision by the two bizonal Military Governors—clearly made on the insistence of General Clay, however—to remove Johannes Semler as Director of Economics of the Bizonal Economics Administration early in 1948.[4] Semler's office had been collecting information on the value of what he called "creeping reparations" (Clay referred to them as "hidden reparations"), which included the scientific and technical know-how removed from Germany by the FIAT investigators.[5] Semler was annoyed by the widespread conception—expressed and implied by Germans and Americans alike—that postwar Germany was some sort of international welfare case living off the occupation powers and their taxpayers, and he was frustrated by the failure of the bizonal Minister-Presidents to take a hard line during their meeting in Wiesbaden in October 1947, to protest the newly released list of German industrial enterprises to be dismantled for reparations. At a local political party gathering in Erlangen on 4 January 1948 Semler exploded. Speaking without a prepared text, he argued that, were it not for Allied occupation policies and practices—which he illustrated and commented on at considerable length—Germany would be able to pay for its food imports in cash rather than with the demeaning "thank yous" that German politicians and public figures had been using. Injudiciously, as it turned out, he enlivened his remarks and entertained his audience with harsh sarcasm and with quips, such as the one about the Americans sending "Hühnerfutter" (literally, "chicken feed," but used here to refer to corn, which German consumers found to be a poor substitute for wheat in their rationed bread) for which the Germans were expected to pay in dollars.

American military government officials who later analyzed a stenographic record of the speech for General Clay concluded that, except for its "false and misleading statements," particularly the one about chicken feed and another about U.S. pressure

on German farmers to increase their deliveries as a means to save American taxpayers' money, the speech was ably done and, furthermore, deserved careful consideration.[6*] Semler got the ax instead, and when the Bavarian Landtag—in testing whether Germany's postwar democracy was in fact a "puppet-democracy," according to one speaker—elected him as a delegate to the newly reorganized Bizonal Economic Council in Frankfurt in February 1948, the Americans intervened. While General Clay's staff drafted documents for the eventual dissolution of the Bavarian Landtag, Clay sent a special plane to Munich to bring Minister-President Hans Ehard and Murray van Wagoner, the American *Land* Director for Military Government for Bavaria, to him in Berlin. Precisely what happened when they got to Berlin is, of course, not a matter of record, but Murray van Wagoner recorded later that "the General told me I was apt to wind up a Land Director with no government if I did not get things straightened out." In any event, while American officials spent a very busy weekend in Munich investigating Semler's background (they searched his home and office and took some files, and they also went to Vienna for some reason), the Bavarians reconsidered, capitulated, and subsequently elected a replacement for Semler, who returned to private life.[7]

I sketch this story here not to pass judgment on Semler or the Americans involved but to illustrate how the incident helped to influence my decision to undertake a study of science, technology, and reparations in postwar Germany. Semler was clearly moving toward some sort of confrontation with the Americans and the British on reparations, and he was prepared to bring up not only the program to dismantle factories—which had been a matter of widespread public discussion since the Military Governors had released a list of factories to be dismantled in October 1947—but also the highly sensitive matter of "creeping" or "hidden" reparations, which included the scientific and technical know-how removed from Germany after the war. The public release of his explosive remarks in Erlangen—which he later claimed were meant only for his party colleagues and not for public dissemination or attribution—clearly led to his dismissal, and the ensuing political power struggle between the American Military Governor and an increasingly independent German government in Bavaria apparently ensured that the substance of his message never received the careful consideration that Clay's advisers had suggested it deserved. These issues are the subject of the study that follows.

*According to one American analyst, Semler's criticisms and references to General Clay personally were regrettable, but "we must concede that, generally speaking, his statements on the basic economic problems and especially on specific procedures and transactions mentioned were substantially true." BICO, Commerce and Industry Group (U.S.), to BICO, subj: speech by Dr. Semler, 20 Jan. 1948, RG 260, box 405-1/3, WNRC.

Having previewed the concerns of this study, I hasten to clarify its limits. First, except for brief references here and there, it does not deal with the substantial postwar scientific and technical exploitation in Germany conducted by the British, the French, the Russians, and the other countries allied or associated with the victors in the war against Germany. I learned early on in my research that casting a broader net would be impossible. Records of the others—even those of the British, some of which are now accessible—were unavailable; I was not master of the requisite languages; and, finally, I had but one life to give to the project. I began the study in 1977 and have worked on it for more than ten years. Second, except for passing references where they appear to be appropriate, the study provides little detail on such issues as denazification, the conflicts between those who wanted a harsh peace and those who worked for moderation, the changing patterns of American occupation policy, the division of Germany, and other aspects of the history of the American occupation of Germany. Interested readers may want to refer to my *American Occupation of Germany: Politics and the Military, 1945–1949* (Stanford, Calif., 1968).[8] Finally, although the study may appear on a superficial level to be an argument for the superiority of the Germans in scientific and technical matters generally, I neither believe that to be the case nor intend to convey that impression. Rather, I accept what Vannevar Bush and others more qualified than I am have had to say on the subject: modern industrial societies develop variously and unevenly, and in this particular case Germany was ahead in certain areas of concentration while the Americans led in others.[9]

Although none of them is responsible for either the conception or the conclusions of this study, a great many individuals and

organizations helped me over the years. Particularly noteworthy in my search for and use of records in the United States are the following: George Chalou, at the National Archives, helped me in hundreds of ways, and it was he who located and helped me gain access to the records of the Office of Technical Services and the Field Information Agency, Technical. William G. Lewis, who was relieved on occasion by Fred Pernell, not only pulled most of those records but also saw to it that they were screened for my use as fast as I could research them. William H. Cunliffe, Wilbert B. Mahoney, and John Taylor, at the National Archives, helped me with the records of the War Department, the Department of the Army, the Joint Chiefs of Staff, and the State-War-Navy Coordinating Committee. Milton O. Gustafson and his efficient staff helped me with State Department files and records. The staff of the Library of Congress advised me on the use of finding aids and helped me in other ways to research the specialized publications of trade, industrial, and scientific associations. In each instance when I visited or corresponded, staff members of the Truman Library, the Eisenhower Library, and the National Academy of Sciences proved to be both friendly and helpful. Erich F. Schimps, the documents librarian at Humboldt State University, was always there when I needed him, and he helped me in more ways than I, and I am sure he, can remember.

Finally on the U.S. side, I want to thank an unknown archivist who happened to join George Chalou and me over coffee in the Washington National Records Center canteen on one of the many occasions when I bemoaned the fact that George had been unable to locate the records of the Joint Intelligence Objectives Agency (JIOA), despite telephone calls to the Pentagon and Headquarters, European Command, in Heidelberg, and many other efforts over a period of five years. Luckily, our guest remembered that he had recently processed a collection of some forty-three archives boxes that he thought might be what we were looking for. As it turned out, he was right, and I had the pleasure of using them a year later, after they had been screened under the Freedom of Information Act. As I understand what happened, the Joint Chiefs of Staff Office of Research and Engineering, the JIOA's successor organization, had transferred the records to the National Archives, where they were entered into the computerized finding aids as records of that office, but without an appropriate cross-reference to the JIOA. Perhaps the same thing happened with the records created by the Office of the Deputy Director of Intelligence in Europe during the late 1940's. In any event, we never found them, despite our turning over every stone along the way.

In Germany, my special gratitude goes to the management and staff of the following institutions: the Federal Archives in Koblenz (thanks to Frau Singer, Dr. Werner, and especially to Dr. Lenz, who dug out records from storage and let me use them before they were processed and indexed); the North Rhine–Westphalian Main Archives in Düsseldorf (thanks especially to Dr. Dieter Scriverius, who let me use his detailed and extremely helpful finding aid while it was still in manuscript form); the Hessian Main Archives in Wiesbaden (thanks especially to Dr. Schüler and Dr. Helfer, who helped me get access to the records of the organization of scientists and technicians evacuated from the Soviet zone of occupation in 1945, as well as the records of the Hessian Ministry of Economics and Transportation); the Baden-Württemberg Main Archives in Stuttgart (thanks especially to Dr. Thiel); the State Archives in Bremen (thanks especially to Dr. Hofmeister); the State Archives in Hamburg (thanks especially to Dr. Gabrielson); and the archives of the city of Heidenheim (thanks especially to Herr Maucher).

Further, my thanks go to Degussa in Frankfurt for permitting me to use the rich and highly informative records in the firm's archives, and especially to Frau Dr. Mechthild Wolf, the archivist who guided and advised me during my lengthy stay there; to the Handelskammer Hamburg; to the Industrie- und Handelskammer in Frankfurt (especially to Frau Wörman); to Dr. Med. Fritz Ebner, the press officer for E. Merck in Darmstadt, who gave me some records and shared with me a great deal of personal information from his own immediate postwar experiences; to Dipl. Ing. Klaus Luther, of Maschinenfabrik Augsburg-Nürnberg (M.A.N.) in Augsburg, who helped me work in the firm's historical archives and arranged interviews with former M.A.N. officials; to Horst-Dieter Wulf, who sent me a packet of materials from the archives of Chemische Werke Hüls AG in Marl; to Hans D. Sterba, of Schloemann-Siemag AG in Düsseldorf, who arranged interviews with former Schloemann officials and staff members; to Deutsche Texaco AG

in Hamburg for making available immediate postwar records of Chemische Werke Rheinpreussen, and to Dr. Walter Grimme of Münster for a most informative interview regarding his postwar experiences in that company; and to Dr. Erich Schott, the director of the Glaswerk Schott & Genossen in Mainz, who not only granted me a long interview, during which he told me about the firm's evacuation from Jena in 1945, but also backed up his remarks with documents from his own and his firm's files. Finally, my thanks go to the pleasant, friendly, and most helpful librarians in the Bundestagsbibliothek in Bonn, who always seemed to be interested in what I was doing and showed it.

Scores of others in the United States and Germany, including individuals, firms, trade and industrial associations, chambers of commerce, as well as government officials and agencies, took time to answer my letters, to talk with me, and to fill in details here and there when I asked for them. My thanks must of necessity be offered to them collectively, but I do so most sincerely and gratefully, for without them the human dimension that I strove to include in the study would have been lost.

Obviously, the research for this study was both time-consuming and expensive. As for time, a sabbatical leave from Humboldt State University gave me an academic year, and I took advantage of an early-retirement program for faculty of the California State University system—before I had originally planned to retire—and thus converted my normal yearly schedule of nine months of teaching and three months of research into one in which I was able to teach for three months and do research and write during the rest of the year. As for financial assistance, I received a summer stipend from the National Endowment for the Humanities in 1978, several travel and research grants from the Humboldt State University Foundation in 1977, 1979, and 1980, a Fulbright Commission research professorship for one semester each at Hamburg University and Frankfurt University in 1980–81, and an American Council of Learned Societies grant-in-aid for the summer of 1982. Finally, I received a most generous research and travel grant from the Volkswagen-Stiftung in Germany for the years 1984, 1985, and 1986, during each of which I spent the spring in Germany, the summer in Washington, D.C., and the rest of the year in Arcata, California. Professor Karl Hardach, who occupies the chair of economic history (Lehrstuhl für Wirtschaftsgeschichte) at the University of Düsseldorf, sponsored me to the Volkswagen Foundation, administered the grant, and provided many other amenities, for all of which I am most grateful. Nancy Atkinson was a careful and perceptive copy editor.

As was the case with each of my previous research projects and books, Gisela, my wife, was my partner in everything I did. She wrote virtually all of my German correspondence, which she can do much better than I can. She accompanied me on all of my extended research trips, and she functioned throughout as an insightful and sharp critic of my ideas and conclusions, even though she was slowed down drastically by much pain and suffering caused by the serious injuries she received when a large pick-up truck rammed into the rear of our car on the Oregon coast in the summer of 1985.

J.G.

PART I

From Wartime Military Intelligence to Postwar Commercial Exploitation

ONE

Wartime Scientific and Technical Intelligence

IN THEIR CAMPAIGN to defeat Germany and then win the war against Japan, the British and Americans created special scientific and technical intelligence units whose function was threefold. First, they were to find out what the Germans knew about weapons, radar, synthetic fuel, synthetic rubber, torpedoes, rockets, jet engines, infrared, communications, and such other things as would help the Allies in the war. Second, they were to gather information that could help to shorten the war against Japan after Germany's defeat—information on how much and what kind of scientific and technical know-how the Germans had passed on to the Japanese, and on what the Germans knew about Japan that might help in the Allied war effort. Finally, they were to locate and detain—even intern—German scientists and technicians, interrogate them for the kind of information just identified, and prevent them from slipping away to seek safe haven in other countries where they could continue their wartime research and development projects. The special units included, but were not limited to, T-Forces, whose primary duty was to secure and guard intelligence and counterintelligence targets for specialized teams to exploit, and the Combined Intelligence Objectives Subcommittee (CIOS), whose duties were to select and recommend targets to the T-Forces and arrange for their exploitation once they were secured.

Special Units: T-Forces and CIOS

Soon after the Normandy landings and Germany's first use of the V-1 bombs, General Dwight D. Eisenhower's headquar-

ters (SHAEF) issued a directive creating the T-Forces. These were military units made up of intelligence specialists, prisoner-of-war interrogators, linguists, communications specialists, combat engineers, bomb disposal squads, and combat troops drawn from armored and infantry units as needed.[1] Originally attached to Army Groups (6th, 12th, and 21st) and intended for use in German-occupied Europe and in Germany itself, T-Force units were to identify, secure, guard, and exploit "valuable and special information, including documents, equipment and persons" of value to the Allied armies.[2]

Formed in London on 21 August 1944 by the British/American Combined Chiefs of Staff, CIOS exemplified the civil-military collaboration so typical of the Second World War; of total war.[3] Britain's seven members came from the Foreign Office, Naval Intelligence, Military Intelligence, Air Intelligence, and the Ministries of Supply, Economic Warfare, and Aircraft Production, while the Americans drew theirs from the Department of State, the Intelligence Division (G-2) of the War Department General Staff, the Office of Naval Intelligence, the intelligence service of the Army Air Forces, the Foreign Economic Administration, the Office of Strategic Services, and the Office of Scientific Research and Development.[4]

CIOS mushroomed in size and function late in 1944 and early in 1945, charged as it was with compiling black lists of targets from which information was urgently needed by the military, arranging for those targets to be visited by appropriate specialists, and distributing the reports of investigating teams to American and British agencies.[5] It had a field team in Paris on 28 August 1944, four days after the first French troops entered the city, and—in collaboration with T-Force units—it sent teams of specialists into other cities, such as Nancy, Luxembourg, Brussels, Aachen, Strasbourg, Heidelberg, and Ludwigshafen, as Allied troops moved across France and the Low Countries into Germany. By the end of 1944, CIOS reported that it had sent 197 investigators, representing 14 American and British agencies, to visit 115 targets.[6] Meanwhile, using information gathered by teams in the field, CIOS drew up additional black lists of targets and eventually responded to a variety of suggestions and pressures to include targets of industrial and scientific interest irrespective of their immediate military value.

The most precise American proposal for an expanded CIOS target list came from Vannevar Bush, the director of the Office of Scientific Research and Development (OSRD). Writing to the Secretaries of War and Navy on 28 August 1944, one week after CIOS had been established and on the day the first CIOS team entered Paris, Bush proposed that the United States obtain "German technical information of an industrial nature" from the occupied countries and from Germany itself. Such information, he observed, would not only further our war effort against Japan but also help American industry to maintain its place in world trade and provide employment opportunities for discharged veterans of the war.[7] He believed that "Great Britain is doubtless preparing to obtain this type of information for her own industry," and he suggested that the current missions looking for weapons and military devices be supplemented by industrial technology teams with more long-term purposes and objectives. The response to Bush's suggestion was positive, and it came quickly from a variety of agencies and individuals.

Secretary of the Navy James Forrestal and Julius A. Krug, the chairman of the War Production Board, endorsed Bush's proposal, as did the War Department, which quickly explored ways to implement it.[8] This department was eager to obtain "the most advanced technological information known to the enemy" by questioning German technicians, searching their laboratory records and files, dismantling and examining German military and industrial products, and examining manufacturing processes used by the Germans.[9] The War Department thus cabled General Eisenhower's headquarters (SHAEF)—which was itself moving in a similar direction[10]—to ask what kinds of technical personnel were needed by the CIOS field teams in order to secure information on German production methods, procedures, and finished products in armaments, rubber, petroleum, transportation, chemicals, engineering, and the like.[11] About the same time, Harold L. Ickes, the U.S. Petroleum Administrator for War, drafted for Admiral William Leahy, the Chief of Staff to the President, a detailed "Program for Obtaining Technical Information from Captured Oil Plants," designed to exploit German efforts to produce "aviation gasoline, synthetic petroleum, and petroleum products derived from gas, coal, and shale." Leahy advised Ickes to submit his proposal through existing CIOS channels, which he

did. Meanwhile, some eighteen petroleum-industry companies, including Gulf Oil, Humble Oil, Socony-Vacuum Oil, Houdry Process Corporation, Phillips Oil, Shell Oil, and Standard Oil of Indiana, nominated candidates for the Technical Oil Mission that Ickes proposed to send to Europe as quickly as possible.[12]

The British, revealing interests similar to those of the Americans and true to Vannevar Bush's prediction, were the ones who first suggested an expanded agenda for CIOS. They wanted to redefine its original military intelligence mission to include the search for information on industrial and technological processes, and accordingly proposed the formation of a CIOS subcommittee to prepare lists of "economic and industrial intelligence targets of vital postwar interest, but not of immediate military value."[13] The result was the creation of a CIOS Grey List Panel, which would receive, approve, and coordinate all requests of British and American government departments for intelligence "not of sufficient military urgency to justify in the Black List of targets."[14] The American CIOS representatives in London who reported this British initiative to Washington believed that it reflected the desire of British industry to examine and exploit German technical knowledge as soon as Allied armies occupied German industrial centers.[15] But, as we have seen, American interests were in complete harmony with those of the British.

The American TIIC

To meet the needs of an expanded CIOS mission, the Americans created the Technical Industrial Intelligence Committee (TIIC) in Washington.[16] Howland H. Sargeant, the U.S. Alien Property Custodian, was designated by the Foreign Economic Administration (FEA) as chairman of TIIC, and it was staffed with armed forces intelligence personnel and civilians drawn for full-time service from the War Production Board, OSRD, and other government agencies. TIIC was essentially a Washington-based feeder-organization for CIOS in Europe. In this respect it paralleled the British Intelligence Objectives Subcommittee (BIOS), which functioned similarly for the British. TIIC's functions were to recommend targets for investigation and to select technical experts to staff the CIOS field teams. According to its basic directive, it was "to receive, approve, and coordinate" American requests for investigations "pertaining to industrial processes, patents, inventions, engineering, and 'know-how' required to aid United States production, facilitate economic measures related to military government and control of Germany, and to determine the extent of German technical assistance made available to the Japanese."[17]

To carry out its functions, TIIC formed subcommittees (it had seventeen in February 1945, and eventually nineteen) to represent broad industrial fields, such as rubber, chemicals, metals and minerals, forest products, machinery, textiles, solid fuels, aeronautics, communications, and shipbuilding.[18] It asked a wide range of "appropriate" government agencies and officials, including cabinet officers, the War Production Board, the War Manpower Commission, the Alien Property Custodian, the Civil Service Commission, and the Federal Communications Commission, among many others, to submit requests for information from Germany on industrial processes, patents, inventions, and engineering know-how. TIIC asked them to provide as much detail as possible, to say something about the urgency of the requests, to indicate probable locations of the information sought (such as the names of firms and individuals), and to nominate people who might be available as experts to go to Europe and conduct the investigations for CIOS.[19] Working through its subcommittees, which were made up of armed services personnel, civilian employees of government agencies, and people from industrial and trade associations, private industries, and universities, TIIC also canvassed the nation's scientific and industrial community, asking for targets to be investigated and for the names of experts who could investigate them.[20] Subcommittee members drawn from private industry were encouraged to get their companies involved in the program, to suggest items that field teams should watch for, to nominate expert investigators for the field teams, and to designate specific targets,[21] all of which they could do without revealing information about their own firms that they chose to keep secret. "For security reasons, and to avoid possible embarrassment to an industry panel member," states the record of a TIIC Communications Subcommittee Advisory Panel meeting, "subcommittee representatives on the panel will not initiate panel discussions of any target submitted by an industry member. The member is, of course, free to initiate such discussion if he cares to."[22]

The requests and nominations poured in, coming from the armed services (e.g., the Signal Corps, Army Air Forces, and Army Service Forces), from government agencies (e.g., the War Production Board and the Department of Agriculture), and from hundreds of large and small enterprises, such as Bell Telephone Laboratories, American Telephone and Telegraph, Western Electric, General Ceramics and Steatite Corporation, B. F. Goodrich, Firestone, Goodyear, and others. Available records show, for example, that Indiana Steel Products Company listed seventeen German patents about which it sought information, identified the German companies it wanted investigated, and named German personnel whom it wanted to have interrogated. The General Electric Company asked for information on vacuum tubes, selenium rectifiers, polarized relays, resistors, and thermocouples, giving the names of German companies and people to be sought out for such information. TIIC assembled these and other target requests and sent them to CIOS in London for inclusion in its black and grey lists, and it recruited, appointed, and processed civilian technical experts, often drawn from the very companies and agencies that had requested the information and suggested the targets.[23] The experts were employed as temporary government technical consultants, put into military uniform, given the equivalent rank of colonel in the army (they called themselves "Capon Colonels"), and sent to London, where they joined their British counterparts and formed CIOS teams to exploit designated targets as well as "targets of opportunity" on the Continent.

Targets included industrial firms, factories, laboratories, military bases, storage depots, testing grounds, experiment stations, research establishments, universities and technical institutes, and the people who owned, managed, and staffed them. Originally, T-Forces and CIOS expected to find these concentrated in larger cities and towns, but the conditions of Germany's collapse in the spring of 1945 and the German wartime program to decentralize and disperse production facilities and other resources to reduce the effects of strategic bombing required a change in plans. Late in February 1945, in receipt of intelligence that the Germans had already evacuated ministries, party offices, research establishments, industrial plants, and people from Berlin and other cities to other parts of Germany,[24] and with the Russians about forty miles from Berlin, CIOS modified its operations to conform to the new realities. Rather than wait for T-Forces to secure targets and then have experts sent from CIOS headquarters in London to exploit them systematically, CIOS created Combined Advance Field Teams (CAFTs), which would keep pace with combat troops, scout and appraise targets, make assessment reports to rear echelons, and then continue to advance with military spearheads. Black lists showing targets of prime military importance and grey lists showing those of scientific and industrial interest and possible military value—a difficult distinction to make under conditions of modern, total war—were merged into one list in May 1945, and "targets of opportunity" became the order of the day.[25] CAFTs, normally consisting of a chairman and cochairman—typically, one British, the other American—and seven to twelve assessors, were attached to Army Groups for operation on the Continent. CIOS reported 240 assessors in the field in mid-March 1945, and by war's end it was sending as many as that each fortnight.[26] Many years later, an American professor of aerospace engineering at Cornell University, not unlike many other former participants who later cast doubt on the value of German know-how to the United States,* referred to Allied intelligence teams "composed of scientists, engineers, soldiers and sometimes fools," who "dashed competitively about Germany, impounding documents, drawings, laboratory equipment, whole laboratories—and, I recall, at least one Jeep-load of telephone books."[27]

It is true that CIOS field operations were often marked by feverish activity, by general confusion as Germany collapsed, by lack of communication between units, and by much "duplication of investigation"[28] on the part of CIOS-CAFT teams and other intelligence-gathering units from Army Ordnance, Air Force Intelligence, ALSOS,† the U.S. Navy Technical Mission in Europe,

*A former rubber-team investigator—about whose reports on his CAFT activities I have read considerable documentary information to the contrary—wrote to me in 1981, saying: "Our reports are available and were a great disappointment. We expected the Germans to have a better polymer than us and found we had much the better polymer. Also our rubber products were much better and contained much less natural rubber."

†"ALSOS," from the Greek word for "groves," was the code name for the Manhattan Project's investigation of German activity. The chief of the Manhattan Project was General Leslie Groves.

and the U.S. Strategic Bombing Survey. Transportation bottlenecks were a particular problem, and at one time 12th Army Group reported that one of its artillery regiments had been practically "immobilized" by transfer of its transport "to serve CIOS interests."[29] But teams in the field sometimes traveled together and cooperated in other ways, and they had similar instructions. For example, at general engineering works, SHAEF instructed them to concentrate on the "design office, the testing laboratories, and the metallurgical and other research departments," but not to bother with the machine shops. At synthetic rubber plants, teams were to "go for the laboratories, and also the compounding plant. The Germans are more advanced than we are with synthetic rubber," the instructions continued, "and we want to find out how they use it for the manufacture of tires." At chemical and explosives plants investigators were to search out the administrative offices, "in particular the manager's office and the drawing offices, also the research laboratories and their records," as well as the residences of the manager, the chief chemist, and the chief engineer.[30] "Optimum results," another instruction declared, "will be obtained when men, equipment and records bearing on a single problem are examined concurrently at the same place."[31] Finally, since they would obviously seek out and interrogate German scientists and technicians whom they knew either personally or professionally from prewar associations, conferences, consultations, and so forth, Allied investigators were warned by the Counter Intelligence Corps (CIC) headquarters in Washington to abide by existing directives on fraternization with German nationals, and thus not to "become too friendly with key German personnel in an effort to win their 'cooperation.'"[32]

An early postwar news release, describing what had been a highly secret wartime operation, reported that CAFT assessment teams and CIOS exploitation teams had assessed about 3,000 and exploited about 2,000 targets in Germany by the end of July 1945. "CIOS teams," the news release elaborated, had "combed Germany for . . . hidden secrets on weapons, oil production, raw materials, synthetics, new engineering and chemical processes, inventions, patents, finance, economics, and German machinations in the political field."[33] How this was done on the spot is perhaps best illustrated by examples, which also touch on the scope, impact, and human dimensions of the program.

Institutional Targets

I. G. Farben, Ludwigshafen. The advance party of a team of some fifty British and American investigators targeted to visit the I. G. Farben complex at Ludwigshafen-Oppau, Germany—alerted to the imminent capture of their target on 23 March 1945—left London immediately, spent the first night in Versailles, then traveled by weapons carrier—seven to a vehicle with baggage in a trailer—via Nancy to Ludwigshafen. Allied troops had cleared the target area on the 24th and left it under T-Force guards before moving on across the Rhine on the 25th. The team, which billeted with the T-Force unit in Frankenthal, some six miles from the target, first entered and "swarmed over" the Ludwigshafen-Oppau plants on the 25th. Finding the plants to be between 60 and 75 percent destroyed, the team members concluded that in this instance more information was to be gained by interviews and interrogations of available personnel than by plant inspections and document searches, which one participant later characterized as "a tiring job of climbing over bricks, rubble, tanks, and destroyed stairways."[34] They began with exploratory interrogations and then assigned appropriate group specialists for more intensive interrogations and further exploitation. Team members loaded available German experts into jeeps and combed the surrounding area to find people who had gone out into the countryside to be safe from the bombings or to hide. And they organized hunting and digging parties to bring back documents that had been stored elsewhere or buried for safe keeping. The Germans cooperated for the most part, one of the mission's reports said, but when they did not, they were locked up. In fact, the report shows that a U.S. civilian, working for the Navy Department, arrested one of the Germans because "he thought it would be a good thing to do."[35]

As expected, the CIOS team found the target to be rich in information. "Interrogation of I. G. officials," a preliminary report noted, "resulted in information on the production of Buna S rubber, and the fact that butadiene is made from formaldehyde and acetylene and not by the so-called aldol process." The mission discovered details on the use of koresine, which the Germans were using to produce tackiness "that has long baffled the producers of synthetic rubber,"[36] and one of its members, Dr.

Carl Monrad, of Carnegie Technical Institute, found a treatise on acetylene chemistry written by Dr. Julius W. Reppe, a leading I. G. Farben chemist whom the American Chemical Society soon wanted to bring to the United States. That treatise and another paper by Reppe on safe methods for handling acetylene under high pressure, which Jean Fennesbresque, of the Celanese Company in New Jersey, found at the I. G. Farben plant in Hüls, were later described by the American leader of the CIOS rubber team, Russell Hopkinson, of the U.S. Rubber Company, as "two documents . . . of great interest to the American chemical industry" for their "tremendous significance to synthetic organic chemistry in this country."[37]

Dunlop, Hanau, and Chemische Werke Hüls, Marl. The investigation and exploitation of the Hüls plant, alluded to above, is a most interesting illustration, in part as an example of the way investigators fanned out in search of their prey, but also because there are both American and German contemporary records of the event. Benjamin S. Garvey, Jr., of B. F. Goodrich, and several other members of the American TIIC rubber team left Washington on 25 March, on the same day that the advance party of the CIOS team reached Ludwigshafen-Oppau. Traveling via Newfoundland, Scotland, London, Verdun, and Frankfurt, they joined the CIOS team in Ludwigshafen. Following leads developed there, they went to the Dunlop factory in Hanau near Frankfurt and the Chemische Werke Hüls AG (Aktiengesellshaft, or stock corporation) in the Ruhr, among other places. At Dunlop they found the firm's records to be a jumbled mess of papers piled waist-high in several rooms. According to a speech Garvey gave "three or four times" after his return to the United States, "Russian and Polish slave labor had looted the place and dumped out everything they did not want." Upon learning from interviews with the mayor of Hanau, the Dunlop plant director, and other civilians that a leading Dunlop chemist, who had been bombed out twice in Hanau, was living in the nearby countryside, Garvey went to the local military government detachment for transportation and a driver, who came armed with a carbine and a pistol. They found the chemist in a village some twenty miles from Hanau, living in a small room with his wife and teenage daughter, and they bundled him off to Hanau with the cache of documents in his possession, even though, Garvey's account

continued, he had wanted to eat lunch first. "We told him he might get home that night or the next. He probably had to walk back." Garvey concluded, nevertheless, that most Germans gave information willingly. "Only in two or three instances was it necessary to apply pressure."[38]

At the Chemische Werke Hüls the team demanded that the director in charge, identified as Dr. Baumann, have his department heads prepare written reports of their operations. Once these were finished, members of the team went over the reports with the firm's managers and required them to turn over records in their desks, files, and "various safes"—some of which Garvey said contained lunch and soap—so these could be compared with the written reports. The team got drawings of equipment and a number of long documents, which they sent back to London for translation.

In memoranda written at the time and a report prepared some three years later, Dr. Baumann described the same visit. According to him, the Americans who visited Chemische Werke Hüls in April 1945 were well-informed, thorough, and unfriendly. They refused to give their names, but the Germans discovered somehow that the leader was E. P. Handley, of Firestone, and that another member of the team was a Mr. Fennesbresque, of Elizabeth, New Jersey. They inspected the plant and went through all the scientific and technical files, packing them and numerous catalyzers into large sacks, which they took along when they left. They demanded a description of the synthetic-rubber fabrication process ("Fabrikationsschema") and reports on some thirty items of technical detail, which they wanted completed in four days. Once the reports were finished, the Americans went over them with the Germans and demanded further details and explanations. They were obviously experts, and they tended to ask only for details and specifics. "Even though everyone in the plant tried to meet the demands of these people as far as it was possible to do so, those who accompanied Mr. Handley during his inspection and requisition of documents in the files were treated most hatefully." Looking back three years later, Dr. Baumann observed that in the many subsequent visitations and inspections of his firm, such crass treatment was never again repeated.[39]

Degussa. At Degussa (Deutsche Gold- und Silber-Scheideanstalt), in Frankfurt, a diversified and widely dispersed special

metals and chemical company, the first Allied technical visitors were a chemist and an engineer from DuPont, with which Degussa had had prewar patent agreements. The Degussa director who received them noted, among other things, that their discussion of mutual acquaintances became so congenial and friendly that both parties found it difficult to maintain the hostility that was supposed to characterize such meetings officially.[40] But the first visit was followed by others of a different character, one of them by an American officer accompanied by an infantry soldier, who stood by with his weapon in readiness during the entire interrogation.[41] On another occasion, two Americans came and demanded information about German-Japanese relations, for which they searched files and company records. A Mr. White, from DuPont, and a German-speaking U.S. Army lieutenant—in a much more penetrating and intensive interrogation than the earlier one by representatives of DuPont—went through the plant in Frankfurt and questioned several of the available employees about many things, including ceramic colors, cyanide production, and carbon black, in which they seemed particularly interested. Another team of four, who refused to give their names, demanded details on petroleum and special greases ("Treibstoff- und Schmieröl"), about which they obviously had some previous knowledge. After protesting that this was all experimental and not directly related to the German war effort, Dr. Roka, the Degussa official who made a record of the meeting, was told that this was total war and that he and other German scientists and technicians had to surrender their knowledge in the same way that soldiers had to surrender their weapons.[42]

Degussa, which recorded more than 200 visits by individuals and commissions between April 1945 and March 1946,[43] eventually prepared an English-language description of the firm, which its personnel systematically handed out to investigators,[44] some of whom asked highly technical and "indiscreet" questions bordering on "industrial espionage," while others were "exceptionally friendly and open-minded."[45] Among the latter was Sidney D. Kirkpatrick, the American publisher of *Chemical and Metallurgical Engineering*, who did wartime service as a chemical representative in London for the U.S. War Production Board and went to Germany as a technical consultant for CIOS in the spring of 1945. According to his published report, he had high-priority

status for transportation, which he used to travel some 2,500 miles across and around Germany by aircraft, jeep, and bus in search of useful technology for the war with Japan and for controlling Germany.[46] At Degussa, which he knew from a visit in 1936 and from association with Dr. Roka in the United States before the war, Kirkpatrick seemed most interested in carbon black and the prospects of early resumption of its production.[47] In Hüls, he met another German—whom he knew from a prewar meeting in Baton Rouge, Louisiana—who was pleased to "tell us that the IB electric-arc acetylene-from-methane process, which had failed to operate successfully in America, had since been perfected and made to yield raw material for butadiene."[48]

Targets of Opportunity

As Allied troops advanced into Germany and brought the European war to an end, many teams—using "Blue Books" which detailed German research, development, and production activities geographically[49]—canvassed the countryside in search of items and people. A food team of two investigators, sent to Leipzig on an emergency basis "to cover targets around the Leipzig-Chemnitz areas before the territory was released to Russia in accordance with the terms of the Yalta Conference," had instructions to "be searching, thorough, and *quantitative*." They were to find out how the Germans made stabilized bread, and "if they could find a plant that had been baking for the German Army ration" they "were to compel the production of a batch under their personal observation and bring back samples."[50]

Traveling elsewhere in the country was a wartime colonel in the Signal Corps who had been released to CIOS as a technical communications expert. Richard H. Ranger, the owner of Rangertone, an audio-equipment firm in New Jersey, preferred action to writing reports,[51] but wrote nevertheless that the German trailer he had acquired was "getting well filled up," and that he and the German-speaking Army lieutenant accompanying him "talk straight and get the dope back without need of interpreters."[52] Traveling near the Russian zone, he was moved by the "milling people," the "stark reality of families separated," and the sight of a young soldier "alone and dirty, trudging along a road," about whom Colonel Ranger wondered whether "there

will be a home for him when he gets there." Yet Ranger concluded that "I would not have missed this experience for anything." His sentiment was apparently shared by his fellow investigator, C. W. Hansell, of RCA, about whom he said he had inquired everywhere without success. Hansell, meanwhile, with Dr. Max Knoll, a German from Telefunken, in tow, had been gathering information about Telefunken people, their wartime evacuations, and their current locations and activities. This information he cabled directly to RCA without going through channels, causing the TIIC liaison officer in London, R. S. Glasgow, to respond initially with "Holy Cats!" However, Glasgow later wrote: "Hansell did an excellent job as an investigator and deserves a pat on the back. Let's overlook his communications with RCA." [53*]

Activities in the field were as varied as the people who made up the teams, and they ranged much further and often penetrated much deeper than the few illustrations might suggest. Teams went to the Leitz optical works in Wetzlar for optical instruments and to the Merck pharmaceutical plant in Darmstadt for information on penicillin production.[54] They went to the M.A.N. machine works in Augsburg, where they found a matériels-testing laboratory desired by the British and eventually dismantled by the U.S. Navy for use at the Navy's David W. Taylor Model Basin facility in Carderock, Maryland.[55] They went to the I. G. Farben synthetic rubber (Buna S) production plant in Schopkau, Thuringia,[56] and to the Zeiss optical works and the Schott & Genossen glass works in Jena, where they selected people, equipment, and materials and moved them to the West before the Russians came in July 1945 to take over those portions

*Some activities were apparently less forgivable. Glasgow, upon learning that two investigators had returned from the Kiel-Hamburg area with "nearly a ton of electronic loot" and persuaded the Army "to fly them and their plunder back to London," suggested that "these two 'goniffs' be subjected to some sort of a demobilizing indoctrination upon their return to Washington, prior to releasing them upon our society in the U.S., with its complicated laws concerning the sanctity of private property." Glasgow to Edwards, 6 July 1945, RG 40, box 115, file Correspondence, European Representative, WNRC. If they did receive such indoctrination it was doubtless affected by a report that the Army and Navy were "exceedingly delighted" with the top secret information they had brought back for the military. See Howland Sargeant to Henry Fowler, subj: TIIC program in Europe, 1 Aug. 1945, RG 40, box 157, file JIOA Early TIIC Papers, WNRC.

of Germany that had been designated as their zone of occupation but had been overrun by the British and American armies in the spring of 1945.[57] And teams went to the I. G. Farben complex (Wolfen Filmfabrik and Wolfen Farbenfabrik) near Bitterfeld, in Thuringia, where they found research chemists versed in colors and dyes, insecticides, soap, poison gases, synthetic jewels for bearings, aerial color photography, nylon for parachutes and airplane tires, and a host of other things.[58]

Scientists and Technicians as Targets

Wherever Allied intelligence teams went, they looked for scientists and technicians, a task made easier by an ALSOS team's capture at Lindau, near Göttingen, of Dr. Werner Osenberg, the head of the Planning Office of the German National Research Council (Planungsamt, Reichsforschungsrat), together with about 150 of his staff and his office records, which contained a file of the names and specialties of some 15,000 of Germany's leading scientists and technicians.[59] Once they located them, Allied teams interrogated German scientists and technicians on the spot. Those found to be of sufficient interest for further exploitation were taken to detention and interrogation centers, such as "Ashcan," located in a pleasant watering-resort at Mondor Les Bains, Luxembourg, and "Dustbin," located in Versailles until May 1945, then in Kransberg Castle—Hermann Goering's headquarters during the Battle of the Bulge—near Frankfurt. During Germany's rapid collapse in the spring of 1945, Army Groups and individual armies had established temporary interrogation and detention centers (the U.S. Air Force had one in the Hotel Wittelsbacher Hof in Bad Kissingen, for example), but "Dustbin" eventually became the designated center for detaining and interrogating enemy personnel of interest to Allied scientific, technological, industrial, economic, and financial agencies.[60]

The Enemy Personnel Exploitation Section of G-2, SHAEF, which administered "Dustbin," prepared weekly rosters giving the names and specialties of people being held there for further exploitation. Agencies either sent interrogators to "Dustbin," in which case they often had to supply their own stenographers and German translators—in short supply and great demand—or they took the people they wanted out of the center and re-

turned them when they were finished. In this case they had to file a formal application stating the reasons for the exploitation, and sign a receipt for the person or persons they took along.[61]

Soon after Germany's capitulation, the British, who had been taking individual Germans to Great Britain for SHAEF interrogations since March 1945, developed formal procedures for evacuating enemy civilians to the United Kingdom for CIOS purposes. The plan was to keep them for about two months, or longer in exceptional cases, not as prisoners-of-war but under detention nevertheless. As at "Dustbin," interested ministries and others could interrogate subjects in the detention center, which was located in Beltane School, Wimbledon, or they could —with proper application and authorization—move them anywhere in the United Kingdom for interrogation and exploitation.[62] Meanwhile, the Americans, who had also begun to discuss internally the possible evacuation of German specialists to the United States, instructed U.S. members of CIOS to make sure that the procedure adopted by CIOS for evacuation of enemy civilians to Britain not prejudice evacuation of such civilians to the United States.[63]

The American decision to bring German specialists to the United States originated simultaneously in an Army Service Forces proposal to bring selected German scientists to the United States to assist in research and development of weapons to be used against the Japanese,[64] and in a SHAEF message of 15 May 1945 to the War Department, asking for guidance on the ultimate use and disposition of German scientists and technicians who were no longer useful as a source of pure military intelligence. Restraint and control of future German scientific and technological investigations was clearly indicated, the SHAEF cable noted, but guidance for long-range policy was needed.[65] The War Department, responding as a "matter of urgency," formed a committee to make recommendations within a week, while Under Secretary of War Robert P. Patterson recommended that "everything possible be done to use information obtained in Germany to fight Japan." He endorsed as "a step in the right direction" a proposal by Brehon Somervell, the Commanding General of the Army Services Forces, which identified names and types of German scientists of interest to the Quartermaster General, the Chief of Ordnance, and the Chief Signal Officer. Such Germans,

Somervell wrote, might help "materially in increasing our war making capacity against Japan," and he warned that it was "quite possible and probable that unless the United States makes suitable provisions for utilizing the abilities of these scientists . . . the Russians will take them over and use them."[66]

Despite serious qualms within the State Department—which were, however, recorded only after the department's responsible officials had concurred in the action—General George C. Marshall informed his British counterpart on 5 June 1945 that "the U.S. Chiefs of Staff have informally agreed that it would be highly desirable to bring German civilian scientists and technicians to the United States for the purpose of exploiting their knowledge by the military in the development of weapons which can be used against the Japanese."[67] The British Chiefs of Staff —obviously thinking further ahead than the Americans, whose first formal response to SHAEF's request for long-term policy guidance came more than four months later, on 3 October 1945— suggested that the two countries exchange the names of people they wanted, and that an allocation formula (which was eventually worked out) be agreed upon for instances in which the two countries wanted the same people.[68] Furthermore, the British Chiefs said they did not want to be bound by the American decision to return the evacuees to Germany, either at the end of the war with Japan or at any time. German scientists, the British message noted, will become acquainted with American and British techniques and operations as a result of their exploitation, and it may not be desirable to return them to Germany with that knowledge.[69]

The Americans eventually made a similar policy decision under Project Paperclip, but only in March 1946, after much internal dispute, which was foreshadowed by the original qualms expressed belatedly within the State Department. "Present policy," an internal State Department memorandum noted in July 1945, "is to seek the repatriation to Germany of German scientists in all neutral and cobelligerent countries, especially Argentina and elsewhere where the Germans have succeeded in building up a considerable industrial potential which might endanger the security of the United States." Given that policy, the memorandum continued, German scientists now held in Germany should not be permitted to emigrate to the United States while we are pres-

suring other nations to expel them.[70] But this is a topic to which we shall return.

As Vannevar Bush observed in August 1944, as the wartime activities of CIOS and other Allied intelligence teams illustrate, and as the British and American decisions to evacuate and retain German scientists after the war substantiate, in an era of modern, total war the effects of wartime scientific and technical intelligence naturally carry over into the postwar period. Research establishments, industrial firms, and universities that contribute their facilities, their personnel, their skills, their experience, and their products to the nation's war effort do not go out of existence when the war is over, and their wartime projects, products, and personnel can often be redirected into peacetime endeavors in a gradual reversal of the total mobilization that occurs at the outset of the war. It is therefore not surprising that once Germany and Japan surrendered, the wartime military scientific and technical intelligence programs continued as postwar commercial exploitation programs.

TWO

From Wartime Intelligence to Postwar Exploitation

WHETHER THEY HAD served in uniform for the duration of the war or as civilian consultants drawn from government agencies, industrial and trade associations, private industries, or universities, hundreds of experts who had served in CIOS and other wartime scientific and technical intelligence agencies returned to Washington and their places of employment in the United States after the war to emphasize the importance of what they had found and to champion a postwar scientific and industrial exploitation program. Just three days after V-J Day, an unknown functionary of the Technical Industrial Intelligence Committee (TIIC) wrote that "American industry, which has furnished most of the investigators and technical personnel for this 'intelligence' effort, is already asking for industrial information . . . secured by these investigators."[1]

A brief *New York Times* story of 16 June 1945 reported that the United States rubber team had found synthetic rubber production techniques in Germany "so important that half the experts have rushed back to Washington with the information." Although the story, which bore a London dateline, said the experts were very closemouthed on details—they were warned to be even more secretive once the story appeared—contemporary documents reveal what was at stake.[2] According to one team report, the information from Germany "has already proved of direct and significant benefit to the utilization of synthetic rubber in this country." The German material known as koresine, which "is superior to any tack producing agent so far known in allied circles," gives synthetic rubber the tack it normally lacks and

makes it no longer necessary to manufacture articles by putting several layers of synthetic rubber together and cementing them with natural rubber. "Several chemical companies have already sucessfully made Koresine on a laboratory scale . . . and larger scale runs are now in progress." Further development, the report continued, will aid American rubber manufacturers "by improving the efficiency of manufacturing operations, with consequent manpower and equipment savings; by improvement in quality of rubber goods; and by avoiding use of natural rubber cements, thus conserving our vital natural rubber supply."[3]

Howland H. Sargeant, the chairman of the wartime TIIC, the agency that collected both written and oral reports from investigators upon their return from Europe after the war, testified before a committee of Congress early in January 1946 that our top people in Germany had discovered and brought back technical know-how on a cold steel extrusion process used by the Germans to produce shell fuses at the rate of about twenty to thirty per minute, while Americans produced similar fuses at the rate of about one in every three minutes. Such "processes carry over directly" to peacetime production, Sargeant observed. Noting that the United States had some 600 sheet-stamping shops and more than 2,500 manufacturing shops that stamped materials out of sheet metal, he concluded that all of these could use this process to produce more economically and efficiently, and to manufacture "far more intricate parts than ever before."[4*]

Variations of the rubber story and the cold-steel extrusion theme could be repeated for synthetic fuel, jet aircraft, rockets, infrared, aerial photography, optical glass, electron microscopes, power circuit-breakers, die-casting equipment, wind tunnels, acetylene chemistry, textiles and textile machinery, X-ray tubes, forest products, ceramics, colors and dyes, tape recorders, heavy presses, diesel motors, high-tension cables, radio condensers, insecticides, color film processing, a unique chocolate-wrapping machine, a continuous butter-making machine, a precision grinding machine, a "hot welding" process for making radiator cores, and other technologies. Wind tunnels found in Germany were reported to be "far superior" to anything in use in the United States, and a working model of a twin-engine diesel motor was judged to be "far superior to anything that had been produced or planned in the States."[5] "An ingenious German machine" for producing radio condensers was thought to be advanced enough to "revolutionize the manufacture of condensers for radio, radar, and other electric and electronic equipment."[6] Textile industry technicians, one of whom reportedly said "we have been asleep here," found German "textiles and yarns with no commercial counterpart in this country" and equipment for spinning worsted yarns "superior to ours."[7] Finally, Army Signal Corps experts and "many manufacturers and designers of electrical equipment in this country" judged German die-casting machines—which the Germans had used to produce bomb parts, fuses, radio and field telephone sets, field glasses, camera parts, and "complete radio chassis of excellent design"—to be "a real advance in the die casting art."[8]

*According to Secretary of Commerce Henry A. Wallace, "This process increases production tenfold and can be used to shape cold in a press thousands of parts now made as castings, drop forgings, or in malleable iron." Wallace, "A Way to Check Depressions," *The American Magazine*, 141 (June 1946), 132.

Support from the Private and Public Sectors

Specialists who returned from wartime scientific and technical investigations in Europe often made reports to their trade, industry, and professional associations, such as the American Chemical Society, the American Petroleum Institute, the Society of Automotive Engineers, and the Scientific Apparatus Makers of America, which in turn made formal recommendations to government agencies for additional investigations and the extension of the wartime scientific intelligence program into the postwar period.[9] An example of this is the interaction between members of the Technical Oil Mission, the Bureau of Mines, and the American Petroleum Institute. The latter, extremely interested in what the Technical Oil Mission had found in Germany, heard a report in Chicago by W. C. Schroeder, the oil mission's leader, who was chief of the Office of Synthetic Fuels in the Bureau of Mines at the time and a professor at the University of Maryland later on. The institute subsequently published Schroeder's remarks in its *Proceedings*, and it also sponsored a dinner meeting and two additional days of conferences and discussions with Technical Oil Mission people in New York, after which those in attendance formed a three-person committee to study precisely what additional information was needed, and to promote further investi-

gations in Germany to secure that information. That committee's most active member turned out to be Warren F. Faragher, of the Houdry Process Corporation in Swarthmore, Pennsylvania, who wrote later that the American Petroleum Institute and the Bureau of Mines helped to arrange a new mission to Germany, which he undertook in October 1946, and to which we shall return.[10]

A particularly interesting case in point is the action of the American Chemical Society, which formally instructed its president, Bradley Dewey, of Dewey and Almy Chemical Company in Cambridge, Massachusetts, to represent the society's interest in the collection and dissemination of German technical information. Writing to Secretary of Commerce Henry A. Wallace, with copies to Secretary of State James F. Byrnes, Treasury Secretary John W. Snyder, Secretary of War Robert P. Patterson, Secretary of Navy James Forrestal, and others, Dewey praised the Commerce Department's existing library and microfilm service for wartime scientific and industrial intelligence reports, only to offer arguments for a more systematic and thorough postwar collection program than had been possible under wartime conditions.

To illustrate the need for such a program, Dewey described a process of product development that he said was common in scientific and industrial fields: Completed research reports go to development or engineering groups, which cooperate with operating crews to build pilot plants, prepare flow sheets, and make preliminary cost calculations. After this is done, Dewey continued, a great deal of work is performed by mechanical, metallurgical, and chemical engineers who design the equipment; determine the sizes of various vessels, the pressures, the temperatures, and times allotted to the various steps; and calculate the probable output and the nature and amounts of the by-products. The people who want to use ideas developed in Germany "will often wish to start back and retread the entire path of development, piloting, designing and engineering," and this makes it "imperative that we have access to original laboratory reports, pilot plant data, design calculations, engineering calculations, economic studies, drawings, etc." Anticipating arguments that such an undertaking would be unreasonably expensive, Dewey wrote: "Research is always expensive. . . . The results of research which has been carried out by someone else

and proven workable are priceless. . . . The boost to our economy and national defense of just one or two of the ideas that have been worked out in Germany will pay many times over the cost of the entire investigation."[11] In a letter accompanying the copy he sent to Secretary of State Byrnes, Dewey noted: "Would that I were running a company with money enough to really wade in. . . . I would leave right now for Germany." Byrnes, expressing the prevailing views of the Truman administration, replied that the "great value of proven research results justifies the requisite expenditure of public funds in order to ensure its widespread availability."[12]

Recommendations, proposals, and actions by officials in the public sector closely paralleled those of returning investigators and the professional, trade, and industrial associations that took up their cause. Vannevar Bush's wartime visions of a postwar American industrial establishment stimulated and enriched by captured German scientific and technical know-how and Harold Ickes's proposal for a technical oil mission to exploit German hydrocarbon technology have already been noted. Similar support came from the highest levels of the United States government. President Truman's adviser on reparations, Edwin W. Pauley, who said early on that the United States "cannot use plants, machinery and labor" as reparations but should demand "gold currencies, foreign assets, patents, processes, [and] technical know how of every type,"[13] repeated the theme frequently and publicly after his return from Allied Reparations Commission negotiations in Moscow, Berlin, and Potsdam.[14] Under Secretary of State William L. Clayton, appearing before the Senate Committee on Military Affairs in June 1945, declared that the United States and its allies "have an equitable claim against all German inventions made during the war," a point of view reaffirmed later by Secretary of State James F. Byrnes, who believed that the United Nations had a right to "all important scientific and technological advances made in recent years in Germany."[15]

Finally, in similar letters of solicitation to the War, Navy, and State Departments, the Bureau of Mines, the War Production Board, the Office of Scientific Research and Development, and others, Secretary of Commerce Henry A. Wallace held forth the vision of an American postwar conversion to a peacetime economy stimulated by the creation of "new methods, new products,

and new job opportunities" made possible by the "release of enemy data." He asked the various agencies addressed for information on what had already been accomplished by their scientific and technical intelligence field missions, on what had not been done and therefore still needed doing by new field missions, on priorities, and on other issues—all of which he said he needed to implement President Truman's directive on the release and dissemination of scientific and technical data gotten from liberated and enemy areas.[16]

Truman's Directives

Anticipating the transition from war to peace even before Japan's surrender, President Harry S. Truman issued Executive Order 9568 on 8 June 1945, authorizing the Director of War Mobilization and Reconversion (Fred M. Vinson) to review for possible public disclosure all classified scientific and technical information that "has been, or may hereafter be developed by, or for, or with funds of any department or agency of the Government." To implement the order, the President established an interdepartmental Publication Board consisting of the Attorney General and the Secretaries of Interior, Agriculture, Commerce, and Labor under the chairmanship of Fred M. Vinson. The latter appointed a Committee for the Release of Scientific Information (CORSI) to screen the materials to be released,[17] but more important here are Vinson's efforts to obtain release of the CIOS reports to American business and industry.

In a letter to the Secretary of the Joint Chiefs of Staff (JCS) on 14 May 1945, in which he noted that the State Department was similarly interested, Vinson asked for a policy on dissemination of industrial intelligence obtained in enemy and liberated areas. He suggested that such intelligence be made freely and generally available to American business and industry, "subject to considerations of military security." Intelligence teams currently submit their reports to CIOS in London, Vinson continued, and CIOS distributes them to British and American intelligence services, normally under "secret" or "confidential" classifications. "Under these circumstances they will clearly be of little use to industry."[18] The JCS responded on 8 June, saying they had taken action to have CIOS reports bear the lowest possible security classifications, but were concerned about military security and

about possible violations of property and patent rights, over which the JCS lacked jurisdiction.[19] Not satisfied with that, Vinson must have gone back to Truman, who soon modified and broadened his earlier order on the review, declassification, and disclosure of scientific and technical information.

Available records, which show that Vinson's proposal made the rounds in the State Department, the War Production Board, and other agencies, do not, however, show precisely how the White House was brought into the matter.[20] Be that as it may, on 25 August 1945 Truman issued Executive Order 9604, providing "for the release and dissemination of certain scientific and industrial information *heretofore or hereafter* obtained from the enemy." The order defined "enemy scientific and industrial information" as including "all information concerning scientific, industrial and technological processes, inventions, methods, devices, improvements and advances *heretofore or hereafter* obtained by any department or agency of this Government in enemy countries regardless of its origin, or in liberated areas, if such information is of enemy origin or has been acquired or appropriated by the enemy."[21]

The Commerce and War Departments and the Publication Board

The War Department and the Commerce Department, inspired by reports and recommendations of wartime investigators, encouraged by both public and private sector support, and armed with presidential authority to continue gathering enemy scientific and industrial information, collaborated to establish a postwar commercial exploitation program.

Secretary of Commerce Henry A. Wallace, the vice-chairman of the Publication Board with functional responsibility for its operations, delegated those duties to the Commerce Department's Office of Declassification and Technical Services (later changed to Office of Technical Services), headed by John C. Green, a graduate of the Naval Academy and the Georgetown Law School, who had served previously in the U.S. Patent Office, on the National Inventors Council, and in various liaison capacities with the Army, the Navy, and the Office of Scientific Research and Development during the war.[22] As the Commerce Department's representative on the Joint Intelligence Objectives Agency's advisory board, Green objected to all early suggestions

that collection of technical industrial intelligence in Germany cease or be phased out, arguing at one point that "it could be taken as certain that American industry *would* make new and detailed requests to the government for technical industrial information."[23] As a matter of fact, Green proved over time to be one of the most tireless and relentless champions of a postwar "scientific collection and dissemination" program, arguing frequently, as he did in congressional hearings early in 1946, that "these are intellectual reparations and they are the only solid and permanent reparations we are going to get out of this war."[24]

Not satisfied with the transfer of technology alone, Green wanted to bring outstanding German scientists to the United States on a permanent basis "as an acquisition to our scientific talent,"[25] and it was he who drafted the proposal for doing so that Secretary of Commerce Wallace sent to President Truman on 4 December 1945—a proposal to which we shall return shortly.

Although the Army reportedly wanted to be relieved of the responsibility for "commercial exploitation" and the Secretary of War's Scientific Consultant, Edward L. Bowles, and others expected "information gathering operations" to taper off,[26] the War Department nevertheless contributed to the postwar commercial exploitation program in two significant ways. It provided organizational advice and assistance to launch the program, and it furnished personnel, facilities, transportation, and other logistical support for the program throughout its existence.

On 5 September 1945, on the heels of President Truman's Executive Order 9604, the Joint Chiefs of Staff cabled General Eisenhower that they wanted his staff to provide all assistance for the European missions sponsored by the U.S. Technical Industrial Intelligence Committee (TIIC). Obviously anticipating a sizable operation, the JCS estimated TIIC's needs to be furnished offices in Frankfurt, Wiesbaden, Kassel, and Heidelberg or Höchst, sixty jeeps, twenty-five weapons carriers, twenty command cars, ten two-and-a-half-ton trucks, ten C-47 airplanes, ten microfilming units, ten photostat machines, three ditto machines, five hectograph units, fifty technical translators, fifty stenographers, drivers for the vehicles, flight personnel for the aircraft, appropriate messing facilities, and other equipment and supplies. Eisenhower responded with assurances that the European operation was functioning efficiently and indicated how the JCS estimates might be modified without diminishing that efficiency.[27]

The War Department's organizational advice and assistance culminated in a huge conference on German documents, the purpose of which was to discuss details and procedures for the acquisition of German technical information of an industrial nature, as authorized by Truman's Executive Order 9604.[28] Held at the headquarters of the United States Forces, European Theater (USFET), in Frankfurt on 22–25 October 1945, the conference brought together people from the War Department; USFET; the U.S. armies in Europe; the Office of Military Government for Germany; the Field Information Agency, Technical; U.S. Forces, Austria; U.S. Naval Forces, Europe; and others. It produced a sixty-page report on the implementation in the field of the Publication Board program for civil exploitation, which John C. Green and others in the Department of Commerce were putting together in Washington.[29]

Agreements and understandings worked out by the various interested agencies in Washington and Europe in the late summer and fall of 1945 fixed primary responsibility for the implementation of Truman's Executive Order 9604 on two agencies, one in Washington and the other in Germany. In Washington it would be the Department of Commerce, where functional responsibility was delegated to the Office of Technical Services (OTS), headed by John C. Green. In Europe it would be the Office of Military Government for Germany, where functional responsibility was delegated to the Field Information Agency, Technical (FIAT), headed by Colonel Ralph M. Osborne, who had done wartime service as director of the Research and Development Division of the Army Service Forces.[30] In Washington, the OTS—through its several Technical Industrial Intelligence Branches and advisory boards—would recruit technically qualified personnel, send them to Europe to "screen, select, index, and microfilm documents of value to science and industry," receive their reports, and then make the findings available to the public through the Publication Board. In Europe, FIAT would provide necessary billets, work space, office equipment, supplies, communications facilities, and transportation—including air transportation—for OTS personnel. Further, it would secure suitable, qualified German personnel for the entire operation, take such other implementing action as was necessary to accomplish the OTS mission,[31] and maintain a library. It eventually established the library by appropriating about 30,000 volumes

from the libraries of I. G. Farben, Höchst, and the University of Jena's Institute of Physics. The Jena Institute's collection had been taken along by the Americans when they withdrew from the Russian zone in the summer of 1945.[32] How the system functioned is the subject of later chapters.

Early Planning for the Transfer of Personnel

Experts who had participated in the wartime scientific and industrial intelligence programs and many of those who became familiar with their accomplishments were keen to bring selected Germans to the United States. As a matter of fact, those who recommended transfers of technology also often recommended transfers of personnel to facilitate the transfer of technology. As early as 4 June 1945, David Sarnoff, the chairman of Radio Corporation of America, wrote to the White House: "It is not only important that we get their scientific information, but that we lay hands on their scientists as well. If we do not find and remove them to a place perhaps on this side of the water where they can continue their scientific experiments under our guidance and control, our Russian friends may do so first and in that event they may secure knowledge and advantages I should like to see our own country possess."[33] A Joint Intelligence Objectives Agency (JIOA) minute of 25 October 1945 notes that the agency had the names of more than one hundred German scientists and technicians whom returning investigators wanted brought to the United States.[34] Experts such as John R. Townsend, of Bell Telephone Laboratories; Richard H. Ranger, of Rangertone; R. H. McCarthy, of Western Electric; J. D. Hanawalt, of Dow Chemical; Otto Jensen, of I.T.E. Circuit Breaker Company; G. E. Guellich, of American Optical Company; and many others returned to Washington with names of people they thought should be brought to the United States for the benefit of American industry and commerce. Some of the experts brought evidence and many expressed fears that the British, the French, or the Russians would get to these people first.[35]

On the basis of reports and recommendations of returning investigators, John C. Green drafted a proposal for the importation of German scientists for the benefit of U.S. industry and commerce, using as leverage a request by the American Chemical Society for the evacuation of Julius W. Reppe, the I. G. Farben

chemist noted for advances in acetylene chemistry.[36] As we shall see, Secretary of Commerce Wallace sent Green's proposal to President Truman on 4 December 1945. In October, Commerce Department representatives in Europe had asked for a "prompt decision" on the "establishment of an American policy," noting that "our Allies" were attracting German scientists with offers of substantial salaries and other benefits, that the U.S. Army and the U.S. Navy were evacuating people for their own purposes, but that "we do not know of any plan being sponsored by industry." Since Germany's research and industrial production in such areas as aeronautics and chemicals would be restricted in the future, the request continued, if Germany's "leading scientists are not evacuated their talent will be wasted. . . . On the other hand, if they are all evacuated by our Allies the relative position of our scientific research as compared with that of other countries will be impaired."[37]

"Our Allies" were, indeed, evacuating German scientists and technicians. The British, who had made clear in June 1945 their intention not to return people they planned to evacuate for military interrogation and exploitation, were assembling rocket experts for "Operation Backfire," a demonstration of V-2 launchings.[38] French intelligence officers secretly recruited German scientists from among those whom the U.S. Army had evacuated from the Russian zone and restricted to the town of Heidenheim, and from among those held in loose custody by the U.S. Army Air Forces in the Hotel Wittelsbacher Hof, Bad Kissingen.[39*] In one instance they spirited away twelve specialists who had already been selected and cleared for eventual evacuation to the United States and whom the U.S. Air Forces employed temporarily at Bayrische Motor Werke (BMW) in Munich while travel and contractual details were being worked out.[40] Private German sources show that in another instance the French took experts to Paris for military interrogations, which were followed by a round of discussions and meetings with various industry representatives, some of whom made clear their intention to build

*Morton M. Hunt wrote, "One night, in fact, two French intelligence officers sneaked into the Wittelsbacher Hof, where we housed our scientists and their families, and made a round of the rooms, offering the Germans better terms than ours to pack up and come into the French zone and later to France." Hunt, "The Nazis Who Live Next Door," *The Nation*, 23 July 1949, 82.

a carbon-black facility (*Aktivrussanlage*) that would free France from its dependence on imports of American carbon black.[41]

And then there were the Russians, about whose activities there are numerous reports, in addition to the published observations of the American delegation to the Potsdam Conference. A particularly revealing one was prepared by Navy Lieutenant Karl Olsen, who was attached to the Field Information Agency, Technical (FIAT) office in Berlin, where he worked closely at times with Dr. Roger Adams, General Lucius D. Clay's scientific and technical adviser. Adams, the well-known chemist from the University of Illinois, described Olsen as "unusually industrious, intelligent and diplomatic" and as an "indispensable aid in assembling information and reports."[42] Lieutenant Olsen named nine prominent German scientists, including the Nobel laureate Professor Gustav Hertz, the former director of research for Siemens and Halske, who had recently left Germany for the Soviet Union. According to Lieutenant Olsen's informants, the Russians offered satisfactory working and living conditions, generous food rations, and high salaries; but more important for Professor Hertz, and perhaps for others, they also offered the Germans an opportunity to continue research in their fields of specialization.[43]

The Green-Wallace Proposal of 4 December 1945

As mentioned, Secretary of Commerce Wallace sent John C. Green's proposal for the importation of German scientists to President Truman. In his letter of 4 December 1945, which was essentially the same as Green's earlier draft, Wallace stated: "The transfer of outstanding German scientists to this country for the advancement of our science and industry seems wise and logical. It is well known that there are presently under U.S. control eminent scientists whose contributions, if added to our own, would advance the frontiers of scientific knowledge for national benefit." Russia and Britain had already transported many of the better scientists, including three Nobel-laureates, the proposal stated, and there was evidence that movement of such people from the U.S. zone to other zones had increased markedly in recent weeks. "It is [therefore] evident that many of the outstanding German scientists will no longer be available unless a decision is made quickly to permit their importation into

this country. . . . Only scientists of proven ability with positive value to U.S. science and industry [should] be selected." Among the latter were Dr. Julius W. Reppe, Dr. Georg Joos, the eminent physicist and optical expert who had taught at Jena and Göttingen before joining the Zeiss Optical Company, and Dr. Otto Hahn, the former director of the Kaiser Wilhelm Institut für Chemie who had just won the Nobel prize for his discovery of uranium fission in 1938. Were the President to agree on the importation of about fifty exceptional people, the practical details regarding immigration and other things could be worked out by the Publication Board in conjunction with the State and Labor Departments. In any case, they "should be brought here willingly under an honorable and fair plan for their disposition" so as to make sure "that their knowledge and the results of their research in this country are made fully and freely available to all. . . . A positive program along the lines described," the proposal concluded, "is essentially 'intellectual reparations' and may well be the most practical and enduring national asset we can obtain from the prostrate German nation."[44]

The Green-Wallace policy proposal languished in the White House until 18 January 1946, when Wallace wrote to Matthew J. Connelly, Secretary to the President, saying he had received no reply and that the issue was vital. Meanwhile, Truman had received from Senator Kenneth D. McKellar, of Tennessee, a letter McKellar had received from Tennessee Eastman Corporation, complaining that although technical and scientific investigations were continuing in Europe, and although the Army and the Navy had already brought some fifty people to the United States for military purposes, they had not made them available to industry in general. Industry, the Tennessee Eastman letter asserted, was now interested in bringing "at the earliest possible moment scientific and technical personnel of German industry to secure the benefit of their training, experience, and knowledge."[45] Truman replied to Senator McKellar that efforts were under way to bring scientists and industrialists to this country, but "I don't know how far this has progressed, as it has not been directed to my attention."

At the same time Truman sent copies of the correspondence to Vannevar Bush, who responded that industrial technical information should be collected in Germany and brought here for dis-

semination without bringing personnel as well. Bush questioned the soundness of a policy, which Tennessee Eastman Corporation apparently wanted, under which German scientists could immigrate and accept employment. Those who were trustworthy and denazified should remain in their homeland to help build a peaceful and nonaggressive future Germany, Bush concluded, adding that it was not a good idea to bring German scientists here to overcome shortages caused by the continuation of the selective service system. The United States, he said, needed to release its own technicians from service rather than replace them with Germans. "I read your letter . . . regarding German scientists, with a lot of interest," Truman replied; "I was morally certain that our home boys would not want any competition." A handwritten note on Wallace's letter to Matthew J. Connelly reads: "Handled by telephone [and] filed 1/25/46,"[46] but the issue was not dead, as the next chapter will show.

PART II

The Postwar Programs

THREE

Project Paperclip

PROJECT PAPERCLIP, which provided for both military and commercial exploitation of German scientists and technicians in the United States after the war, evolved out of a highly secret wartime military operation code-named Project Overcast. Adopted by the Joint Chiefs of Staff (JCS) in July 1945, Project Overcast was a plan to bring to the United States about 350 rocket scientists and engineers—among whom Werner von Braun is best known—"to increase our war making capacity against Japan and aid our postwar military research."[1] Because it had been conceived as a wartime military operation and implemented as such in the summer and fall of 1945, Project Overcast made no provision for the kind of postwar industrial and commercial exploitation sought by returning investigators and others identified in the previous chapter. The Green/Wallace policy proposal of 4 December 1945, for the "transfer of outstanding German scientists to this country for the advancement of our science and industry,"[2] was, in fact, an attempt—albeit unsuccessful—to establish such an exploitation program by presidential decree.

Interestingly, however, what Truman would not approve when it was presented to him as a postwar industrial and commercial exploitation program he approved later as Project Paperclip, a program that provided for such exploitation but also proposed to deny German scientists and technicians to other nations in the national interest. Since denial was the main new item, it might be suggested that the emerging cold war with the Soviet Union was most important to Truman's decision. But Project Paperclip's focus was not simply on the Russians. The plan was developed in large part by intelligence-service functionaries who were haunted by the specter of German specialists and techni-

cians working not only in Russia but in France, Spain, Egypt, Argentina, and elsewhere, as other Germans had done after the First World War. But the emphasis on denial also grew out of important domestic and bureaucratic considerations. For example, it was apparently the only argument for bringing Germans to the United States that made an impression in the State Department. Furthermore, the emphasis on the need to deny promised to override the apparently self-serving interests of American scientists and technicians who objected to the importation of their German counterparts. Finally, Project Paperclip dovetailed the national interest with the wishes and plans of all those Americans in the industrial, scientific, and business communities who wanted to use German experts and German know-how for private advantage and gain.[3*]

The Tortuous Road to Project Paperclip

Soon after the war in Europe ended, General Eisenhower's headquarters (SHAEF) cabled Washington asking for policy on the control of German scientific and technological research and for guidance on the disposition of German scientists and technicians who were no longer needed for military intelligence exploitation.[4] Responding "as a matter of urgency," the War Department created a study committee, whose work was complicated in June by State and Treasury Department objections to even the temporary, short-term importation of German scientists and technicians to assist in the war against Japan (Project Overcast), and then delayed in July and August while key officials, especially John H. Hilldring, the War Department's Director of Civil Affairs, and William L. Clayton, the Under Secretary of State for Economic Affairs, attended the Potsdam Conference and consulted with the U.S. Control Group for Germany in Berlin.[5]

Before Hilldring and Clayton returned, however, the matter came to a head, for two reasons. First, Japan's surrender erased the primary reason for the State Department's hesitant and reluc-

*Eventually denial in the national interest became the basis for bringing in people whose Nazi affiliations would otherwise have excluded them under regular immigration laws and other U.S. policies. But there is no evidence of record to show that a desire to find a way around such laws and policies was a factor in the program's inception, despite Tom Bower's recently argued thesis that Project Paperclip was in fact a "hunt for the Nazi scientists" (see above, chap. 2, n. 43).

tant approval of Project Overcast (which State Department functionaries described internally as the plan to bring German personnel to the United States in "an extralegal manner under War Department auspices to aid in exploiting German technology of a purely military nature"). Second, without a clear policy on the future exploitation of German scientists in the United States, the Americans were at a disadvantage in ongoing negotiations with the British—who had an established policy on the use of Germans in Britain—on allocations of samples, documents, secret weapons, and the necessary personnel to facilitate their use.[6] On 13 September 1945, after three weeks of study by lower-level intelligence agencies, the Joint Chiefs of Staff (JCS) adopted an interim procedure for prompt procurement and exploitation of German scientists in the United States and asked the State-War-Navy Coordinating Committee (SWNCC) to approve it as a "temporary expedient" and to develop "long-range Government policies and procedures on this subject."[7]

Despite JCS arguments that German scientists and technicians possessed knowledge of great value to the United States for both military and civilian use, that certain government agencies "urgently desired" to exploit them, and that unless something were done soon the most desirable Germans would disappear and their expert knowledge be lost to the United States, SWNCC would not be stampeded. It disapproved the JCS's interim procedure for lack of detail, but agreed to "proceed with formulation of long range policies and procedures," which it finally completed more than five months later, on 4 March 1946.[8] Meanwhile, as noted in the previous chapter, John C. Green and Secretary of Commerce Henry A. Wallace tried unsuccessfully to get a program underway by appealing directly to President Truman.

The problems and the pressures faced by SWNCC in developing long-range policy would fill a book. The War and Navy Departments wanted to continue Project Overcast in modified form, but complained that existing agreements with the State Department did "not permit representatives of industry to visit and interrogate" the Germans who were already here.[9] People in the State Department, where there were major disagreements internally,[10] argued against bringing Germans to the United States at the same time that it was pressuring the Latin Americans to round up and deport German businessmen and others from

their own countries. State was, in turn, "needled" by the Army to do something soon because "the Russians are now broadcasting invitations to German scientists, with rather attractive promises of special treatment."[11] John C. Green, the director of the Commerce Department's Office of Technical Services, argued—as did Secretary of War Patterson and Secretary of Navy Forrestal in writing to Secretary of State Byrnes—that the Publication Board's program for collecting and disseminating German know-how was but one aspect of a larger intellectual reparations program that needed to include the importation of German scientists, some for interrogation, exploitation, and return, others "for permanent acquisition."[12] Reports from Europe told of American scientists there who had "sought to obstruct the removal of German scientists and highly skilled technicians to the United States" out of apparent fear that the Germans would "jeopardize their own professional status," and we have seen that Vannevar Bush's reply to an inquiry from Senator McKellar and Tennessee Eastman Corporation led President Truman to express a similar conclusion about "our home boys" in the United States.[13] Other reports from Europe warned that future restrictions on German research and production in the interests of demilitarization would tempt German specialists to seek opportunities elsewhere; some of these reports detailed Russian shipments of scientists, equipment, and families in what appeared to be "a permanent migration."[14] Still other reports from Europe described intense and secretive French recruitment efforts, and one of them referred to an incident in which a French liaison officer was caught at Kochel, near Munich, in the dead of night, loading eleven wind-tunnel experts and their families into trucks for transport to the French zone of occupation.[15]

Important as all of these pressures were to SWNCC's deliberations, the news that apparently did most to convert deliberations and disagreements into a decision came from the British, who once again carried the Americans along. On 23 January 1946 the British Chiefs of Staff informed their American counterparts that the British government had decided to exploit German scientists and technicians for civil industry in the United Kingdom, using essentially the same procedures that had been agreed upon previously by the two nations for bringing them

in for military exploitation, except "that the results obtained for civil industry from these scientists should [not] be exchanged." The British Chiefs said they were preparing lists of people they wanted and understood that the Americans were doing likewise. In any event, they asked the Americans to freeze all individuals who might come under such a program and concluded with this ominous statement:

> In the event that the United States Government does not desire to exploit German scientists and technicians for civil purposes, we should be glad if we could be informed within a reasonable time (say 1 March) so that His Majesty's Government in the United Kingdom could then go ahead unilaterally.[16]

After the British threatened to proceed unilaterally, SWNCC moved directly toward a policy decision, which became SWNCC 257/5, dated 4 March 1946.* A week after receiving the British Chiefs' note, SWNCC "directed its Subcommittee for Europe to prepare a paper on the exploitation of German scientists and technicians as a matter of urgency and to collaborate with the Joint Intelligence Committee" in its preparation.[17] Finished in less than a month, the subcommittee's paper stated—in phrases identical or remarkably similar to those found in the Green/Wallace proposal of 4 December to Truman—that there were specialists in Germany and Austria who possessed "knowledge of great value to the United States for both military and civilian use," that "their contribution, if added to our own, would advance the frontiers of scientific knowledge for the national benefit," and that both "government departments and independent agencies urgently desire to exploit" them in the United States. Whether or not the United States decides to exploit German specialists "for civil purposes," the paper continued, "Great Britain, France and the U.S.S.R. will proceed unilaterally to do so." The British are planning to go ahead without exchanging with us "the results obtained," as they had for military exploitation. The Russians are "already proceeding with an aggressive policy

*On 8 Mar. 1946, the British Board of Trade released the information that 200 German scientists and technicians—all volunteers—were being brought to Britain for the benefit of British industry. See *New York Times*, 9 Mar. 1946, p. 6, col. 8.

of long-range exploitation of these specialists," and the French are "offering lucrative contracts to selected specialists." Unless the United States acts promptly, the SWNCC Subcommittee for Europe paper concluded, "the desired personnel will have dispersed or disappeared and their expert knowledge will be lost to the United States."[18]

The Denial Program and Project Paperclip

Meanwhile, the Secretaries of State, War, and Navy (Byrnes, Patterson, and Forrestal), meeting as the Committee of Three on 13 February 1946 to consider a paper prepared by the Joint Intelligence Committee for SWNCC, had already agreed to deny certain outstanding German specialists to other nations and, as Secretary of State Byrnes put it, to bring "over a number of German scientists who might be useful to us and who would otherwise be exploited by other countries."[19] Less than a week later, the Joint Chiefs of Staff cabled appropriate instructions to Europe, directing the Commanding General, USFET, to prevent the "departure of German scientists and important technicians" from the American zone, to permit no further interrogations of such people by France and Russia, and to submit "as a matter of urgency" a list of about 1,000 important German scientists and technicians, showing in each instance their technical competence, their achievements, and the size and composition of their families.[20] Responding to a USFET request for clarification as to what constituted an important German scientist and technician for purposes of denial, the JCS made clear that not only those of actual or potential military significance but also those of "outstanding prominence or ability in any field" and those with "versatility . . . to shift . . . their scientific or technical talents from one field to another" were involved.[21]

The SWNCC policy paper 257/5, of 4 March 1946, which was implemented thereafter as Project Paperclip, combined the denial program with a military and civil exploitation program by providing for the entry into the United States of outstanding German and Austrian scientists and technicians under immigration laws, either in the "national interest" or for reasons of "national security."[22] Military authorities and government departments, which were permitted to sponsor requests of private employers

and nonprofit institutions of learning or research through Commerce Department channels, were to submit the names of people they wanted to the Joint Chiefs of Staff (JCS) and the Department of Commerce, respectively. The JCS—eventually functioning through the Joint Intelligence Objectives Agency (JIOA), which they reorganized for that purpose—and the Department of Commerce—functioning through the Office of Technical Services (OTS)—were to screen out Nazis and other objectionable persons, respectively certify that "national security" or "national interest" was involved in each instance, and then submit the names to the State Department for processing through consular officials. Finally, the War Department would forward the names to the occupation authorities in Europe for recruitment, processing, and transportation to the United States. Precisely how the 160 Project Overcast people who were already in the country to work on "rockets, buzz bombs, jet-propelled planes and aerodynamic research instruments" would be processed retroactively was left for future determination.[23]

A draft press release of 11 March 1946, prepared by JIOA and approved informally in the Commerce Department, shows clearly how Project Paperclip fit into the larger program of scientific and technical exploitation in postwar Germany. According to the draft, the United States planned to use "vacuum cleaner methods to acquire all the technical and scientific information the Germans have." Several hundred highly qualified American technicians and scientists, who had followed "close on the heels of our conquering armies" in Europe, had already interrogated German personnel and examined records, documents, equipment, and manufacturing plans, the draft release said. "Steps are now being taken to extend this exploitation" in two ways, first by continuing investigations of industrial machinery, tools, equipment, and materials in Germany, and second, "by bringing the best German scientists and technicians to this country" to aid in "the development of new types of weapons" and to use them for "civil purposes, primarily by American industry."[24] Obviously fearing adverse public reaction to such news and perhaps not wanting to tip off the Russians, the French, and others to what the United States was planning, the Joint Intelligence Committee classified the draft press release and "all documents relating to" it as "secret" on 14 March 1946, and it never saw the

light of day.[25*] With this action the committee foreshadowed the problems that were to plague Project Paperclip throughout its existence.

Although President Truman had approved the program outlined in SWNCC 257/5 "in a cabinet meeting after very full discussion," according to Under Secretary of State Dean Acheson, it never got off the ground.[26] The Commerce Department sponsored no one, for it had neither the facilities, nor the staff, nor the means to screen out Nazis and other objectionable persons. Neither did it want to sponsor the immigration of specialists "in the national interest," for that would have meant sponsoring requests by individual firms for their own benefit and, obviously, the disadvantage of their competitors.[27] When such requests arrived at the Department of Commerce, the Office of Technical Services regularly referred them to military authorities for possible processing under the "national security" provisions of Project Paperclip, suggesting at times that the specialists in question might be made available to industry for interrogation either by putting them on industry payrolls temporarily or by securing them fellowships in universities.[28] But the military authorities were having problems of their own with the State Department.

As soon as he saw the Paperclip directive, Spruille Braden, the Assistant Secretary of State for American Republic Affairs, wrote to Acheson protesting that it would permit military research by Germans in this country that they were prohibited by Allied Control Council (ACC) Law No. 25 from doing in Germany. Further, he argued, it was inconsistent with ACC demands that Spain and various other countries return "obnoxious Germans and their families whose presence abroad constitutes a danger in view of the possible future renewal of the German war effort," and it violated current inter-American agreements

*The text of the proposed press release is quoted in full in the appendix at the end of this volume. An objection to an earlier press release on German scientists stated that pending a final policy decision by SWNCC, publicity was unwise "because such publicity may lead to erroneous interpretations on the part of Scientific, Labor, Zionist or Left Wing political elements which might exert sufficient pressure upon Congress, and the Departments concerned in evolving the policies, to defeat the ultimate objectives desired in long range exploitation." Chief, Policy Staff, to the Assistant C/S, G-2, War Department, comment no. 2, subj: publicity on German scientists, 7 Feb. 1946, RG 319, Army-Intelligence decimal files, 1941–48, box 990, file 400.112 Research 1 Jan. 1946–31 Mar. 1946, WNRC.

—which the United States had sponsored at the Mexico City (Chapultepec) conference early in 1945—to reduce Axis "centers of influence" in the Western Hemisphere.[29] "Certainly if we found German atomic physicists in Argentina," Braden wrote, "we would insist on their repatriation, and if an attempt were made to bring them to Argentina we would resist"; we would cite "not only the international obligations recently applied to Spain but the Inter-American agreements" as well. If German scientists and technicians must be brought to the United States, Braden concluded, they should be brought here as prisoners-of-war "to be segregated and milked of their knowledge" without benefit of immigrant status and without violating inter-American agreements or ACC regulations against research by Germans.[30] Acheson, however, was informed by a staff memorandum that everything had been approved in March, that the Army and the Navy were anxious to get things moving, and that Byrnes had already been in touch with Acting Attorney General J. Howard McGrath and Secretary of Commerce Wallace regarding implementation. Acheson noted that "this decision was made by the President in a cabinet meeting after very full discussion" and sent the material to the files.[31] But the issue came back in another form.

Ironically, since top-level State Department officials—including Secretary Byrnes, Under Secretary Acheson, and Assistant Secretary John H. Hilldring (State's representative on SWNCC)—had participated in the development of Project Paperclip, someone in the department had designated Samuel Klaus, who came out of Spruille Braden's office of Latin American Affairs, as the department's member of the JIOA Governing Board. Here he was in a position to continue Braden's arguments and throw up roadblocks to the implementation of SWNCC 257/5. After preliminary bureaucratic infighting with Army and Air Force JIOA members in May and June 1946, Klaus reviewed ten visa application dossiers submitted to the State Department by the Air Force for specialists already in the United States under Project Overcast. He returned the ten dossiers to the JIOA on 19 June 1946 together with a long memorandum detailing the "basic information" the State Department required before it could act on applications for German scientists for visas to enter the United States.[32]

Whether Samuel Klaus and his colleagues at lower levels of the State Department were "deliberately 'sabotaging by delay' the immigration of German Scientists," as Navy Captain Bosquet N. Wev, the director of JIOA, charged more than a year later, remains a muted question here, but interested readers may find a lengthy discussion of "Klaus's high minded sabotage" in Tom Bower's recent book, *The Paperclip Conspiracy*.[33] The task of collecting the "basic information required by the State Department," as detailed in Klaus's memorandum of 19 June, was indeed formidable. But to conclude that these people were "deliberately" sabotaging the program assumes a great deal, and to observe—as did the JIOA director—that they were "beating a dead Nazi horse," is almost certainly going too far. On the other hand, when he wrote these things in July 1947, not a single German scientist had been favorably considered for a visa to immigrate to the United States during the sixteen months since the original adoption of SWNCC 257/5.[34] Be that as it may, Project Paperclip, as authorized by SWNCC 257/5, was going nowhere in the summer of 1946, and the news from Europe was not encouraging for those who wanted to get on with it.

News and Warnings from Europe

The British program to evacuate German scientists to Britain for civil exploitation was well under way, and—although they were prepared to agree to an allocation scheme once the Americans were ready—the British made effective use of a JCS authorization to USFET on 29 April 1946 "to release to them German scientists and technicians in the U.S. Zone for exploitation for civil purposes" pending adoption of a long-term policy for such exploitation in the United States.[35] U.S. Air Forces intelligence sources reported receiving "continuous and increasingly alarming" information from Europe that foreign powers were recruiting the scientists whom the United States had "frozen" in its zone. Using a list of ten "typical" cases of French and Russian exploitation of German scientists as evidence, one Air Forces report stated that "the American zone is literally crawling with French and Russian agents whose work has become rather fruitful" because "German scientists have received no clear cut positive offers from this country." The Russians and the French reportedly made attractive offers, and they sometimes took people out

from under the noses of the Americans who were trying to recruit them for the United States.[36] Referring to one such instance—the disappearance from Munich of three German color film specialists whom the Americans had taken along from the I. G. Farben Agfa works in Wolfen when they evacuated the Russian zone in 1945 and whom Remington Rand, Incorporated, wanted to bring to the United States for research and development on color film—a State Department official in Frankfurt reported to Berlin that "we have caught the French red-handed again stealing scientists out of our zone."[37] But the worst was apparently yet to come.

General Joseph T. McNarney, the Commanding General of USFET, reported to Washington on 23 June 1946 that he had just approved unrestricted travel between the American and British zones of Germany and warned that extension of that policy to the French and Russian zones—which General Lucius D. Clay and the U.S. Office of Military Government for Germany (OMGUS) wanted in the interest of promoting German economic unity—threatened to "nullify our efforts to comply with" JCS directives issued the previous February "to prevent departure of German Scientists and important Technicians from US Zone."[38] Less than a month later, on 17 July 1946, McNarney sent to Washington a message he had received from General Clay that spelled out in detail the many difficulties of the denial program in the face of changing conditions in Europe. Before sending the message, however, McNarney or an alert editor in his office made a slight but highly significant change in Clay's wording. There were only two ways to run an effective denial program at the time, the revised message concluded: first, to use "detention camps" in Germany under U.S. military guards, and second, to move people out of Germany to the United States or the United Kingdom. Clay's original message had said that the denial program would work only "by placing Germans concerned in a concentration camp under U.S. guard, or by moving them to the United States (or United Kingdom)."[39]

Toward a Presidential Paperclip Directive

To say that the Clay/McNarney message of 17 July activated the Washington bureaucracy is to understate the case. There had been discussion within the State Department as early as 3 July

on the need for a presidential directive to commit to writing "the oral understanding with the President in the Cabinet" and to secure the cooperation of the several agencies involved. But now there were suggestions that SWNCC draft the kind of directive it wanted, submit it directly to the President for approval, and thus by-pass "the visa boys . . . on the policy aspects" of the program.[40] After discussions with Secretary Byrnes, who had returned from the Council of Foreign Ministers meeting in Paris for a four-day visit on 19 July, John H. Hilldring, the Assistant Secretary of State for Occupied Areas and chairman of SWNCC, reportedly expressed regrets to his SWNCC colleagues that administrative procedures had thus far blocked the implementation of SWNCC policy and reported that his department would now "concur in a War Department proposal to bring over up to 1,000 German scientists and their families under military custody, with a provision that visa arrangements might be made later for those whom we wish to keep."[41]

Over the next month the JCS worked out the details of a new Paperclip directive, which SWNCC adopted as SWNCC 257/22 on 21 August and President Truman approved on 3 September 1946. It provided for entry into the United States of up to 1,000 selected German and Austrian specialists and their families, all of whom would be held "under temporary, limited military custody until such time as visas are granted or repatriation is accomplished." Selection of specialists would be by the War and Navy Departments and by the Department of Commerce, which could nominate people "for exploitation under civilian auspices." Those selected would enter the country under contracts specifying "salary and working conditions" and providing for return of "specialists not found qualified for extensive exploitation or of individuals not found acceptable by the United States for permanent residence in this country." Any person found "to have been a member of the Nazi Party and more than a nominal participant in its activities, or an active supporter of Nazism or militarism" was disqualified, except that "neither position nor honors awarded a specialist under the Nazi regime solely on account of his scientific or technical ability" would "in themselves" be disqualifying—a significant loophole, indeed. As a matter of fact, where doubt existed about the exception, the directive continued, specialists could be brought to the United States, where

"further interrogation and screening" could be conducted after their arrival.[42]

Acheson's letter transmitting the directive to President Truman on 30 August 1946 said that it was contemplated that the specialists and their families would eventually be granted regular status under the immigration laws. The directive itself stated that the War Department, "through interrogation, investigation, and surveillance by technical services of the Army, the Army Air Forces, and the Navy, with the assistance of the Commanding General, USFET, . . . will cause the best information available concerning these specialists and their families to be assembled" for use by the Justice and State Departments in determining whether they were eligible for visas and eventually for citizenship under the immigration laws.

Edna Jensen, an Army Air Forces historian of Project Paperclip, concluded in 1948 that "the entry of the specialists and their dependents into the United States under Project PAPERCLIP constituted a parole of these persons by the Justice and State Departments to the War and Navy Departments."[43] The story of how and when the conditions of parole were removed in each instance, in other words, the story of the further implementation of SWNCC 257/22 and the War and Navy Departments' functions as "parole officers," would take another book to tell. It is not essential for this study, but it is rich in detail: fraught with controversy, marked by incidents, activities, and cases that made a mockery of American denazification policies and practices in Germany, and altogether remarkable for the ways in which specialists who were otherwise unacceptable to the Justice and State Departments for admission under the immigration laws were brought to the United States for reasons of "national security."[44]

With respect to denazification, for example, American officials did a variety of things to circumvent the German Law for Liberation from National Socialism and Militarism, the provisions of which were carefully reviewed and in part dictated by American military government officials in Germany. The law required every German above the age of eighteen to register and fill out a denazification questionnaire (*Meldebogen*). Local German denazification tribunals (*Spruchkammern*) used the registered information to classify individuals into one of five presumptive guilt categories: major offenders (Class I), offenders (Class II), lesser

offenders (Class III), followers or nominal Nazis (Class IV), and persons not affected (Class V). Subsequently the tribunals tried and punished offenders with fines, jail terms, employment restrictions, and forfeiture of civic rights; provided probation and rehabilitation opportunities for lesser offenders; and generally removed from followers the automatic economic, professional, and civic disqualifications that had been imposed upon them under the presumptive guilt provisions of the law. All of this occurred under close scrutiny of American military government officials, who issued deliquency and error reports whenever they thought the German tribunals had deviated from the letter and purposes of the Law for Liberation from National Socialism and Militarism.

But scientists and technicians whom the Americans wanted to contract for service in the United States received special treatment. Under orders from above to do so "with the greatest expediency" and without informing the Ministers of Political Liberation (the German *Land* officials responsible for administering the Law for Liberation), local military government detachments instructed denazification tribunals in their jurisdiction to assign top priority to the trials of individual specialists whose names they supplied without further explanation. Once the trials were completed, they reviewed the cases, prepared delinquency and error reports where necessary, marked the case files as "urgent," and submitted them to higher headquarters "with the least possible delay." "Under no circumstances," their orders read, "will German personnel be allowed to assume more than the minimum necessary part in the carrying out of this program."[45]

American officials also simply took people out of Germany before their denazification trials could be completed by the German tribunals. Under Project Overcast they did so before the Law for Liberation had been passed in March 1946; later they did so in flagrant disregard of the law. In one instance, for example, they spirited away a Frankfurt University professor whom the local denazification tribunal had classified—but not yet tried—as an offender (Class II) in July 1947. They took him to the Paperclip holding and processing camp in Landshut, Bavaria, and then transferred him to the United States, where he subsequently worked at the Navy's Air Missile Test Center at Point Mugu, near Port Hueneme, California. His JIOA case file notes that his denazification proceedings in Frankfurt had been "quashed for unknown reasons" in 1947, and that he went to Landshut on 1 August without written orders (which were issued retroactively on 19 August) because the "exigencies of the service had been such as to prevent the issuance of written orders in advance."[46]

Whatever the circumstances of their removal from Germany in each case, by the summer of 1947 so many specialists had arrived in the United States without benefit of denazification clearances that the War Department proposed a special procedure that it apparently hoped would help to satisfy the State and Justice Departments' requirements for issuing visas and immigration status. It cabled OMGUS in Berlin to ask for 1,000 blank *Meldebogen*, suggesting that they be completed by the specialists in the United States and then be returned to Germany for trials in absentia by a special denazification tribunal created for that purpose.[47] As was his practice, General Clay asked for a staff study to weigh the consequences of the proposal. When completed, the study noted that creating a special tribunal for scientists would result in inadequate treatment and extended delays, cause "unfortunate publicity," and "forcibly" bring the Paperclip program "to the attention of the public," thus giving an advantage to the critics of United States policy. On the other hand, the staff study concluded,

> it would be unwise and unfitting to jeopardize the operation of so important a program as PAPERCLIP by subjecting it even partially to the whims and prejudices of German denazification agencies who might be tempted to obstruct or sabotage the program through delaying tactics or distortion of the facts in a particular case. . . . The War Department's program and the nature of the U.S. interest involved in the immigration and exploitation of these scientists must supervene and take precedence over the demands and objectives of the German denazification law and it would be decidely inappropriate to submit any aspect of such matters to the decision of German authorities.[48]

General Clay, strengthened in his own convictions by an observation of his political adviser that "having sponsored the Law for Liberation from National Socialism . . . it is ill-befitting OMGUS to authorize exceptions and evasions," advised the War Department that 1,000 blank *Meldebogen* were being sent and that they would be "screened in the usual manner" when they were returned. He "strongly opposed" creation of a special tribunal,

however, and he objected to trials in absentia, which he said were not permitted for Nazis located in Germany. "Any special treatment given to the Nazi scientists and technicians involved in Paperclip would draw attention to this project and would indicate quite definitely to the German people that the Americans are willing to develop special procedures when it is in the American interest." The specialists affected by the law, he continued,

> should most certainly be returned to Germany for trial and, if sentenced, to serve their punishment in Germany. If their trial results in clearance they can be returned to the U.S. Any other procedure would leave us open to severe attack from leftist groups in Germany which, in my opinion, would be hard to answer. It would be much better to permit them to remain in the U.S. as Nazis without bringing them to trial than to establish special procedures not now within the purview of the German law.[49]

Perhaps enough has been said about denazification to show that the American Paperclip administrators were willing to bend and break approved denazification laws and procedures in Germany for those specialists whom they wanted in the United States. Telling the rest of the denazification story adequately would take us far afield and thus detract from the central theme and purpose of this study.

Project Paperclip as "Intellectual Reparations"

The postwar exploitation of enemy scientists and technicians for military-industrial purposes, as provided for by Projects Overcast and Paperclip, can perhaps be regarded as a form of war booty that arose inevitably out of the nature of modern, total war; out of what has been called "the wizard war."[50] But, as we have seen from its origins and development, Project Paperclip always had a civil-industrial exploitation component, which its proponents called "intellectual reparations" and which Germans referred to as "invisible reparations" ("unsichtbare Reparationen").[51] Furthermore, the continuing postwar military-industrial collaboration in war materials research and development made it possible for industrial firms and other civil agencies and institutions that held military contracts—and eventually those that did not—to transfer and apply German scientific and technical know-how to their own nonmilitary purposes by exploiting German specialists who were technically under military custody.

As noted in the illustrations that follow, the military services, in fact, accepted nominations of candidates to be included in the denial lists, and they sometimes permitted representatives of industrial firms to go to Germany under military auspices to identify and recruit specialists whom they wanted for service in their own firms. Once the specialists were in the United States, military authorities loaned them to industrial firms, universities, and research institutions for short periods of time and specific purposes. Eventually they released those specialists whom they no longer needed for military purposes to individual firms that wanted them or to the Department of Commerce for assistance in finding employment for them in the private sector.

Given the variety and complexity of the ways in which German scientists and technicians were exploited in the United States for "intellectual reparations," it is perhaps better to illustrate them with cases rather than describe them all in detail.

From Projects Overcast and Paperclip to Private Industry. As early as February 1946, the Air Force authorized its contractors to interview German specialists in the presence of Air Force officers. The first interview, by Curtiss-Wright Corporation, took place in March at Wright Field, Ohio, and in May 1946 the same courtesy was extended to noncontractors whose research was considered to be essential or beneficial to the military services.[52] By the end of July 1946 industry representatives from Lockheed, Westinghouse, Rangertone, Douglas Aircraft, and others had conducted 83 interviews that involved from two to twelve people in each instance. Available records show that requests for similar services had been received by the Air Force from the Universities of Michigan and Illinois, General Mills, Boeing, the Bulova Watch Company, Linde Products, and others.[53] By 1 March 1947, when records of these interviews ceased to be kept, industry representatives had conducted 160 interviews, some of them with specialists who had been put on loan to firms—normally for thirty days, but in exceptional cases for sixty to ninety days. While some firms simply wrote letters of appreciation, one of them, North American Aviation, reported having saved $40,000 on supersonic wind-tunnel design as a result of one interview, and a General Electric Corporation representative estimated—off the record—that his firm's ultimate savings from consultations with one specialist might exceed $1 million.[54] Although systematic records of such interviews and loans were no longer kept by

the Air Forces after February 1947, and although there are apparently no records available for the Army and Navy, the extent of the use of interviews may be suggested by an estimate given to the Air Force historian of Project Paperclip on 5 May 1948 that about 500 had taken place at Wright Field alone.[55]

From the Army Air Forces to the Bulova Watch Company. On 10 April 1946 the Assistant Chief of Staff for Air Force Intelligence in Washington cabled the Commanding General, USFET, that "a distinguished American industrialist," Arde Bulova—the president of the Bulova Watch Company, which had an Air Force contract—was planning a business visit to Europe and had "graciously volunteered to assist the Army Air Forces in locating and obtaining the services of German scientists for exploitation on military projects." Bulova was aware, the message continued, that the Army Air Forces were "very anxious to obtain the services of the best German scientific thought in the fields of Aerodynamics, Electronics, Fuels, Aeronautical design, Aircraft instruments and related subjects."[56] Subsequent messages of clarification to USFET, where there was uncertainty about what to do with Bulova and his entourage when they arrived in Frankfurt, show that Bulova had been briefed by General Carl A. Spaatz and other Air Force generals in Washington on his "mission . . . to assist in locating scientists for military projects and persuading them to come here." They also show that he had been told that the "scientists he locates will be formally requested by the Air Corps through [the] War Department after JIOA clearance."[57]

The people Bulova recruited in Germany in May 1946 were duly processed as Paperclip specialists and brought to Wright Field under military custody. Two of them were then assigned to the Bulova Watch Company and a third went to the American Standard Watch Case Company, where he reportedly worked on material later used by Bulova for research in long-range celestial navigation.[58] As required by implementing directives for Project Paperclip, the German specialists were kept under surveillance by military security officers during their absence from Wright Field, a condition that led Arde Bulova to complain to Senator Alben W. Barkley, of Kentucky, and to Secretary of State Byrnes that specialists he needed were being held behind "barbed wire." Byrnes subsequently informed him that lower-level officials in the State and War Departments had "construed" the word "custody" to mean "strict detention," and advised him that instructions were being revised so "custody" would henceforth be interpreted in a way "to remove any semblance of concentration camps."[59] In describing his investigation of the episode for the Secretary of War, who had also been brought into the act, Assistant Secretary of War Howard C. Petersen revealed precisely how Project Paperclip served as a channel to obtain German specialists for private use. "I was informed," Petersen wrote, "that Mr. Bulova himself had taken an active part in getting these men brought to this country by the Army, that they did not in fact have special knowledge desired at Wright Field but that Mr. Bulova wished to make use of them in his watch company. I understand that they are now being used by him for the latter purpose."[60]

From the Army Signal Corps to The Kalart Company. In the spring of 1947, Morris Schwartz and William Castedello, the president and the chief engineer of The Kalart Company, after studying the published bibliographies and reports of earlier scientific and technical investigations in Germany, went to Europe for eight weeks as technical consultants to gather additional information for the Publication Board program administered by the Office of Technical Services in the Commerce Department. Accompanied in Germany by a German employee of the United States Field Information Agency, Technical (FIAT) in Karlsruhe, they logged 6,500 kilometers and visited twenty plants for producing cameras, lenses, and shutters. "Mr. Castedello . . . and I," Schwartz wrote from Europe to his contact in the Commerce Department, "are making the most of this once-in-a-lifetime opportunity to see and learn at first hand the German Camera and Optics manufacturing techniques." At the Friedrich Deckel shutter-manufacturing plant in Munich, where they spent ten days, they learned in discussions with the plant custodian and the commercial sales manager that Deckel wanted to maintain German camera superiority by selling its shutters to German camera manufacturers exclusively. Schwartz and Castedello discovered later that this practice was in accord with the policies of the U.S. Office of Military Government for Germany (OMGUS), which was "directly encouraging and fostering the camera industry in Germany, in order to turn their camera production into export merchandise with a minimum of material consumption and a high dollar value."[61]

While at Deckel, Schwartz and Castedello met and interviewed

Ludwig G. Ranft (whose "intimate knowledge of camera manufacturing technique," Schwartz was to write later, "is of immeasurable value to us in launching our first production of cameras"), and determined that he was willing to emigrate. Upon his return to the United States, Schwartz went to the Army Signal Corps Headquarters in Fort Monmouth, New Jersey, and persuaded someone there to request Ranft's inclusion in the Paperclip program. He was duly recruited, processed, and brought to Fort Monmouth in September 1947; he worked there under a short-term Signal Corps contract until it expired on 21 January 1948, when he was released by the Signal Corps and employed by The Kalart Company.[62] Available records do not reveal what he did at Fort Monmouth, nor do they show what contact The Kalart Company may have had with him while he was in the custody of the Signal Corps. They suggest, however, that The Kalart Company's ambitious plans to use Ranft "in launching our first production of cameras" ended a year and a half later, when Ranft was employed by the Wollensak Optical Company as a shutter engineer—a transfer that does not change the fact that a German Paperclip specialist was used in the United States for private purposes and that he was recruited and brought to this country for precisely those purposes.[63]

From the Army Ordnance Department to the Dow Chemical Company. Soon after the war in Europe ended, a team of technical consultants from Western Electric and Bell Telephone Laboratories visited the Mahle Werke in Fellbach, near Stuttgart, where they found die-casting machines that were "a real advance in the die casting art."[64] Even before the team's report was issued as a CIOS Evaluation Report, one of its members—John R. Townsend, of Bell Telephone Laboratories—had returned to the United States and asked the Commerce Department's Office of Technical Services to have one of the machines brought to the United States for study by experts.[65] Townsend's request was followed by others, including a particularly emphatic and detailed one by J. D. Hanawalt, of Dow Chemical Company, which asked for evacuation of both machines and personnel.[66] After lengthy delays, caused first by General Clay's unwillingness to remove equipment from Germany outside of reparations channels and then by resistance from the State Department after Clay deferred to Commerce and War Department desires to do so,

the machine—weighing twelve or twenty tons, depending on the source one reads—was brought to the Army Ordnance Department's Frankford Arsenal, in Philadelphia, Pennsylvania.[67] There, on 5 February 1947, the Ordnance Department held a conference of interested people, including representatives of the American Magnesium Association and the Die Casting Institute, to examine the machine, determine what it would take to restore it as a functioning unit, and discuss how best to exploit this German know-how for American industry. Estimating that it would cost about $50,000 to replace missing parts and assemble the machine, and judging that the German machines were dangerous to operate, the conference decided not to restore the machine. But there was another way to go.

Three weeks after the conference at the Frankford Arsenal, a letter from Colonel G. F. Powell, of the Army Ordnance Department in Washington, went out to potentially interested firms, inviting them to consider bringing Dr. Alfred Bauer, the designer of the die-casting equipment found at Mahle Werke, to the United States for use by American industry. This could be done, Colonel Powell wrote, by making a request either to the Department of Commerce or to one of the armed services, which would request him and then make him available to private industry.[68] The Dow Chemical Company expressed interest in March 1947. Whether Bauer was brought through the Commerce Department or one of the services is not revealed in the available records, but he was in the United States on 11 December 1947, when a Dow Company official reported his presence to Special Assistant Ray L. Hicks, in the Commerce Department's Office of Technical Services. The official wrote, "We should like to go on record that we feel quite definitely that German scientists of Dr. Bauer's caliber constitute an easily exploitable resource which industry in this country cannot afford to be without." Industry's "top men" who went to Germany to investigate "German technological developments and personnel" did a good job, he continued, "but it has been our experience that the worthwhile developments cannot be exploited successfully or without considerable expense unless the German technicians familiar with all of the details of such developments are brought to this country." Precisely what happened after that cannot be determined from available records, but they do show that the Dow Chemical

Company considered Bauer to be a great asset to the magnesium industry of the United States. The company wanted to keep him in the United States on a permanent basis, was prepared to send him back to Germany to wind up his business affairs and arrange to bring his family, and was willing to pay for air travel to avoid having to use surface transport provided by the Army.[69]

From the Army Air Forces to the Loewy Construction Company. One of the early technical intelligence investigators to visit Schloemann AG in Düsseldorf was none other than Erwin Loewy, who had left Schloemann and Nazi Germany before the war and established the Loewy Construction Company in New York.[70] He returned to Germany in 1945 as a colonel in the U.S. Army Air Forces and visited Schloemann AG, M.A.N. in Nuremberg, and other firms in search of plans, drawings, blueprints and related information on the manufacture of hydraulic presses, cranes, and other heavy industrial equipment. The Army Air Forces took tons of such pieces of equipment, some the German originals and some copies, to Wright Field, Ohio, in the fall of 1945.[71] A Schloemann AG summary report of 8 June 1948, on Allied confiscations after the war, listed the U.S. Air Force removals as 10 drawings of a 1,000-ton forging press (*Schmiedepresse*), 10 drawings of a 1,200-ton forging press, 14 drawings of a 3,500-ton punching press (*Lochpresse*), 11,109 drawings of a hot rolling mill (*Warmwalzwerke*), and 1,056 drawings of a tube rolling mill (*Rohrwalzwerke*), among other things. The documents created in 1955, when the Americans returned the records they had seized a decade earlier, show 14 cubic feet of "Schloemann Firm Records" to have been shipped in 12 boxes, each weighing about 500 pounds.[72]

In January 1946, Captain H. W. Boesch, the chief of the Foreign Exploitation Section at Wright Field, while on a trip to Germany to represent the interests of the German scientists and technicians working at Wright Field,* went to Düsseldorf and contacted a Mr. Hermann Bottenhorn and four engineers "in whom Mr. Erwin Loewy is interested."[73] Although available Air Force records are sketchy in details, they show that the five were recruited and contracted as Paperclip specialists. They were brought to Wright Field, assigned from there to Loewy's company on 9 December 1946 to work on an Air Force contract, and allocated indefinitely to his company on 11 February 1947. The Air Force completed its direct employment of them two years later, when it referred their names and dossiers to the Department of Commerce with the request that they be made available for employment by private industry. In releasing them for civil employment, Air Force representatives said the five had contributed much during their assignment to the Research and Development Division of the Loewy Construction Company, and requested that they be made available to that firm so they could continue their work on development of all types of heavy machinery presses of interest to the Air Force. A 1951 JIOA breakdown showing the location of Paperclip experts in the United States shows five of them employed by Hydropress, Incorporated, in New York.[74]

The appropriation and transfer of plans, drawings, blueprints, and technical know-how from Schloemann AG and the utilization of these resources in the United States by the Army Air Forces and the Loewy Construction Company with the help of German scientists and technicians brought to this country under Project Paperclip is an illustration of the twofold nature of the American program for the postwar scientific and technical exploitation of the former enemy. "Closely related to the exploitation of German scientists and technicians [in the United States]," said a proposed press release on Project Paperclip, "is the government program for exploitation of German developments in industrial machinery, tools, equipment and materials."[75] To that other aspect of the program we may now turn.

*USFET sources show that Boesch—saying he had orders from the Commanding Officer at Wright Field, who would appeal to the War Department for action if necessary—demanded extra rations, such as were normally allotted to heavy workers, for the dependents of the scientists at Wright Field. They also show that Boesch violated numerous security regulations by delivering letters and packages that had not gone through channels for censorship, by telling family members in Germany where the scientists were located in the United States, and by advising them to send letters directly to Wright Field rather than through specified channels. See USFET, G-2, Operations Branch, file Correspondence, 1945–46, WNRC, and Boesch to Putt, 26 Feb. 1946, USAF Records, Maxwell AFB, microfilm, reel A 2055, frames 1139–41.

FOUR

The Documents Program

SUPREME HEADQUARTERS, Allied Expeditionary Forces (SHAEF) established the Field Information Agency, Technical (FIAT) on 31 May 1945. In reporting the action to the War Department, General Eisenhower cabled that the numerous military and nonmilitary, economic, financial, scientific, industrial, and technological activities that had been conducted during the war by the Combined Intelligence Objectives Subcommittee (CIOS) and other British and American agencies urgently needed coordination.[1] FIAT was nevertheless slow to organize, hampered as it was by early Air Force and Navy objections to limitations on their freedom of action and by SHAEF's move from Versailles to Frankfurt. FIAT had hardly begun to function when SHAEF's dissolution required its reorganization into separate British and American components. This was done for the Americans on 14 July 1945 by General Lucius D. Clay, Eisenhower's deputy for military government in Germany, who insisted that the American element of FIAT function under the U.S. Group, Control Council (later named the United States Office of Military Government for Germany).[2]

General Clay's directive of 14 July 1945 established the U.S. element of FIAT to "coordinate, integrate and direct the activities of the various missions and agencies interested in examining, appraising and exploiting . . . the German economy." It charged FIAT with developing and implementing policy governing (1) the collection of technical information, (2) the conduct "of all missions and agencies" engaged in collections, and (3) the "control and disposition of personnel, documents, equipment and installations of primary value" to FIAT's purpose. To carry out its mandate, FIAT was empowered by Clay's directive to send out

field personnel equipped with "special credentials directing all military authorities and all subordinate Commanders in the territory occupied by U.S. Forces to facilitate and expedite their mission by all practicable means," which included "the freezing of any and all targets . . . of interest to the Field Information Agency, Technical (U.S.) and the arrest, internment and removal of individual Germans who may be of similar interest."

As noted previously, agreements and understandings worked out in Washington and Europe in the late summer and fall of 1945 designated FIAT as the responsible agency in Europe for implementing those portions of Truman's Executive Order 9604 that provided for the acquisition of "information concerning scientific, industrial and technological processes, inventions, methods, devices, improvements and advances" still to be found in Germany. To do this FIAT concentrated on two interrelated functions, the one a records and documents filming project, the other —which is the subject of the next chapter—a program to facilitate the work of technical consultants and technical missions sent to Germany by the Commerce Department's Office of Technical Services.

The Records and Documents Filming Project

As was true of the entire FIAT operation, the project to film records and documents grew out of the wartime scientific and industrial intelligence experience. CIOS teams and other wartime investigators had often supplemented their written reports with photographic copies of formulas, drawings, blueprints, flow charts, test reports, research reports, and other documents that provided details on such things as production processes and techniques. "As time went on," a Commerce Department report of 10 December 1946 reflected, "it became clear that a massive microfilming program was needed to get all the information we wanted."[3]

The "documents program," as it was called at FIAT, began ambitiously in the fall of 1945 and continued somewhat more modestly until FIAT went out of existence on 30 June 1947. Using the wartime CAFT, CIOS, and T-Forces assessment and exploitation reports, which it inherited as the successor to those organizations, FIAT identified some 20,000 industrial targets as

potential locations of documents for filming. Beginning in mid-January 1946, it sent out special reconnaissance teams—made up of nontechnical Army officers and drivers on temporary duty with FIAT—to these and other targets to do inventories and prepare reports showing the availability, type, condition, volume, and location of documents that might be copied.[4] Targets that the reconnaissance teams found to be promising were subsequently visited by document screeners and microfilm teams, normally in that order, but document screeners sometimes went with the filming teams to show them the documents to be filmed.[5] The document screeners (also called analysts or simply investigators) were normally German-speaking, scientifically and technically trained individuals whom the Department of Commerce had recruited from universities, industrial firms, research establishments, government agencies, and other places in the United States for service with FIAT. Their instructions from FIAT were to look for documents with high military or industrial security classifications, secret patent applications, documents in original manuscript form, documents covering processes, formulas, and techniques not generally known in the United States, and finally, minutes, reference materials, and policy determinations of highly placed research and planning committees.[6*] The microfilm teams, which sometimes spent weeks at a given location, copied the chosen records and turned the films over to FIAT, which developed them, prepared abstracts and annotated index cards of their contents, and then sent everything to the Commerce Department's Office of Technical Services for eventual release under the Publication Board program.[7]

After only two months of operations it became clear that the initial ambitious plans for the documents program needed modification. Based on a survey of 67 plants, a FIAT study estimated that more than 3 billion pages would have to be screened and about 33 million would have to be microfilmed to complete the program as originally planned. Calculating that the screening would take about seven years and the filming another four years, the FIAT study concluded that it would be more realistic to limit

*A former investigator recalled years later that "any piece the Germans had stamped 'Geheim' [secret] was photographed, even laundry bills or love letters." Fred S. Thornhill to the author, 28 Sept. 1981.

the documents program to about 400 selected firms and research centers. The names and locations of the remaining firms and research centers could be entered into a file of references that would "prove invaluable for further investigations" by the scientific consultants and technical missions being sent to Germany from Washington.[8]

Despite its reduced, more realistic scope, the documents program remained a "scientific cleanup" operation of the first order. *Business Week*, in an article obviously inspired by someone in the Commerce Department, reported in May 1946 that about 100 Americans were supervising 600 Germans in the microfilm program.[9] FIAT daily journals and periodic reports show document screeners and microfilm teams working in hundreds of firms and research centers, including such prominent ones as the Ernst Leitz camera works in Wetzlar; the Deutsches Museum; BMW and Agfa in Munich; the Merck pharmaceutical works in Darmstadt; Degussa in Frankfurt and Constance; the Kerckhoff Institute in Bad Nauheim; Krupp in Essen; Bosch in Stuttgart; I. G. Farben in Höchst, Ludwigshafen, and other locations; and the universities in Marburg, Erlangen, Freiburg, Hamburg, Munich, Düsseldorf, and other locations.[10] A FIAT summary report of 10 December 1946, for example, listed eighty-seven large and small firms and research centers as current targets, showing in each instance the number of pages of documentary material selected for the microfilm project. At Leitz it was 198,000 pages; at Merck 4,000; at Düsseldorf University 18,000; at Degussa in Constance 14,000; at I. G. Farben in Höchst 311,000; at Krupp in Essen 60,000. At the other targets the quantities ranged from 1,000 to 500,000 pages, with the Berlin patent office topping them all at 1,018,000 pages.[11] An earlier FIAT report had described the patent office project as "a tremendous undertaking," requiring eight document screeners and a combined American and German staff of about seventy people to review some 34,000 patent applications and copy the 140,000 pending German, Austrian, Italian, and Japanese patent applications on "more than 17 miles of microfilm."[12]

The scope of the documents program, the complex interests of the American takers, the diverse responses of the German givers, and—I trust—the limits of my readers' patience, sug-

gest that it is appropriate to illustrate rather than describe the grass-roots dimensions of the entire operation. Available records are often brief, such as those for Chemische Werke Hüls, which show that a group of Americans was scheduled to arrive on 5 August 1946. They planned to go through the files of every department head ("sämtliche Akten der einzelnen Herren") and microfilm whatever interested them. Once the Americans were done, the records show, the files were to be returned to their proper places.[13] There are, however, more detailed and informative records as well.

Target Degussa. American documents-evaluation reports filed for Degussa (Deutsche Gold- und Silber-Scheideanstalt) show that Anthony Hass, the American document screener assigned to the firm, visited the central offices in Frankfurt, two of the firm's production facilities in Frankfurt, and the branch office in Constance, to which Degussa had evacuated its research laboratories and company records and correspondence during the war. At each location Hass interviewed key personnel and determined the type and quantity of materials to be microfilmed. In Frankfurt, after his own investigations and interviews with Dr. Ernst Baerwind, a member of the board of directors, and with the responsible officials in the two production facilities, Hass estimated the quantity to be microfilmed at about 100,000 pages for the central office and 8,000 pages for the two production facilities combined. At Constance, after similar investigations and interviews, he concluded that "the collection of documents is probably one of the most interesting in the French Zone. The complete research and patent records are available and fully indexed." A report filed on the completion of the microfilm work at Constance shows the take to have been 12,310 frames on 13 rolls of microfilm. Other American records show that a microfilm team went to Frankfurt in March 1947 and worked under the direct supervision of Mr. Hass, who remained at the target during the microfilming.[14] "This team," a contemporary Degussa letter shows, occupied the firm's technical-file rooms for about six or seven weeks and copied "hundreds of reports, operating directives, and other things," during which time it was virtually impossible for company officials to retrieve files and documents when they needed them for their own purposes. When the team left about two weeks later, the files were in such a state of disorder that, despite the efforts of two file clerks working full-time over eight days, they had not yet been "restored to a usable condition."[15]

Targets I. G. Farben, Leverkusen and Gutehoffnungshütte, Oberhausen AG. Contemporary German records show an American microfilm team working at I. G. Farben, Leverkusen, in the fall of 1946 with a permit from the British military government. The permit authorized them to photograph lists of the products manufactured by the firm, a card index of scientific and technical papers ("es handelt sich hier um Niederschriften über wissenschaftliche Fragen"), research reports, operating directives ("Verfahrensvorschriften"), and engineering documents. The firm's report on the incident, which was dated 26 November 1946, stated that the American team had been at the target since 1 October and that it was microfilming all of the firm's important scientific research and production files ("alle wichtigen wissenschaftlichen Forschungs- und Produktionsakten").[16] At Gutehoffnungshütte, Oberhausen AG, a three-person American commission arrived on 16 October 1946 and demanded to see files, records, reports, and other documents, which they said they wanted to photograph. When they were asked what they would do with the photographs, they said they would be sent to the U.S. Department of Commerce, which would make them available to the public along with similar information collected from American industry. ("Im übrigen würde nicht nur die deutsche Industrie, sondern auch die amerikanische in gleicher Weise herangezogen.") The team had a pass from the local British industry officer, giving them permission to do the photographing. According to the German report of the incident, an inquiry at the local British unit confirmed that there were no restrictions on the work of the commission. The report, which was dated 15 November 1946, said the commission had been in the archives for about four weeks, that the microfilm team had already been there once, and that there was evidence that they were also microfilming in other locations as well. Presumably, the report concluded, the American commission would spread its activities over the entire German machine-tool industry.[17]

Target Gesellschaft für Linde's Eismaschinen AG. In a report of 11 September 1947, which the Munich Chamber of Commerce (Industrie- und Handelskammer) had requested of firms within

its jurisdiction, Linde's Eismaschinen AG described or identified numerous American, British, French, Norwegian, Dutch, and Belgian experts and teams that had visited the firm, and it singled out an American commission under the leadership of a Dr. Kubierschky as more thorough than all of the others. The Americans brought along a complete microfilm unit, with which they copied in the neighborhood of 1,000 drawings, plans, and documents. Among these, the report continued, were the complete drawings of the production facility, the plans for the foundation and the structure of the buildings, and documents detailing the specifications, construction, and uses of the various plant installations. Dr. Kubierschky, whom the firm's report identified as a former New York representative of a German firm and judged not to be an expert in Linde's line of business, gave most of his attention to existing installations ("fertige Anlagen"), but his partner, who was "apparently a physicist," concentrated on calculations, specifications, and equations ("Berechnungsunterlagen"). "This commission," the report observed, "operated with a mandate from the American government, apparently under a plan to acquire an archive of recent German industrial advances." The firm had been told that the information taken was being made generally available, the report concluded, but knew that it would be used by private companies to compete with the firm in its own former foreign markets. At issue were processes and special equipment ("Verfahren und Sonderkonstruktionen") that the firm had spent years to develop and with which it had a considerable advantage over its competitors. What had happened was that "our competitors have effortlessly come into possession of the very technology and know-how upon which our former comparative advantage was based."[18]

Target Dr. Alexander Wacker Gesellschaft für elektrochemische Industrie, GmbH. As Linde's Eismaschinen AG had done, the Wacker Gesellschaft für elektrochemische Industrie responded to the Munich Chamber of Commerce's request for reports on postwar technical industrial intelligence activities. It listed 94 commissions with a total of 216 members from Britain, France, Norway, Czechoslovakia, Australia, the Netherlands, India, and the United States that had taken along a total of 2,172 drawings ("Zeichnungen") during inspections of the firm between May 1945 and 30 July 1947. The Americans, who had sent just over

half of the commissions and spent a total of 183 days at the firm, brought along a microfilm team that copied all the important drawings and plans at the firm's Burghausen facility (near Munich) and "the entire collection of research reports, totaling about 20,350 pages," in the firm's Munich offices. In this fashion, the report concluded after lengthy discussion, foreign interests had gotten their hands on not only the technical know-how their investigators observed and studied in our facilities but also the firm's entire records collection on research, experimentation, and tests. This was obviously more important to them than just having the patents and the patent applications, which as a rule did not reveal the actual processes and techniques used in production. In other words, they were now in a position to learn all about the firm's production processes and techniques and to use them in their own firms.[19]

Distributing the Documents-Program Booty

As document screeners and other investigators sometimes told the Germans, and as John C. Green and others repeated again and again in public statements and official correspondence, the Department of Commerce's Office of Technical Services (OTS) was obliged by presidential directives and the Publication Board's implementing regulations to make the German scientific and technical information available to the general public without advantage to those directly employed in the collection process. Doing that for the documents program proved to be an overwhelming task. As a result, OTS first modified its dissemination program after FIAT went out of existence in July 1947 and then aborted it after Congress provided only enough money in 1948 to phase out the entire OTS program.[20] The upshot was that the documents program tended to benefit the general public much less than it did those firms and individuals who had the incentive and the resources to get the information from OTS on their own—in other words, the competitors and potential competitors of the firms from whom the material had been taken.

The successful dissemination of the microfilmed documents in the United States depended in large part on the ability of the OTS and FIAT to recruit qualified people to accomplish "the greatest transfer of mass intelligence ever made from one country

to another."[21] Linguistically and technically trained people were needed to review, analyze, abstract, and index the materials so they could be identified and annotated in the weekly *Bibliography of Scientific and Industrial Research Reports* and other releases that the Publication Board used to offer the information to the general public—at no more than the cost of reproduction, it might be noted. To obtain such people, the OTS and FIAT engaged in extensive recruiting in the United States and in Germany.

In Washington, the OTS canvassed universities, engineering schools, trade associations, technical societies, and government agencies for applicants and nominations, and it broadcast the news of its needs to trade journals and other publications. Writing to the "editors of all principal trade papers" on 27 March 1946, John C. Green announced the beginning of a "complex and difficult" microfilming program in Germany and asked for assistance in recruiting technical personnel whom the OTS proposed to send to Germany to screen records and supervise German personnel who would do the routine work involved.[22] Following up on their director's initiative, the chiefs of the OTS bureaus —the Electronics and Communications Section and the Metals and Minerals Unit, for example—wrote similar letters to industrial firms, universities, professional and trade associations, and individuals who had been CIOS consultants during the war.[23] All of the letters asked for assistance in the recruitment of personnel whom OTS proposed to employ and send to Germany, but letters that went to private firms, such as the Bell Telephone Laboratories, also asked if the firms would be willing and able to send people to Washington for two or three months at company expense to analyze and index "an immense backlog of German technical documents" already on hand. Such "without compensation" (WOC) industrial representatives, who would obviously be in a position to benefit their employers directly, were promised "office space, secretarial and typing help, reproducing facilities, as well as the necessary access to all reports and documents" in return for a report for publication by the Department of Commerce.[24]

The FIAT recruitment campaign in Germany was apparently as extensive as the one in Washington. According to the unpublished, official history of FIAT, "it was only after an extensive

recruiting campaign which covered the entire US Zone of Germany and the US Sector of Berlin that FIAT was able to secure sufficient qualified indigenous personnel" to prepare abstracts of the German technical documents and translate them into English.[25] The arrogance with which FIAT subverted and violated American denazification policies in Germany is perhaps also a measure of the organization's outreach. Germans with linguistic and technical ability whom German labor offices assigned—in accord with American denazification policy—to do common labor as penance for their Nazi affiliations and activities were commandeered by FIAT to serve out their assignment to "common labor" with FIAT. "The needs of the U.S. military government for intelligence purposes take precedence over the German local government," said a FIAT memorandum explaining why the Bürgermeister of Höchst was told the following: "We find it necessary to commandeer his [Dr. Karl Hass's, a former I. G. Farben employee] services in behalf of the U.S. Government. Therefore, during the time he is serving our [FIAT's] needs, he shall be considered essentially as [a Höchst city] employee, serving his Pg-Arbeitsdienst, and as such his salary should be paid by your office."[26]

There are unverified OMGUS reports suggesting that FIAT may have been "violating denazification directives on a large scale," a fact that was apparently common knowledge among Germans, some of whom left records of discussions among themselves testifying to that.[27] For example, one of the German scientists whom the Americans had evacuated from the Russian zone in the summer of 1945 and then left to shift for himself wrote later to the director of the evacuated scientists' organization that he had taken a job as an assistant in the Technical High School in Darmstadt early in January 1946. He resigned eight months later to forestall certain dismissal for Nazi party membership under provisions of the German Law for Liberation from National Socialism and Militarism, which the Americans had approved in March 1946. Unable to find employment elsewhere, he took a job with FIAT in Höchst and eventually moved to Karlsruhe with the organization when it was transferred there early in 1947. After his failure ("Misserfolg") in Darmstadt, he continued, "the only employment I could find at the time was with FIAT,

where I discovered other evacuated scientists and technicians with all kinds of specialties who found themselves in situations similar to mine."[28]

Farming Out Microfilms to Private Industry

Although the recruitment efforts on both sides of the Atlantic were relatively successful, they never brought together enough people to cope with the volume of materials being microfilmed and thus to carry out the OTS mandate to make the information generally available to the public.[29] By January 1947, after the records and documents microfilming operation had functioned for a year, an OTS study observed that the amount of information collected "has reached such enormous proportions that it has become difficult to inform the public of the possible benefits available to it." Estimating that the OTS had about 7,000 separate reports and millions of pages of documents that were "far too involved for general use," the study suggested that the OTS prepare a compendium of German wartime technology, using people who had been to Germany and other experts "from the outside" as consultants to correlate, evaluate, and condense the material for publication in a "form suitable for use of the average business man."[30] Six months later, after FIAT had closed down in Germany and the U.S. Congress had cut the OTS appropriation in half, the OTS opted to go that route.

Beginning in July 1947, OTS opened its microfilmed records and documents to volunteers who expressed an interest in reviewing and evaluating them. In a circular sent to 625 technical societies and trade associations, about 3,000 industrial research laboratories, and several hundred universities with research facilities available to industry, John C. Green invited nominations and volunteers to serve as reviewers and evaluators. The OTS, Green noted, had approximately 5,000 reels of microfilm containing some 500,000 documents, with a total of roughly 5,000,000 pages, that it was prepared to farm out for review and evaluation. Although there were no funds available to compensate for the work, Green believed that the data, "which supplements and extends the work of the teams of experts" who had been to Germany, would be sufficiently valuable to attract reviewers and the agencies and firms with which they were associated. Experts who volunteered would benefit by being the first to scrutinize the material. They could, in fact, use the original German materials for preparing professional articles that OTS would include in a "forthcoming Government Compendium of German wartime technology."[31] Obviously—but apparently this was never stated explicitly—they could also apply what they found to their firms' research or use it in any other way that the firms and agencies that released them and paid them desired.*

Commerce Department records contain folders of correspondence showing that reels and reels of microfilm went out—sometimes with microfilm-reading equipment supplied by OTS—to various firms and individuals for evaluation and return with a report. Normally, when firms or individuals expressed interest, OTS sent them abstract cards (which had been prepared by German technical employees at FIAT before the microfilm was sent to Washington) from which they could identify the specific reels germane to their interests. OTS then sent them the reels they wanted. The files also contain letters reminding individuals and firms that they had returned neither reports nor the material that had been sent to them earlier.[32] As a matter of fact, the project was never completed and the proposed compendium never appeared, with the result that individuals and firms got private access to "intellectual reparations" that were originally intended for dissemination to the general public. Two cases, the first involving an individual and the second a firm, illustrate the situation.

G. E. Guellich, an employee of the American Optical Company who had investigated the German optical industry and found much of value at Zeiss and Leitz when he was a scientific consultant in Germany in 1945, was one of those who asked for and received a shipment of microfilm for review and evaluation. After surveying the material and discussing the project with management, Guellich wrote to the Commerce Department that there were 140,000 frames on 220 reels, samples of which he

*For example, one of Bell Laboratories' people was spending half-time in Washington to go over technical literature gathered by OTS "and search for reports that might be of interest to the Laboratories." He was "also acting in the same capacity for the Western Electric Company" and was available at all times for additional searches. *Bell Laboratories Record*, 25, no. 3 (Mar. 1947), 122–23, copy in RG 40, box 116, file Publicity, WNRC.

had been able to review and evaluate at the rate of about 2½ minutes per frame. At that rate, he extrapolated, to complete the task it would take 6,000 man-hours, or 30 weeks of full-time work by five good people who were fluent in German. That was more than his firm's management was prepared to underwrite. He had, however, identified "particular reels and frames" that interested him, and he said he planned to work on them personally in the evenings for about ten hours a week. Precisely what it was that interested him and why are not revealed in available records. But he exploited the materials until his contact in the Commerce Department advised him that the operation was being terminated on 30 June 1948, and asked him to return the reels when he was finished with them, declaring that "no additional microfilm activities will be carried on."[33]

Audio Devices, Incorporated, according to its president, William C. Speed, "the leading American manufacturer of professional recording blanks,"[34] had capitalized remarkably on expropriated German technical know-how for about a year before the firm became involved in the project to review and evaluate microfilm for the Commerce Department. Speed attended a demonstration—held at the Commerce Department by the Office of Technical Services (OTS) and the Institute of Radio Engineers—of a new German tape recorder, the Magnetophone, a model of which Colonel Richard H. Ranger had brought back to the United States for research purposes. Shortly after the demonstration, Speed returned to Washington to learn all he could about the new process, having concluded that it "would revolutionize the recording business" and that "the Magnetophone is the first really important development in sound recording and reproduction to be brought forward since Western Electric obsoleted acoustical recording twenty odd years ago."[35] The OTS provided him with copies of the reports filed by investigators who had been to Germany, and it allowed the firm to examine the Magnetophone that Ranger had evacuated for research purposes. Audio Devices engineers subsequently produced a very high-grade magnetic recording tape, a sample of which Speed sent to OTS with a letter acknowledging that "the fabrication of this material and much of the success we have obtained is due almost entirely to the information, reports, and documents supplied to us by the Department of Commerce. . . . I feel sure that

if your department had not made the German processes available to us, we would almost certainly still be experimenting with inferior materials and methods."[36]

After a year of testing, during which he made a personal trip to Europe and informed himself of developments there, Speed wrote once again to the OTS, reporting that "our work on tape is now progressing at [a] rapid pace" and boasting that "both the Crosby and Burl Ives shows" were using the product. "Pilot operations are now drawing to a close," he continued, "and mass manufacturing is beginning to roll." On the other hand, he wrote in the same letter, "our efforts to cooperate with your department in the evaluation of microfilm reels have certainly fallen on bad times. No one here reads technical German [and] the stuff in English is far from our interests. I am sorry to have to let you down on this, but it frankly just costs more than it comes to."[37]

Epilogue

Although the Commerce Department terminated the documents program on 30 June 1948, the microfilmed records and documents in its possession continued to be available to all those willing and able to identify what they wanted and pay for reproduction costs. A case in point is the German synthetic fuels document-retrieval project initiated by Texas A & M University's Center for Energy and Mineral Resources in 1975, after the shock of the 1973–74 oil crisis and the ensuing public clamor for a viable synthetic fuel industry in the United States. Although the project went into "mothballs" before it was finished, it is important here not only as an illustration of the long-term impact of the expropriated German scientific and technical know-how in the United States, but also as a graphic example of the way in which "intellectual reparations" passed from private German hands through FIAT and OTS into private American hands.

Initially funded as a three-year project by a variety of sources, including the Dow Chemical Company, Diamond-Shamrock Corporation, Union Carbide, and Texas A & M University, the plan was to locate, retrieve, and eventually store in accessible form—in an Oak Ridge National Laboratories computer data bank—all records of German wartime coal-to-oil conversion techniques that had been brought to the United States after the war by the

Technical Oil Mission and other intelligence teams, missions, and units.[38] The project flourished briefly in the mid- and late 1970's and then went into eclipse when neither private sources nor the United States Department of Energy would provide funds for its continuation. According to one of the project's chief promoters, "the low current interest in synthetic fuels forced us to mothball our German Document Retrieval Project."[39] Significantly, one of the more important sources of information for the project was a collection of "306 reels of microfilm comprising approximately 300,000 pages of original German documents," some of which had been used for research and experimentation by the Bureau of Mines and several private firms and research establishments after the war.[40] In addition to the microfilms, the Texas A & M project retrieved appropriate wartime CIOS and postwar FIAT reports. The latter were reports filed by technical consultants and technical missions that went to Germany under the Commerce Department's program to implement President Truman's Executive Order 9604, which provided for the acquisition of "information concerning scientific, industrial and technological processes, inventions, methods, devices, improvements and advances" in Germany.

We may now turn to FIAT's program to facilitate the work of the technical consultants and technical missions, a program that paralleled and dovetailed with FIAT's records and documents filming project.

FIVE

Consultants and Missions

ONCE THE WARTIME scientific and technical intelligence operation had moved "squarely into the commercial field," as General Clay expressed it in October 1946,[1] the Office of Technical Services (OTS) in Washington and the Field Information Agency, Technical (FIAT) in Germany transformed the early military operation into a civilian one. In a story describing administrative changes occasioned by the transformation and reflecting OTS efforts to recruit scientific and technical consultants to go to Germany, *Chemical Industries* warned in January 1946 that further collection of technical information in Germany would be imperiled "unless industry comes to the rescue." Much remained to be done, and "the job of both furnishing and financing experts for further field work . . . has been left up to industry." American chemical companies, the story went on, had their own interests at stake; an investment of $2,000 to $3,000 to send someone to Germany for three months could secure a company "first hand information," even though the person sent would have to travel as a government representative and make a final report for release to the public.[2]

Recruiting Consultants and Missions

The OTS campaign to recruit people from private industry as a major part of the plan to "use vacuum cleaner methods to acquire all the technical and scientific information the Germans have" reached far and wide.[3] As noted in the previous chapter, John C. Green asked the editors of all principal trade papers for nominations and volunteers for FIAT's documents program. In the same memorandum he invited private firms to tell the OTS

what they wanted from Germany and to nominate or furnish investigators who could go and get it, either as individual scientific consultants or as members of special missions that the Commerce Department proposed to organize on behalf of industrial or scientific groups.[4] "We intend to make it widely known in industry," Green wrote to FIAT, "that firms may send their technical men to Germany to make investigations, the expense to be borne by industry and the results to be reported to the Department of Commerce for publication."[5] The OTS did precisely that, using press releases, telephone calls to industrial leaders, visits to trade associations and technical societies, and a variety of other means. For example, an OTS official spent a day visiting engineering societies in New York City; another went to New York, Chicago, and Cincinnati to meet with representatives of various firms and discuss "the desirability of making additional intelligence investigations in Germany." Still others attended meetings and conventions of the American Chemical Society, the National Metal Congress and Exposition, and the National Association of Manufacturers, where Green himself gave an address.[6]

Responding to the OTS campaign, as did many other trade publications, a staff editor of *Food Industries* wrote that "your government is offering you a chance to share in the war's reparations —reparations in the form of technological information . . . in all fields of industry and research," including such things as "testing methods, chemical research, new products, new materials, production methods and plant development."[7] In a similar story, *Science News Letter* listed chemicals, aeronautics, the automotive industry, machine tools, industrial equipment, fuels and lubricants, metals and minerals, communications equipment, scientific instruments, shipbuilding, and textiles as the fields in which OTS sought competent people. "If any industry or scientific group wishes to investigate German industrial methods," the story advised, "Uncle Sam will make the necessary arrangements for a mission to go to Germany."[8]

How such missions came to be organized may be illustrated from the field of pharmaceuticals. After reading the article in *Chemical Industries*, mentioned above, C. R. Addinall, the assistant director of research at Merck & Company, wrote to OTS that he had been planning a business trip to Europe to gather business and scientific information "of value to Merck & Co., Inc." and that he would like to discuss going to Germany as a government representative to acquire "information that would be of public interest and also of value to Merck & Co., Inc." Merck's main interests were vitamins, hormones, antibiotics, and pharmaceutical chemicals "of all types," he noted, but the company was also interested in herbicides, fungicides, insecticides, germicides, and "various raw materials and processes for the preparation of basic organic chemicals useful for synthetic work in the widest of fields."[9] The OTS subsequently invited the leading American pharmaceutical houses to send representatives to Washington for a meeting.* At the meeting Addinall said that he had studied the reports of the people who had followed the armies in Europe and found some of them to be quite good, but most of them insufficient in essential details. "If a company wants to manufacture a chemical," he reportedly said, "it wants to know what that chemical can do, know its background, and what can be done—it wants a full working process, and it wants to know the patent situation—whether a patent has been applied for or granted and whether it is being transferred to a firm in the United States."[10] After being briefed by OTS officials on such business as costs to the companies, passport and physical examination requirements, the need to purchase Army uniforms, and the OTS requirement that they prepare reports to be made public, industry representatives at the meeting were asked to go back to their directors "as quickly as possible with this in mind." Five days later, OTS issued a press release stating that teams of American investigators were being organized to comb the German pharmaceutical industry for information useful to American companies. "Scores of documents on new products and production methods filed in German offices and laboratories are there for the taking," the press release continued. "Other information can be obtained by interviews with German technicians . . . on the spot. . . . Often an investigator who knows his field can

*In addition to Addinall from Merck, representatives of Monsanto Chemical Company, Upjohn, Pfizer, Dow Chemical, Parke-Davis, Mallinckrodt Chemical Works, E. R. Squibb & Sons, Sharp & Dohme, and Abbott Laboratories are listed as having attended the meeting (see n. 10 for this chap.). Of course, it is not clear whether they were interested in going to Germany or simply in keeping an eye on the competition.

detect evasive or false statements made by German technicians and track down the real facts of the case."[11]

Throughout 1946 and the first half of 1947, the Department of Commerce sponsored hundreds of such missions, which consisted of one or more representatives of industry groups or trade associations, such as the Society of Automotive Engineers. For example, the motion picture industry sent a mission to investigate German color-film processes and the textile industry sent two follow-up missions to enlarge upon the findings of the wartime textile investigations.[12] As noted elsewhere in this study, the petroleum industry supported a postwar technical oil mission—which was headed by W. F. Faragher, of Houdry Process Corporation, and Harold V. Atwell, of the Texas Company—and then cooperated with others to send a second follow-up mission by Faragher. Each of these missions was to add to the findings of the earlier wartime Technical Oil Mission originally suggested by Interior Secretary Harold Ickes.[13] Often, however, a "mission" consisted of no more than one person in search of specific information useful to his firm. For example, Sosthenes Behn, the president of ITT, agreed to donate the services of an ITT employee, Dr. T. M. Odarenko, to the Department of Commerce with the "understanding that Dr. Odarenko will be allowed to obtain for us information in which we alone are interested because of our affiliated companies."[14]* Further, W. H. Reynolds, a scientific consultant from the American Instrument Company, which he said was the only American company that "builds high pressure, high temperature apparatus for catalytic chemical reactions," went to Germany under OTS auspices and visited the only two German firms that did the same thing. Upon his return he expressed doubts about the general value of his investigations but asserted, "In my own case, it was of great value to my company and we made use of it just as soon as it was released to the public."[15]

Be that as it may, *The New York Times* reported in May 1947 —when the economy-minded 80th Congress appeared to be on

*Edwin Y. Webb, of OTS, said in a letter to Behn, "Your agreeing to give the services of Dr. Odarenko to this office to continue our work in Germany is very gracious and very cooperative, and I assure you of my efforts to make the results mutually beneficial to all concerned." Webb to Behn, 9 Apr. 1946, RG 40, box 116, file ITT, WNRC.

the verge of shutting down the OTS German exploitation project —that "the German 'brain-picking' project is the joint venture of business and Government," adding that "to help Commerce [Department] employees dig out the documents, United States industry sent 6,000 experts of its own to Germany in search of I. G. Farben files, patents and factories." The article thus gave the misleading impression that the program was aimed at I. G. Farben exclusively, or at best at the German industrial giants who had supplied the German war machine and deserved what they were getting in return.[16] As for the scope of the scientific consultants and technical missions program, a tabulation prepared by FIAT on the eve of its dissolution shows that in the year ending 31 May 1947 FIAT had processed and cleared 1,398 American investigators and another 1,075 document screeners for 969 and 640 field trips, respectively.[17]*

Living and Working in Germany

Experts selected to go to Germany normally first went to Washington, where they bought uniforms, got vaccinations, and did the necessary paperwork to become "scientific consultants" for the OTS and receive their assignments to FIAT. From Washington they went to New York and flew from there—normally via Gander, Shannon, and Amsterdam—to Frankfurt; from there they were taken to FIAT headquarters in Höchst (after 1 January 1947 in Karlsruhe). At FIAT they were briefed by division chiefs and—while they waited for military clearances and travel orders to the targets of their choice—given access to the FIAT library and FIAT target evaluation and assessment reports as well as those collected by CIOS and other intelligence agencies during the war.[18]

*The unpublished official OMGUS, Historical Office, *History of Field Information Agency, Technical (FIAT), Period 1 July 1946–30 June 1947*, MS in RG 319, CMH, Historical Manuscripts file, NA, shows that between 1 July 1946 and 30 June 1947 FIAT processed 4,994 Allied investigators for 2,922 field trips. My own research shows that Allied investigators came from the United States, Great Britain, France, Russia, the Netherlands, Norway, Czechoslovakia, Denmark, Belgium, Canada, Australia, India, Brazil, and China, most of them from the first three nations. I have been unable to find official or reliable figures for the period before 1 July 1946, and I do not know where the *New York Times* figure of 6,000 came from.

Although many of them complained about the "unnecessary" delays at FIAT headquarters, experts lived in relative comfort in Ritter's Park Hotel, Bad Homburg, a "very beautiful" and "relatively undamaged" resort town in the Taunus, one of Germany's idyllic natural settings. The hotel and park complex, which reportedly provided billets with "plenty of bathrooms," tennis courts, mineral springs, bath houses, a bar with inexpensive liquors, a movie theater, and other entertainment facilities —including "the well known civilian dining and dancing club"— was operated by USFET Special Services and completely staffed by German personnel who were paid from indigenous sources and who were reportedly "anxious to please" in return for cigarettes, chocolate, soap, and other amenities. According to FIAT, the idea was to have "all technical personnel billeted together so . . . they could spend their free time conversing on subjects of mutual interest and enjoying social contact with each other."[19]

Once they left FIAT headquarters and went out into the field to conduct the investigations for which they had come to Germany, scientific consultants experienced dramatic changes in their living and working conditions. They traveled in jeeps, command cars, sedans, or weapons carriers, which the Army assigned to them on the basis of availability and the size of their groups, and they carried their own baggage and rations. At or near their targets, which were usually scattered and numerous, they billeted in requisitioned German houses and apartments— some reportedly good, others rough—assigned to them by local military government detachments or Army units. Their FIAT travel orders and passes authorized them to visit German plants; examine processes and products; take photographs and samples; demand drawings, plans, and blueprints; interview plant personnel; and, according to John C. Green, "take all other measures appropriate to the full extraction of the information" they were after.[20]

"Appropriate Measures" and Other Methods

A picture accompanying an article entitled "World's Greatest Treasure Hunt," published in *Nation's Business*, an organ of the U.S. Chamber of Commerce, shows an American in uniform pointing an accusing finger at a fat, insolent-looking individual

in the presence of two other persons in work clothes who are also pointing their fingers. The caption reads: "A U.S. government official questions a German industrialist about his plant while Russian slave laborers who worked for him refresh his memory."[21] The directive establishing FIAT gave investigators authority to remove, arrest, and intern individual Germans, and the FIAT handbook for field teams instructed them to refer difficult cases to the nearest military intelligence officer and then file an incident report with FIAT.[22]

But if one reads published accounts of the investigations uncritically, one is apt to conclude that—with few exceptions— Germans shared their know-how willingly, even eagerly. "One of the most interesting developments of intelligence work in Germany," according to one such report, "was the almost universal cooperation received from German scientists, plant officials, and personnel. A few were surly, a few close-mouthed, a few deliberately tried to mislead investigators," but most talked freely and divulged their expertise.[23] According to another published account, returning investigators reported that Germans gave information freely, in part because they hoped their information was important enough to get them invited to the United States to work on it, but also because they feared they would be subjected to "further military investigation" and end up in "a camp with die-hard Nazis and others who won't cooperate."[24] "We had authority to demand their imprisonment for two years if they lied to us, but it wasn't fear that made them over-eager to be cooperative," a returning investigator told his students at the Massachusetts Institute of Technology. He explained:

> "First of all, they were in awe of the uniform of a conquering army, and second, they hoped to make a good impression in the hope that we might arrange for them to go to the United States or to England where they could be warm and eat three square meals a day. They have a horror of having to go to Russia, which, in many cases, seemed the only other alternative."[25]

Finally, still another published account, after commenting that "conquered people" could not afford to be "too refractory" and remarking on the "natural human tendency to boast of work well done," even went so far as to conclude—in the best military circumlocution of the day—that "it was found possible to convince

many of the leading scientists that their careers in war research were at an end, and that their best recourse for preserving their work to science consisted of passing it over to a scientific institution which was above plagiarism, that would further develop their ideas and that would give them proper credit."[26*]

The realities were often somewhat different, however. American records show that investigators took Germans from their homes and work places to "Dustbin," a detention and interrogation center for scientists and industrialists, where they could be held indefinitely for exploitation.[27] Here they suffered indignities quite foreign to them, for they were accustomed to the deference and respect traditionally accorded to a "scientific and managerial aristocracy."[†] "Dustbin" detainees were "required to clean their own rooms, make their own beds and wash their own clothes," and they were given "homework assignments" to write reports on their work and their fields of expert knowledge.[28]

Other American records show, for example, that an investigator took documents from the home of Dr. H. Küppenbender, a Zeiss Optical Company official, "during his temporary absence from Heidenheim" and left a brief receipt with the local military government detachment showing that he had removed "various notes . . . pertaining to the development of a new type of camera shutter."[29] Officials at Brown-Boveri et Cie, AG, refused to give out information to investigators, claiming that the firm was partially owned by foreign interests and therefore exempt. Subsequently, U.S. military government headquarters in Frankfurt advised FIAT that Brown-Boveri officials must answer "all

*A slightly different view of German cooperation appears in a letter of 8 Sept. 1981 to the author from R. D. Dunlop, a researcher from Monsanto Chemical Company who was a without-compensation (WOC) investigator in Germany from Nov. 1946 to Mar. 1947. He states that Germans were cooperative and open in their discussions with Americans, apparently because they thought the Americans might buy from them; they were much less cooperative when the teams were multinational.

†Fritz Ebner, in an interview at Darmstadt on 12 May 1981, gave me a graphic description of this "aristocracy." Its members were driven by uniformed chauffeurs. Their offices, workplaces, and laboratories were their castles, where quiet reigned and nobody stepped out of line. Their lives were "regularized and routinized," and they frowned upon informality—for example, upon an official's wearing his shirt collar open to an "occasion." Ebner added (in an obvious dig at Americans he had encountered after the war) that they disdained adults who chewed gum.

questions of authorized Allied investigating teams," that foreign ownership was not an acceptable excuse for non-compliance, and that all FIAT agents operating in the field should be advised accordingly. Furthermore, the advice continued, "it is suggested that [investigators] inform persons under interrogation that any failure by them to answer properly concerning the activities of [their firms] will subject that individual to punishment under Military Government Ordnance No. 1."[30] When FIAT investigators learned that German firms had often stored important papers and documents for safekeeping from air raids, it reportedly became "standard practice" for FIAT investigators "to interrogate plant directors on this subject." In one instance, when an I. G. Farben official in Offenbach admitted that he had stored documents in a safe-deposit box in a nearby bank, but that the keys had been lost, FIAT "arranged to have the boxes blown open."[31] At the Ernst Leitz plant in Wetzlar, investigators who "had had considerable difficulty with the officials . . . in ascertaining the extent of the technical records . . . resorted to high pressure methods and consequently gained access to all of their material."[32]

German records are replete with accounts of similar incidents, and they are rich in references to unsuccessful attempts to refuse access to records, facilities, and unpatented know-how; to fruitless requests for receipts; and to vain efforts to receive compensation for what the Germans delivered in scientific and technical know-how. They also contain pathetic comments from which it is easy to detect the implied duress under which they gave in.

Soon after Germany's capitulation—so reads the comment of one person who preferred not to give his firm's name "because the issue is so sensitive"—all firms with any kind of standing in their field were swarmed over by French, British, and American commissions. These demanded information on technical experiences, on methods of production, on industrial know-how of all kinds. It was next to impossible to withhold such information because the commissions, through various maneuvers and techniques, were usually able to come up with other sources of information that allowed them to surprise the Germans by demanding more and more details.[33] According to a Degussa letter to the Hessian Minister of Economics and Transportation, the visits were not just for gathering information but also for in-

specting factories and equipment and for taking photographs, sample products, recipes and formulas, drawings and plans, and documents relating to the entire enterprise. On occasion, when investigators came without FIAT passes or with passes that appeared to the firm's officials to be unclear or improper, there were unpleasant confrontations, which Degussa tried to resolve by contacting units of the American occupation forces. In those cases, investigators usually returned with proper passes to do what they had wanted to do in the first place.[34] Representatives of two firms—E. Merck (Darmstadt) and Alexander Wacker (Munich)—reported to a meeting of the German Research Control Committee of the American zone that investigators came to German firms with reports they had bought in bookstores in the United States or Great Britain.* To supplement those reports, they demanded information on production processes and internal directives. They wanted complete and detailed information on equipment, formulas, pressures, temperatures, and times, as well as specifications and drawings for buildings, laboratories, equipment, and so on. In this fashion, the firms' representatives concluded, German industry was being deprived of its most valuable intellectual capital ("das wertvollste geistige Kapital"); and this was being done without control of any kind ("völlig unkontrolliert"), thus without credit to Germany's reparations account.[35] Finally, the firm H. A. Waldrich, GmbH, Maschinenfabrik (Siegen/Westfalen) reported to its industrial association in Düsseldorf that investigators had demanded plans for and samples of planing machines, vertical boring machines, and lathes, as well as production plans (including orders and contracts, information on costs, techniques of production, technical files, time and motion studies), scientific studies, calculations, laboratory tests, test-and-measurement methods, technical literature, professional journals, catalogs, printed forms, and lists of various kinds, including the names of customers and suppliers.[36]

*Actually, they were copies of the wartime CIOS reports, FIAT target-evaluation reports, or reports filed by previous FIAT investigators, supplied to the investigators by OTS or the FIAT library.

A Sample of Cases

Case 1: The U.S. Technical Oil Mission Follow-Up. As noted earlier, after the wartime U.S. Technical Oil Mission returned to the United States, the Bureau of Mines, the American Petroleum Institute, and others in the industry identified subjects that needed further investigation in Germany and appointed a study committee to do the work. One of the committee's members, Dr. W. F. Faragher, of the Houdry Process Corporation, subsequently went to Germany as an OTS/FIAT technical consultant with instructions to obtain reports on some fifteen topics, including the Fischer-Tropsch synthesis, Oxo-synthesis, and synthetic lubricating oils, which Faragher said were needed to fill in gaps left by the first oil mission.[37] Early in January 1947, he brought together in Leverkusen a sizable number of experts in the German chemical industry and assigned them topics on which they were to prepare papers, reportedly without first asking individual experts whether they were willing, and in at least one instance making an assignment to an expert, Dr. Robert Gehrke, who was not even at the meeting.[38]

Faragher's promises to pay the experts for their services were never kept, a fact recorded in numerous letters later on.[39] The problem was that many of the experts in question lived in the British and French zones, where the U.S. element of FIAT could not simply order local authorities to pay them as occupation costs —the typical FIAT method of payment for services—and Faragher apparently preferred not to go through British and French occupation officials for such orders. Furthermore, according to his own published account, "some of the authors desired had been barred from any occupation but manual labor" because of their "affiliations with the Nazi party. . . . Fortunately it was found possible to use these authors" anyway, he wrote, "by making arrangements with the proper branches of military government and of the German agencies."* Faragher described the

*Earlier, FIAT had required local officials to define services of experts to FIAT as a substitute for the common labor required of them under the denazification laws, but there is no record that it was done in this case. See Peter J. A. Cusack, FIAT, to Bürgermeister of Höchst, 28 Nov. 1945, RG 40, OTS Webb files, box 126, file DI 254.82 (FIAT), WNRC.

latter as time-consuming and "a great handicap," but omitted any reference to payment.[40] In any event, four years after the fact, the chairman of Faragher's technical oil mission study committee advised John C. Green that the arrangements to pay for the reports had fallen through and that Faragher, who felt a moral obligation to do something, had been sending food packages, for which an American Petroleum Institute solicitation among various companies in the industry had raised $1,650. The main purpose of his letter, however, was to ask the OTS for help in getting the reports that had not yet been delivered, particularly the one by Dr. Heinrich Tramm, of Ruhrchemie AG in Oberhausen, which he knew to be finished but which Tramm had refused to release.[41]

As early as December 1948, Ruhrchemie AG had taken the matter of payment to the Joint Import-Export Agency (JIEA), a British-American regulatory agency for bizonal foreign trade.[42] The agency ruled that the company should be paid, not only for the actual work and immediate costs involved in preparing the report, but also for the intrinsic value of the information contained in the report. The latter was an item that neither the American FIAT nor the British T-Forces had been willing to discuss with anyone in the past, nor would they discuss it in the future. The U.S. High Commissioner's Office (HICOG), the successor to the Office of Military Government for Germany (OMGUS), nevertheless pressed for delivery without payment, certifying in a letter to Tramm that Faragher had in fact been a bona fide employee of the U.S. government at the time he asked for the report "and that he was specifically authorized to obtain the report in question."[43] Ruhrchemie thereupon took the issue to the North Rhine–Westphalian Ministry of Economics in Düsseldorf, which in turn referred it to the British Land Commissioner. The commissioner's response does not appear in available records, but it obviously did not discourage Ruhrchemie from continuing to hold out.[44]

Meanwhile, the director of the Joint Intelligence Objectives Agency (JIOA) in Washington, who believed that "Dr. Tramm is using every subterfuge and excuse to put off compliance" with American requests for release of his report, drafted a cable for State Department dispatch to HICOG. It suggested that Tramm be told that delivering the report would be a demonstration of

his good faith in dealing with the United States Government and that such demonstration "is [a] condition precedent to his obtaining approval on behalf of himself and the companies he represents to projects pending [in] your headquarters." What this meant was: Tell Tramm to deliver the reports if Ruhrchemie wants approval of its pending request to the Economic Cooperation Administration (ECA) for equipment valued at $245,000.[45] But somewhat cooler heads prevailed and the result was a softer approach.

Reflecting the changes that had occurred in German-American relations in the five years since the end of the war, particularly after the formation of the Federal Republic and the adoption of an Occupation Statute, the State Department—in consultations with JIOA and Commerce Department officials—rejected the recommendation to be coercive, and rejected as well another suggestion that ECA buy the report out of ECA counterpart funds. It eventually agreed to send Faragher back to Europe as a temporary government consultant to negotiate directly for the materials that the Bureau of Mines, the Army Quartermaster Corps, and the American Petroleum Institute continued to want.[46] Thus, with Houdry Process Corporation approval, State Department authorization, Commerce Department per diem, and Army transportation, Faragher—a living example of the military-industrial complex at work—left for Europe in April 1951, on what was planned as a three-week mission. But weeks became months. In September John C. Green wrote to him in Frankfurt, reluctantly approving another six-week extension (half of what Faragher had asked for) and advising him that the Commerce Department had originally contemplated neither an extensive mission nor expenditures beyond 1 July. Eventually Green ordered him to stop acting as a United States government representative.[47]

Whether or not Faragher ever got the Tramm report is not revealed in the available records, and there is no Freedom of Information Act for private firms or the American Petroleum Institute. But Arnold Krammer, a historian who worked on the Texas A & M synthetic fuels documentation project in the 1970's, wrote in 1981 that the Houdry Process Corporation brought seven German synthetic fuels experts to the United States after the war to conduct research under the direction of Dr. Faragher.[48] Finally,

there is cryptic evidence that when German firms were once again permitted to engage in the production of synthetic rubber and synthetic fuel, some of them held licenses from Houdry Process Corporation to use technical know-how developed by the latter during the period when synthetic fuels and synthetic rubber were prohibited industries for Germans.[49]

Case 2: The Cosmetics Industry Mission. Late in May 1946, an OTS press release announced that "interested American cosmetic firms" were sponsoring Dr. Stephen A. Karas, the former chief chemist for Helena Rubinstein, Incorporated, for a mission to investigate "trade secrets of the German cosmetic industry" and to "study the manufacture of food flavorings, a closely related field."[50] In October, OTS noted in another release that "one of the purposes of Dr. Karas' study was to obtain formulas for the base waxes which American manufacturers imported from Germany before the war."* He had just "returned with complete details of German processes and original formulas for making synthetic glyco waxes, for extracting cholesterol from wool fat, and for making many perfumes, toilet soaps, creams, and other cosmetic products based on these materials," all of which would be available in the future from OTS in the form of two FIAT reports.[51]

Less than two weeks later, an aide-mémoire from the Legation of Switzerland in Washington, D.C., protested to the State Department that Karas, dressed in an American uniform and in possession of a pass empowering him "to investigate the premises of the firm," had visited Haarmann & Reimer, a chemical plant at Holzminden, near Hannover, in August 1946, and taken away the secret formula for "Coffarom," a synthetic coffee flavor developed in the 1920's by the Swiss firm "Inga" (Internationale Nahrungs & Genussmittel AG in Schaffhausen) and licensed to Haarmann & Reimer in 1928, in an agreement that was still in effect.[52] The immediate upshot was a decision made by the Committee on the Release of Scientific Information (CORSI), one day after the Swiss protest, to have the Army classify the formula and thus prevent its release to the public. According to Green, who later refused to see Dr. Karas, classification would minimize

*Although OTS always described its mission as the collecting of *wartime* technology and know-how, it will be noted that in this instance the search was for information on materials "imported from Germany before the war."

hardship to the Swiss firm, but leave the principles involved "unimpaired."[53] In other words, OTS would not distribute the secret Swiss formula and would thus avoid having to discuss the delicate subjects of FIAT's right to remove prewar scientific and technical know-how, to sequester private property as reparations, and to take privately owned foreign assets as "intellectual reparations" from Germany.[54]

Case 3: Degussa's Appeal for Reduction and Control of FIAT Visitors. Degussa, a highly diversified firm that produced special metals, chemicals, ceramics, carbon black (*Aktivruss*), and many other things, tried in the summer of 1946 to get both a reduction in the number of visits and stricter FIAT controls over the wishes and demands of the visitors. The firm reported having had more than 200 visits by technical commissions and individual specialists between April 1945 and March 1946, and specifically recorded another 50 similar visits between April and September 1946.[55] After two particularly obnoxious visitations, one in March by a Norwegian interested in natrium, the other in April by a Canadian interested in ceramics,[56] neither of which the firm succeeded in getting mitigated by direct appeals to the Office of Military Government for Land Greater Hesse, the firm's chief legal officer sought Hessian governmental intervention with FIAT to change its rules and procedures.

Working through various channels, including the Industrie- und Handelskammer in Frankfurt, the Hessian Ministry of Economics, and the American-appointed Minister-President of Greater Hesse (Dr. Karl Geiler), Degussa officials marshaled evidence and presented arguments to show that FIAT investigations impinged on patent rights and patent agreements (in this case between Degussa and DuPont), exposed unpatented firm secrets, interfered with current, approved production activities, restricted German efforts to rebuild German production under the Allied Control Council's level-of-industry plan, and ultimately threatened to make impossible the German economic self-sufficiency desired by the Americans.[57] "Our plant for ceramic colors [*keramische Farben*]," states one argument, "had to prepare considerable documentation that included many formulas and production guidelines [*Rezepte und Arbeitsvorschriften*] which had been held in strict secrecy. That is a serious intrusion into the firm's intellectual capital for the benefit of our competition

abroad." While the immediate effect of such action often determines the life or death of an individual firm, the report concluded, the long-term ramification of the entire Allied exploitation program is that Germany's industrial base will be damaged and the German nation's already limited ability to achieve economic self-sufficiency undermined.[58]

Numerous communications, meetings, and personal discussions took place—their occurrence is recorded, often without great detail however—between officials of Degussa, the Industrie- und Handelskammer in Frankfurt, the Hessian government, FIAT, and the Office of Military Government for Greater Hesse. Subsequently the chief of the latter's industry division prepared a written release containing "information in regard to investigators visiting German industrial plants" and authorized its distribution "to all German firms in Greater Hesse." In sum, the release stated that all investigators needed signed passes, that no original documents "will be evacuated under any circumstances," but that "duplicate copies readily available in the plant may be removed if so stated in the FIAT pass." Further, it stated that "no investigator will have authority to remove equipment," but that "all information called for on the FIAT pass will be made available," and finally, that "German firms will not be expected to stand the cost of reproducing documents." Regarding this last item, either FIAT would send photographic personnel to do the reproduction work or, where the firm was required to do it, the costs would be reimbursed by appropriate German financial agencies upon presentation of military government requisition forms and—it might be added—charged to the costs of the occupation.[59]

The new, written informational release said nothing about reducing the number of investigations, nor did it change what happened at individual firms when investigators arrived. An internal Degussa memorandum of 16 July 1946 notes that the Hessian Ministry of Economics had advised Minister-President Geiler on 8 July 1946 that it had to consider the matter closed and that the Americans could not go beyond the written release to make exceptions in special cases.[60] Three months later, on 8 October 1946, Degussa wrote once again to the Hessian Minister of Economics, stating that despite the firm's several written and oral protests and reports to the Minister, to American agencies, and to the

Minister-President himself, the number and frequency of Allied visitations was still unusually high ("ungewöhnlich hoch"). The visitors, who usually had FIAT passes, the letter continued, still demanded samples, formulas, drawings, and documents from all departments, and when company personnel refused or resisted because their passes were vague or incomplete, the visitors would return later with properly executed FIAT passes to take what they wanted in the first place.[61]

Case 4: "Tactlessness" in Stuttgart. On 20 March 1946, the general manager of Robert Bosch, GmbH, wrote to Colonel Gerald B. O'Grady, the chief of the Industry Branch, Office of Military Government for Württemberg-Baden, apparently after having discussed the matter informally and orally with him beforehand, that "we are receiving from time to time civilian visitors in military uniform, most of whom are members of competitive firms of ours abroad." Usually they started by asking for information identified in their passes, the letter continued, but they also asked for "blueprints, other technical data and even specimen parts, products and tools" that were "the result of many years of research and development at high cost which, in normal times, we would only give to firms against an adequate payment." Given these circumstances, Bosch suggested that Colonel O'Grady's office require prospective FIAT visitors to specify their demands when applying for passes to visit the firm and that Bosch be permitted to respond to demands by indicating (1) the items that could be released without objection, (2) the items that should be released only against adequate payment, and (3) the items that should be refused and the reasons why.[62]

Colonel O'Grady, who once told a FIAT investigator that he "totally disapproved of such robbery" and whose office was known at FIAT for having made difficulties for FIAT investigators "on various occasions," sent the Bosch letter and data on FIAT visits in Württemberg-Baden (73 visits in February 1946; another 103 by March 26) to OMGUS in Berlin, declaring that "practically none [of the investigators] are here in the interest of any Government but for purely personal gain. In fact," he continued, "one team of three British told Mr. Gillen at the Kodak Plant, Stuttgart, that the reason for their visit was that they were going into the camera manufacturing business and wanted to see the processes used at Kodak."[63] When the matter, after passing through

the appropriate military channels, landed on the desk of Colonel Ralph M. Osborne, the U.S. chief of FIAT, his angry response was that "the suggestion of this firm [Bosch] that they should make recommendations concerning the requirements of government investigators, be it either British, US, French, or Russian, is tactless." Eventually, he editorialized, Germans would have to abide by the terms of a peace treaty, as the United States would too. In the meantime, "the removal of ideas or 'know-how' is merely one form of reparations," and the affected firms are subject "to the desires of the occupying power regardless of what . . . [the firms] may think or desire. . . . If we had lost the war, I doubt very much if the Bosch managers would consider such a proposal from our concerns in the US as they have submitted to Colonel O'Grady."[64]

Having dismissed, and disposed of, the suggestion from Bosch, Osborne turned his guns—heavily loaded with ammunition from on high—upon Colonel O'Grady. FIAT operates under policies developed and approved by the President of the United States, the Joint Chiefs of Staff, the Congress of the United States, and the Deputy Military Governor for Germany, he lectured bitingly. Arguing the case for obedience to superior orders—as no German defendant was permitted to do at the Nuremberg war crimes trials or during denazification proceedings—Osborne wrote:

> Once policy is established by the Joint Chiefs of Staff and accepted by the Deputy Military Governor, it is our task to carry out the provisions of such directives to the best of our ability and in the best interests of the US government. It is realized that some Germans or German firms do not approve of our procedures, but until such time as a peace treaty or other action agreeable to our government is concluded to change the Presidential and Joint Chiefs of Staff directives, we must operate as directed by our government and not as desired by German individuals or firms concerned. . . . [Therefore] it is requested that action be taken to acquaint personnel in your office with the overall responsibilities of FIAT . . . [and that] such action as necessary be taken so that civilian investigators operating under government contract in the theater, and in many cases at their own expense, be spared from personal reflections on their activities or their character.[65]

Before turning to the American gains and German losses under the FIAT consultants and missions program, that is, to the German technical know-how that American consultants and missions transferred to the United States, it might be noted that in choosing the foregoing cases to illustrate the nature of the program and the German response thereto, scores of other cases for which records are available have been excluded. Among them are the following.

1. A Dutch team used a FIAT pass to inspect and exploit information and technology at A. W. Faber-Castell, J. S. Staedtler, and other firms in the Bavarian lead pencil manufacturing industry, in the process making no secret of the fact that they planned to use the information to build a factory in Holland to produce there what the Dutch had previously imported from Germany.[66]

2. A two-man American team—judged by the firm to be highly competent—visited Optische Werke C. A. Steinheil Söhne in Munich, bearing a FIAT pass that authorized them to inspect the plant, study the firm's "entire research and development program," and photograph anything they chose to copy.[67]

3. A French technical consultant visited Degussa with a FIAT pass authorizing him to microfilm technical reports and documents that an American team had finished copying only two weeks before, thus requiring the firm to "go through in French what it had just gone through in English."[68]

4. A British team took plans and drawings for a working model of a newly constructed bicycle motor that Victoria-Werke AG, Nuremberg, had exhibited at an export fair in 1946, which motor Victoria-Werke discovered being duplicated three years later in Canada, Austria, and Great Britain.[69]

SIX

Transferring the Technical Know-How

SCIENTIFIC CONSULTANTS and technical missions were required by the terms of their contracts with the Office of Technical Services (OTS) to file reports with FIAT before they left Germany and returned to the United States. FIAT, using its huge staff of German specialists who were paid from indigenous funds charged to occupation costs, abstracted and indexed the reports and then shipped the materials to Washington along with photocopies of documents, samples of products and equipment, and such other things as investigators judged to be essential to their reports. In Washington the reports were routed first to the Joint Intelligence Objectives Agency (JIOA) and the Committee on the Release of Scientific Information (CORSI) for security clearance, and then to the Department of Commerce for dissemination through the Publication Board.[1]

OTS operated under the dictum that "the investigation of German industry is half our job; the other half is putting the information in the hands of industry and the public,"[2] and did a variety of things to accomplish the latter. It issued press releases on specific missions and submitted stories to trade and professional journals, magazines, and newsletters. It held meetings with trade and industry groups, served visitors who came to Washington, and responded to written inquiries from individual firms and various industrial and research groups.[3] It published a weekly *Bibliography of Scientific and Industrial Research Reports*, which it sold by subscription and distributed free to selected libraries, government agencies, scientific societies, and perhaps

to others.[4] Described by OTS as a guide to "all we have been able to learn about German science and industry, and all that can now be told about wartime research and industrial developments in America," the weekly annotated bibliographies were supplemented from time to time by other finding aids and special bibliographies on selected subjects, such as plastics, adhesives, paper, ceramics, dairy products, fats and oils, and magnetic wire and tape recorders.[5]

For a short time, OTS also published *Federal Science Progress*, a slick monthly magazine containing much propaganda on the work and benefits of OTS and the Publication Board. Issued first in February 1947, the magazine received criticism from commercial journals with which it competed and from Congressman Karl Stefan, of Nebraska—a champion of German economic recovery who wanted to shut down the entire FIAT/OTS operation—causing it to be discontinued in June 1947, after only five issues had been published.[6] Among its many activities to put the information from Germany into the hands of industry and the public, OTS's most visible projects were the release and sale of FIAT and Publication Board reports and the exhibition and demonstration of German equipment brought to the United States at the request of technical consultants and missions.

FIAT and Publication Board Reports

If the number of reports purchased by Americans is an adequate measure, OTS did land-office business in the dissemination of German scientific and technical know-how. In a *Harper's Magazine* story of October 1946, "Secrets by the Thousands," which was clearly based on information supplied by OTS, C. Lester Walker reported that orders received by the Publication Board were currently running at about 1,000 a day and that as many as 20,000 orders had been filled in a month. Declaring that Americans were not only using Germany's secrets but "eating them up," Walker wrote that "company executives practically park on the OTS's doorstep, wanting to be first to get hold of a particular report or publication."[7] A *New York Times* story of 26 May 1947 said the Department of Commerce was selling reports that averaged in price from $3 to $4—the actual cost of reproduction—at the rate of $6,000 worth a week, and that it had sold more than

400,000 reports for a total of $1,500,000.[8*] A year later, an article in *Scientific American* said that "many of the reports, containing descriptions of processes and equipment, formulas, plant layout and other technical data, sell for less than a dollar!" and that "American firms and individuals are buying them at a rate of $1,000 worth a day."[9]

The subjects of the reports offered for sale by the OTS touched virtually every aspect of German industry and technology: acetylene chemistry, synthetic fuels and rubber, synthetic lubricating oils, synthetic fibers and textile manufacturing, ceramics, diesel motors, optics and glass, wind tunnels, heavy presses, infrared, tape recorders and metalized plastic tapes, cold extrusion of steel, electron microscopes, electric condensers, a butter-making machine, fruit juices, a machine to wrap chocolates, a process to preserve soybean oil, white carbon black, cellulose products and wood sugars, dental supplies, synthetic mica flakes, synthetic sapphires for watch, clock, and instrument bearings, color film and color-film processing, quartz clocks, pharmaceuticals, insecticides, synthetic blood plasma, artificial leather, plastics, colors and dyes, soaps and detergents, woodworking machinery, slide fasteners, sewing needles, cheese-making equipment, potentiometers and other precise measuring instruments, milk cans, manure spreaders, motorcycles, and cameras and photographic equipment, among other things.

Neither the investigators who wrote the Publication Board reports nor the firms that bought them from OTS were obligated to report back on how the reports were used or on the benefits derived from them. Some of them did, however, thus providing a few insights into what remains essentially a closed book.[10]

Tape Recorders and Tapes. Richard H. Ranger, owner of Rangertone in New Jersey and a Signal Corps colonel during the war, wrote that he would not have missed his wartime scientific and

*For example, one could buy a report on the work of Dr. Julius W. Reppe, the I. G. Farben chemist famous for advances in acetylene chemistry, for 10¢. See *Chemical and Metallurgical Engineering*, 52 (Nov. 1945), 220–28, and "German Chemical Industries," *Chemical Engineering*, 53 (Nov. 1946), 245–46. Degussa officials learned from reading *Chemical Engineering* in the Amerika Haus library in Frankfurt that a report written by one of their own people in 1945 on demand of an investigator could be bought from OTS for $2. See H. Kohl, Notiz für Herrn Scheller/ZSV Betreffend Schreiben v. 15 Jan. 1947 (American Library), file Verhandlungen mit Besatzungsbehörden, 1 Apr. 1945 bis . . . , Degussa archives.

technical intelligence experience for anything and expressed the hope that "the results will justify it all."[11] He also worked to realize that hope. He brought a model of a German tape recorder (Magnetophone) to the United States, deposited it initially in the Signal Corps laboratories in Fort Monmouth, New Jersey, and then—after his demobilization in October 1946—demonstrated it at the Department of Commerce for a meeting of the Institute of Radio Engineers.[12] In May 1947, he wrote to OTS that Rangertone had just completed a preproduction model of "our magnetic recorder," working under the "guiding inspiration of knowing . . . quite completely what the Germans had done," and giving "infinite attention to details." The magnetic recorder "is the item we have settled upon as our first major job in [postwar] reconversion," and he hoped to have it on the market in a month.[13] Two months later he reported having received an order from the Bureau of Standards for the mechanical-drive component of his model recorder and that he had shown his equipment at CBS and NBC, both of whom showed sufficient interest for him to conclude that "it looks like we are really on the road."[14]

Meanwhile, William C. Speed, the president of Audio Devices, the firm that was manufacturing the tapes for the new Rangertone recorder, reported to OTS that "the fabrication of this material and much of the success we have obtained is due almost entirely to the information, reports, and documents supplied to us by the Department of Commerce." "The Germans had carried the Magnetophone and iron oxide recording tape . . . to a high degree of perfection," he wrote; "Audio Devices is now setting up for mass production to market the tapes under trademark, 'AUDIOTAPE,' to be made available to recording machine manufacturers, broadcast studios and the public through our 200 regular authorized distributors."[15]

Soybean Oil Preservation. Warren H. Goss, the assistant director of the U.S. Department of Agriculture's research laboratories in Peoria, Illinois, had visited Germany as an OTS technical consultant and FIAT investigator in 1945. In December 1946 he wrote to OTS that the United States soybean industry had regularly suffered in the past from a phenomenon known as "reversion" in soybean oil, which resulted in losses to the entire industry of about $50 million a year (in 1946 prices) due to spoilage. The industry, he continued, had spent vast sums of money on re-

search for about fifteen years to solve the reversion problem, but had achieved "only limited success." During his investigations in Germany, Goss went on, he had discovered and written reports on two German methods for overcoming reversion, "both of which appear to have been trade secrets," and one of which Goss's agency had since tested and found to be highly effective. Several large operators in the United States had reached similar conclusions, he reported; but it was uncertain precisely how they would use the German know-how because some producers would have to change their equipment drastically. Further—as he wrote to me in 1981—the "refiners of edible oils are quite secretive about the details of their operating procedures." Nevertheless, he concluded in December 1946, "it appears quite certain . . . that a substantial part of the large losses occurring because of reversion will be eliminated as a result of these discoveries and that there will be a great enhancement in the quality of products retailed to the consumers."[16]

More than a year later, Robert Reiss, the chief administrator for the OTS/FIAT program in the Commerce Department, talked with Goss in response to questions about the use of the German process for the manufacture of soybean oil—questions that apparently arose from the industry's challenges to OTS's public assertions about the great value of the process to American users. Goss, who had left government service in the meantime and accepted a position as associate director of research for Pillsbury Mills in Minneapolis, repeated his earlier conclusions—this time estimating the savings at about $30 million to $40 million annually, however—and added some interesting details and observations. He reportedly told Reiss that American manufacturers are "very close-mouthed about what they are doing with the German data," but remarked nevertheless "that probably all firms in both the processing and equipment branches of the soybean industry are using or have been affected by the German data." He named as examples four firms, Armour and Company of Chicago, Clinton Industries of Clinton, Iowa, Allis-Chalmers of Milwaukee, Wisconsin, and the French Oil Mill Machinery Company of Piqua, Ohio, noting however that "all four firms will probably deny using the German data if they are asked."[17]

Textiles, Fibers, and Dyes. Beginning in October 1945, when a team of textile industry experts who had just returned from Ger-

many reported their findings to a meeting of some 750 industry representatives in New York City and announced plans to issue a formal, written report of more than 1,000 pages, the potential benefits of German technical know-how for the American textile industry received much public attention. For example, *Business Week* reported that American experts had discovered "superior equipment," and described a government experimental plant in Denkendorf, a small town in southern Germany, which featured several types of floor and wall insulation, a unique saw-toothed roof that maximized daylight, artificial lighting that came close to daylight, air-conditioning throughout the plant, and a vacuum process for removing lint from textile machines rather than "blowing it around," as it was done in the United States. *Textile World* described the same plant at the time, and it published similar stories in 1946 and 1947. One of these announced the availability of more than seventy-five reports on the German textile industry at the Commerce Department, some of which contained thousands of German dyestuff formulas that "may advance the American dye industry from five to ten years." *Chemical and Metallurgical Engineering*, in a story announcing the release of a Publication Board report in February 1946, declared that "Germany's rayon and synthetic fiber industry has turned some neat tricks." Finally, *Mechanical Engineering* described various "ingenious" German devices, machines, and procedures used in the rayon industry, one of which "increases output, in relation to floor space, by 100 to 150 per cent," and another of which "eliminates the six or seven separate operations in conventional production."[18]

One of the textile experts who had been to Europe, L. G. Costa, of the textile machine and equipment manufacturing and exporting firm Oscar Kohorn and Company, wrote to John C. Green in October 1946 that his firm planned to use the information from Germany immediately. "We will be able to apply promptly the lessons learned, both positive and negative, and thus quite promptly introduce to the world at large an improved American technology. We are not hesitating to make modifications in our installations at once . . . and it is very possible that in this field the German experience . . . will have an important influence on not only the domestic manufacture but in our case on our foreign trade."[19] Less than three years later, a published re-

port cataloging the impact of German scientists and technicians in the United States noted that Oscar Kohorn and Company got two such German experts—apparently under Project Paperclip—one an engineer who had helped the firm open $60 million worth of new plants, the other a chemist who was operating a $30 million plant in Brazil.[20]

Other German Technologies. Albert J. Phillips, the research manager of the American Smelting and Refining Company, noted that German methods for refining aluminum scrap promised to save many thousands of dollars in this country, and reported that his company was working on two projects that came out of OTS/FIAT investigations. Neither is exactly patterned on the German information, he continued, but "in each case the German demonstration gave us the confidence to embark on the project."[21] John D. Waugh, of the Koppers Company's Aeromatic Aircraft Propellers Division, reported that his firm was working with a plastic covering for propeller blades that the Germans had applied directly to the blade, rather than with tacks, wire, and solder. Furthermore, he said he had knowledge that Curtiss-Wright Corporation had duplicated and was testing a German-developed "swept-back blade scheme" that held great promise in turbines.[22]

M. C. Banca, of RCA's Engineering Products Department, wrote that German development of infrared tubes made it possible to achieve sharper television pictures with better contrast. "From a technical viewpoint, this one feature is of inestimable value," he observed. "Had our team learned nothing else, this one item alone would have made the trip worth while."[23] John S. Buck, the senior cytologist for the United States Public Health Service, reporting on how his agency had used an expropriated Zeiss microscope that OTS had assigned to the National Institutes of Health, said he had also had occasion to test a phase-contrast microscope built by Bausch and Lomb and found that "it compares favorably with the German, which is not surprising, since it is apparently a nearly exact copy."[24]

C. M. Jackson, the chief marine chemist for DeVoe and Raynolds Company, reported knowing that DuPont was using lead cyanamide, which the Germans had used extensively during the war as an anticorrosive pigment and as a substitute for zinc chromate, and that "one of our big petroleum companies is erecting

a synthetic glycerine plant, which I believe is constructed generally on the principle of the one utilized in Germany" to produce this "very scarce article."[25]

Finally, in May 1947, Robert Reiss, of OTS, listed—albeit without giving details—the names of seven companies known to be using the German acetylene chemical processes, three companies using German circuit-breaker technology, two companies using synthetic mica developed in Germany, two companies using the Fischer-Tropsch synthetic fuels technology brought from Germany, and individual firms that were using information from Germany on radio condensers, tape recorders, phase-contrast microscopes, cold extrusion of steel, and synthetic fibers.[26]

Displays and Demonstrations

In addition to advertising and selling the reports that had been prepared by its scientific consultants and technical missions, the OTS sponsored and publicized demonstrations of German products and equipment shipped to the United States by FIAT at the request of those consultants and missions. Early in December 1946, an OTS summary of activities declared that "from the beginning of the program, investigators in Germany have earmarked items for evacuation to the United States." It reported that the Department of Commerce had already received about 2,500 items ranging from "half-pound chemical samples to pieces of machinery weighing ten or twelve tons," and it noted that "samples and equipment have been arriving in ever-increasing quantities." Since the Commerce Department received these materials for the benefit of American industry, the summary continued, OTS normally notified the appropriate trade and professional journals and "all firms known to be interested" whenever items in their fields of interest or endeavor had arrived.[27] It also arranged to have items or groups of items tested and exhibited by government laboratories, scientific societies, and trade associations, and sometimes by private firms.

Transportation Equipment at Fort Monroe, Virginia. In cooperation with the Army Transportation Corps, OTS exhibited some thirty-five items at Fort Monroe, Virginia, early in March 1946. After a special showing for the press and interested members of Congress on the 5th, the exhibit ran three additional days for the

benefit of engineers, scientists, manufacturers, and other representatives of science and industry. On display were the products —including diesel engines, locomotives, railroad cars, switching engines, and items of marine equipment—of such well-known German firms as Daimler-Benz, Klöckner-Humboldt-Deutz, Henschel & Sohn, J. M. Voith, and M.A.N. (Maschinenfabrik Augsburg-Nürnberg). According to a Commerce Department press release on the exhibit, "intellectual, scientific reparations of this type allow American firms to introduce new products or improve old ones, and cost Germany no more than her leadership in some industries and techniques. Small business as well as large corporations in the United States will benefit from the free release of such information."[28]

Engineering Equipment at Fort Belvoir, Virginia. The Department of Commerce collaborated with the Army Corps of Engineers in a similar exhibit held at Fort Belvoir, Virginia, on 16–18 April 1946. In the brochure and invitation it sent to "members of science and industry," the OTS promised free transportation from the Commerce Department in Washington to Fort Belvoir and indicated that some 200 separate items would be on display for three days. Included were items of survey, mapping, and photogrammetric equipment, electrical and electronic equipment, construction equipment, water supply equipment and distillation units, and bridging equipment, as well as pieces of captured German military equipment, such as storm and assault boats, outboard motors, power launches, pontoons, and demolition devices.[29]

Machine Tools and Other Items at Frankford Arsenal, Philadelphia. Sponsored jointly by the OTS, the National Machine Tool Builders Association, the Army Ordnance Department, and the Army Ordnance Association, the Frankford Arsenal exhibit of machine tools, measuring and testing equipment, and plastics processing equipment ran from 31 March through 2 May 1947, and featured fifteen displays of "machine tools and other equipment of novel design and operation." Included were such things as a lathe from Süddeutsche Kühlerfabrik in Feuerbach, a grinder from Schmidt & Schmidt in Stuttgart, a grinding machine from Fortuna Werke in Stuttgart, a thread-rolling machine from Ernst Grob in Munich, and an optically assisted precision grinding machine from Ultra Präzisionswerk in Aschaffenburg.[30] The Ultra Präzisionswerk machine—which the Germans had used for making templates, cylindrical forms, and other complicated shapes—had been described in an earlier OTS press release as "an outstanding achievement in constructional skill and workmanship" featuring a "novel optical system which enables the operator to compare his work with the engineer's drawing as the work proceeds." It reportedly attracted major interest among the more than 1,000 experts who visited the exhibit. It had, in fact, generated inquiries to OTS from Bausch and Lomb Optical Company, the American Jeweled Watch Manufacturers Association, the National Machine Tool Builders Association, and others even before the exhibit opened.[31]

Visitors to the exhibit were advised by the OTS that technical reports for the equipment on display could be purchased from the Commerce Department and that firms could send experts on technical missions to Germany for extensive examination of construction design, precise specifications, accessories, and manufacturing techniques. The OTS also invited visitors and their firms to participate in its program to make the sample machines available for detailed examination, experimental runs, and performance tests, noting that where drawings and specifications did not exist, the sample machines could be dismantled to make drawings and provide specifications for their duplication.[32]

The Bosch Condenser Machine at Western Electric, Chicago. OTS described the Bosch Condenser Machine at various times as "an ingenious machine" that promised to revolutionize the manufacture of condensers for radios, auto ignitions, hearing aids, television transmitters, radar, and other electric and electronic equipment. Reportedly it would save the U.S. condenser industry "millions of dollars a year" by producing condensers that were 50 percent smaller and 40 percent cheaper than those produced in the United States.* It had been brought to the United States on the initiative of Howland H. Sargeant, the Alien Property Custodian, who had confiscated the German-owned U.S. patent for the machine and made it available to American manu-

*OTS published these figures in 1948 (see below, n. 34 for this chap.). The Publication Board had earlier announced that the condensers produced by the machine were 40 percent smaller and 20 percent cheaper. See Publication Board, press release OPB-60, 6 Mar. 1946, RG 40, box 108, file 1–99, WNRC. See also "Capacitators without Foil," *Electronics*, 19 (May 1946), 303.

facturers during the war, only to learn that the "patent information alone [proved to be] insufficient to enable a manufacturer to adopt the process."[33] After the war, Sargeant asked OTS to send one of its missions to Germany to get more information, and OTS assigned Frederick E. Henderson, the Superintendent of Manufacturing Engineering for Western Electric in Baltimore, to the task. Henderson, working as a scientific consultant for FIAT, went to the Robert Bosch, GmbH, facility in Stuttgart, made the investigations, wrote a six-page FIAT report—which the Publication Board eventually sold for 10¢ a copy in the United States—and had one of the twelve-ton machines shipped to the United States to be used as a sample for research and study.[34]

The sample machine was allocated by OTS to Western Electric Company and Bell Telephone Laboratories for demonstration to the public.[35] Engineers and technicians of the two firms assembled the machine at Western Electric's Hawthorne plant near Chicago. There it was made available for inspection and observation in operation by interested manufacturers from the United States and Canada, some 200 of whom had reportedly expressed an interest in the machine after the OTS released news of its procurement. The exhibit's register of visitors, which Bell Telephone compiled at the request of OTS, lists the names of engineers, presidents, vice presidents, foremen, general managers, superintendents, chemists, physicists, consultants, and others from 131 firms and agencies, including the U.S. Army Signal Corps, the National Bureau of Standards, ITT, General Electric, and Bausch and Lomb Optical Company.[36]

Commerce Department records show that the exhibit moved from Western Electric in Chicago to the Good-All Electric Company in Ogallala, Nebraska, and from there to the Sprague Electric Company in North Adams, Massachusetts. They indicate further that Western Electric built five machines similar to the one brought from Germany and that the company planned to use them in the manufacture of 25 million condensers for desk telephones, which could now be redesigned to use the compact condensers and thus be made smaller than those commonly used in the United States.[37] Robert A. Goodall, the president of Good-All Electric, had a military contract to produce 8 million condensers for proximity fuses. Having inquired earlier about bringing two German experts to the United States under Project

Paperclip, Goodall wrote to OTS in May 1948 that Good-All Electric had checked the machine and studied the available reports, and that doing so "has enabled us to go ahead and start the construction of our own machine" to make the Bosch-type condensers. "All of this," he concluded, "has come about through our observation of the German equipment."[38]

Other Exhibits and Demonstrations. The Commerce Department sponsored many exhibits of German technical equipment in addition to those identified and described above. The American Lava Company of Chattanooga, Tennessee, and later the General Ceramics Company of Keasbey, New Jersey, exhibited two machines that used "an entirely new technique unknown in this country," one a mechanical press that automatically "stamped dry ceramics parts rather than wet [ones] as had been previously done," the other a machine for spot-welding and riveting metallic lugs, pins, and other parts to ceramics.[39] The machines, which came from Steatit-Magnesia AG in Lauf-Pegnitz, had been shipped to the United States at the request of Hans Thurnauer, the vice president and director of research for the American Lava Company, who wrote later that his visit to Germany as a scientific consultant for the OTS and FIAT was "just like going out on a hunting trip into unexplored territory."[40] The Society of Automotive Engineers (SAE) combined an exhibit of German automotive matériel in Detroit with a formal program featuring twelve speakers who had been to Germany. The *SAE Journal* published the speakers' papers in its June 1946 issue, and SAE subsequently cooperated with OTS in drawing up a list of questions and problems that needed further investigation in Germany. FIAT reported from there in November 1946 that it had received 290 problems and questions from SAE members, which it was having investigated.[41]

Richard H. Ranger, as noted above, after his release from the Army Signal Corps spoke to a meeting of the Institute of Radio Engineers in the Commerce Department auditorium and demonstrated a model of the German tape recorder (Magnetophone) that he had brought back in his capacity as a FIAT investigator. He also showed color films and slides that he had collected as head of a technical mission sponsored by the OTS and underwritten by Remington Rand, Ansco Film Corporation, Hollywood Colorfilm Corporation, Eastman Kodak, and other firms in

the industry.[42] Following up on Ranger's lecture and demonstration, Edwin Y. Webb, the head of the Electronics and Communications Section of the OTS, showed the confiscated sample films often—to the Institute of Radio Engineers, to invited guests, even to a German class at George Washington University.[43]

One of the feature-length films was *Die Frau Meiner Träume*, a story of a man's endless search for the woman of his dreams, filmed in part in Germany's Alps. It proved to be so popular—in part for the quality of its color photography—that an American organization for German relief asked if it might use the film to help raise funds.[44] Probably uneasy about using the film in such a way—perhaps simply looking for an easy way to say no—John C. Green asked the State Department for a ruling on the matter, only to receive a biting comment from Assistant Secretary Willard L. Thorp on the irregularity of the entire OTS operation: "At the present time the Department of State does not have a direct interest in property which has been removed from Germany to this country but which has not been allocated to this government as reparation."[45] Undaunted, Webb went to Germany where he tried—albeit without success—to collect additional copies of the film, first in Bavaria and then in Berlin. Writing from Bavaria, where he had located thirteen complete copies of the film but failed to convince his own countrymen to release them, he reported that American forces had stored about 3,000 complete German films in the studios of the Bavarian Film Company and that there was talk of destroying them or washing them clean for film stock. "This move would be a grave error and an irreparable loss," he wrote to Washington, "denying the people and schools of America property which is righteously [*sic*] theirs through millions of dollars already invested here in food and supplies."[46] In Berlin, where he said he would go to try to get some cooperation, the chief of the Motion Picture Division of the U. S. Office of Information Control—a German civilian and former director of the Bavarian Film Company—reportedly told him that "the trouble with you Americans is that you come over here and think you can take everything you see—if you want to get that film you'll have to go to General Clay."[47] There is no evidence that he saw Clay or that he got the film.

As we shall see in the next chapter, Clay had already shut down the FIAT operation five months earlier, on 1 July 1947. Before we turn to that story, however, a commentary on the transfer of German scientific and technical know-how to the United States without benefit of reports and in open violation of established procedures is in order.

Unreported "Intellectual Reparations"

Given the nature of the OTS/FIAT operation, especially OTS's dependence on private firms to furnish and finance the scientific consultants whom FIAT briefed and turned loose in Germany to conduct their own investigations, usually at the targets of their own choice, there is no way to determine exactly what or how much the Americans removed "unofficially" from Germany in the form of "intellectual reparations" after the war. It is true that FIAT required experts to write reports of their findings and that these reports—that is, the ones that were not classified—were eventually released to the public by the OTS through the Publication Board. These reports and other records of FIAT and OTS provide a basis for illustrating the nature of the scientific and technical know-how removed from Germany, but much of what the Americans gained and the Germans lost remained unreported.

Incomplete Reports. Investigators, who were not required to discuss their reasons for wanting to visit specific targets if they thought doing so would reveal industrial or trade secrets of their own, often spent days and weeks at a given location in Germany without including more than a passing reference in their reports to what they did there. Sometimes they admitted quite frankly that they had been "exposed to all sorts of little interesting gadgets and tricks of the trade which are too numerous and detailed, it is believed, to cover in this report."[48] Echoing those words, a FIAT summary report of 20 November 1946 talked about "the various bits of 'know-how', the gadgets and 'tricks of the trade' which investigators observe in passing through the plants, possibly making no particular mental note or record at the time," but which they can use "later when back on the job and facing a problem where the same application can be made."[49] The OTS director, John C. Green, who praised his operation publicly as the source of "the only solid and permanent reparations we are going to get out of this war" and as the provider of "intellec-

tual reparations, prizes of victory which can be shared by every American businessman," nevertheless noted that "in countless cases, a process, device, or tool observed by an investigator in Germany will be passed on to an American firm to increase efficiency and lower costs."[50] Furthermore, in at least one instance he admitted privately that investigators and document screeners were "pocketing some information they obtained instead of including it in their reports or contributing it to microfilmed material."[51]

Responding to this situation, FIAT officials talked about devising "a system for practically x-raying investigators and screeners before they return to the States." But FIAT, burdened at the time with preparations for its move from Höchst to Karlsruhe, apparently never got beyond putting such people on "written notice . . . as to their responsibilities," which notice was admittedly no more than "a reiteration of what" their contracts required them to do and what the OTS and FIAT had regularly told them orally in briefings in Washington and Germany, respectively.[52]

Inadequate Reports. "We have had some pretty hot times," John C. Green wrote to the OTS representative at FIAT in March 1946, because investigators had returned, word of their findings had leaked out, and OTS did not have their reports available for release. Reports were unavailable either because they were delayed or because they were too poorly done to be published.* As a case in point Green mentioned the two FIAT reports by C. H. Reynolds, of the Sheffield Corporation, which were judged by the Publication Board to be so poorly done as to be unpublishable, even though Reynolds's own company considered his findings important enough to send him and one of his colleagues back to Germany for more detailed investigations. Meanwhile, the rest of the industry knew nothing of the details of what Reynolds had learned, although they knew about it in

*Dr. Walter Grimme told me in an interview on 18 Feb. 1981 in Münster that after it became possible for Germans to buy FIAT and BIOS reports, he and his colleagues read reports about their own firm and the firm's competitors. They found some reports to be very good and others to be poor in quality. In some cases investigators appeared to have been naive, he said, for they missed important facts while emphasizing others that were generally known in the industry. And sometimes things that Grimme's associates had told investigators never appeared in the published reports.

general.[53] FIAT's response, though devoid of solutions, shows that Green's case in point was but the tip of the iceberg. According to T. G. Haertel, the chief OTS representative at FIAT, many of the reports filed by investigators before leaving Germany were badly written, some of them were simply perfunctory, and others reflected an inadequate mastery of English. As a result, FIAT officials had decided not to send to Washington those "that would endanger the technical reputation of this mission." Had we gone ahead nevertheless, Haertel concluded, some of the reports "would have been ridiculed if published as written."[54]

No Reports. In a letter of 11 April 1946 to the Office of Military Government for Germany (OMGUS), whose field-branch office in Stuttgart had complained that FIAT operations were little more than a conveyor belt for industrial espionage,[55] Colonel Ralph M. Osborne, the U.S. chief of FIAT, wrote that even though investigators came from private firms, all of them were under government contracts requiring them to report their findings and prohibiting them from using their positions to secure special information for their own firms. "Naturally," Osborne observed, "from time to time, an individual may try to cheat and it is very difficult to control such actions. On the other hand, any major attempt at piracy which might take the form of secretly abstracting patents or blueprints of new processes would inevitably be discovered, and the government would presumably take action against the offender."[56] Osborne's obfuscation and a caustic letter he wrote directly to Colonel Gerald B. O'Grady, the author of the complaint from Stuttgart, apparently put the matter to rest temporarily.[57] But his terms ("inevitably" and "presumably") reveal both FIAT's lack of procedures and its inability to control its investigators effectively, a condition that was, in fact, under frequent discussion in Washington and in Germany, and for which no effective solution is recorded.

Robert Reiss, the Washington-based administrative officer for the OTS overseas operation, writing to his unit chiefs on 3 April 1946—about a week before the FIAT chief successfully befogged OMGUS and intimidated Colonel O'Grady in Stuttgart—told of reports "from various sources that some investigators who have lately been dispatched to Germany without expense to the Government have felt that they were not compelled to prepare

written reports overseas upon the completion of their missions." He advised his unit chiefs that investigators were "Government representatives who are under obligation to fulfill the rules and regulations . . . for completion of their missions" and instructed them to "impress upon investigators strongly the importance of preparing written reports before their departure from Germany."[58] But conditions had not improved three months later, when Colonel Osborne visited the United States and discussed with OTS what he had kept from OMGUS earlier. Writing to the same unit chiefs on 7 June 1946, Reiss relayed Osborne's complaint that some investigators "now being sent over . . . without expense to the Government are under the impression that when they are in Germany they are private citizens working for their own firms instead of U.S. Government representatives." After reporting Osborne's conclusion that "the situation is serious" and repeating his own request of 3 April for better briefings, Reiss warned that unless things changed it might be necessary to revamp the entire OTS/FIAT operation. But nothing changed, apparently, for a month later he reported once again on news from Germany: Without-compensation (WOC) investigators often did not cooperate. Some of them had obviously used FIAT "as a pretext to get into Germany" to conduct their own private affairs; those who had had previous business connections in Germany were particularly hard to handle. Many investigators simply used target-assessment reports in the FIAT files as models for their own perfunctory final reports; some of them refused to write reports; and others who had initially refused to write reports wrote inadequate ones when they were pressured to do so.[59]

OTS's solution to the problem of incomplete, inadequate, and nonexistent reports was to open the floodgates and send as many people to Germany as it could, presumably so that as many as possible could get what they wanted for themselves. Competitors get anxious when investigations are made by representatives of other firms, Reiss wrote to T. G. Haertel at FIAT in July 1946, even though investigators sign statements that they have been warned not to use the information from Germany in their own firms and plants until their reports have been published and reported in the OTS bibliography. Nevertheless, he observed,

"however much we trust the honesty and judgment of our investigators, we, of course, cannot know the precise degree of effectiveness of this warning . . . and their competitors naturally are in even greater uncertainty." One way to solve the problem, Reiss concluded, was to send a lot of investigators, even if there was duplication.[60]

The policy to send as many people as possible to overcome the effects of inadequate reporting explains in part why the OTS scrambled to send people after the Office of Military Government for Germany (OMGUS) made known its plans to shut down the OTS/FIAT operation in the interest of German economic recovery.[61] General Clay's scientific adviser, George Scatchard, who was in Washington late in 1946 to discuss those plans among other things, reported back to Clay that one of the arguments being used in Washington against FIAT's termination was that larger firms had gone first and gotten the information they wanted, so the program should be continued "until little firms can free men to go as investigators."[62] In December 1946, when T. M. Odarenko—the man whom Sosthenes Behn, of ITT, had released with the understanding that he would "be allowed to obtain for us information in which we alone are interested"—returned to the United States, OTS issued a press release quoting him: "American businessmen and manufacturers should send investigators to Germany at once, for as German plants reconvert to peacetime operations, they will become less readily accessible for study by American investigators."[63]

Meanwhile, OTS continued its "intensified efforts . . . to persuade industry to send investigators to Germany as soon as possible."[64] In February 1947, John C. Green reportedly told a meeting of the New York chapter of the Society for the Advancement of Management that the U.S. government "can't hold the door open long." In the same month he published "Last Call for Germany." "The opportunity to enter any factory, see any documents, inspect any equipment and interrogate any expert cannot last indefinitely," he warned. "This is American industry's last chance to acquire, at small cost, a wealth of scientific and technical information." Not needing to remind his readers, as the media were doing daily, that the Council of Foreign Ministers was preparing to meet in Moscow shortly to consider the Ger-

man problem and a possible peace treaty, Green observed that "victory opened the doors and the files of German factories and laboratories to American investigators." He concluded that "it will be a national tragedy . . . if we allow the doors to shut before we have added all of the best of Germany's technical knowledge to our own."[65]

PART III

Terminating FIAT and Evaluating the Take

SEVEN

Governors Versus Exploiters

GENERAL CLAY'S EARLY PLANS, as he reported them to Washington in June 1945, were to use FIAT to coordinate ongoing scientific and technical investigations in Germany until "the interests of the United States agencies at home wane," and then to use it to compile data on economics, production, and research needed by the Office of Military Government for Germany (OMGUS) in its continuing control functions.[1] But, as described above in chapter 2, the plans and procedures developed by the Commerce and the War Departments in Washington to implement President Truman's Executive Order 9604 and thus convert the wartime scientific and technical intelligence program into a postwar commercial exploitation program designated FIAT as the agency in Europe through which the United States would collect "intellectual reparations." The divergent conceptions of FIAT's role, and fundamental disagreements about American goals and objectives that developed as the occupation of Germany continued, caused tension between OMGUS and FIAT—between the governors and the exploiters—until OMGUS succeeded in having FIAT closed down on 30 June 1947.

FIAT Removals as Exports or Reparations or Neither

As early as October 1945, the OMGUS Economics Division drafted an amendment to existing military government regulations to prohibit further FIAT removals from Germany "pending the allocation of Reparations to the United States."[2] This draft brought an immediate and urgent protest from FIAT that "the proposed order" would shut down its enterprise and prevent

it from carrying out orders from the War Department.[3] It also brought a formal statement of opposition and nonconcurrence from the Armed Forces Division of OMGUS, which suggested that matériel still wanted by Washington be exempted from the prohibitions of the proposed new directive: military equipment, wind tunnels, synthetic fuels and synthetic rubber production equipment, and other "specialized research and experimental equipment."[4] Finally, the draft amendment became the subject of a series of inconclusive OMGUS conferences, during one of which the OMGUS Legal Division representatives reportedly looked upon "FIAT's activities with considerable trepidation."[5]

On 6 December 1945, as he would do in other instances during his tenure as Military Governor, General Clay referred the issue to the War Department, made a recommendation as to what he thought policy should be, and then took action in anticipation of the policy's approval. He ordered FIAT to send no more shipments from Germany until JCS policy arrived.[6] As summarized by Clay's message to Washington, the JCS policy guidance of 3 October 1945, on the control of German scientific and industrial research and teaching, authorized OMGUS to transfer to the United States research projects and experimental equipment in the fields of armaments, munitions, atomic physics, and other materials of war. But FIAT had "received instructions to export research equipment for other purposes such as a coal hydrogenation plant for the Bureau of Mines. It is our understanding," Clay went on, "that under the Potsdam Protocol equipment other than war material may be exported from Germany only for reparations or for sale in American dollars as an export item." In closing Clay noted, "We have repeatedly urged other countries not to remove property from Germany except war matériel," and he warned that "removals of this type [i.e., without payment and without reparations status] may lead to widespread removals from other zones."[7]

Using the Bureau of Mines request for evacuation of the coal hydrogenation plant as a test case, the JCS observed that since the Germans had used the plant for production, it could "not . . . be regarded as German research equipment even though its use in the United States is proposed for research purposes." Therefore, the JCS concluded, "seizure and transfer of such equipment" could occur only under the reparations provisions of JCS 1067/6, the existing basic directive on military government for Germany.[8] Clay's interpretation having thus been validated by the JCS, OMGUS issued orders that only two categories of evacuations were permissible in the future: (1) war material and items of military research, which could be evacuated directly as captured enemy equipment (i.e., as war booty), and (2) samples of capital equipment and nonmilitary products, which could be evacuated either as items of export, to be paid for in American dollars, or as reparations, using adopted procedures that required requests to and allocations by the Inter-Allied Reparation Agency (IARA) in Brussels.[9]

There appears to have been universal agreement with Colonel Ralph M. Osborne, the chief of FIAT, who once said that he hated "to have to spend good US dollars to secure equipment which is perhaps procurable without cost through reparations."[10*] For the Army, the Navy, the Air Force, and the Department of Commerce's Office of Technical Services initially chose to try the reparations route to procure samples of capital equipment and nonmilitary products; but they changed tactics rather quickly. For example, the Bureau of Mines at first asked for the coal hydrogenation plant as reparations. It was informed by the State Department, however, that getting the plant for the United States as an IARA reparations allocation would take considerable time and that a certain amount of risk was involved should other nations also place bids for the plant. The Bureau of Mines, supported by the Army, the Navy, and the Department of Commerce—each of which had its own list of items wanted from Germany—pressured first OMGUS and then the State Department to ship the coal hydrogenation equipment to the United States outside of agreed reparations channels and, of course, without payment in dollars. Indeed, the Bureau of Mines eventually admitted "that no money is available from its appropriations to pay for equipment and materials requested."[11]

*Osborne was responding to John C. Green's search for a "short cut that would bring the equipment to this country." "Frankly," Green had written, "unless we can work out some method of getting this stuff over here without putting up American dollars or going through the current 'round robin' of reparations procedures, I am afraid the whole thing will bog down." Green to Osborne, 29 Mar. 1946, RG 260, shipment 11, box 2-2, file 19 (98 Scientific Research), WNRC.

General Clay had originally assumed, as he emphasized in referring the issue to the War Department on 6 December 1945, that he would have no difficulty obtaining FIAT-requested, nonmilitary materials and equipment as reparations. "Where the United States desires such equipment," he wrote, "we would propose to report it [to the IARA] as available for reparations and at the same time file a claim for the United States. In view of our small demands for reparations we should have no difficulty in obtaining allocation." He argued that "regardless of the justice of our claims," taking equipment "not properly claimed as reparations or paid for as export" would be inconsistent with "international agreements with respect to reparations" as well as the "Potsdam Protocol. . . . We repeat that in view of our small claims we anticipate no difficulty in securing our allocations of equipment desired as reparations."[12] But he spoke too soon, for he was not yet aware of how complex the IARA allocations procedures would be when fully developed.[13] Neither had he been apprised of the Commerce Department's unwillingness to pay for sample machines and equipment to be taken from Germany. Nor had he been advised of the State Department's unwillingness to use American power to influence allocations decisions of the IARA in Brussels. Once these things became clear to him, General Clay bowed to his superiors in Washington and approved the shipment of FIAT-requested materials outside of reparations channels and without payment in dollars. How this came about is complex, but important as an illustration of the conflict between the governors in Germany and the exploiters in Washington.

Two months after his optimistic message of 6 December 1945 to Washington, Clay sent the JCS a FIAT list of items that had been requested for evacuation by various agencies in Washington, explaining that some of the items could be taken immediately as military research materials (i.e., as war booty), but that the remaining items of capital equipment and nonmilitary products could be obtained only by purchase or as reparations under procedures, which were now clear. They involved four major steps: (1) U.S. declaration of availability, (2) canvass of other reparations claimants, (3) initial allocation by the Allied Control Council (ACC) between the USSR and the Western powers, and (4) final allocation by the IARA to the recipient. Given the time-consuming nature of these procedures, Clay concluded,

purchase would be easier and could be handled administratively in Germany, with purchased items being classed as exports from current production. But the JCS decided that the items "should be declared available and requested as reparations," explaining that the Department of Commerce had "assumed responsibility . . . for receiving and presenting requests of this type of equipment for industry [and] is now unwilling to pay dollars for importation."[14] Consultations between Clay and American representatives to the IARA in Brussels ensued, culminating in a three-day visit to Berlin by Russell Dorr, the chief U.S. delegate to the IARA. During the visit Clay "reacted strongly" to the news that Dorr could not guarantee allocation of the FIAT list to the United States. On 3 May 1946, Clay—already frustrated at the time by his failure to get a four-power agreement to link the German level-of-industry plan, reparations, imports, and exports in a common ACC policy, and in obvious anger—changed his original recommendation.[15]

In a message to the War Department sent one day after he stopped all reparations shipments from the American zone and immediately after Russell Dorr's visit to Berlin, Clay reported that FIAT had gathered research and scientific equipment valued at about $800,000, which OMGUS had not shipped to the United States because to do so would violate "the export-import agreement" unless the material were allocated as reparations. OMGUS had hoped to allocate it as reparations, he continued, and then get it back through ACC machinery and the IARA, but Dorr had just told him that he could not be certain that the United States would get it. Declaring that the Russians and the French had removed equipment and other materials from their zones without allocation and without payment, he said he was now prepared to do the same in the American zone by changing his recommendation from allocation through four-power machinery to direct shipment to the United States. Obviously uneasy about his abrupt reversal on unilateral removals, however, he concluded that the United States could report the value of the direct removals to the IARA as a charge against the U.S. share of reparations.[16*]

*In the same message Clay also suggested that the United States might sell the equipment and use the proceeds to reimburse itself for current German imports of food and other items, but he said he preferred the other alternative.

Upon receiving from the War Department Clay's revised recommendation for routine policy coordination, the State Department first balked, then compromised. State Department officials were by this time committed by international agreements to the reparations program so concisely and cogently described by Clay in his message of 6 December to the War Department, and thus were surprised and piqued by Clay's decision of 3 May 1946 to halt reparations shipments from the American zone without first consulting Washington. They first reacted to his recommendation by arguing that he could hardly expect to ship the FIAT materials to the United States directly at the same time that he prevented reparations deliveries from the American zone. But the War Department, speaking for the armed services, and the Commerce Department, speaking for American industry, applied strong pressure in support of Clay's recommendation, with John C. Green reportedly arguing that postwar American economic reconversion depended upon access to German technical and scientific know-how.[17] Charles P. Kindelberger, the chief of the State Department's Division of German and Austrian Economic Affairs, described the State Department's dilemma in the face of these pressures and arguments: "Permission to ship implicitly involves the judgment that gain to the United States from receiving the equipment outweighs the cost in good relations with non-occupying countries, which are receiving no reparation currently. The basic question is whether the Department prefers to embarrass the War Department, Commerce Department and American Industry, or itself in its relations with other countries."[18] It eventually embarrassed itself, but only after considering and failing to get agreement on various other alternatives—all of which would have modified or withdrawn Clay's order to halt reparations shipments from the American zone—and after much discussion in Washington and in Brussels on what, if anything, the United States should say to the IARA.[19]

On 29 June 1946, the War Department cabled authorization to OMGUS to ship the materials on the FIAT list immediately. An accounting would be made later, the War Department stated, and explanations to the IARA would be included in the U.S. reply to a request from the IARA secretariat to Britain, France, and the United States for a report from their respective zones on removals of materials subject to treatment as reparations.[20] In

authorizing this shipment outside of normal reparations channels, the cable continued, it was "firmly understood that there will be no further withdrawals of this nature," and that future requests would be processed through the IARA with appropriate U.S. representations of interest during the allocations process.[21] A week later OMGUS relieved FIAT of further responsibility for removals of equipment from Germany and transferred the function to OMGUS's Trade and Commerce Branch (for removals by export) and the Reparations Section of the Industry Branch (for removals by allocation as reparations). Thus OMGUS established the procedures and machinery to implement the policy recommended by Clay to the JCS on 6 December 1945, albeit only after the United States had removed—outside of reparations channels—what it wanted.[22]

Although the State Department's promised accounting never took place—a subject to which I will return—available documents show that the FIAT list approved for direct shipment on 29 June 1946 consisted of 37 items, estimated to weigh about 500 tons and to be worth about $800,000.[23] Included were the Robert Bosch condenser-manufacturing machine, the Mahle Werke die-casting equipment, the Ultra Präzisionswerk grinding machine, a Magnetophone, and the Maschinenfabrik Augsburg-Nürnberg (M.A.N.) materials-testing laboratory, as well as other materials and equipment from I. G. Farben, Klöckner-Humboldt-Deutz, the Bavarian Motor Works (BMW), Messerschmitt, Friedrich Deckel, Adlerwerke, and others.[24]

German Economic Recovery and the Transfer of Technology

American efforts to establish and promote a self-sustaining postwar German economy and thus reduce the costs of the occupation to the American taxpayers have been documented and described elsewhere.[25] American officials in Germany believed that the continuing scientific and technical investigations were a serious hindrance to German economic recovery because they interfered with current, approved production and violated the security of German research and trade processes, the value of which the Germans could use to pay for imports of food and raw materials. Writing to the War Department on 20 October 1946, General Clay declared that the FIAT investigations were

a serious handicap to German economic recovery. He doubted that "German industrial development in peacetime industry and research . . . can be pushed vigorously until some industrial security is provided for trade processes which are developed in these industries."[26]

That the investigations were a problem is perhaps readily apparent, but developments in Austria provide evidence that they were generally recognized as such. In September 1946, responding to protests by Austrian authorities that "examination and publication of processes, formulae, and other needed secrets peculiar to Austrian industry might be extremely harmful to the recovery of the country's economy," the American and the British Control Commissions for Austria denied a FIAT team's request for access to the country. FIAT appealed to the State Department for reconsideration. But the State Department reportedly wanted to recognize Austria "as a liberated country," to stop impeding Austrian industry, and to "counteract Russian influence in that area." So it supported the Control Commissions' decision, and thus endorsed a policy that "future requests for entrance into Austria by investigating personnel be limited to those directed to examine only industrial targets which were previously engaged in the manufacture of actual war materials."[27]

But Clay's message protesting FIAT's hindrance to German economic recovery grew out of American experiences in Germany.

To satisfy General Clay's demand that FIAT operate under the jurisdiction of the Office of Military Government for Germany (OMGUS), the FIAT Operations Branch sent its functionaries to Munich, Stuttgart, and Wiesbaden early in 1946 to coordinate FIAT's field activities with the U.S. Offices of Military Government for Bavaria, for Württemberg-Baden, and for Hesse, respectively. The 15 March 1946 summary report of those visitations describes procedures to be followed by FIAT teams in each of the three *Länder* (states). But it also contains a list of complaints about FIAT's operations made by the regional military government officials who had been consulted: the number of investigators going to some plants was excessive. Some teams were too large for the subject of the investigation. Investigators interfered with plant operations at firms that had resumed production with the approval of military government authorities.

Teams were not adequately briefed, and they often did not limit themselves to "purely technical investigations." Finally, the list concluded, teams appeared with expired FIAT passes, and some of them wanted to enter targets not listed in their passes.[28]

What the regional military government officials in the *Länder* complained to FIAT visitors about they also reported to their superiors in Berlin, causing the OMGUS Chief of Staff to ask FIAT for a report on Commerce Department activities in Germany. Colonel Ralph M. Osborne, the chief of FIAT, replied with a brief history of the origins of the OTS/FIAT postwar exploitation program (described earlier in this study). He emphasized the authorization contained in the President's executive order, the directives of the Joint Chiefs of Staff, and the financial support for the program by the U.S. Congress. Congressional funding, he said, was in fact so extensive as to permit a considerable expansion of the program; indeed plans were already under way.[29*] As the program expanded, the disharmony between it and the ever-increasing OMGUS emphasis on German economic recovery toward self-sufficiency became more and more obvious, the complaints from the field became more numerous and vociferous, and the conflict between the governors and the exploiters took on new dimensions.

As described earlier in this study, Colonel Gerald B. O'Grady, the chief of the Industry Branch, Office of Military Government for Württemberg-Baden, complained directly to OMGUS in Berlin that his district was being overrun by investigators, who demanded and took technical information for their own use. In evidence he offered a letter from the general manager of Robert Bosch, GmbH, and other data his office had collected. The value of the expropriated know-how, he argued, constituted a direct loss to the German economy. For this and "other reasons," which he did not specify, curtailment of the investigations was justified in the interests of German economic recovery.[30] Further, we have

*Osborne noted that Congress had approved a deficiency appropriation to cover the operation of FIAT through 30 June 1946, and that he expected approval of a request for $6 million for fiscal year 1947. This would have permitted a staff increase from the 1 Mar. 1946 complement of 70 scientific consultants, document analysts, technical language experts, stenographers, translators, microfilm operators, and administrative personnel to about 190 by the end of Apr. 1946. See n. 29 for this chap.

seen that Degussa's appeal for reduction and better control of FIAT visitors gained the support of the Frankfurt Industrie- und Handelskammer, the Hessian Minister of Economics, and the Minister-President of Greater Hesse. All of these officials worked together and eventually got from Lieutenant Colonel Samuel S. Graham, the Chief Industry Officer for the Office of Military Government for Hesse, a written document listing the powers of the FIAT investigators and the rights of German firms during the investigations.[31] Colonel Graham's concession was clearly less than what the Germans had hoped for; Degussa complained three months later that the number and frequency of Allied investigations were still unusually high and that FIAT visitors still demanded samples, formulas, drawings, and documents.[32] Nonetheless, Colonel Graham had advised the Hessian Minister of Economics to "see that this information is disseminated to all German firms in Greater Hesse," thus providing a basis for German firms to make difficulties for FIAT visitors. Once the information had been distributed,[33] Degussa officials learned from conferences with the Hessian Minister of Economics that his office was prepared to take up the issue with the Americans again, should further complaints from firms arrive. In the meantime, a Degussa memorandum shows, officials of the Hessian Economics Ministry advised firms that it was possible to reduce to a minimum the information they were required to hand over by properly instructing the experts and others who normally gave out information, and by establishing in each plant a central reception to examine meticulously the FIAT passes of the visitors before they saw the firm's technicians and experts.[34]

Meanwhile, American officials in Munich reported difficulties in Bavaria similar to those in Württemberg-Baden and Greater Hesse,[35] and various German industrial and trade associations advised their members on how to deal with the investigators. For example, the Industrie- und Handelskammer in Frankfurt asked its members to prepare a short report on every visit and send three copies to the appropriate section of the Handelskammer. Further, the Wirtschaftsverband Maschinenbau, with headquarters in Düsseldorf-Oberkassel, released a circular letter on the delivery of drawings and plans to members of the occupation forces and advised individual firms to ask for requisitions,

demand receipts, and get as much information as possible to support future claims for restitution or compensation.[36]

Reasserting FIAT's Authority

FIAT thus found itself faced with incidents of resistance by individual German firms. It was also mindful that the views of American military government officers in the field corresponded with those of German firms, industrial and trade associations, and government officials with whom the American field officers dealt on a day-to-day basis. Signals also appeared from Berlin that FIAT's days were numbered—a subject to which I will return. All of this, added to initial evidence of collaboration between the Industry Branch of the Office of Military Government in Stuttgart and firms in Württemberg-Baden,[37] prompted FIAT to reassert its authority and shore up its empire in Germany.

News that FIAT investigators had encountered difficulties in Stuttgart "on various occasions," difficulties that "were not necessarily caused by the Germans, but by representatives of our own Military Government," provoked a sharp response from Colonel Ralph M. Osborne, chief of FIAT. The immediate object of his ire was Colonel Gerald B. O'Grady, chief of the Industry Branch in the Office of Military Government for Württemberg-Baden, to whom Osborne caustically pointed out that FIAT's authority came directly from the Military Governor and ultimately from the Joint Chiefs of Staff, the U.S. Congress, and the President of the United States.[38] Less than a month later —in May 1946—Osborne sent a similar, albeit more moderate, letter to the Office of Military Government for Bavaria after hearing of their complaints. In this letter he noted that the U.S. Congress was spending money to get scientific and technical information from Germany for the benefit of American industry, "with the thought that such information will be one major source of reparations from Germany."[39] Then, in August 1946, he succeeded in having the headquarters of the United States Forces, European Theater (USFET), issue a directive stating that technical intelligence investigators in Germany were government employees engaged "in the furtherance of the Publication Board program for screening and microfilming of technical and scientific documents" under directives "to investigate, exam-

ine, interrogate, or photograph specific German technical intelligence targets," which included "German installations, equipment, documents, or personnel."[40] Meanwhile, John C. Green, the director of the Commerce Department's Office of Technical Services (OTS), carried on the defense of FIAT in Washington.

Osborne and Green exchanged visits in Washington and Höchst, respectively, in June and July 1946. Their discussions covered (1) the problems investigators were having in the field, (2) the proposals of the War Department's Plans and Operations Division and USFET's Manpower Division to reduce financial and logistical support for FIAT/OTS operations in Germany, [41] and (3) the opposition to further exploitation of German science and technology emanating from OMGUS, especially from George Scatchard, General Clay's scientific adviser and the chief of OMGUS's Scientific Research and Control Branch.[42*]

Upon his return from Europe, Green drafted similar letters to the Commanding General of USFET (General Joseph T. McNarney) and the United States Ambassador in London (W. Averell Harriman) and sent them to Secretary of Commerce Henry A. Wallace. In his letter to Wallace, Green noted, "On my trip abroad I found that certain key personnel lacked knowledge of and, therefore, interest in our operations in Germany and London. Letters of the type indicated by the attached drafts, signed by President Truman, would go far toward assuring our overseas staffs the strong support and encouragement necessary to place the President's directives with respect to exploitation of German science and technology into beneficial effect."[43] Wallace, who reportedly expressed "keen interest" in the exploitation of German technology for the benefit of American industry at his next Commerce Department staff meeting, asked for "specific examples of

*For Scatchard's view see Reiss to Green, 30 Aug. 1946, RG 40, OTS Reiss files, box 156, file FIAT letters from Haertel, WNRC, which Reiss wrote in Germany while observing FIAT's operations. In it he reported Osborne's concern about the future of FIAT and Scatchard's major argument against it, namely, that he could not move to reestablish German research until FIAT was out of the way. Osborne thought a compromise could be worked out if German plants and research institutes approved by OMGUS were posted to exclude investigators; Reiss offered his own opinion that "the best solution would be to prohibit the resumption of German research until our investigating program is concluded." He warned, however, that Scatchard gained leverage from the fact that "the British are definitely stopping their investigations by the end of this year."

investigations which are of present or potential value to American industry." Green thereupon solicited such information from all former investigators in Germany.[44] Without waiting for the examples, however, Wallace sent Green's draft letters to Matthew Connelly, Secretary to the President, explaining their origin and asking that they be referred to Truman. "I don't believe," Wallace declared, "that the sending of such letters would cause any repercussions from the services or other agencies, and would be of real benefit to our program."[45]

The White House staff, after editing out Green's self-serving statement that FIAT had been "doing a splendid job in connection with the exploitation of German science and technology" and toning down a reference to "Germany's scientific and industrial 'secrets' [being made] available for our national advantage," took the revised drafts aboard the U.S.S. *Williamsburg*, where Truman approved and signed them for dispatch. "The Field Information Agency, Technical, with headquarters in Höchst, Germany," the letter to McNarney stated, "is performing an important service in making available for the benefit of our economy the discoveries and developments of German science and technology. I hope that this unit of the military forces will continue to receive the strong support which is such a vital factor in making Germany's scientific and industrial secrets available in our national interest." To Harriman, Truman said:

> I learn that there has recently been created at the Embassy in London a mission staffed by personnel of the Department of Commerce whose purpose is to obtain access to captured technology under United Kingdom control and also to achieve an exchange of technology with British research personnel. These objectives are of immediate and long-range value to our economy and I hope that you will give this mission the strong support necessary to assure the success of its efforts.[46]

Harriman replied from London: "I share fully the view that the objectives of the Mission as outlined in your letter are of immediate and long-range importance to us." In Frankfurt, Major General C. R. Huebner, the USFET Chief of Staff, prostrated himself verbally:

> It is my desire, in the absence of General McNarney, to inform you that as Military Governor General McNarney has been following closely the progress of the Field Information Agency, Technical, ever since its in-

ception. This agency has always received the strong support of Theater Headquarters . . . [and] will continue to receive the support which it has been accorded in the past and will be allowed to retain the personnel and equipment necessary to carry out its vital work.[47]

Further reflecting the apparent urgency he assigned to the President's intervention, Huebner had his staff telephone the contents of Truman's letter to Clay's office in Berlin.[48] Three days later a message on the national importance of the FIAT program went out from OMGUS to the *Land* Directors of Military Government, directing that "all personnel in your command be informed that FIAT's purpose is the exploitation of German science and technology and is operating under directives of the President with the strong support of the Congress."[49] Ironically, however, what had been conceived as a maneuver to shore up the FIAT/OTS empire and add new life to the program in Germany turned out to be the beginning of its end, for it inspired General Clay to raise the question of an accounting "in terms of dollars"—a subject to which I will return—and then to work for FIAT's early dissolution.[50]

Terminating FIAT

Even before Clay got involved personally in October 1946, FIAT and OTS had received various signals that "Military Government wants [the] program to end."[51] In Germany, for example, T. G. Haertel, the OTS liaison representative at FIAT, reported to Green on 12 September 1946, "We know that at some undetermined time, in the not too distant future, our field operations are going to have to be curtailed or discontinued." This would happen, he said, either because the German patent office would be reestablished, or because peace would be made with Germany, or because a four-power agreement might require FIAT to discontinue technical investigations, or, finally, because military government officials who wanted to restore German industry would continue to cause difficulties and delays.[52] In Washington, at about the same time, the Civil Affairs Division of the War Department asked OMGUS to comment on anxiety in the Commerce Department over "reports they received that OMGUS was going to cut off the FIAT program next spring" despite the fact that it had "the active support of Congress and

the President." Clay responded that "any recommended cutoff in FIAT will be reported in advance to the War Department so it can be discussed with all concerned before any action is taken."[53] Precisely one month later, he did what he promised.

On 20 October 1946, Clay cabled the War Department that he was sending a member of his staff to Washington to discuss United States policy on patents and a cutoff date for using private investigators to exploit trade processes and research activities in German industry. The cable stated:

> It is fully appreciated that these teams have secured valuable information for the US, which perhaps will represent our only return in reparations. . . . However, the work has been going on now since our entry into Germany and most of the information which existed in Germany at the time of surrender should be available by now. It is doubtful if German industrial development in peacetime industry and research activities in such industries can be pushed vigorously until some industrial security is provided for trade processes which are developed in those industries.[54]

The staff member Clay was sending (Richard Spencer, an official in the OMGUS Legal Division) had just sent a long letter on the same subject to Assistant Secretary of War Howard C. Petersen. In it Spencer referred to Secretary of State James F. Byrnes's Stuttgart speech of 6 September 1946, in which Byrnes had expressed the desire to let the German people resume their peacetime economic life. According to Spencer, Byrnes's objective required two basic changes in U.S. policy: (1) prompt establishment of industrial security, and (2) reopening of the German Patent Office, coupled with abandonment of current U.S. policy that required all German patents at home and abroad to be nonexclusive, nonrestrictive, and nondiscriminatory. Right after the war, Spencer remembered, the President had approved a policy to make German manufacturing technology available to American industry. "As a result," he continued, "technicians and field teams have been penetrating through the American Zone (and where possible through the other occupied zones) obtaining copies of scientific and technical documents, photo microfilming disclosures of secret processes and patent applications and in some instances obtaining prototypes of new machinery, equipment and products. . . . The program has been in effect for

over a year now and the barrel should be about drained." In any event, he concluded, the time has come to strike a balance, declare an end to this exploitation and restore industrial security in the interests of the German economic recovery "foreshadowed" by Byrnes in Stuttgart.[55]

The Clay-Spencer initiative came up—apparently informally—in November 1946, during the British-American discussions in Washington on the merger of their two zones of occupation and the financial agreement to underwrite a bizonal economic recovery program. Available documents created later show that the British had proposed 31 March 1947 as the cutoff date for all British and American exploitation operations in Germany, that Clay had supported the British proposal, and that John H. Hilldring, the Assistant Secretary of State for Occupied Areas, had told him he would get Commerce and State Department concurrence.[56] When nothing further had happened by the end of January 1947, Clay cabled the War Department to ask for a status report on preparations in Washington, saying he wanted to make an announcement well before the actual cutoff date. A week later he cabled again, this time saying that the British wanted to make an early announcement.[57] But in Washington, Hilldring had failed to secure concurrence from the Office of Technical Services in the Department of Commerce.

John C. Green, relentless in defense of the OTS/FIAT exploitation program, pressed the State Department for more time. In his "Last Call for Germany," published in the February 1947 issue of *Federal Science Progress*, the OTS's official organ, he wrote that the Army had already gathered much of what it wanted from Germany, but "our job is to help men of industry's choosing to enter Germany." It would "be a national tragedy," he declared, "if we allow the doors to shut before we have added all of the best of Germany's technical knowledge to our own." At the State Department, after repeating his favorite refrain that scientific and technical knowledge "is the only tangible reparations that we will probably get out of World War II," Green complained that a 31 March cutoff conflicted with current plans to continue the program until the end of the year. The Commerce Department, the National Association of Manufacturers, and the scientific and technical press, he observed, had notified industry "that they must move quickly if they are to take advantage of the opportunity to complete investigations in Germany." If the program was cut off in March, he went on, the Commerce Department would have to renege on commitments it had already made for the spring to such major companies as Texaco, Upjohn, Colgate-Palmolive, Pittsburgh Plate Glass, Radio Patents Corporation, and the Standard Oil Development Company. The British, he argued, had worked much faster in this exploitation than the United States, in part because of their physical proximity to Germany. They had sent about 4,000 people to Germany, while the United States had sent only about 600; it therefore "seems reasonable that the British have 'milked the field dry' and no longer feel industrial pressure for access while U.S. industry feels there is much to be done."[58]

After various interdepartmental negotiations, as well as conferences with British Embassy representatives in Washington, the War Department advised Clay on 18 February 1947 that discussions were continuing, but that it looked as if field investigations could not be ended on 31 March 1947.[59] Clay fired back that he was committed to 1 April and thought the United States was too. Hilldring would surely remember, he said, that the British had wanted to fix a date in the Washington bizonal merger agreement of 2 December 1946, but had withdrawn their suggestion on Hilldring's assurance that he would get agreement for a 1 April cutoff. The British would probably agree now, Clay believed, to completion of investigations begun before 1 April, but not to starting new investigations after that. Three days later, the War Department reported that a final agreement had been reached with the British: no new investigations would be permitted after 15 May; all investigations would be terminated by 30 June 1947; and an announcement to that effect, stating that German economic recovery required an end to further field investigations, could be made in Berlin.[60]

The rest is epilogue. Green's public relations activities no longer impressed members of Congress (this was the economy-minded 80th Congress) as they had done before. The House Appropriations Committee cut the OTS appropriation request in half and "recommended that uncompleted work of [the OTS's overseas operation] be transferred either to the Bureau of Standards or the Patent Office or both and that this activity as such be abolished."[61] Green nevertheless got the Senate and House Con-

ference Committee to restore sufficient funds to the Commerce Department for an orderly completion of the overseas program after 30 June 1947. But Clay objected strongly to the continuation of FIAT after that date, arguing that the United States had an agreement with the British and the French to stop on 30 June and that microfilming and report writing in Germany after that date would not be worth the resulting international misunderstandings. Besides, he observed, these activities could be carried out more efficiently and less expensively in Washington than in Germany.[62] Eventually Clay advised the War Department that he would close down the FIAT operations on 30 June unless ordered not to do so by the War Department.[63] Clay having received no such orders by then, FIAT went out of existence at the end of the working day on 30 June 1947. Osborne submitted a final summary report of FIAT activities on the next day.[64]

Endnote

German public and private records that were available to me for this study are rich in examples of continued British investigations by T-Forces and others after 30 June 1947, and of protests by Germans that such activities were in violation of announced policy.[65] When challenged, British officials in the field claimed to have FIAT/BIOS (British Intelligence Objectives Subcommittee) lists that had been prepared before 1 July 1947, which lists indicated documents that German firms would have to deliver when requested to do so by properly sponsored representatives of the occupation forces.[66] Eventually, on 16 October, 22 October, and 8 December 1947, the British military government released lists of firms that still had to deliver documents to T-Forces and others. The British frankly admitted that quite possibly some of the affected firms did not know they still had materials to deliver, but declared that the British Deputy Military Governor had ruled that this would not be accepted as a valid excuse for noncompliance.[67]

Given the repeated references to British desires to cut off the technical investigations in Germany that Clay and other Americans had used to gain leverage for their own recommendations, this information may seem odd indeed. It may also suggest that

the Americans lied. A more likely explanation, which is indicated by some of the records to which I have had access, is that the British had their own internal conflict between the governors and the exploiters, but that the British governors were less successful than General Clay in shutting down the exploiters.[68]

EIGHT

Evaluating the Take

AT THE MOSCOW MEETING of the Council of Foreign Ministers (CFM) early in 1947, V. M. Molotov, the Soviet Union's Minister of Foreign Affairs, in arguing the case for his government's claim against Germany for $10 billion in reparations, reportedly stated that Great Britain and the United States had already received considerable reparations from Germany in the form of patents and other technical know-how. "Press reports say that these reparations amount to more than ten billion dollars," Molotov said. He identified one source for the value of reparations taken by the Americans and the British as a statement by John C. Green in which he "commented on the immense value to the United States of these patents."[1] Secretary of State George C. Marshall responded angrily—a manner quite uncharacteristic of him, as an esteemed observer commented.[2] Marshall stated:

> We have used United States scientists to obtain information on German science, including patents, all of which information is being published in pamphlets and made available to the rest of the world. As a matter of fact, Amtorg, the Soviet Purchasing Agency in the United States, has been so far the biggest single purchaser of these pamphlets. The pamphlets cost a nominal fee to cover printing and administrative expenses. No ten billion dollars in reparations is involved.[3]

To amplify Marshall's remarks, the American delegation in Moscow subsequently circulated a paper among the other CFM delegations and simultaneously released it to the press. It listed American reparations receipts in the form of ships, German external assets, Inter-Allied Reparation Agency (IARA) allocations, and direct removals, all of which it valued at less than $275 million. In explanation of the direct removals, the paper stated that "the United States has made certain removals of industrial capital equipment from Germany which have not taken place through the Inter-Allied Reparation Agency. These removals were ordered to further our war effort prior to the Japanese surrender." Their value, which "is now being compiled, . . . is not large and is not expected to exceed $10,000,000."[4] That paper, which equivocated on the entire postwar commercial and industrial exploitation program described in this study, helped to ensure that the evaluation it reported to be under way would never take place. Such an evaluation, which General Clay had asked for early on, was indeed under discussion. But, as we shall see shortly, the discussions gave rise to both practical and fundamental objections even before the Moscow Conference. Once the State Department went on record with that incomplete statement regarding American reparations receipts, it was only a matter of time until the objectors prevailed. Any evaluation approaching the truth would undoubtedly have been embarrassing to Marshall and certainly to the State Department functionaries who advised him in Moscow, for it would have revealed how distorted, misleading, and propagandistic the statement released in Moscow had been.

Clay Proposes Evaluations

The earliest record of General Clay's wish to have the OTS/FIAT removals from Germany evaluated may be found in the reports of a War Department visitor who met with him in Frankfurt on 13 March 1946. According to the visitor, Clay "expressed concern over the fact that scientific and technical information was being taken from German firms and individuals without any provision being made to evaluate . . . its monetary value as a . . . reparations credit."[5] Then on 9 September 1946, the day that he received the text of Truman's letter to McNarney on the national importance of FIAT and just three days after Secretary of State James F. Byrnes's encouraging remarks at Stuttgart about Germany's future economic recovery, Clay took up his concerns with Major General H. S. Aurand, the Director of Research and Development in the War Department. Clay said he was worried about the problem of accounting for FIAT's removals and asked

that some thought be given to the matter in Washington. "I feel certain," he explained, "that the research and scientific findings utilized at home should be evaluated in terms of dollars. Certainly, the U.S. will not pay in dollars but it must assess the values involved for inclusion in reparations accounts. Similarly, the rights of the individual Germans to receive compensation at some future date from a German government must be protected. This, in itself would require an evaluation for information."[6]

Less than a month later Clay repeated, albeit with considerably less restraint, essentially what he had written to General Aurand. This time he expressed himself in a personal letter of 4 October to General Oliver P. Echols, who had been Clay's deputy in Berlin before returning to Washington to become director of the War Department's Civil Affairs Division. Claiming not to know what Washington's policy was, Clay said that the United States was taking, through FIAT, all the information it could with respect to trade processes and advanced scientific thought. The U.S. position was that the information was available to all countries; but, he argued, the advanced level of U.S. industrial development obviously made it more valuable to the United States than to others. When the United States stopped gathering information needed to prosecute the war with Japan it entered "squarely into the commercial field. . . . We are perhaps doing the same thing that Russia is doing in taking current production from Germany without accounting, and that France is doing in removing capital equipment from Germany without accounting." Finally, he repeated, German scientists deserved some compensation for their efforts, they had a right to make claims against their future government, and the value of their contributions should therefore be a matter of record.[7]

Responses in Washington

George Scatchard, the director of OMGUS's Scientific Research and Control Branch and Clay's adviser on scientific affairs, was in the United States in early November 1946 for a meeting of the National Academy of Sciences and for consultations in Washington regarding FIAT and its future. On the 4th he reported to Clay that almost all of the scientists he had consulted agreed on the importance of an evaluation, but that most government officials

doubted that an accurate evaluation could ever be made. Some officials, he said, thought the United States might as well fix a value arbitrarily, while others thought "that any attempt to fix value would be harmful."[8] Clay's initiative had, in fact, given rise to considerable discussion in and among several agencies, and it was to continue long after Scatchard returned to Berlin on 7 November 1946.

In the Commerce Department. Officials in the Commerce Department's Office of Technical Services (OTS) and their liaison representatives at FIAT discussed Clay's letter of 9 September 1946 to General Aurand, only to conclude that they were "by no means sure that it is possible to make such an accounting, even for the purpose of including it in reparations accounts and even though the United States will not pay in dollars." Colonel Osborne, the chief of FIAT, reportedly thought the job should be left to the people who negotiated the peace treaty. Nevertheless, he sent OMGUS an excerpt from an OTS report which concluded that an evaluation "would require a large number of experts in all the fields investigated." The excerpt also mentioned the OTS form letter that went out to former investigators on 15 August 1946, after Secretary of Commerce Wallace had asked for "specific examples of investigations which are of present or potential value to American industry." Obviously realizing that this was not at all what Clay had in mind—and without revealing that Wallace had in fact asked for the information to help persuade Truman to write a letter on the national importance of FIAT—Osborne said discussions were continuing and that an attempt would be made "to resolve the problem."[9]

But the discussions raised more problems than they solved. For example, T. G. Haertel, the OTS representative at FIAT, declared that "intelligence efforts are intangible and cannot be measured in units of effort expended or results obtained" and concluded that an evaluation was impossible until American industry had had a chance to use the information in the reports. John C. Green agreed that "probably a mature judgment will not be possible for five or ten years." He wrote in his annual review of OTS operations for 1946, "Months and years of work are needed before a new manufacturing idea can go through the necessary steps of development, test, pilot plant operation, and finally full-scale production."[10]

In the War Department. Officials in the War Department wanted someone else to do the evaluations, if they were going to be done at all. General Aurand wrote to Clay, for example, that "the need for evaluation of the property we take out of Germany is primarily a matter of international policy and should be determined by the State Department." Perhaps, he thought, the matter should be taken up by the Inter-Allied Reparation Agency, which could establish an arbitrary figure and then distribute it equitably among all the nations represented there. Since the information was being made available to all, he saw no reason for the United States to make a unilateral evaluation. In any event, given the intangible value of the property and the difficulty of assessing future commercial applications, he believed it was impractical to try to fix an accurate dollar value at present.[11]

General Echols, who said Clay's problem concerned his office only "on an economic or metaphysical basis," sent to General Aurand Clay's letter of 4 October 1946 and suggested that he take it up with John C. Green's office in the Commerce Department so "that the War and Commerce Departments [could] first agree upon a policy which represents and protects their interest before discussing the problem with the State Department."[12] Two weeks later, during George Scatchard's visit in Washington, Echols wrote to Clay to comment on Scatchard's discussions with Assistant Secretary of State Hilldring and Assistant Secretary of War Petersen, and to report that Hilldring had agreed to put the problem of evaluations on the agenda of the State-War-Navy Coordinating Committee (SWNCC). "Some groups here feel evaluations would be so inaccurate as to be useless," Echols observed, noting however that Scatchard had a plan that he "believes . . . can give a fair approximation."[13]

Scatchard sent his plan to Clay on 4 November 1946 with the comment that scientists generally agreed on the importance of an evaluation but that government officials were making waves. The plan was in the form of two proposals for SWNCC: The first was that SWNCC ask John C. Green to obtain "from the leader of each of his FIAT teams an estimate of the value of the information obtained from Germany on each of the subjects studied by his team, including information obtained from the study of patents, from microfilms, from apparatus sent to this country, and from the investigations of his own and other teams." The

second was that SWNCC ask the National Academy of Sciences to appoint a special committee to advise it on the desirability of such an evaluation, on the nature of the questions to be asked of the FIAT team leaders, on the coordination and integration of the results of Green's solicitation, and on such other matters as might arise.[14] Meanwhile, the State Department, which was obviously being elected to make the evaluations by everyone else involved, made the biggest waves of all.

In the State Department. Willard L. Thorp, the Assistant Secretary of State for Economic Affairs, previewed his department's response to Clay's request for evaluations when he told Scatchard that such an evaluation would serve no practical purpose except "to keep the American conscience clean."[15] Charles P. Kindelberger, the chief of the State Department's Division of German and Austrian Affairs, advised Hilldring on 19 November 1946 that discussions sponsored by the German-Austrian Secretariat had resulted in the judgment "that FIAT material should not be valued for reparation purposes." The discussants had essentially three reasons: First, given the hundreds of tons of documents and materials held by the Commerce Department, the task of sorting and evaluating the separate items with the staff that could be assigned to it would be physically impossible. Second, the material was not only for the United States, and it was doubtful that other countries would agree to charge their reparations accounts similarly. Third, reparation was an international concern and properly the subject of an international agreement.[16]

As noted earlier, late in November 1946, during the negotiations in Washington on the formation of the Bizone, Clay and the British pressed for a 31 March 1947 termination date for FIAT investigations, and Hilldring promised to seek Commerce and State Department concurrence. Whether Hilldring promised to discuss evaluations as well is not clear from available records, but on 17 January 1947 General Daniel Noce, who had in the meantime replaced General Echols as chief of the War Department's Civil Affairs Division (CAD), advised Clay that conversations on the subject had taken place between representatives of the Commerce, War, and State Departments. They had, however, done little more than reinforce the views of General Aurand that the amount of reparations credit involved "would, in all probability,

have to be based on an arbitrary figure, and it should be apportioned equitably among all the nations receiving reparations, since all have profited by the knowledge." According to Noce, when General Echols gave up his office he left word—but no official files—indicating that Clay wanted action on the matter. Noce advised Clay to present his views to the War Department officially so the entire problem could go to the State Department and the State-War-Navy Coordinating Committee (SWNCC).[17] Clay's response was prompt, comprehensive, and unambiguous.

"My thinking with respect to the accounting for FIAT information," Clay cabled on 22 January 1947, was indeed made plain to Echols in a letter of 4 October 1946. Clay recounted the substance of the letter as follows:

> Through FIAT we are taking from Germany all information we can obtain relative to trade processes and advanced scientific thought. While we are making this information available to all, our own industrial advancement makes it of greater value to us than to others. We took this information first to facilitate our war effort against Japan and then definitely for commercial purposes. The taking of this information to my mind without accounting is parallel to Soviet action in taking current production and to French action in removing capital equipment apart from reparations. Finally, we are taking the thought of German scientists and fashioning it to our own purpose. Obviously these men should be entitled to some financial return from a later German government. Unless there is an evaluation in monetary terms now it will be difficult to establish the record later. I believe that the work accomplished by FIAT will prove to be mainly reparations to the United States from Germany. However, if this is true, steps should be taken to evaluate the information in sufficient detail to permit an accounting under reparations with our Allies and also in the final accounting with the German government. Our record with respect to this type of information should be as clear-cut as our record in removing capital equipment and production output. Certainly this evaluation can be done only in Washington and it would have to follow some empirical formula. It does seem to me that it is important for the record for the attempt to be made. I repeat purpose of accounting is not for payment but to include in final reparations accounting.[18]

Perhaps understandably, given the rocky road Clay's requests had already traveled and the many other issues and problems requiring the attention of the new Secretary of State, George C. Marshall, early in 1947 as he and his staff prepared for the Moscow Conference, available documents record no further activity in Washington on this matter until immediately after the Molotov-Marshall exchange described at the beginning of this chapter.

Washington Moves to Evaluate FIAT

Two days after Marshall's angry response to Molotov's statements of 18 March 1947—statements later referred to by State Department functionaries as "unsupported charges" based on "fantastic" figures—State Department officials in Washington scrambled for data on American removals from Germany. Apparently by telephone, but also by a letter of 20 March (which is referred to in the replies, but which I have never seen), Hilldring asked the various agencies involved for lists and estimated values of things removed from Germany that were subject to evaluation as reparations.[19] Meanwhile, according to a State Department paper prepared later for SWNCC, "in order to counteract to some extent the Soviet charges and in the absence of any reliable and detailed reports of U.S. removals, the Secretary of State nevertheless indicated to the CFM that he did not expect the value of U.S. removals to exceed $10,000,000. He also stated that detailed evaluations were being prepared and would be submitted to the CFM."[20]

Later in March 1947, the State Department received reports from the Bureau of Mines, the Navy Department, and the War Department, but apparently none came from the Commerce Department.[21] Hilldring sent the materials to Moscow—albeit after the Americans had already gone public—but he also reported serious problems with what had been submitted. The State Department, he wrote to Assistant Secretary of War Petersen on 9 April 1947, needed better descriptions of the items already listed, clarification of what constituted war booty or reparations, and a commonly accepted method of determining values; it also needed to hear from agencies that had not yet reported. To get these things, he suggested creation of a SWNCC subcommittee. But now the War Department balked. Secretary of War Robert P. Patterson himself argued that "matters of policy may be involved upon which an Ad-Hoc Committee . . . would be neither autho-

rized nor qualified to make decisions." He suggested "that the proper procedure is for the question to be referred to the State-War-Navy Coordinating Committee . . . for further study and solution."[22]

SWNCC Policy and the Fate of FIAT Evaluations

Once SWNCC took up the issue, the question of FIAT evaluations for reparations credit became hopelessly intertwined with the nagging problem of what, if anything, to report to the Inter-Allied Reparation Agency (IARA) as unilateral removals from the American zone of Germany. State Department representatives came to SWNCC with the news that the United States had never replied to an IARA request of 20 June 1946 for such information, even though the IARA had made two informal inquiries through the U.S. delegate to the IARA.[23] Furthermore, it was apparently clear to all that the Molotov-Marshall exchange in Moscow had occurred during a debate on whether the Foreign Ministers should hear representatives of the IARA and that the United States had been a major objector.[24] It was also evident that the issue would arise once again at the next meeting of the Council of Foreign Ministers, which was planned for later in the year in London. In any event, State Department representatives opened the SWNCC discussions on 19 May 1947 with complaints about the number and the nature of the reports it had received and a formal request for an all-inclusive report, which the State Department wanted the War Department to prepare by 15 June 1947.[25]

Two months of intense interdepartmental wrangling ensued. Meanwhile, France threatened to withdraw from recently initiated Marshall Plan talks unless a proposed new bizonal level-of-industry plan was modified, and General Clay threatened to resign as Military Governor if it was.[26] SWNCC finally approved a compromise policy paper on unilateral reparations removals from Germany.[27] Although the infighting was often over procedure, the real issue was obviously substantive. For example, the War Department agreed to make a list of its own removals, but not those of other agencies. Its spokesmen noted that the War Department had "programmed neither the facilities nor the funds to undertake on a governmental scale the task of preparing

a master report of all property removed from Germany." Furthermore, they argued, the information being sought was intended for use in international negotiations that were the prerogative of the State Department, and the latter should therefore determine the form and content of the reports it wanted and deal directly with the other agencies and departments that had received property from Germany.[28]

The policy paper, entitled "Unilateral Removals from Germany to Be Accounted for as Reparation," which SWNCC approved "by informal action" on 8 August 1947, provided for the War and Navy Departments to make their own lists and for the State Department "to request all other appropriate government agencies . . . to submit reports of property removed by them or delivered to them." The War and Navy Departments were also to "furnish the State Department with all information available to them with reference to property removed by or for other agencies." No due date was assigned for any of these reports and lists; but "expeditious handling" was requested. They were to include all removals from Germany, except for ten categories of war materials that the Allied Control Council had previously defined as war booty rather than reparations. In addition, SWNCC described three other exclusion categories: (1) all property removed to meet military requirements during the period of active military operations in Europe, or to meet the civilian requirements of the liberated areas under approved Civil Affairs programs; (2) property removed by individuals without official authority and never delivered into official custody of an agency of the U.S. government; and (3) "*intangible technical, industrial and scientific data of all types*." As if that were not enough, the SWNCC paper included an escape clause stating that any reporting agency could request "the exclusion of any major item or category not expressly" provided for in the exclusion categories named, and that such requests should "be referred for initial consideration" to an ad hoc committee to be established to receive and review them.[29*]

*I have been unable to find reports made to the State Department, except for one from the Commerce Department dated 10 Nov. 1947, which estimated the total value of all materials it had received at 1,561,819.00 *Reichsmarks* (or $624,727.60 at the Commerce Department's stated conversion rate of *RM* 1 = $.40). This figure is remarkable when compared to that in an internal Commerce Department memorandum of 21 Aug. 1947, which stated that equipment taken

Bureaucracies being what they are, the War Department's Civil Affairs Division (CAD) did not receive an official copy of the SWNCC policy paper of 8 August until the 21st. Meanwhile, General Noce, the CAD director, apparently did not know precisely what had been done by the SWNCC, although he was generally aware that discussions were underway to declare the value of U.S. removals to the IARA in Brussels. On 11 August he wrote to Assistant Secretary of State Hilldring, who was the chairman of SWNCC, reminding him that Clay had asked officially for such an evaluation in January 1947. Noting that Clay had brought up the matter again during Secretary of the Army Kenneth C. Royall's recent visit to Germany, Noce asked for the State Department's views on the matter or for "any advice that may be offered for a solution."[30] The State Department's response, which came from Charles E. Saltzman, Hilldring's designated successor, merits extended treatment, for it summarized the arguments for the American government's decision not to evaluate the entire postwar FIAT/OTS exploitation program in Germany for reparations credit.

General Clay's suggestion that the FIAT removals be valued for reparation accounting had "been discussed at considerable length in the State Department," Saltzman wrote to the War Department on 29 August 1947, but "the conclusion is that the disadvantages very definitely outweigh the advantages" of doing so. Although Clay had implied that evaluation would distinguish American conduct "from improper Soviet and French" reparations removals, Saltzman continued, State Department officials believed it to be "far safer . . . for the United States . . . to continue to assert that it has derived no special advantage from the FIAT material" because it "has been put in the public domain." Clearly reflecting fears that the American statement of reparations receipts released during the Moscow meeting of the Council of Foreign Ministers (CFM) would be exposed as fraudulent, Saltzman wrote:

> To admit liability for a charge to the United States on reparation account and to attempt valuation of the information would leave the United States open to Soviet propaganda that our reparation recovery from Germany was in reality far greater than we reported. The Soviet *ad hominem* attack at the Council of Foreign Ministers, Moscow, 1947, that the United States had derived enormous reparations from the use of German patents points to the danger of recognizing a charge against the reparation account for the FIAT materials.

To Clay's argument that the higher level of American industrial development made the FIAT material more valuable to the United States than to other nations, Saltzman countered that "the [State] Department cannot agree that the United States has derived for itself . . . the preponderant portion of the value of the FIAT information." Since the information was available to all countries at nominal cost, "it could be as well argued that the more backward countries industrially derive proportionately greater benefit than the United States, because of their heavier reliance on German industry in the past and their smaller amount of indigenous technical information."

Regarding the possibility of charging the FIAT removals against the U.S. share of reparations, Saltzman's letter said, State Department officials foresaw two major problems, one domestic, the other international. Domestically, evaluation of the FIAT removals would give rise to "serious internal accounting problems," the nature of which "can be suggested by . . . problems [that already] exist, because several of the Service Agencies which benefitted from physical equipment removed from Germany for experimental purposes do not wish to have their appropriations charged to the full value at which the equipment is carried in the United States reparation account." Internationally, State Department officials believed that "it would not be possible" to get other IARA member nations to charge the FIAT information against their reparation accounts. Even if they agreed in principle, however, "the task of making equitable allocations among the various countries would be insuperable."

Saltzman's summary of the State Department's arguments concluded, "It does not appear necessary to establish a specific

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from the Klöckner-Humboldt-Deutz diesel motor laboratory in Oberursel and eventually given to Oklahoma A and M University was worth about $4 million. See Green to Saltzman, 10 Nov. 1947, RG 40, OTS Reiss files, box 153, file Worden, WNRC, and memorandum, 21 Aug. 1947, filed among letters expressing interest in the equipment, *ibid.*, box 96, file Diesel Engine Laboratory Correspondence. Another internal Commerce Department memorandum, of 3 Apr. 1948, estimated the value of the equipment received by Oklahoma A and M at "over $1,000,000," however. *Ibid.*, box 96, file KHD Laboratory.

charge against reparation accounts in order that compensation may be paid to individuals in Germany. If a future German government desires to pay compensation for this type of loss," neither the precise evaluation of the FIAT removals for reparations accounting nor an estimated "global figure" would be useful, "inasmuch as individual evaluations in Germany would still be required."[31]

General Noce sent to Berlin copies of both his own letter to Hilldring and Saltzman's reply. Clay's brief, remarkably restrained response was that he had "no comment" except that "we here and the Department of the Army have been honest in expressing our views; the State Department has taken the responsibility and there I am willing for it to rest."[32] A memorandum for the record in the War Department's Civil Affairs Division files states that the State Department "refuted Gen. Clay's view," so that no further action was necessary and the case was closed.[33]

Case Closed?

Although the FIAT/OTS removals from Germany were never evaluated and we thus have no accurate record of what John C. Green and others often referred to as the only reparations the United States would get, the records used for this study are replete with statements, assertions, estimates, and speculations on the value of the scientific and technical know-how transferred from Germany to the United States after the war. Usually they were qualified by declarations that true value would emerge only years hence, after the information had been tried, tested, and put to use; five to ten years frequently appeared as a time frame.[34] Sometimes they were accompanied by references to the secretiveness of the recipients, their unwillingness to give credit to foreign sources, and their caution when it came to "admitting receipt of favors which might become obligations."[35] In fairness to those who were inclined to evaluate and those who did not simply regard the FIAT/OTS operation as a license to steal, it might be noted that a sample of the literature on the subject of licensing of processes and technical know-how suggests that the entire field came into its own only after the Second World War. Further, such licensing is costly in "engineering man-hours, travel, option fees," and other things, and is an extremely complex business.[36*] Be that as it may, and in the absence of a quantitative assessment of the value of the FIAT removals, the various expressions of value provide a qualitative basis for judging the dimensions of the take.

Commerce Department Officials Evaluate. As early as 1 August 1945, Howland H. Sargeant, the director of the Commerce Department's Technical Industrial Intelligence Committee (TIIC), recorded what four recently returned investigators had told him: "From preliminary evaluation of the material they have secured, they and their sub-committee believe that in *each instance* the results of their investigations have been sufficient to repay the entire cost of the whole TIIC operation." The "entire cost"—it might be noted—Sargeant had estimated in January 1945 to be about $2 million for twelve months.[37] In February 1946, Edwin Y. Webb, the chairman of the TIIC's Electronics and Communications Subcommittee, declared—in praise of Howland H. Sargeant—that the Publication Board was making "the most closely guarded technical industrial secrets of German industry" available in the United States. It was impossible to estimate the value to private industry, he said, but "there is no question that it is worth hundreds of millions of dollars."[38] Lloyd R. Worden, another TIIC official, learned on a field trip to Wright Field, Ohio, that one manufacturer had admitted saving $140,000 by using just one report from Germany and that Goodyear expected to save about $20,000 in research costs by using the results of German research on wattage for de-icing equipment.[39]

Still other Commerce Department officials bubbled over with enthusiasm. One of them wrote: "This accumulation of information [the two-year accumulation of FIAT, BIOS, CIOS, and Publication Board reports] not only represents the greatest transfer of mass intelligence ever made from one country to another, but it also represents one of the most valuable acquisitions ever made by this country."[40] Another wrote that "qualified technical men familiar with the mass of information being gathered say it

*Dudley B. Smith and Ryle Miller, Jr., in "The Buying and Selling of Concepts" (see n. 36 for this chap.), provided a checklist of 152 points to consider regarding patents, 86 regarding know-how, and 69 regarding "common clauses." They concluded that "licensing agreements exchange intellectual property, as contrasted with material property; and the more difficult and involved the concepts, the more difficult and involved can be the negotiations" (p. 140).

will be 10 years before anyone can estimate its value fully. But on the basis of a few reports from a few industries which have already taken advantage of the material that has been published, German technology will save billions of dollars for American industry in the next decades and should advance our own research by several years."[41]

And then there is John C. Green, the director of the Office of Technical Services (OTS) and the functioning administrator of the Publication Board program, who spoke and wrote often about the value of his operation. One cannot itemize the value of the German know-how in monthly tables, in part because "these reports and documents have not been purchased from German firms," he wrote in May 1947. "It is impossible to assess their monetary value, although it is certain to run to hundreds of millions of dollars. . . . It may take a decade or more before OTS's files have been studied and their contents evaluated," he stated, "but it is sufficiently clear already that today's imports of German technology [which he also called 'invisible imports'] will show up in tomorrow's table of exports in the form of new and cheaper products for America's foreign customers."[42] The United States could benefit from the more than $1 billion that Germans spent on research during the war, Green wrote in his annual review of OTS/FIAT operations for 1946. The reports of investigators had

> already produced findings of great value. A few . . . open up possibilities of a completely new industry; many more offer cheaper or better ways of producing things that are already a part of our economy; even negative findings serve the valuable purpose of directing American research away from expensive, fruitless leads. Most valuable of all, perhaps, is the stimulus to American research and development which comes from the unfolding of what German minds accomplished during the war years.[43*]

*Lest these statements be summarily dismissed as exaggerations and self-praise by those involved in the program—although they were that, of course—it is well to consider, for example, "Spying on U.S. Business," *Newsweek*, 94 (12 Nov. 1979), 43. This article described Soviet activity to gain industrial secrets in the United States and the difficulty of preventing it, and remarked on how much a little spying can do for a country—even, it might be added, when the floodgates are not wide open, as they were in Germany for the FIAT investigators. Or consider *Time*, 124 (10 Sept. 1984), 44, which reported that Procter and Gamble had sued three rival food giants for infringing on its patented Duncan Hines chocolate chip cookie technique: "The suits charged that the competitors . . . had spied at a sales presentation and at cookie plants, once even flying a plane over a facility under construction."

Investigators and Technicians Evaluate. The investigators who discovered and expropriated the German technology and the technicians who applied it in the United States seldom talked about value in dollars and cents, but their actions as described throughout this study bear witness to the high value they put on what they found. In addition to tape recorders, electronic condensers, die-casting equipment, soybean oil preservation formulas, color-film processes, precision grinding machines, and the host of other things already mentioned in this study, experts who had been to Germany reported finding "marvelous capacity" for synthetic production in textiles, rubber, petroleum, nitrogen, and other materials. "Metallurgically, Germany showed us nothing," one wrote, but "from the standpoint of design, the Germans were absolutely uncanny." According to *Business Week*, investigators reported finding better methods of handling acetylene under pressure, improved methods for manufacturing vitamins, high voltage circuit breakers better than those produced in the United States, and a synthetic polymer that the Germans used as a substitute for blood in treating shock. *National Petroleum News* editorialized that "history may prove that the knowledge" gained by the Technical Oil Mission "for distribution in this country, will be worth far more than all the material spoils and loot that might have been taken in the wake of our avenging armies."[44]

One investigator who took the trouble to itemize the outstanding equipment he had found at the Zeiss and Leitz optical works (phase-contrast microscopes and other technical items) concluded that the various details of these technologies would help to improve the quality and reduce the costs of American products, speed up development of similar American-made equipment for industry and medicine, and generally demonstrate to Americans the need for well-staffed, well-paid, well-equipped research organizations in the optical industry.[45] Another, who was more brief, simply stated that the German information he had found would probably improve American X-ray equipment, increase American exports of the equipment, and improve betatron design, thus facilitating research in nuclear

physics.[46] Referring to the German development of infrared technology and its importance for the American television industry, another investigator wrote: "It is hard to evaluate the economical value in dollars but from a technical view point, this one feature is of inestimable value. Had our team learned nothing else, this one item alone would have made the trip worth while."[47] Still another, referring to German synthetic fiber research, wrote that "the Germans do their research work thoroughly and we will not have to repeat what they have done—merely pick up the research and go forward."[48]

An Army colonel from the Ordnance Department, speaking to an audience sprinkled with investigators who had returned from Germany, gloated over the "fact that never before, in recorded history, has a defeated nation been so thoroughly investigated —politically, industrially and scientifically—or been the source of so much valuable technical intelligence as has Germany."[49] Much more circumspectly, a chemistry professor at the University of Illinois said he had used only the reports on synthetic rubber, but commented on how "extremely valuable" they were. "A very large proportion of the present research effort in the government synthetic rubber program," he went on, "is based on the leads that were obtained through these technical intelligence reports."[50] Finally, a magnesium expert at Dow Chemical commented on the "popular and entirely natural tendency on the part of many technicians and industrialists in this country to disparage" the value and importance of what they had brought out of Germany. But this tendency was in error:

> Anyone who is familiar with the facts of the matter will agree . . . that there is no basis for such a view. I can assure you that in the magnesium industry the Germans were well advanced and entirely competent and in possession of information which can be profitably utilized in this country. This feeling as to the competence of German technicians and technology is shared by most of my associates in other industries who represented American industry in the investigation of Germany.[51]

Journalists and Others Evaluate. Although participants often hesitated to put a dollar value on the FIAT/OTS removals from Germany, journalists and science writers, who often got their information directly from the Commerce Department, sometimes suggested values in global terms. Already in the fall of 1945,

as the FIAT/OTS operation was just getting underway, a frequent contributor to the official organ of the U.S. Chamber of Commerce wrote that the world's "biggest financial and industrial clean-up job is getting under way. . . . This is a treasure hunt without precedent in international affairs." In February 1946, long before the full impact of the FIAT operation could be foreseen, a writer for a popular magazine described what he called "The World's Greatest Treasure Hunt" and concluded that American forces had already "uncovered $2,000,000,000 in hidden holdings and scores of priceless scientific inventions." *Stars and Stripes*, the Army newspaper published in Germany, estimated that I. G. Farben "inventions worth millions of dollars" were "being distributed to American science and industry." *Science News Letter*, quoting a statement released by the Commerce Department early in 1946, said the documents being made available to business and industry contained "priceless information."[52]

In an article entitled "Secrets by the Thousands," in which C. Lester Walker described the German scientific and technical holdings at Wright Field, the Library of Congress, and the Office of Technical Services, he gave no total value, but provided numerous examples from which his readers could extrapolate the tremendous total value involved. An aircraft company, he wrote, bought a report for "a few dollars" and saved "at least a hundred thousand dollars." The research director of an American business took notes for about three hours and then left saying, "Thanks very much, the notes from these documents are worth at least a half a million dollars to my company." Finally, an American manufacturer, after seeing a report on Germany's synthetic fiber industry, said, "This report would be worth twenty million dollars to my company if it could have it exclusively."[53]

In a similar article, albeit less richly fleshed-out with examples, George C. Copeland wrote for *The New York Times* that although the dollar value of the OTS program could not be determined, an incident that happened at I. G. Farben was indicative: When an official handed over a chemical formula to an OTS investigator, the official said, "We spent $500,000 in developing this process." More cautious than others about assigning value, John L. Kent wrote for *Scientific American* that "the innumerable technical discoveries" make it difficult to "evaluate them in the true mag-

nitude of their worth. Some of the smallest details may prove a great advantage to an American company. Only by a full study of our own engineers in our own plants can the true worth to American industry be determined." Nevertheless, he concluded, the FIAT/OTS/Publication Board reports "present an unparalleled opportunity to cash in on research and discovery paid for by our enemies.[54]

Before we leave the story of General Clay's frustrated efforts to have the FIAT removals evaluated for purposes of reparations accounting and turn to the German attempts to assess the value of Germany's losses under the program, it is perhaps fitting to refer briefly to the discussion of value contained in a manuscript on the history of FIAT, which may be found in the archives records of the OMGUS Historical Office. After commenting that the Russian figure of $10 billion announced by Molotov at the Moscow CFM was too high, the unnamed authors argued that only in time—after tests, trials, and applications—could a precise value be established. Nevertheless the authors "estimated that FIAT activities should save the government and industry in the United States at least five billion dollars."[55] If we were to accept this as a fair global figure, and if we were to make the altogether reasonable assumption that the British received value roughly equal to that of the United States, it would follow that Molotov at the Moscow CFM was right on the button.

NINE

The Germans Assess Their Losses

GIVEN THE NATURE OF the FIAT exploitation program, the postwar division of Germany into four occupation zones, and the absence of central administrative agencies—which General Clay and the Americans tried unsuccessfully to establish—it is not surprising that early attempts by Germans to assess their losses under the various Allied programs to exploit German scientific and technical knowledge were sporadic and that they are virtually impossible to reconstruct now. Many organizations and agencies got involved at various times, among them various chambers of commerce (Industrie- und Handelskammern), the Wirtschaftsverband Maschinenbau in Düsseldorf-Oberkassel, the Vorstand der Patentanwaltskammer in Hamburg, the Lord Mayor and Senate of Hamburg, and the Minister-Presidents' Conference of the Bizone; and through the latter Senator Gustav W. Harmssen, of Bremen, on the one hand and the German Office of Peace Questions (Deutsches Büro für Friedensfragen) in Stuttgart on the other; and, finally, the *Land* (state) governments of Greater Hesse in Wiesbaden, Bavaria in Munich, Württemberg-Baden in Stuttgart, and North Rhine–Westphalia in Düsseldorf.[1] Both the administrative machinery and the incentive to coordinate the various German initiatives and approaches emerged late in 1946 and early 1947, when the British and Americans created central administrations for the Bizone and the victors made preparations to take up the subject of a German peace treaty at the Moscow meeting of the Council of Foreign Ministers.

The Bizonal Economics Administration Takes Over

"It is quite clear," the ex-mayor of Hamburg wrote to the Bizonal Director of Economic Affairs in Minden late in December 1946, "that the Bizonal Economics Administration [*Verwaltungsamt für Wirtschaft*], in cooperation with the various trade and industry associations [*Wirtschaftsverbände*], is the appropriate agency to gather data on what German industry is having to give up as reparations, and to make recommendations on how it is to be evaluated."[2] In order to respond to those who talk loosely about "reparations to Germany" in the form of food shipments to prevent disease and unrest, an internal memorandum of 2 January 1947, for the director of the Verwaltungsamt für Wirtschaft (VAW), suggested that it might be worthwhile to collect exact information on such things as the contribution of German scientists to Allied rocket research and the value of German scientific and technical discoveries and manufacturing methods, which both the foreign and domestic press had estimated to be worth "fantastic sums" to the victors.[3] Prompted by this and other expressions of concern, especially a letter from the director of Krupp, a series of letters and follow-up reminders from the North Rhine-Westphalian Ministry of Economics, and ongoing discussions sponsored by the economics committees of the Länderrat of the American zone, the VAW moved to action.[4]

During the spring and early summer of 1947, the bizonal VAW advised various firms and agencies of its plans. "With respect to the removal of intellectual property," it wrote to Krupp, for example, "we plan to work through all existing agencies of the *Länder* governments to assemble data on what has been removed. We will then attempt to evaluate the removed material, combine everything into a single report, and present it to the Allied Control Council with a view toward eventually having the amount credited to Germany's reparations account."[5]

But the VAW and the affiliated organizations through which it worked were soon swamped by uncoordinated reports containing information so diverse as to make it virtually indigestible. Individual firms described their encounters with investigators and teams, elaborated in detail about what they had been required to give up, and complained about Allied nonpayment for the intrinsic value of the items removed by FIAT and T-Force teams. In one instance, for example, the North Rhine–Westphalian Ministry of Economics sent a sample batch of reports from firms and asked for advice on how the firms might collect on the value of the ideas, experience, and know-how intrinsic to the drawings, blueprints, and plans demanded by the investigators. Investigators were willing to hand over requisition forms only for the value of the paper and the reproduction costs of such things, the Economics Ministry's letter continued, but they adamantly refused to consider or even discuss the intrinsic values involved. Customary industry practice was to charge for drawings and plans a fee of about 15 percent of the value of the machine itself, but "it has come to pass that" when firms included such amounts in their invoices—or if they refused to present invoices reflecting only the paper and reproduction costs ("diese indiskutable kleine Summe")—they got no requisition forms at all.[6*]

Attempting to bring order to its collections procedures and uniformity to the reports it received, the VAW commissioned an expert study on ways and means to evaluate intellectual property.[7] It also held informal discussions with various industry representatives and groups, and it met in Stuttgart with industry representatives and the Deutsches Büro für Friedensfragen on 15 July 1947.[8] In announcing plans for the latter meeting, the director of a newly formed Office for Reparations Questions (Abteilung für Demontagefragen) in the VAW wrote that he was exceptionally busy trying to determine how to evaluate machines and intellectual property removed by the occupation forces. Particularly difficult, he said, was the evaluation of construction plans and drawings, production processes, and developmental planning ("Konstruktionszeichnungen, Betriebsverfahren und Entwicklungsarbeiten"). Nevertheless, he concluded optimistically, his office would try to have a position paper ready by November 1947, apparently in anticipation of presenting it to the London meeting of the Council of Foreign Ministers.[9] But it never came to that.

*One firm, Heidenreich & Harbeck of Hamburg, reported in 1949, for example, that its attempt to bill the British at 10 percent of the value of the machines for which it had delivered plans and drawings was rejected by the British T-Forces as "eine Unverschämtheit [impudence]." See Rolf Lambertz, Heidenreich & Harbeck, to VfW, 24 Jan. 1949, file B 102/3794, BA.

In various meetings with industry representatives, VAW officials learned that many firms were wary of reporting their losses of intellectual property out of fear that doing so might eventually lead to tax disadvantages. Although bizonal finance officials had reportedly advised VAW officials informally that a tax would come into play only if the firms were compensated for their declared losses, some firms were apparently reluctant to report losses to the Allies owing to concern that they would be taxed retroactively for property they had failed to declare to tax authorities earlier. Whatever the reasons, the process of collecting information was not working smoothly. For example, an attempt by the Wirtschaftsverband Maschinenbau and the Minister of Economics in Düsseldorf to use a questionnaire to collect data on removals had to be abandoned because the information that was returned proved too diverse to be coordinated. What was needed, according to an internal VAW memorandum describing the termination of the questionnaire program, was a clear set of agreed guidelines for the entire Bizone.[10]

Eventually, after delays caused in part by the transfer of the VAW from Minden to Frankfurt (where it was renamed Verwaltung für Wirtschaft of the combined Bizonal Economics Administration), a gathering of major industry representatives (e.g., from Bosch, Krupp, and BMW), industrial associations (e.g., Wirtschaftsverband Chemische Industrien), and bizonal officials spent the entire day of 16 June 1948 discussing the problems and possible solutions. Senatsrat Schmid, the head of the Verwaltung für Wirtschaft's (VfW) Reparations Office, wanted to talk about methods of evaluation rather than the tax implications of declaring the value of know-how; nevertheless, the latter crept into the discussion throughout the day. But there were also major differences of opinion on methods of evaluation. One industry representative suggested that each firm should decide the price it would have asked in a normal commercial licensing agreement. Another talked about using the 10 to 18 percent of the value of the finished product that German firms had charged the Japanese for plans during the war. Others wanted to take into account the benefits to the receivers ("Nutzen des Empfängers"). Still another suggested that it might be best to attempt to arrive at a global figure and then allocate the amount internally among the firms who reported losses. But this idea was rejected

by others as virtually useless in dealing with individual cases, and it was diffused by still others who observed that other important firms, such as Siemens, Farbwerke Höchst, and M.A.N., were not represented and that they should also be consulted.

After much discussion, it was finally agreed that developmental costs ("Entwicklungskosten") would at least provide a basis for further discussion and that the VfW would ask the chambers of commerce (Industrie- und Handelskammern) of the Bizone to collect information on such costs from the firms within their jurisdictions. Further, it was agreed that the VfW would ask individual firms, including those not in attendance, to report their views regarding methods of evaluation. Perhaps needless to say, Senatsrat Schmid concluded the meeting with a statement that he had hoped for more progress on this difficult task.[11] He nevertheless went ahead with the plan such as it was.

Working Through the Chambers of Commerce

On 28 June 1948, the Verwaltung für Wirtschaft's (VfW) Reparations Office sent similar letters to the Industrie- und Handelskammern (IHKs) of the British/American Bizone, asking them to collect from firms in their areas reports on how much they had spent during the previous ten years in developing items lost to the Allies through confiscation of patents and other FIAT and T-Forces actions. The IHKs were to ask firms and research institutes to estimate the value not only of their successes, but also of their failures over the past ten years, and they were to be reminded that their own interests were at stake. According to the VfW, the information would be used in negotiations with the victors on an occupation statute and on the peace treaty, and eventually by German governmental agencies in the settlement of claims.[12]

Over the next few months reports from the chambers of commerce trickled in, but they were neither uniform nor adequate. For example, the reports from the IHK Munich, which had actually been gathered for the Bavarian Ministry of Economics in the summer of 1947, were judged by the VfW Reparations Office to be unsatisfactory, for they lacked sufficient information and a uniform estimate of values. In some cases they contained no estimates of value at all.[13] The IHK zu Solingen sent along re-

ports from three firms and said two others promised to report separately and directly. "The meager response of the firms to our request, despite press notices and a circular letter," the IHK zu Solingen wrote, "is quite possibly due to continued lack of trust [*Vertrauensmangel*] and uneasiness about further damages and removals."[14] The Handelskammer Hamburg sent copies of eight brief reports and commented on how regrettable it was that the response to its requests had been so unsatisfactory. The IHK Darmstadt forwarded reports from nine firms and named four others that said their losses could not even be estimated as yet. Further, it estimated that there were another forty or more firms in its jurisdiction that had undoubtedly lost materials to the FIAT and BIOS teams, but all of them had reported having no losses without further explanation.[15]

The reasons for such reticence may have been similar to those described by the IHK Mannheim, which went into considerable detail about problems it had encountered. Many people with whom it had discussed the VfW collections program had talked about the delicacy of the matter, the IHK Mannheim reported. Some had commented on the vagueness of the VfW's guidelines, and even those firms that had submitted reports had objected to the broad room for maneuver that the VfW had apparently left for itself regarding the uses of the information.[16]

In the spring of 1949 the VfW called another meeting of industry leaders, industrial associations, and VfW officials, after hearing informally from various sources and formally from the IHK Frankfurt, the Wirtschaftsverband Eisen- und Stahlindustrie in Düsseldorf and Robert Bosch, GmbH, regarding the inadequacy of the developmental-costs approach and other matters.[17] The meeting was attended by representatives of such firms as Demag (Duisburg), Bosch (Stuttgart), M.A.N. (Augsburg), BMW (Munich), Farbwerke Höchst, Krupp (Essen), various IHKs, and industry groups, such as the Wirtschaftsverband Maschinenbau (Düsseldorf-Oberkassel). Senatsrat Schmid, the director of the VfW's Reparations Office, reported to the gathering that the IHK surveys ("Umfrage") regarding developmental costs had produced such poor returns that nothing constructive could be done with them. For that reason, and because individual firms continued to express fears about the tax consequences of reporting their losses, Schmid said the VfW was getting out of the evaluation business and turning it over to the industrial and trade associations.[18]

Although there were those present who (not unlike some Americans, as we have seen) thought an evaluation was impossible or even dangerous—in this case, because presenting a figure to the Allies would naturally invite an Allied counterfigure for war damages—the conference nevertheless concluded that an effort to evaluate German losses in intellectual property ("geistiges Eigentum") should be made. By consensus, the conference agreed that the industrial and trade associations should form an ad hoc working party to plan the project, that the VfW should try to summarize the material it had already received, and finally—as the highest priority—that Senatsrat Schmid should try to get a written statement from the Bizonal Finance Administration (Verwaltung für Finanzen, VfF) on the problem of taxes.[19]

With respect to the last-mentioned plan, Schmid failed in his first attempt to get a commitment from the VfF that industrial associations would be exempt from reporting information on FIAT removals to tax authorities. He decided to try again, this time by appealing to the *Land* (state) Finance Ministers to take up the issue at their next regular meeting.[20] In support of his appeal he wrote on 28 July 1949 that determining the value of the lost intellectual property was tremendously important, because it could eventually be used as a basis for a German reparations credit estimated to be between 15 and 25 billion *Deutschmarks** (about $6 billion to $10 billion at the 1949 exchange rate), as well as a basis for eventual payment of claims to individual firms. Experience had shown, Schmid continued, that firms would not report their losses unless there was a clear, written commitment from tax authorities that the industry groups and trade associations that collect the information would be exempt from the legal requirement that they make information and records available to tax officials.[21] At their next meeting, on 11–12 August 1949, the Finance Ministers of the *Länder* (states) agreed that calculating possible reparations credits was important enough to grant the

*Since the currency reform in June 1948, the new German monetary unit has been the *Deutschmark*. Before that it was the *Reichsmark*. For purposes of reparations accounting and international trade the exchange rate for both was set at 1 = $.40.

exemption. They resolved to issue appropriate regulations and thus removed what had been one of the major obstacles in the way of German attempts to determine the value of the scientific and technical information the Allies had taken as "intellectual reparations."[22]

Notgemeinschaft für Reparationsgeschädigte Industrie

Once the matter of taxation had been settled satisfactorily, the ad hoc working party of industrial organizations proceeded to establish an umbrella organization to coordinate both the collection of information on reparations removals and the evaluation of the scientific and technical know-how lost by German firms under the various Allied exploitation programs. It was known as the Notgemeinschaft für Reparationsgeschädigte Industrie (Emergency Union of Industries Damaged by Reparations), and consisted of a chairman, a board of directors, and a business manager (Geschäftsführer) with headquarters in Düsseldorf.[23] Working first in collaboration with the Reparations Office of the Bizonal Economics Administration (VfW) and then with the Economics Ministry of the Federal Republic (Bundesministerium für Wirtschaft), which absorbed the VfW organization, the Notgemeinschaft prepared an elaborate questionnaire designed to provide information for a statistical register of all materials, including intellectual property, removed from Germany after the war. The Notgemeinschaft also proposed to establish—once the questionnaires had been distributed, completed, and returned—a commission (Ausswertungsausschuss) to determine the value of it all.[24]

The final report of the Notgemeinschaft's commission to evaluate the intellectual property ("geistiges Eigentum") taken from Germany by the Allies was prepared by patent attorney Max Bunke, of Stuttgart. It was finished on 14 February 1951. The report estimated the total value of the patents, trademarks, and other intellectual property ("geistiges Gut") removed from Germany to be somewhere within the range of 12 to 30 billion *Deutschmarks* (*DM*) (between $4.8 billion and $12 billion).[25] In his detailed discussion of how he had arrived at these figures, Bunke referred to the Russian radio and newspaper reports that had talked about $10 billion, or *DM* 25 billion, and to an independent study conducted by Senator Gustav W. Harmssen, the

Economics Minister of Bremen, which had come up with a figure of $5 billion.[26]

Germany's Assessment of Losses in Eclipse

Meanwhile, as innumerable books and articles on Germany and the cold war have shown, Germany had been divided, and the occupation powers were openly and actively engaged in a cold war. Berlin, which had been blockaded by the Russians and supplied by the Allied airlift until the blockade was lifted, remained an island in the East. The West German economy—which had been integrated into the European Recovery Program, largely on the insistence of the Americans who developed and financed the Marshall Plan—was making a miraculous recovery, and the Federal Republic of Germany assumed membership in the European Coal and Steel Community as well as other Western-oriented international organizations and agencies. Within this broader context, which is obviously beyond the scope of this study, further attempts by Germans to get reparations credit for their losses of scientific and technical know-how went into eclipse, as did all future attempts by German firms, industrial associations, and the individuals representing them to file claims for compensation against the Federal Republic of Germany.

In the so-called Contractual Agreements of 26 May 1952, which were amended in the Paris Accords of 23 October 1954 (effective on 5 May 1955), the Federal Republic of Germany, as part of a postwar debt-settlement agreement, gave up any rights it might have claimed in the future to demand reparations credits for losses of scientific and technical knowledge as well as other assets. The agreements stated:

> The Federal Republic shall in the future raise no objections against the measures which have been, or will be, carried out with regard to German external assets or other property, seized for the purpose of reparation or restitution, or as a result of the state of war, or on the basis of agreements concluded, or to be concluded by the Three Powers with other Allied countries, neutral countries or former allies of Germany. . . . No claim or action shall be admissible against persons who shall have acquired or transferred title to property . . . or against international organizations, foreign governments or persons who have acted upon instructions of such organizations or governments.[27]

As for the rights of German firms and individuals to file claims for their losses, the Contractual Agreements provided that the Federal Republic of Germany had to decide whether it wanted to pay for damages suffered by its citizens under the occupation.[28] Although the matter received much attention in Germany over the next few years—and there is a considerable body of literature on the subject going well into the 1970's—no compensation was ever paid for the loss of scientific and technical know-how as such, and there are thus no records of the amounts involved.[29]

German Targets Speak for Themselves

As was the case for the Americans, but for different reasons, the Germans never calculated precisely the value of the scientific and technical know-how that the victors removed from Germany. But, as I have shown in the previous chapter to be the case for the American side, German records used for this study are rich in references to value. Sometimes the target firms expressed value in monetary terms; often they stated it in terms of years of research, development, and experience; and in other instances they couched it in a general discussion of the importance of the items in question to the firm itself, to the industry, or to Germany's ability to develop a self-sustaining economy through foreign trade.

The owner of a Düsseldorf metalworks reported having been required on three separate occasions to give up the complete plans and drawings for his "Schleuderguss-Maschinen" (centrifugal casting-machines), the type and style of which had been a closely guarded firm secret before the capitulation. The machines had cost the firm about 10 to 12 thousand *Reichsmarks* (*RM*) to build, he wrote, but the intrinsic value ("ideale Wert") had never been calculated or even estimated.[30]

A machine-tool factory in Siegen, Westphalia, reported that investigators had demanded plans or samples (or both) of various machines, technical files, scientific studies, test-and-measurement methods, cost calculations, and technical literature, as well as the lists of the firm's suppliers and customers. The report commented on how painful it was for the firm to have to give up plans, files, records, construction data ("Konstruktionsunterlagen"), and other property of the mind ("Gedankengut") that the

firm had accumulated during its nearly one hundred years of existence.[31]

Blohm & Voss of Hamburg, after complaining that German officials were of no help in regulating and monitoring the demands of the investigators, reported a long list of categories of war materials, booty, restitutions, and reparations that had been taken from the firm. It added that various investigators from the Royal Navy, the United States Navy, and the Control Commission for Germany had requisitioned and taken along drawings, calculations, empirical data, and all kinds of notes, sketches, and records ("Zeichnungen, Berechnungsunterlagen, Erfahrungswerte und Aufzeichnungen aller Art"), in many instances without benefit of formal requisition documents, and normally without providing any information on the form and the means of payment.[32]

A Munich machine-tool factory reported having been required by investigators to prepare and photocopy plans for four machines, which had cost the firm an estimated 125,000 *Reichsmarks* (*RM*) to develop and construct.[33]

Anorgana GmbH of Gendorf, an I. G. Farben affiliate, tallied the names of 166 investigators and scientific consultants who had visited the firm between 1 January 1946 and June 1947, and estimated that between 200 and 250 experts had visited the firm before that. They inspected single machines, sometimes the entire firm. Some of them stayed for days, and a microfilm team came and photographed "most of our files and numerous other documents" as well as the records of the main I. G. Farben laboratories, which had been transferred from Ludwigshafen and stored at Gendorf for safekeeping in 1944. The firm had no way to estimate the value of these removals, the Anorgana report said, but they represented a "combination of the most modern individual plants, some of which have no duplicates in Germany. The value of our total investment is about 136,000,000 *Reichsmarks*."[34]

Optische Werke G. Rodenstock, Munich, although it declared itself unable to estimate the value of removals from the firm with any degree of accuracy, nevertheless described visits of American, British, and Czechoslovakian experts who inspected the manufacture of eyeglasses ("Brillengläserfabrikation"). The man from Czechoslovakia, whom the firm's report identified as the director of a recently socialized, competing Czechoslovakian

firm and an outstandingly qualified expert in precision mechanics and optics ("Feinmechanik und Optik"), spent an entire week studying the firm's facilities, photographing installations and records, and having copies of various plans and blueprints made. Expert that he was, the report observed, "not a single firm secret or practice could be kept from him."[35]

The Bavarian Motor Works (BMW) in Munich recorded that American aviation experts had packed some fifty crates of the firm's "Entwicklungs- und Fertigungsmaterial (Zeichnungen, Berichte . . .)" for aircraft motors and rockets, and "to the best of our knowledge, flew them to Wright Field in the United States." The firm's report calculated the value of those removals to be *RM* 325,948,112.70, which it said was the amount BMW had spent in development costs since 1937. In addition, the firm's report continued, the BMW motorcycle division had records of the transfer (Übernahmeprotokolle liegen vor") of microfilms and materials regarding seven of its motorcycle models, which it estimated to be worth *RM* 9 million to the firm. Finally, BMW's automobile division had delivered two complete sets of drawings and plans for its model 326 ("Wagenbaumuster 326"), which it estimated to be worth about *RM* 4.5 million.[36]

A textile machinery manufacturer in Bielefeld, after an unsuccessful attempt to resist doing so late in 1945, had to give up a complete set of drawings for a special, unpatented machine for making artificial silk ("Kunstseide"). The British investigator who came for the plans and drawings reportedly said they were needed for repairing a machine that a British firm had purchased before the war, but he assured the firm, their report said, that in all probability any new machines needed in Britain would be ordered from them. "Since that has not occurred [more than two years later], one can presume that it was an instance of industrial espionage." The firm was paid *RM* 80.95, the actual cost of preparing the blueprints.[37]

Reports such as these, each unique in its details and ramifications, are by no means uncommon.[38] A British/American commission, whose members were reportedly well informed on the dental-supply industry in Germany, visited Degussa and asked for information on production methods, exports, working conditions, wages, salaries, and other things. They were obviously also gathering similar information from other German

dental suppliers, whose names they had on a list.[39] Wilhelm Steeger GmbH, of Wuppertal-Vohwinkel, had to give up a complete set of drawings for a manure-spreader ("Scheibendüngerstreuer"), for which the firm received neither payment nor a promise to pay.[40] Aachener Maschinenbau, Heinrich Schirp, on six different occasions in 1946 and 1947 had to give up plans for machines used by the firm to make sewing machine needles.[41] Another firm had to give up a special machine for grinding ice-skate blades, which it had purchased from a Solingen manufacturer.[42] A specialty-machine manufacturer in Langenfeld, near Cologne, had to give up complete sets of plans and assembly instructions for two machines, one to produce paper napkins, the other to produce "Registrierstreifen" (cash-register rolls?).[43] Milchkannenfabrik Latzer & Heimann, Essen-Werden, had to give up plans for four specialized machines used to produce milk cans.[44] Maschinenbau-Aktiengesellschaft Balacke, Bochum, gave up drawings and operating instructions for a drying chamber for cigarette tobacco ("1 Zeichnung . . . eines Vakuum-Trockenschrankes für die Trocknung von Zigarettentabak nebst Betriebsvorschrift").[45] W. Schlafhorst & Co., Maschinenfabrik, reported having had to deliver about a thousand copies of plans and drawings for "nearly all of the textile machines built by us" ("1000 Zeichnungskopien für nahezu alle von uns gebauten Textilmaschinen").[46]

Finally, as an illustration of how far the scientific and technical exploitation program in Germany strayed from generally accepted definitions of reparations, it is worth noting the case of Margarete Steiff GmbH of Giengen, near Heidenheim. This world-famous stuffed-toy manufacturer, whose "teddy bear" had apparently been inspired by a Clifford K. Berryman cartoon of 1902 alluding to President Theodore Roosevelt's fondness for "big game" rather than bear cubs, reported to the American military government detachment in Heidenheim in October 1946 that the firm was being subjected to "Werkspionage." In the immediate instance the "spies" were two competitors from the British toy industry. They reportedly wanted to see everything. They took notes, made sketches, and demanded samples. They wanted to see how workers performed the more difficult operations, and they even measured the sticks used to stuff the animals. And they took photographs of a special machine ("Auf-

zeichnungsmaschine") that the firm had kept secret. "This sort of toy manufacturing is the most peaceful work Germans can do," the report stated, and then asked how Germans could expect to export and earn money to pay for food if such things went on. It also observed that about 30 percent of the company's stock was owned by Mrs. Marianne Steiff Meisel, of Ann Arbor, Michigan, the daughter of the firm's founder (he was the "inventor of the Teddy-Bear")—a fact that may have had some bearing on what happened in the future, although I have no information about this.[47]

PART IV

Conclusion

TEN

Observations and Reflections

SOME ISSUES DISCUSSED ABOVE require little concluding commentary beyond what has already been offered in the main body of this study. The entire scientific and technical exploitation program to transfer people, know-how, and material from the losers to the victors after the war grew out of a wartime intelligence operation and may perhaps be seen as a logical result of modern, total war. The program was certainly remarkable for its scope, for its systematic application, and for its failure to distinguish between war booty, reparations, and loot. Equally noteworthy are the way in which scientific and technical know-how went from private hands to private hands and the fact that no evaluation ever took place, either for purposes of reparations accounting or for eventual compensation to the givers or payment by the receivers.

Certain other issues, however, deserve further attention.

On the Question of American Reparations Receipts

The popular and enduring myth that the United States took few, if any, reparations from Germany after the Second World War, a myth that I heard the U.S. Ambassador to the Federal Republic of Germany repeat in Nuremberg as late as 23 May 1986, obviously needs to be dispelled.[1] Determining an exact figure, however, may be impossible, for as we have seen, the Americans failed to account for the scientific and technical know-how they removed from Germany, and the Germans themselves failed to assess precisely either the amount or the value of what they had given up. These failures may in large part be explained by the nature of the exploitation program itself, the reluctance of

many of the principals involved, the practical and administrative problems that could not be overcome, and the complex problems involved in determining either the immediate or the long-term value of intellectual property, unpatented machines and processes, and the host of other assets removed from Germany under the program.

Looking back after forty years, about ten years of which I spent in sustained research as a historian (by no means as a scientific and technical expert), I admit quite frankly that I am no closer to a precise evaluation than anyone else. What I have been able to show, however—by describing the actions and reactions of the American takers and the German givers, by providing representative examples, and by citing the various statements, testimonials, and informal evaluations of both American and German principals—is that the amount and the value are by no means insignificant. The $10 billion figure bandied about by the Russians and their friends and dismissed by State Department functionaries as "fantastic" is probably not far from the mark.[2]

Two topics not fully developed elsewhere in this study, although they get us no closer to a precise figure, deserve comment in any consideration of the amount and value of the scientific and technical information the Americans removed from Germany.

The Postwar Carpetbaggers. Unquestionably, scientific consultants and document screeners transferred substantial amounts of technical know-how directly to their own firms and for their own purposes. Sometimes they did so immediately upon their return to the United States and well in advance of the Publication Board's release of the reports they had prepared for FIAT in Germany.[3] Sometimes they did so in violation of established procedures. As noted earlier, the Commerce Department's Office of Technical Services (OTS) depended upon private firms to furnish and finance scientific consultants, whom FIAT briefed and turned loose in Germany to conduct their own investigations, usually at the targets of their own choice. OTS was never able to solve the problems created by investigators who submitted incomplete reports, inadequate reports, or no reports at all.[4] The Commerce Department's solution, when all else proved futile, was to keep the doors open as long as possible and to send as many people over as they could—in short, to increase the number of potential carpetbaggers.

Project Paperclip's Brain-Drain Component. Project Paperclip, which is popularly regarded as a war-booty project to exploit German rocket technology, also featured—as we have seen—an important element of commercial exploitation, both in its inception and in its practical application. Although I am certainly not an authority on how the transfer of individuals results in the transfer of technology, a review of selected literature on the subject is suggestive. A 1967 article in *Chemical Engineering*, for example, states that "although know-how is diffused through the individuals of an organization, it does reside in persons; and the loss of a few key people, through job changes (or even through promotion in the same company) can mean the effective lessening of know-how."[5] Even more to the point, a study of 908 former National Aeronautics and Space Administration (NASA) employees who had left NASA and taken other employment concluded that "high rates of technology transfer are associated with changes in employment and work circumstances." It reported, for example, that technology transfers of research and development procedures occurred in 26.7 percent of the cases; of management procedures in 30.5 percent; of production processes in 9.5 percent; of product change in 7.6 percent; and of new products in 6.9 percent. "Given the existence of the potential for technology transfer," the study summarized, "the probability that it will occur is high."[6] Project Paperclip, as described earlier, was in fact designed to concentrate on people with such "potential for technology transfer." The denial lists compiled in Washington by the Joint Intelligence Objectives Agency (JIOA) and used to recruit Paperclip specialists for service in the United States were essentially lists of people of "outstanding prominence or ability in any field" and of people with "versatility . . . to shift . . . their scientific or technical talents from one field to another."[7]

As we have also seen, the armed services shared their Paperclip specialists with their contractors, on occasion permitting them to shuttle from military installations to private firms and in many instances ultimately releasing them entirely for employment in the private sector. A Joint Intelligence Objectives Agency (JIOA) statistical report of 1951, for example, shows Paperclip specialists working in a variety of private firms and agencies, among them Bendix Aviation Corporation, Grumann

Aircraft Company, Packard Motor Company, Hydropress, Incorporated, of New York, Phillips Petroleum Company, Dow Chemical Company, Pillsbury Mills, Wollensak Optical Company, Hydrocarbon Research, and the Universities of Indiana, Chicago, Minnesota, Illinois, Missouri, and others.[8] Clarence G. Lasby, in his pioneering study of Project Paperclip, published in 1971, listed numerous universities (Yale, Wisconsin, Kansas, Ohio State, and others) and corporations (Boeing, Raytheon, General Electric, Bell, Westinghouse, and others) to which Paperclip specialists had gone in the 1950's and 1960's, "frequently in executive positions."[9*]

On Legality, Historical Precedent, and Related Matters

In July 1950, William G. Downey, chief of the Army's International Law Branch in the Judge Advocate General's Office, wrote a detailed and highly technical article on the subject of captured enemy property in which he quoted at length from the Hague Convention rules on the seizure of private enemy property.[†] "It is a generally recognized principle of the international law of war," Downey stated, "that enemy private property may not be seized unless it is susceptible of direct military use," and that "an army of occupation can only take possession . . . of property belonging to the State."[10]

Although they were overshadowed by arguments in support of the program, considerations of legality and historical precedent were apparently never far from the minds of those who developed and administered the postwar scientific and technical exploitation in Germany. Neither did they escape the attention of the Germans who were affected.

*"The Profession," *Product Engineering*, 35 (23 Nov. 1964), discussing German engineers and rocket specialists brought to the United States under Project Paperclip, states: "Those who left US Government service usually carved a niche for themselves in private [American] space or electronics companies. Now these same companies are entering the German space and electronics markets and, capitalizing on the expatriates' knowledge of German and Germany, are sending these men back to the *Vaterland* as company representatives, scouts, or technical liaison officers" (p. 59).

†Interestingly, although Downey's article is rich in examples of property confiscated during the war (e.g., of Hungarian horses, currency taken by troops, and properties and patents seized by the Alien Property Custodian), it includes not a single reference to FIAT and the postwar scientific and technical exploitation program in Germany.

American Qualms. As early as 28 August 1944, when Vannevar Bush first suggested that the United States obtain "German technical information of an industrial nature," Bush recommended that such activity, if approved, should have the concurrence of the President, because of uncertainties about the authority to do it.[11] In May 1945, Fred M. Vinson, director of the Office of War Mobilization and Reconversion, made a request to the Joint Chiefs of Staff (JCS) that scientific and industrial intelligence reports gathered for the military be declassified so industry and business could use them to "increase the variety, quality, and quantity of our peacetime production." In their response the JCS hedged, claiming that decisions about property and patent rights that might be violated in the process were beyond their jurisdiction.[12] Roger Adams, after his return from service in Germany as Clay's scientific adviser, wrote in a letter to the president of the National Academy of Sciences in June 1946 that the Americans had "taken the attitude that anything they can obtain in Germany in the way of technical information, whether it applies to peacetime or wartime items, is a legitimate wartime booty." While he did not go so far as the military government industry-officer in Stuttgart, who reportedly referred to the exploitation program as robbery, Adams did express concern: "The whole question is whether the fact that we won the war justifies our acquiring government as well as private information that we can get our hands on."[13] Finally, in November 1946, during the discussions in Washington on General Clay's request for evaluation of the FIAT removals, an unidentified State Department official noted, "It may be pointed out that the precise legal justification for FIAT activities is not clear."[14*]

"If the Germans Had Won the War. . . ." Despite these and perhaps other expressions of concern and qualm, the Americans

*For an unusual public discussion of concerns similar to those expressed in government circles, see Moritz J. Bonn, "The Breakdown of Reparations," *The Commercial and Financial Chronicle*, 164 (12 Sept. 1946), 1373+. Bonn came down especially hard on the practice of taking private property as reparations. For the Russians, he argued, this practice was logical, since they did not recognize private property, but "whether or not the Allies' claim is legally sound may be doubted." In any event, he continued, "it is quite certain . . . that the inequities of a totalitarian state cannot be convincingly condemned by faithful imitation. . . . If Allied security demands the confiscation of German patents, well and good. But safety is certainly not increased by depriving a German inventor of the fruits of his labor."

went ahead with their postwar scientific and technical exploitation program, thinking up arguments for doing so as they went along. For example, Under Secretary of State William L. Clayton told a committee of the Congress in June 1945 that the United States had a "claim against all German inventions made during the war," because the "main reason" for German research and development was to overthrow the United States and its Allies by military force.[15]

Both American and Swiss firms lodged protests early on that their German affiliates and licensees were being forced to hand over unpatented processes to Allied investigators for eventual use by their competitors. A State Department legal expert responded in July 1945: "The information referred to by the Swiss Government and by counsel for the American firm was available to the German Government in the prosecution of the war and it occurs to me that they come with rather poor grace when they complain that the information is now to be made available to this Government for the manufacture of articles required by it." In conclusion, he assumed that the U.S. government would not desist from using these processes "whatever the legal consequences may be," and he argued that it was up to the plaintiffs to establish the justice of their complaints on a legal basis.[16] Using as a test case the protests and evasive actions by Brown-Boveri et Cie, AG, a firm with Swiss affiliations, Charles Fahy, the director of OMGUS's Legal Division, observed in November 1945 that "the basic question is whether U.S. officials can take from the U.S. Zone any and all desired information, including trade secrets, documents and equipment samples, and utilize them elsewhere." He cited the Joint Chiefs of Staff basic directive for the occupation of Germany (JCS 1067/6) as authority for such removals, and concluded that "this type of property is properly included in the category of reparations."[17]

Finally, in February 1947, John C. Green, the director of the Commerce Department's Office of Technical Services, was subjected to sharp and critical questioning by Congressman Karl Stefan, of Nebraska, regarding the legal authority for the kind of scientific and technical exploitation Green's agency engaged in. In his answering testimony Green went directly to the heart of the matter: "This is the first time any nation has ever acquired its reparations in knowledge instead of physical materials. The fundamental justification of this activity is that we won the war and the Germans did not. If the Germans had won the war, they would be over here in Schenectady and Chicago and Detroit and Pittsburgh, doing the same thing."[18*]

On the Ripple Effect of Scientific and Technical Exploitation

FIAT and the Resumption of German Research. Late in April 1946, the Allied Control Council approved ACC Law No. 25, on the control of scientific research in occupied Germany. Its emphasis was on the prohibition and restriction of research, but it also identified areas of research that were permitted under controls to be exercised by the individual zone commanders. This feature prompted George Scatchard, the Massachusetts Institute of Technology professor who had served in Berlin as the chief American research control official at the time, to remark later that German research was "controlled but not crippled" by the law.[19] In the American zone, the Office of Military Government for Germany (OMGUS) delegated the administration of research control to the German *Land* (state) governments, which were answerable in this respect to American Research Control Officers, one for each of the four *Länder* of the American zone.[20] As a result, each of the German *Länder* created an administrative apparatus for research control, and the *Länderrat* (the Council of Minister-Presidents of the American Zone, located in Stuttgart) established a special committee on research control to coordinate procedures and other affairs zonally.[21]

Even as the administrative machinery for research control was being established, George Scatchard pressed for FIAT's termination in the interest of resuming German research. His continuing activity caused much concern at FIAT and in the Office of Technical Services (OTS) in Washington. When Scatchard an-

*In fairness to Green, but also as further evidence of the absence of convincing legal arguments for the FIAT program, it should be noted here that Green (and others) frequently referred to the FIAT removals as a unique form of reparations ("intellectual reparations"). At other times, however, he referred to them as "invisible imports" justifiable as offsets for the food and relief supplies being sent into occupied Germany by the United States to prevent disease and unrest. See esp. John C. Green, "Technology Imports from Germany: New World-Trade Opportunities," *Foreign Commerce Weekly*, 27 (3 May 1947), 3, and Osborne to Green, 13 Apr. 1946, RG 260, shipment 11, box 2-2, file 19 (98 Scientific Research), WNRC, regarding the offset idea.

nounced that he would be returning to MIT soon, the director of OTS, John C. Green, suggested to the Army that OTS recruit the new scientific adviser and expand and reorganize its services in Europe so as to coordinate and implement the duties of the scientific adviser with those of OTS's supporting staff at FIAT in Europe.[22] A member of the staff of Scatchard's superior, OMGUS Economics Division director William H. Draper, Jr., referred to Green's proposal as "a deal that Commerce is cooking up." Draper himself wrote to the War Department to comment on the incompatibility of the functions and interests of FIAT and the OMGUS Research and Control Division, and to suggest that Green should simply be thanked for his offer.[23] Repeating what Draper had said, Scatchard also wrote directly to the War Department: "The activities of the Research Control Branch of the Economics Division and those of the Industrial Branch of FIAT are incompatible." Scatchard suggested further that the "present activities of FIAT should be discontinued in the near future."[24] Interesting as these bureaucratic struggles over turf may be, their fundamental significance is best illustrated by events and developments in Germany.

American Research Control Officers in the field, who were under OMGUS mandate to encourage permitted German research in the interests of developing a self-sustaining, peaceful postwar German economy, urged the German research control agencies in their jurisdictions to move ahead in that direction. For example, Colonel L. J. Brunton, the Research Control Officer in Stuttgart, reportedly told the first meeting of the German Research Control Advisory Committee for Württemberg-Baden that his primary duty was to see to it that no military research was conducted, but that he also had another important function: to encourage German research in order to make the German peacetime economy competitive in world markets so Germans could earn sufficient foreign exchange to nourish themselves within their current, restricted boundaries.[25] But the Germans moved slowly and reluctantly, in part out of fear that FIAT investigators would have access to their laboratories, research facilities, and findings unless existing policy and practices were changed.

Seeking to bring about such change, the Länderrat's special committee on research control—at the request of the Hessian

Economics Ministry—put two relevant items on the agenda of its meeting for 16 January 1947, one dealing with legal protection for trade and industry ("Gewerblicher Rechtsschutz"), the other with inspection of plants ("Werksbesichtigungen").[26] A brief record of that meeting shows that the first item was discussed and that "preparations were made for a proposal" to the Minister-Presidents and the military government, respectively, "to be drafted at the next meeting." But discussion on "inspection of plants" was postponed, most likely on the informal advice of American liaison officers from the Regional Government Coordinating Office (RGCO), whose chief function was to observe and advise the Länderrat and its committees.[27] In any event, shortly after the meeting and without further explanation, RGCO sent the Executive Secretary of the Länderrat (Erich Rossmann) a copy of President Truman's Executive Order 9604 "for your information and for forwarding to the Scientific Research Control Committee."[28]

Eventually—to make a fascinating story somewhat shorter—the Minister-Presidents of the American zone sent a joint letter to General Clay on 8 September 1947, asking for a policy providing for the protection of industrial processes and secrets in the interests of increasing the level of German production and exports. "We have no way to protect new processes or patents today," they wrote. "German firms are reluctant to go ahead under those conditions. Many firms are simply holding back for better times."[29] There is evidence that Clay responded encouragingly, and it is perhaps fair to assume that the letter had some influence on the policy changes to protect German patents and trade secrets that gradually went into effect in 1948 and later.[30]

Meanwhile, the far-reaching adverse effects, and aftereffects, of the "inspection of plants" upon the postwar resumption of German research continued to be felt. In February 1947, the regular monthly meeting of the Länderrat's special committee for research control was attended by representatives of industrial firms (Merck in Darmstadt and C. F. Böhringer in Ingelheim, for example) and of the Technical High Schools in Stuttgart and Darmstadt, as well as by military government and German *Land* officials. This gathering reportedly heard from Colonel Brunton that the directors of research institutes operating under ACC Law No. 25 were entitled to refuse to deliver information de-

manded of them by FIAT investigators. Furthermore, he told them, the quarterly reports they were required to submit to the regional American Research Control Officers under the provisions of the law were held in strict confidence; in fact, they were kept in a safe to which only the Research Control Officers and their secretaries had access. German firms and research institutes could therefore be assured, Colonel Brunton said, that their reports were kept secret and that their work would not be revealed to the whole world.[31]

But the Germans, now familiar with Truman's Executive Order 9604—which they circulated among themselves—and reflecting their bitter experiences with FIAT investigators, were less than satisfied with oral assurances by lower-level Research Control Officers. At its next monthly meeting, on 25 March 1947, the Länderrat's special committee on research control spent much of the day discussing what its recorder referred to as the "sensitive question of the intellectual plunder of German industry by representatives of foreign firms" ("die heikle Frage der geistigen Ausraubung der deutschen Industrie durch ausländische Firmenvertreter"). In conclusion, the committee decided that a written request to the OMGUS Research Control Branch for a policy change was useless ("unzweckmässig"). They believed the best they could hope for was that the regional Research Control Officers would intervene in individual cases, which the latter had apparently promised to do on request on a case-by-case basis.[32]

As we have seen, the FIAT investigations officially ended on 15 May 1947, and FIAT went out of existence on 30 June 1947, as a result of a decision on high. But the impact of the so-called phaseout operations well beyond 1 July 1947 and the lingering aftereffects of those already completed by then are nevertheless remarkable.[33] For one thing, German firms and research institutions that were approved for research under ACC Law No. 25 and therefore obligated to submit quarterly reports to the American Research Control Officers apparently included in those reports as little information as they thought they could get away with. For another, the Hessian Economics Ministry official (Dr. Friedrich Frowein) who had undertaken to develop a bizonal industrial research plan—as requested by the British/American Bipartite Economic Control Group on 23 April 1947—reported informally after meetings in Stuttgart, Mannheim, Munich, Frankfurt, Düsseldorf, and Hannover that in every meeting the question of the FIAT investigations came up.[34] In his final report, which he submitted on 21 April 1948, after additional visits in Bremen, Berlin, and elsewhere, Frowein reported that despite all clarifications of ACC Law No. 25, serious problems remained. A number of firms were apparently inclined to hold back on their research ("Eine Reihe von Firmen ist offensichtlich geneigt, mit Forschungsarbeiten zurückzuhalten"), he concluded; in fact problems had increased of late, because the Americans had been insisting on more and more details in the quarterly research control reports.[35]

The Americans had, indeed, put on pressure, and they continued to do so, ultimately with vengeance. As early as 7 July 1947, a week after FIAT's termination, F. S. Perkerson, an OMGUS Research Control Officer from Berlin, complained to the Länderrat's special committee in Stuttgart that the reports received in Berlin were superficially done, that they contained too little detail on research activities, and that future reports would have to be more explicit and complete. He claimed to understand the reluctance of firms to give out information, but he said he expected them to reconsider their objections in the light of the military government's guarantees that the files would not be made available to their competition.[36] At last, in April 1948—ironically, on the occasion of festive ceremonies in Göttingen in honor of Max Planck and the formal inauguration of the Max Planck Gesellschaft (which replaced the Kaiser Wilhelm Gesellschaft)—Carl H. Nordstrom, the Chief Research Control Officer for OMGUS, came down on the Germans with both feet.[37] The Americans were no longer willing to endure the unsatisfactory reporting practices of the Germans, he is said to have told the chairman of the Länderrat's special committee on research control. Despite the fact that the Research Control Officers had tried for more than a year to get an improvement through persuasion, reports continued to be inadequately prepared. Some of them obviously disguised what was actually being done, he continued, and many of them were in outright violation of ACC Law No. 25. Faced with those conditions, OMGUS felt compelled to resort to punishments rather than persuasion. The ACC law provided penalties, "including the death penalty," for violations as well

as for insufficient reporting, Nordstrom warned, and he said he planned to await the quarterly reports that were due on 1 July 1948, then take action if there was no improvement.[38]

There are no available records showing that the threatened penalties and punishments were ever carried out, and apparently a workable solution to the problem was found. But the Germans continued to be fearful and suspicious, and eventually their worst fears came to pass. For example, Thomas Stamm describes a 25 May 1949 meeting of representatives of German research control agencies in Göttingen, during which some of them talked about ACC Law No. 25 as a basis for industrial espionage.[39] Even more explicit is a report of 1 May 1949, which was commissioned by the German Office for Peace Questions and prepared by an institute under the directorship of Gustav von Schmoller, the world-famous German economist. "The BIOS and FIAT operations," the report explained, "were conducted not to control scientific research, but for the stated purpose of exploiting technical achievements of German firms, whether as war booty or as advanced reparations." Turning then to the quarterly research control reports, von Schmoller's institute report observed that they were burdensome and time-consuming, but also that "many entrepreneurs," fearing the possibility that in this fashion "newly developed knowledge will fall into the hands of unauthorized persons; yes, into the hands of foreign competitors, prefer to forgo scientific research and development so long as the current regulations are in effect." Even though Research Control Officers made promises about the confidentiality of their files, the report concluded, many of them were themselves experts and specialists whose access gave them an opportunity to use the information in their own work later, to the detriment of occupied Germany.[40] As a matter of fact, the ever-present suspicion—in this case unstated—that the Research Control Officers were not telling the truth or that they would eventually be overruled by higher authorities remained. With respect to the latter, that suspicion was not unfounded.

On 10 July 1950, in the immediate aftermath of the outbreak of the Korean War, a memorandum from the Department of the Air Force to the chairman of the Intelligence Advisory Committee stated that the Scientific Research Division, Military Security Board, in the office of the U.S. High Commissioner for Germany (HICOG) had in its possession a large volume of reports submitted by German scientists in compliance with ACC laws concerning German research, inventions, and capacity for production. "Access to these reports has been sought, unsuccessfully, since July of 1946," the memorandum revealed, "and it has become critically urgent that the information contained in these reports be made available to intelligence." They were in the custody of Carl Nordstrom, the chief of HICOG's Scientific Research Division, who objected to their release, claiming that it would compromise the sources and permit leakage to research and development industries in the United States and Germany. "Mr. Nordstrom maintains that the confidential reports over which he exercises complete control are entrusted to him by virtue of a tripartite agreement which he claims guarantees German scientists protection for their commercially usable ideas and inventions." But, the memorandum went on, intelligence agents in the theater were sure that the reports contained much valuable information and that the Russians had found out about it in one way or another. "Mr. Nordstrom said he would not surrender these reports short of a directive from Washington." The memorandum suggested in conclusion that the item be taken up at the next meeting of the Intelligence Advisory Committee with the idea that the latter make the Secretary of State, through the National Security Council (NSC), aware of the requirement that the reports be released to the Central Intelligence Agency (CIA).[41]

Details on what happened after that are perhaps contained in CIA records, which were not used for this study; but it is clear from other available records that the German quarterly research reports were transferred to the United States. On 11 August 1950, for example, the Army Department cabled the Commander in Chief, U.S. Forces, Europe (CINCEUR), asking whether he could make microfilm equipment available to HICOG to reproduce files in Nordstrom's custody as well as those that would continue to be gathered by HICOG's Scientific Research Division of the Military Security Board. The CINCEUR replied a week later, indicating that HICOG needed no additional microfilming equipment and was already preparing to ship twelve boxes of duplicate copies of German reports submitted prior to September 1949, under ACC Law No. 25. He added that those collected

after that date would be processed and duplicated by the Military Security Board within the next six weeks.[42]

What the Washington agencies did with the German reports is open to conjecture, but what had happened while FIAT was still operational is suggestive. The military services undoubtedly made them available to their contractors, as they had the FIAT and Publication Board reports. Furthermore, the reports may have been used as a source of specialists' names to be added to the denial lists that the military services used to bring scientists and technicians to the United States under various programs that continued long after the official termination of Project Paperclip recruitment on 30 September 1947.[43] In any event, there is little doubt that the postwar scientific and technical exploitation program had continuing and far-reaching ripple effects, both with respect to the transfer of knowledge and people to the United States and with respect to the frustration and possible delay of German peacetime research and postwar economic recovery. But it also had a more positive, long-term effect.

FIAT and the Marshall Plan. In January 1947, when General Clay and OMGUS were pressing for the termination of FIAT investigations in the interests of German recovery and economic self-sufficiency, John C. Green drafted—but did not send—a letter defending his operation to General William H. Draper, Jr., the chief of OMGUS's Economics Division. Among other things, Green argued that FIAT operations had made German technology and German scientists and technicians known to American industry and science as never before. "In fact," he wrote, "the very publicity which has been given to German industry by our program should react as an advertisement, bringing German and Allied industry together."[44]

The validity of his assertions is certainly suggested by the character of the American public debate on the Marshall Plan and the origins of the European Recovery Program.

Once the Americans decided to sponsor and underwrite a general European economic recovery program under the Marshall Plan, there appears to have been almost universal agreement in the United States that the program could not succeed without major industrial input from Germany. Arguments and assertions that West Germany had to play a key role in European economic recovery, although this is not the place to elaborate upon them,

were a common feature of the planning and development of the program as well as of the debates in Congress and of the discussion in the public forum.[45] The idea was reiterated by the State Department's Policy Planning Staff, the President's Committee on Foreign Aid (the Harriman Committee), the House Select Committee on Foreign Aid (the Herter Committee), the congressional delegations who returned from visits to Europe during the so-called "Marshall Plan Summer," the Committee for the Marshall Plan to Aid European Recovery, the National Association of Manufacturers, Secretary of State George C. Marshall, Secretary of Commerce W. Averell Harriman, and scores of others from both the public and the private sectors. Of course, the reasons given varied, and they were highly complex, for they included political, ideological, humanitarian, and economic elements as well as considerations of American power and position in the cold war. Unquestionably, however, American conceptions of the organization, the vitality, and the accomplishments of German science and industry played a key role in the American determination to include Germany in the Marshall Plan for European economic recovery. Those conceptions, which admittedly originated long before the time period of this study, were in fact verified, strengthened, and brought into the foreground by what the postwar scientific and technical consultants and investigators brought home with them in their baggage.

FIAT as a Conveyer-Belt for Future Business Connections. After all that has been said, and given the great extent of current American investments in Germany and German investments in the United States—a topic well beyond the scope of this study—this point hardly needs amplification.[46] The FIAT handbook for investigators warned early on that the rules prohibiting fraternization with Germans applied to them, and it stated: "Investigators may . . . be approached by German nationals with a view to establishing commercial enterprises outside Germany. Any such approach must be reported immediately to Field Information Agency, Technical, by the Field Team Leader." But there was obviously no way to control what went on in the field between individual investigators and their "targets," in the presence of nothing more than four walls—or what was left of them in postwar Germany. Available records show that investigators, particularly those with previous German business connections,

were "very hard to handle." They sometimes "used their FIAT investigations merely as a pretext to get into Germany" and were often more interested in their own private affairs than in completing their FIAT missions. There was no way to stop them from visiting their properties or their former representatives once they were in Germany. Even those who faithfully carried out and completed their FIAT missions could, as a matter of policy, ask for extensions "to conduct private affairs" before they returned to the United States.[47]

The details of how, or to what extent, the FIAT contacts led directly to future business connections are, of course, not a matter of public record, but I have had interviews and correspondence with both German and American principals who described cases for me off the record. One can also read in a British publication that "the first object [of the postwar investigations] was to obtain all possible information for the benefit of the Allies, but these discussions could not fail to result in the wakening of the old spirit of international solidarity so sadly interrupted during the War."[48] A more revealing illustration may be found in the autobiography of Karl Winnacker, a former I. G. Farben director who was removed by the Americans in 1945, gardened for two years, and then returned to Farbwerke Höchst AG, eventually to serve as chairman of the board. In commenting on the immediate postwar visits of chemists and industrialists who "all wanted to profit as much as possible from our technical knowledge," Winnacker named R. Lindley Murray, the president of American Hooker Company of Niagara Falls, as an exception. "He took from his briefcase a whole batch of drawings, spread them across my table and asked me to agree to a detailed exchange of knowledge about the electrolysis cells of Hooker and Höchst. In fact," Winnacker noted, "we did come to a friendly arrangement about this." Ten years later, Winnacker recalled, he visited Murray, and the two remembered Murray's visit of 1945. "Murray's company," he observed without going into further details, "eventually operated an electrolysis plant constructed by [Friedrich] Uhde and based on our principle."[49]

Reference Matter

Appendix

QUOTED IN FULL BELOW is the proposed press release of 11 March 1946 on Project Paperclip and the postwar exploitation of German science and technology, prepared in the office of the Joint Intelligence Objectives Agency. It was approved informally in the Commerce Department's Office of Technical Services, and then classified as secret, along with "all documents relating" thereto, on 14 March 1946, by the Joint Intelligence Committee of the Joint Chiefs of Staff. The release is attached to E. W. Gruhn, JIOA, to Secretary, JIC, memorandum, 11 Mar. 1946, RG 218, JCS central decimal files, box 95, file CCS 471.9, sec. 5, NA.

After World War I there was no real attempt by the victors to exploit Germany for technical and scientific knowledge. However, long before World War II with Germany had ended, plans were made by the Joint Chiefs of Staff for the complete exploitation of Germany for technical information.

In accordance with these plans, the government is now engaged in exploiting Germany for all the technical and scientific information that can be obtained. Exploitation has involved the sending of several hundred highly qualified American technicians and scientists into Germany close upon the heels of our conquering armies. These investigators have examined manufacturing plans and equipment, records and documents and have interrogated German personnel. The information of industrial value that has been collected is being made available to the public by the Department of Commerce.

Steps are now being taken to extend this exploitation by bringing the best German scientists and technicians to this country so that their talents can be used here.

Several governmental agencies are involved in the technical exploitation of Germany's program in addition to the Department of Commerce. These are the War and Navy Departments, the Department of Interior,

and the Department of Agriculture. The State Department is establishing several consulates in the American zone for the purpose of issuing visas under the President's program for limited immigration quotas.

Many of the German scientists and technicians will be brought over here for exploitation by the Navy and War Departments in connection with weapon developments for reasons of national security. These agencies already have about one-hundred-and-fifty German scientists and technicians in this country. However, these were brought here without their families with the intention of returning them to Germany within six months to a year.

Other German scientists and technicians will be brought to the U.S. for exploitation for civil purposes, primarily for American industry. As these will only be brought over after it has been definitely determined to be for the national interest, they will be exploited on an unrestricted basis rather than being employed by certain firms. This exploitation for non-military purposes will be sponsored by the appropriate Federal agency or department.

The number of German scientists to be brought to America for exploitation will be strictly limited. Present estimates are that the total number will not exceed three hundred, limited to those who can make positive valuable contributions to our national welfare. They will include the best of the pure scientists, those comparable to Prof. Einstein. In the past, the United States has depended to a considerable extent upon German scientists for pure basic scientific research. Such research forms the basis for practical developments. They will also include eminent physicists, outstanding chemists, Nobel prize winners and leaders in various research and development fields.

The exploitation of these highly trained Germans will be of great value to the development of new types of weapons which were being planned by the Germans as the war ended. It will also be in the national interest to use them to increase our production potential in many industrial fields. Due to our dwindling natural resources, it has become a strategical necessity that our nation develop substitute and synthetic materials.

Great Britain, France and Russia have recognized the value of exploiting German expert personnel and it is quite probable that such neutrals as Sweden, Switzerland and Spain will encourage immigration of German scientists and technical experts as soon as Germans are allowed to emigrate to such countries. The ban on certain war industries and other war-supporting industries like aluminum, synthetic oil, synthetic rubber, and ball-bearings will cause the highly skilled German technicians in these industries to seek employment in other countries and thus aid such countries in increasing their war potential.

However, it is now well known that after the last war and because of the disarmament provisions of the Versailles Treaty, the German government arranged for many technicians to be employed in countries like Sweden, Russia, Switzerland and Spain in war production industries. Then when German rearmament began these technicians were called back to Germany.

With this knowledge in mind, adequate provisions and safeguards will be made to protect our secrets.

Those to be brought over will be carefully screened so that no active Nazis are included. Also those that are selected will be brought to the U.S. only if they volunteer. An honest desire to become U.S. citizens and never return to Germany will also be a consideration in selecting the individuals.

Only the immediate members of the families of those scientists who intend to live in this country will be brought over. The members of the families will be checked as to Nazi sympathies as some German youths were among the most rabid Nazis.

In view of the small number of families that will come, the effect on the housing situation will be very slight. It may well be that movement of families may have to be postponed until housing is available in each particular case. Movement of families may also be delayed during a probationary period which may be necessary to determine accurately the German scientist's cooperativeness and the honesty of his desire to become a good American citizen.

It will be the government's policy that these Germans are exploited in behalf of the whole nation and not for or by single private interests. In some cases arrangements will be made with industrial associations or societies for exploitation so that all those engaged in a particular industry may profit on an equal basis. Any resulting patents must be freely licensed on a reasonable royalty basis.

Closely related to the exploitation of German scientists and technicians is the government program for exploitation of German developments in industrial machinery, tools, equipment and materials. Samples of these are being procured through reparations procedures for shipment to the United States where they are made available for study by American industry on a non-restrictive open-to-the-public basis.

From the above, it is evident that the government is using vacuum cleaner methods to acquire all the technical and scientific information that the Germans have. The value of this information to the United States will probably far exceed any cash reparations.

Information on the industrial aspects of the exploitation program may be obtained from the Publication Board of the Department of Commerce.

Notes

The following abbreviations and acronyms are used in the Notes.

AFB	Air Force Base
AGTS	Adjutant General, Top Secret (OMGUS)
AGWAR	The Adjutant General, War Department
ALSOS	Code name for the Manhattan Project's intelligence mission in Europe
AmEmbassy	American Embassy
BA	Bundesarchiv
BAOR	British Army of the Rhine
BECG	Bipartite Economic Control Group
BICO	Bipartite Control Group
BIOS	British Intelligence Objectives Subcommittee
BMW	Bayrische Motor Werke (Bavarian Motor Works)
CA	Civil Affairs
CAD	Civil Affairs Division, War Department
CCS	Combined Chiefs of Staff
CG	Commanding General
CIC	Combined Intelligence Committee
CINCEUR	Commander in Chief, Europe
CIOS	Combined Intelligence Objectives Subcommittee
CMH	Office of the Chief of Military History
CNO	Chief of Naval Operations
COMNAV-FORGER	Commander, Naval Forces, Germany (U.S.)
C/S	Chief of Staff
CSUSA	Chief of Staff, U.S. Army
DBfF	Deutsches Büro für Friedensfragen
DMG	Deputy Military Governor
ETO	European Theater of Operations
EUCOM	Headquarters, European Command (U.S.)
FEA	Foreign Economic Administration
FIAT	Field Information Agency, Technical

FRUS	*Foreign Relations of the United States*
GER	German Desk, Department of State
GmbH	Gesellschaft mit beschränkter Haftung
HICOG	Office of the U.S. High Commissioner for Germany
HSA	Hauptstaatsarchiv
IARA	Inter-Allied Reparation Agency
IHK	Industrie- und Handelskammer
INT	Intelligence Division
JCS	Joint Chiefs of Staff
JIC	Joint Intelligence Committee
JIOA	Joint Intelligence Objectives Agency
JIS	Joint Intelligence Staff
M.A.N.	Maschinenfabrik Augsburg-Nürnberg
NA	National Archives
NRW	North Rhine–Westphalia
ODDI	Office of the Deputy Director for Intelligence
ODI	Office of the Director for Intelligence
OMG	Office of Military Government
OMGUS	U.S. Office of Military Government for Germany
OTS	Office of Technical Services
RG	Record Group
RGCO	Regional Government Coordinating Office
SAE	Society of Automotive Engineers
SANACC	State–Army–Navy–Air Force Coordinating Committee
SCAF	Supreme Commander, Allied Forces
SecArmy	Secretary of the Army
SecCommerce	Secretary of Commerce
SecNavy	Secretary of the Navy
SecState	Secretary of State
SecWar	Secretary of War
SHAEF	Supreme Headquarters, Allied Expeditionary Forces
SR	Scholarly Resources
SWNCC	State-War-Navy Coordinating Committee
TIIB	Technical Industrial Intelligence Branch
TIIC	Technical Industrial Intelligence Committee
TIID	Technical Industrial Intelligence Division
USAF	United States Air Forces
USAFE	United States Air Forces, Europe
USAF Records, Maxwell AFB	U.S. Air Forces Records, The Albert F. Simpson Historical Research Center, Maxwell Air Force Base, Alabama
USFA	United States Forces, Austria

USFET	United States Forces, European Theater
USGpCC	United States Group, Control Council for Germany
USPOLAD	United States Political Adviser, Germany
VAW	Verwaltungsamt für Wirtschaft
VfW	Verwaltung für Wirtschaft
W/B	Württemberg-Baden
WARCAD	War Department, Civil Affairs Division
WARX	War Department cable
WDCAD	War Department, Civil Affairs Division
WDGS	War Department, General Staff
WNRC	Washington National Records Center
ZSV	Zentralsekretariat des Vorstands

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Chapter Three

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14. USGpCC, FIAT, to Chief, FIAT, subj: migration of German scientists, 25 Oct. 1945, RG 260, FIAT 7,748th Unit, shipment 17, box 1, file 33, WNRC; JIOA, memorandum for information, JIOA 1/1, 3 Nov. 1945, subj: interim procedure for coordinated exploitation of German specialists . . . , RG 40, box 79, file JIOA Advisory Board, WNRC. See *The Stars and Stripes*, 21 Jan. 1946, 4, for the news—attributed to an unnamed military government official in Berlin (possibly Roger Adams)—that about 450 German scientists, many of them non-Nazis, remained idle in the U.S. zone. In the British zone people like that found employment, the story continued, but in the American zone some of them were jailed as mandatory arrests, while others were "wandering about without work or funds," a state of affairs referred to in the story as "criminally stupid."

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20. AGWAR to USFET, W-97733, 19 Feb. 1946, RG 260, OMGUS AGTS files, box 4, file 23, WNRC.

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25. JIS, corrigendum to JIS 239, "Publicity on Exploitation of German Scientists," 14 Mar. 1946, *ibid.*; JCS, JIC, R. U. Hyde, Secretary, to JIOA, subj: JIS 239, publicity . . . , RG 330, JIOA General Correspondence, box 4, file 383.7 Policy—1946, NA.

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was made by the President in a cabinet meeting after very full discussion," see Peurify to Acheson, memorandum, 17 May 1946, RG 59, file 862.542/5–1746, NA.

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29. *Newsweek*, 26 (2 July 1945), 54.

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31. Peurify to Acheson, memorandum, 17 May 1946, RG 59, file 862.542/5–1746, NA.

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33. Tom Bower, *The Paperclip Conspiracy: The Hunt for the Nazi Scientists* (Boston, 1987), esp. chaps. 8 and 9; quotation on p. 175.

34. Wev, Director, JIOA, to S. J. Chamberlin, Director of Intelligence, WDGS, subj: exploitation of German and Austrian scientists . . . , 2 July 1947, RG 319, Army-Intelligence decimal files, 1941–48, box 992, file 400.112 Research/Undated, WNRC.

35. JCS to CG USFET, WAR-86116, 29 Apr. 1946, RG 165, box 565, file ABC 471.6 (7 Oct. 1943), sec. 1-B, NA; Control Commission for Germany (British Element), FIAT, to Captain Baursot, Control Branch, Munich, subj: employment of German scientists and technicians . . . , 3 June 1946, RG 260, FIAT 7,748th Unit, box 1, file 254–88, WNRC. See also Ernst Baerwind, Besuch von zwei britischen Offizieren am 30.7.1946 wegen einer Englandreise . . . , 31 July 1946, file Verhandlungen mit Besatzungsbehörden, 1 Apr. 1945 bis . . . , Degussa archives, and his "Beltane School in Wimbledon/London als Lager für deutsche Wissenschaftler und Techniker, August/Oktober 1946," file Baerwind Berichte, Degussa archives.

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37. A. M. Ross, Remington Rand, Inc., to Willard I. Thorpe, 20 May 1946, RG 59, file 740.00119 Control (Germany)/5–2046, NA; C. Offie to Robert Murphy, 11 June 1946, RG 84, box 33, file 1 (Top Secret 1946), WNRC; FIAT-TIID Washington, excerpt from teleconference, 19 June 1946, RG 40, OTS Webb files, box 126, file DI 254.85 (FIAT), WNRC.

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39. Clay to CG USFET, subj: evacuation, exploitation and employment of German and Austrian specialists . . . , 6 July 1946, RG 260, OMGUS AGTS files, box 17, file 370.2 Paperclip, WNRC; McNarney to War Department for JCS, S-7556, 17 July 1946, RG 218, JCS central decimal files, box 95, file CCS 471.9, sec. 7, NA.

40. State Department (?), Draft directive, 3 July 1946, RG 59, file 862.542/7–346, NA; Heneman to Hilldring, subj: import of German scientists, 23 July 1946, RG 59, file 862.542/7–2346, NA.

41. AsstSecWar Howard C. Petersen, memorandum, 25 July 1946, RG 335, SecWar Patterson Subject file (Safe), box 6, file Scientific Research (SAFE) no. 2, NA. For information on the response to the Clay/McNarney message in Washington by the JCS, the War Department, and Secretary of War Patterson, who was reportedly "urging" changes in policy "on high levels," see AGWAR to USFET, W-96224, 2 Aug. 1946, RG 260, OMGUS AGTS files, box 4, file 23, WNRC.

42. Acheson to Truman, subj: interim exploitation of German and Austrian specialists . . . , 30 Aug. 1946, RG 165, file ABC 471.6 (7 Oct.

1943), sec. 1-D, NA. This letter bears the handwritten note: "Approved, 9/3/46, Harry S. Truman."

43. Edna Jensen, *History of USAF Participation in Project Paperclip, September 1946–April 1948*, vol. 2 (Historical Office, Air Materiel Command, Wright-Patterson Air Force Base, Nov. 1948), 26, in USAF Records, Maxwell AFB, microfilm, reel A 2055, frame 1541.

44. For portions of that story, see Lasby, *Project Paperclip*, which was written long before the classified records were generally available; Linda Hunt's recent article, "U.S. Coverup of Nazi Scientists," *Bulletin of the Atomic Scientists*, 41, no. 4 (Apr. 1985), 16–24, which concentrates on some of the individuals with histories of Nazi activity and affiliation who were brought to the United States nevertheless; and Bower, *The Paperclip Conspiracy*, a title that expresses the thesis.

45. OMGUS to *Land* Directors, subj: Spruchkammer trials of German scientists, 8 Feb. 1947, RG 260, OMGUS papers 120 3/15, box 431, file 51, WNRC.

46. FIAT 7,771st Document Center (Rear), Darmstadt Sub Post, statement of denazification [name in my possession], 4 Aug. 1950, JIOA case file, NA.

47. AGWAR to OMGUS, WX-83711, 8 Aug. 1947, RG 260, OMGUS AG decimal files, box 149, file 9 (AG 370.2 Paperclip), WNRC.

48. OMGUS, Internal Affairs and Communications Division, to C/S, subj: political clearance of German scientists presently in the U.S., 13 Aug. 1947, RG 260, OMGUS papers 17/261–2, file 33, WNRC.

49. USPOLAD to C/S, OMGUS, 12 Sept. 1947; CINCEUR from Clay to AGWAR for Noce, CC-1671, 20 Sept. 1947, both in RG 260, OMGUS AG decimal files, box 149, file 9 (AG 370.2 Paperclip), WNRC.

50. Gordon Wright, *The Ordeal of Total War, 1939–1945* (New York, 1968), 79, attributes the term to Winston Churchill.

51. H. G. v. Studnitz, "Wissenschaftler als Kriegsbeute," *Badische Neueste Nachrichten*, 31 May 1947, 4, clipping in Abt. 507, no. 3889, HSA Wiesbaden.

52. Buyer and Jensen, *History of AAF Participation in Project Paperclip*, 1: 69–71, USAF Records, Maxwell AFB, microfilm, reel A 2055, frames 0785–89; General Powers to Deputy Chief of Air Staff, routing sheet, subj: utilization by the aircraft industry of German scientists, 8 May 1946, *ibid.*, frame 1236.

53. Excerpt from *Air Materiel Command Monthly Newsletter*, Aug. 1946, *ibid.*, frame 1266.

54. "Scientists Program," draft of March 1947, *ibid.*, frames 0644ff; Jensen, *History of USAF Participation in Project Paperclip*, 2: 90, *ibid.*, frame 1605; Lasby, *Project Paperclip*, 263.

55. Jensen, *History of USAF Participation in Project Paperclip*, 2: 90, USAF Records, Maxwell AFB, microfilm, reel A 2055, frame 1605.

56. George C. McDonald, Air Staff-2, to USFET, 10 Apr. 1946, RG 319, Army-Intelligence decimal files, 1941–48, box 994, file 400.112 Research/032, WNRC; M. J. Hagood, JIOA, to Director of Intelligence, WDGS, subj: Mr. Bulova's request for German scientists, 23 Apr. 1946, *ibid.*

57. WDGS, Military Intelligence Service, to USFET, 17 May 1946, *ibid.*, box 990, file 400.112 Research/Undated, WNRC.

58. Jensen, *History of USAF Participation in Project Paperclip*, 2: 91–92, USAF Records, Maxwell AFB, microfilm reel A 2055, frames 1606–07.

59. Byrnes to Bulova, 26 July 1946, RG 59, 862.542/7–2646, NA.

60. Petersen to SecWar Patterson, subj: German scientists at Wright Field," 5 Aug. 1946, RG 335, SecWar Patterson Subject file (Safe), box 6, file Scientific Research (SAFE), no. 2, NA.

61. Schwartz to Edwin Y. Webb, TIIC, 9 Mar. 1947, RG 40, box 116, file The Kalart Co., WNRC.

62. Schwartz to Ray Hicks, OTS, 29 Oct. 1947, and 25 June 1948, both in RG 40, box 81, file Wollensak Optical Co., WNRC.

63. Ranft to Hicks, OTS, 15 Aug. 1949, *ibid.*

64. CIOS evaluation report no. 348, Mahle Werk, GmbH, Fellbach, 28 Aug. 1945, RG 218, JCS central decimal files, 1942–45, box 136, file CCS 319.1 (11-7-44), sec. 13, NA.

65. Townsend to G. D. Edwards, TIIC, 21 Aug. 1945, RG 40, box 115, file German Die Casting Machine, WNRC.

66. Hanawalt to J. K. Tibby, TIIC, 22 Sept. 1945, RG 40, OTS Hilbourne files, box 147, file Foreign, WNRC.

67. Reiss, TIIC, to All Unit Chiefs, 21 June 1946, RG 40, OTS Worden files, box 87, file Correspondence, WNRC; TIID, Electronics and Communications Unit, Review, 1 Jan. 1947, RG 40, box 99, file Year End Review, WNRC.

68. Powell to Carl O. Hoffman, OTS, and others, 28 Feb. 1947, RG 40, OTS Worden files, box 87, file Exhibits—Frankford Arsenal, WNRC.

69. T. H. McConica to Hicks, OTS, 11 Dec. 1947, RG 330, JIOA General Correspondence, box 6, file Department of Commerce, NA.

70. David Kolter and Josef Weyrather, interview with the author, 10 Feb. 1981, Düsseldorf. Both were retired Schloemann employees.

71. OMGUS, monthly report of the Military Governor, "Demobilization of German Air Force," no. 2, 20 Sept. 1945, p. 5, RG 260, WNRC; M.A.N. Werk Nürnberg to IHK München, subj: Beschlagnahme von Zeichnungen, Patenten, Verfahren u. dgl., 4 Sept. 1947, B 102/3767, BA.

72. Schloemann AG to IHK Düsseldorf, 8 June 1948, file NW 99, no. 63, HSA Düsseldorf. See also B 102/171458, BA, for a half-inch file on the State Department's return of the Schloemann records to the Federal Republic and the latter's transfer of them to Schloemann AG.

73. Boesch, report on visit to Germany, 25 Jan. 1946, USAF Records, Maxwell AFB, microfilm reel A 2055, frames 1142–48.

74. Memorandum, miscellaneous activities and operations, 12 Dec. 1946, USAF Records, Maxwell AFB, microfilm, reel A 2056, frame 0037, refers to the 9 Dec. agreement with Loewy Construction Company on terms of employment for the five; frame 0078 notes that the five men were allocated to that company indefinitely on 11 Feb. 1947. See also Department of the Air Force, Air Intelligence Requirements Division, to JIOA, subj: release of German specialists from War Department contracts, 17 Feb. 1949, RG 330, JIOA General Correspondence, box 17, file Air—Transfer and Clearance, NA. Finally, see JIOA, "Statistical Report of Specialists and Dependents Brought to the US under the Paperclip Program," 2 July 1951, RG 40, box 85, WNRC.

75. Proposed press release, dated 11 Mar. 1946, attached to E. W. Gruhn, JIOA, to Secretary, JIC, memorandum, 11 Mar. 1946, RG 218, JCS central decimal files, box 95, file CCS 471.9, sec. 5, NA. The proposed release, which is reproduced in the appendix at the end of this volume, was blocked three days later, when the JIC directed the JIOA, "as a matter of urgency, to classify as SECRET all documents relating to the press release." See JIS, corrigendum to JIS 239, "Publicity on Exploitation of German Scientists," 14 Mar. 1946, *ibid.*, and JCS, JIC, R. U. Hyde, Secretary, to JIOA, subj: JIS 239, publicity . . . , RG 330, JIOA General Correspondence, box 4, file 383.7 Policy—1946, NA.

Chapter Four

1. SHAEF, GBI/SS/322-17, subj: establishment of Field Information Agency, Technical (FIAT) of G-2, 31 May 1945, RG 260, box 20-3/5, file FIAT Mono-I-2C, WNRC; SHAEF, Forward, to War Department, FWD-22987 SCAF 426, 1 June 1945, RG 165, file ABC 387 Germany (18 Dec. 1943), sec. 19, NA. The latter document is also printed in Alfred D. Chandler, Jr., and Louis Galambos, eds., *The Papers of Dwight David Eisenhower: Occupation, 1945*, vol. 6 (Baltimore, 1978), 111–12.

2. W. B. Smith, C/S, SHAEF, to CG USGpCC and Head, Control Commission, Germany (British Element), subj: division of FIAT into British and U.S. components, 11 July 1945, RG 218, file CCS 334 FIAT (6-1-45), NA; USGpCC, INT/FIAT/321.01-1, subj: establishment of Field Information Agency, Technical (FIAT), U.S. Component . . . , 14 July 1945, RG 260, USGpCC records, box 10, file AG 322, FIAT Organization and Functions, WNRC.

3. OTS, TIID, "Collection of Technical Industrial Intelligence in Germany," 10 Dec. 1946, RG 40, box 26, file TIID—Inquiries . . . 1946–47, WNRC.

4. FIAT (Haertel) to Gruhn, JIOA, weekly report no. 20, 17 Jan. 1946, RG 40, OTS Reiss files, box 156, file FIAT letters from Haertel, Jan.–Feb. 1946, WNRC. See RG 260, FIAT Records, box 17/17, folders 1–15, WNRC, for a collection of 1,410 documents evaluation reports prepared by the special reconnaissance teams.

5. Fred S. Thornhill to the author, 28 Sept. 1981, in my possession.

6. FIAT, circular no. 15, "FIAT Operating Procedure, Document Microfilming, Publication Board Program," 8 Mar. 1946, in OMGUS, Historical Office, *History of Field Information Agency, Technical* (FIAT), *Period 1 July 1946–30 June 1947*, app. 30, MS in RG 319, CMH, Historical Manuscripts file, NA.

7. OTS, TIID, "Collection of Technical Industrial Intelligence in Germany," 10 Dec. 1946, RG 40, box 26, file TIID—Inquiries . . . 1946–47, WNRC.

8. FIAT, "Estimate of Situation and Recommendation of Priorities for Screening and Microfilming Documents in Publication Board Program," 18 Mar. 1946, RG 40, OTS Hilbourne files, box 147, file Personnel . . . , WNRC; FIAT, bi-weekly progress report—FIAT, 1–15 May 1946, RG 260, OMGUS decimal files, AG 1945–46, box 64, file AG 322 FIAT, WNRC. The latter notes that a list of 10,000 firms and research centers had been compiled for distribution to various people and agencies.

9. "Scientific Cleanup," *Business Week*, 18 May 1946, 19–20.

10. For examples, see K. H. Weberg to Neal D. Crane, subj: progress in the screening of documents in German industrial chemical targets . . . , 1 Nov. 1946, RG 40, OTS Worden files, box 87, file Chemical Subcommittee, TIIC, WNRC; FIAT, bi-weekly progress report—FIAT, 1–15 Nov. 1946, RG 260, OMGUS decimal files, AG 1945–46, box 64, file AG 322, FIAT, WNRC; FIAT, daily journal, 29 Nov. 1946, RG 260, FIAT records, box 17/9, file 4, WNRC; and FIAT, bi-weekly progress report —FIAT, 16–30 Nov. 1946, RG 260, OMGUS decimal files, AG 1945–46, box 64, file AG 322, FIAT, WNRC.

11. OTS, TIID, "Collection of Technical Industrial Intelligence in Germany," 10 Dec. 1946, RG 40, box 26, file TIID—Inquiries . . . 1946–47, WNRC.

12. FIAT, Documents Program Section, to Chief, Industry Branch, subj: progress report, 24 Aug.–18 Sept. 1946, RG 40, box 26, file TIID—Progress Reports from Germany, 1946–47, WNRC.

13. Dr. Baumann to Akademiker der Gruppe I, Wissenschaftliche Berichte, Chemische Werke Hüls, 31 July 1946, copy in my possession.

14. Documents evaluation report no. 51, RG 260, FIAT records, box 17/17, file 1, WNRC; Dr. Schulenburg, Notiz betr. amerikanischen Besuch, 27 Feb. 1947, file Verhandlungen mit Besatzungsbehörden, 1 Apr. 1945 bis . . . , Degussa archives.

15. Degussa to Hessisches Staatsministerium, subj: Werksbesichti-

gungen: Herausgabe von technischen Unterlagen an Investigators, 29 May 1947, file Verhandlungen mit Besatzungsbehörden, 1 Apr. 1945 bis . . . , Degussa archives.

16. Dr. Werkmeister, Zentralamt für Wirtschaft in der Britischen Zone, Minden, to Dr. Agartz, im Hause, 26 Nov. 1946, B 102/3768, BA.

17. Gutehoffnungshütte to Wirtschaftsministerium NRW, subj: Fotografieren von techn. Zeichnungen, 15 Nov. 1946, file NW 99, no. 61, HSA Düsseldorf.

18. Linde's Eismaschinen AG to IHK Munich, subj: Beschlagnahmungen von Zeichnungen, Patenten, Verfahren und dergl., 11 Sept. 1947, B 102/3767, BA.

19. Wacker to IHK Munich, subj: Beschlagnahmungen von Zeichnungen, Patenten, Verfahren u. dgl., 15 Sept. 1947, B 102/3767, BA.

20. Robert Reiss to Division Chiefs, 27 Apr. 1948, RG 40, box 163, file Inter-Office Memos, WNRC; Reiss to TIID Units, 5 May 1947, RG 40, box 116, *ibid.*

21. Lowell B. Kilgore, "Proposal for a Compendium of German War Time Technology," attached to Reiss to All Units, memorandum, 16 Jan. 1947, RG 40, OTS Worden files, box 88, file Inter-Office Memoranda, WNRC.

22. Green to Editors of All Principal Trade Papers, 27 Mar. 1946, RG 40, box 99, file Document Research, WNRC.

23. Edwin Y. Webb to O. E. Buckley [and others], 28 Mar. 1946, RG 40, box 102, Chronological file no. 2, WNRC; F. E. Hilburn to Robert H. Mehl, 12 Apr. 1946, RG 40, box 137, file Mehl, WNRC. See also RG 40, box 147, file Personnel . . . , WNRC, for copies of form letters that went out to professors, industrialists, and former investigators.

24. Webb to Buckley, President, Bell Telephone Laboratories, 28 Mar. 1946, RG 40, box 102, Chronological file no. 2, WNRC. The decision to use WOC personnel in Washington—and even more extensively in Germany, as we shall see later—was due to OTS budget limitations and the shortage of qualified people who would accept short-term employment. In a letter to T. G. Haertel, the chief of FIAT's Industrial Branch in Germany, Green reported that OTS was having difficulty finding people with the necessary technical qualifications and language ability at the salaries OTS could pay. "When we called Purdue University the other day," Green continued, "we were told that the country has a shortage of 40,000 engineers and Purdue is now trying to find 45 professors. . . . We intend to make it widely known to industry," he concluded, "that firms may send their technical men to Germany to make investigations, the expense to be borne by industry and the results to be reported to the Department of Commerce for publication." Green to Haertel, 10 Apr. 1946, RG 40, box 26, file TIID—General Correspondence 1945–46, WNRC.

25. OMGUS, Historical Office, *History of Field Information Agency, Technical* (FIAT), *Period 1 July 1946–30 June 1947*, 7, MS in RG 319, CMH, Historical Manuscripts file, NA.

26. R. B. MacMullin to Peter J. A. Cusack, 27 Nov. 1945; Cusack to Bürgermeister of Höchst, 28 Nov. 1945, RG 40, OTS Webb files, box 126, file DI 254.82 (FIAT), WNRC. See also MacMullin to Captain Bruni, subj: Dr. Karl Hass, 16 Jan. 1946, *ibid.*, which is a request for a FIAT building pass for Hass.

27. OMG, Greater Hesse, to OMGUS, Denazification Section, 4 Dec. 1946, RG 332, ETO, USFET, AG Section decimal file 1946, box 397, file 350.05, Intelligence FIAT, WNRC; OMGUS to USFET, 1st Indorsement, "for information and appropriate action," 13 Dec. 1946, *ibid.*; USFET to OMGUS, 2nd Indorsement, 30 Dec. 1946, *ibid.*, which returns the correspondence "for appropriate action as Field Information Agency, Technical is operationally under your headquarters." See also Aktenvermerk, Forschungsüberwachungsstelle Militär-Regierung, Oberstlt. Brunton, Dr. Würth, Birk, 19 Feb. 1947, Z/581, p. 81, BA. Professor Harold Volkmann told me in interviews on 13 Nov. and 3 Dec. 1980, in Heidenheim, how FIAT bent the denazification rules to use his services for writing reports on his specialty.

28. Alfons Hesse to Adolf Smekal, subj: Wiederbeschäftigung, 21 Apr. 1948, Abt. 507, no. 3860, HSA Wiesbaden.

29. A USFET personnel-strength report of 31 Aug. 1946 shows FIAT's contingent of specialists to have been 190 U.S. civilians paid from Commerce Department funds and another 588 German civilians paid from indigenous funds. There are other periodic reports showing that about 200 Americans and about 600 Germans were employed in other-than-routine administrative and housekeeping functions, for which FIAT had its own complement of Army officers, enlisted personnel, and War Department civilian employees. See USFET to OMGUS, subj: survey of Field Information Agency, Technical, and Rear Echelon, 21 Aug. 1946, RG 260, OMGUS AG decimal files, box 64, file AG 322 FIAT, WNRC; Green to Echols, 30 Oct. 1946, RG 165, box 235, file WDSCA 014 Germany, sec. 15, NA; Mr. Sparks to Mr. Meader, subj: military government, 31 Oct. 1946, RG 46, SEN 79A-F30, National Defense Committee, OP.-58, box 1010, NA; OTS, TIID, "Collection of Technical Industrial Intelligence in Germany," 10 Dec. 1946, RG 40, box 26, file TIID—Inquiries . . . 1946–47, WNRC.

30. Kilgore, "Proposal for a compendium of German War Time Technology," 10 Jan. 1947, RG 40, OTS Worden files, box 88, file Inter-Office Memoranda, WNRC.

31. Green to technical societies and trade associations, 25 July 1947, RG 40, box 163, file Inter-Office Compendium, WNRC. For further references to the program see Reiss to Green, with attached copies of

memoranda to technical societies and trade associations, 25 July 1947, and to industrial research laboratories and universities, 4 Aug. 1947, RG 40, OTS Reiss files, box 153, file Green, WNRC; OTS, press release, OTS-771, 6 Aug. 1947, RG 40, box 109, file 700–99, WNRC; Webb to P. R. Mallory & Co., 17 Sept. 1947, RG 40, OTS Webb files, box 125, file Compendium—Chronological, WNRC; and Green to SecCommerce, subj: activity report for Sept. 1947, RG 40, box 107, file Memoranda OTS, WNRC.

32. See RG 40, OTS Webb files, box 125, file Compendium—Chronological, WNRC, for information on the reels sent and the firms to which they went, and Reiss to Green, subj: progress report for Feb. 1948, RG 40, OTS Hilbourne files, box 144, file Progress Reports 1948, WNRC, for the last status report before the project folded, showing that 1,265 reels had been sent and 116 returned.

33. Guellich to Albert M. Orme, TIIC, 14 Dec. 1945, RG 40, OTS Webb files, box 123, file Progress Reports, WNRC; Guellich to Webb, 3 Dec. 1947; Webb to Guellich, 12 May 1948, RG 40, both in OTS Webb files, box 125, file American Optical Co., WNRC.

34. Speed to Webb, 28 Jan. 1947, RG 40, box 26, file TIID—Progress Reports (attached to p. 21 of progress report no. 13), WNRC.

35. Speed to Webb, 6 Nov. 1946, RG 40, box 99, file Year End Review, WNRC.

36. For the quotation see Speed to Webb, 28 Jan. 1947, RG 40, box 26, file TIID—Progress Reports (attached to p. 21 of progress report no. 13), WNRC. See also TIID, progress report no. 11, 10 Dec. 1946, p. 15, RG 40, box 99, WNRC, and Webb to Green, subj: attached letters from the Audio Manuf. Corp. relative to manufacture of metallized tape, 10 Feb. 1947, RG 40, box 114, file Audio Devices, Inc., WNRC.

37. Speed to Webb, 16 Jan. 1948, RG 40, box 125, file Audio Devices, Inc., WNRC.

38. For further details see "Recycling Nazi Secrets," *Time*, 109 (18 Apr. 1977), 58; C. H., "Nazi Coal Conversion Methods Reviewed," *Science*, 196 (29 Apr. 1977), 508–9; David Lampe, "Ersatz Gasoline: Forgotten Archives Yielding Secret of How German Army Ran a War on Fuel from Low-Grade Coal," *Science Digest*, 82 (Oct. 1977), 65–67; Howard S. Goller, "Liquid Coal," *Kansas City Times*, six-article series, 21 Nov.–26 Nov. 1977, featuring interviews with Albert Speer and Wilbur C. Schroeder, the former head of the U.S. Technical Oil Mission; Mort Schultz, "Fuel for the Führer," *Popular Mechanics*, 152 (Nov. 1979), 102–3+; Arnold Krammer, "Technology Transfer as War Booty: The U.S. Technical Oil Mission to Europe, 1945," *Technology and Culture*, 22 (Jan. 1981), 68–103; "The Shelf Life of 'the Formula,'" *Newsweek*, 97 (9 Feb. 1981), 69–71; Kent Demaret, "Discovery," *People's Weekly*, 15 (6 Apr. 1981), 135–36+; and "Nazis' Documents on Synthetic Fuel, Center of Storm," *The Washington Star*, 20 Apr. 1981, B-7.

39. Kurt J. Irgolic to Peter Bretnall, 22 June 1984, in my possession.

40. R. Calvert *et al.*, "The German Document Retrieval Project," MS prepared by the Center for Energy and Mineral Resources, Texas A & M University, n.d., 12 pp., in my possession. After the war the Bureau of mines had constructed two synthetic fuels demonstration plants in Louisiana and Missouri, but they were shut down by the Eisenhower administration in 1954, reportedly on the recommendation of the National Petroleum Council and other representatives of the petroleum industry. See L. L. Newman, "Synthetic Oil," *Federal Science Progress*, 1 (Feb. 1947), 11–13; Richard H. K. Vieter, "The Synthetic Liquid Fuels Program: Energy Politics in the Truman Era," *Business History Review*, 54 (1980), 1–34.

Chapter Five

1. Clay to Echols, 4 Oct. 1946, RG 165, box 351, file WDSCA 387.6, sec. 4, NA.

2. "Technical Experts Needed," *Chemical Industries*, 58 (Jan. 1946), 46.

3. The quotation is from the proposed press release, dated 11 Mar. 1946, attached to E. W. Gruhn, JIOA, to Secretary, JIC, memorandum, 11 Mar. 1946, RG 218, JCS central decimal files, box 95, file CCS 471.9, sec. 5, NA. The proposed release is reproduced in the appendix at the end of this volume.

4. Green to Editors of All Principal Trade Papers, 27 Mar. 1946, RG 40, box 99, file Document Research, WNRC.

5. Green to Haertel, 10 Apr. 1946, RG 40, box 26, file TIID—General Correspondence, 1945–46, WNRC.

6. Reiss to Green, subj: progress report, 12 Apr. 1946, RG 40, box 26, file TIID—Progress Reports by Reiss, WNRC; TIID, progress report no. 10, 1 Nov. 1946, RG 40, box 99, WNRC; TIID, progress report no. 11, 10 Dec. 1946, *ibid.*; Webb to George C. Richert, 23 Dec. 1946, RG 40, box 102, Chronological file no. 4, WNRC.

7. Priscilla A. Deutsch, "What Do We Want from Germany?" *Food Industries*, 18 (June 1946), 81–82.

8. "Industries Asked to Probe German Technology," *Science News Letter*, 49 (4 May 1946), 279.

9. Addinall to Chemical Unit, TIIB, 21 Feb. 1946, RG 40, box 163, file Returned, WNRC.

10. "Notes on the Pharmaceutical Meeting of April 10, 1946," RG 40, box 163, file Minutes, WNRC.

11. Department of Commerce, Publication Board, press release OPB-93, 15 Apr. 1946, RG 40, box 108, file 1–99, WNRC.

12. "Scientific Cleanup," *Business Week*, 18 May 1946, 19–20; Gruhn, JIOA, to SecState Byrnes, 23 Nov. 1945, RG 40, box 26, file TIID—General Correspondence, 1945–46, WNRC; TIID, Electronics and Communications Unit, review, 1 Jan. 1947, RG 40, box 99, file Year End Review, WNRC; "German Technical Developments," *Federal Science Progress*, 1 (Feb. 1947), 18.

13. Warren F. Faragher, "Collecting German Industrial Information," *Chemical and Engineering News*, 26 (27 Dec. 1948), 3816–20; Albert E. Miller, Chairman, API Technical Oil Mission Study, to John C. Green, 24 Jan. 1951, RG 330, JIOA General Correspondence, box 33, file Army-Miscellaneous, NA.

14. Edwin Y. Webb to Sosthenes Behn, 21 Mar. 1946; Behn to Webb, 8 Apr. 1946; Webb to Behn, 9 Apr. 1946, all in RG 40, box 116, file ITT, WNRC.

15. Reynolds to Reiss, 5 Sept. 1946, RG 40, OTS Webb files, box 123, file TJB—Amo Desk, WNRC.

16. *New York Times*, 26 May 1947, 35.

17. N. G. Gillis, statistical information on material and investigations, FIAT, 13 June 1947, RG 260, 7,748th Unit, box 3, file Reports, WNRC.

18. OMGUS, FIAT, Enemy Documents Branch, daily journal, 29 June 1946, RG 260, FIAT records, box 17/8, file 3, WNRC, says the FIAT library had 23,381 reports on file on that date. T. G. Haertel, FIAT, to Green, progress report no. 52, 5 Dec. 1946, RG 40, OTS Worden and Mayer files, box 98, file Progress Reports, 1946, WNRC, says the FIAT library had over 30,000 technical reports available for use by investigators.

19. FIAT to All Committee Chairmen, subj: new billetting arrangements for technical personnel, 9 July 1946, RG 40, box 26, file TIID—General Correspondence, 1945–46, WNRC; Reiss to Unit Chiefs, 16 July 1946, RG 40, OTS Hilbourne files, box 147, file Reiss, WNRC; Richard J. Fontera, FIAT, to Mr. Mayer, TIIC, 17 Sept. 1946, RG 40, box 86, file Fontera, WNRC; T. G. Haertel, "Three Months in Germany: A Factual Account in Fiction Form of the Investigation of German Industrial 'Know-How,'" *Federal Science Progress*, 1 (Apr. 1947), 7.

20. Green to Whom It May Concern, 20 May 1949, RG 40, box 107, file FIAT Declassified Reports, WNRC. See also FIAT, "Handbook for the Guidance of Members and Leaders of Field Teams Operating under the Authority of Field Information Agency, Technical (U.S.)," 6 Sept. 1945, copy in RG 260, FIAT 7,771st Document Center, box 14, WNRC; Reiss to Unit Chiefs, 16 July 1946, RG 40, OTS Hilbourne files, box 147, file Reiss, WNRC; Worden to Reiss, subj: speech given at annual meeting of American Body Engineering Society, 23 Apr. 1947, RG 40, box 88, file Inter-Office Memoranda, Reiss, WNRC.

21. Edwin Ware Hullinger, "World's Greatest Treasure Hunt," *Nation's Business*, 33 (Oct. 1945), 21.

22. USGpCC, subj: establishment of Field Information Agency, Technical (FIAT), U.S. component, 14 July 1945, RG 260, USGpCC records, 1944–45, box 10, WNRC; FIAT, "Handbook for the Guidance of Members and Leaders of Field Teams Operating under the Authority of Field Information Agency, Technical (U.S.)," 6 Sept. 1945, copy in RG 260, FIAT 7,771st Document Center, box 14, WNRC.

23. Walter J. Murphy, "The Job Still Is Unfinished: Some Thoughts on the Collection and Dissemination of Technical and Scientific Information from Occupied Countries," *Chemical and Engineering News*, 23 (10 Sept. 1945), 1530.

24. "German Industrial Know-How at 5 & 10 Prices," *Modern Industry*, 11 (15 June 1946), 150–62. See also "Technical Investigations in Germany: Some Observations by a Recent Investigator," *Chemistry and Industry*, 27 Sept. 1947, 588, for a British comment that "most Germans appeared anxious to cooperate with the team and rarely made any attempt to suppress facts or mislead the investigators."

25. Paul M. Tyler to Robert Reiss, TIID, 7 May 1947, with attached "Technical Intelligence Investigations of Metals and Minerals in Germany," n.d. [prepared some months before May 1947 for a talk to students], RG 40, OTS Hilbourne files, box 152, file Tyler, WNRC.

26. Leslie E. Simon, *German Research in World War II: An Analysis of the Conduct of Research* (New York, 1947), vii.

27. "Dustbin" detainees could also be held briefly without exploitation. See FIAT, subj: qualifications of new DUSTBIN detainees, 7 Jan. 1946, RG 332, ETO, MIS-Y Section records re FIAT, 1945–47, box 103, WNRC, which states, "If exploitation on the new arrival is not started within four weeks, procedures for his release will be started automatically."

28. Roger Adams, Head, Chemistry Department, University of Illinois, to Frank B. Jewett, President, National Academy of Sciences, 25 June, 1946, file GOVT: IR: OMGUS, 1945, 1946, National Academy of Sciences papers, Washington, D.C. Adams's description of the menial tasks required of "Dustbin" detainees is, perhaps, indicative of how unusual he found such treatment to be. See also RG 332, ETO MIS-Y Section, FIAT (DUSTBIN), box 102, file Period Status Reports, 1945–47, WNRC, for reports covering the period from Aug. 1945 to 25 Nov. 1946, which show the nature of the homework assignments and the dates of completion.

29. USFET, G-2, subj: letter of clearance, 12 Dec. 1945; Major Myron W. Warren, OMG W/B, to Public Safety Officer, OMG Heidenheim, subj: receipt of documents, 19 Dec. 1945, RG 260, box 12/197-2, file 3, WNRC.

30. OMG U.S. Zone to FIAT, subj: actions of German individuals at Brown-Boveri et Cie, AG, 3 Jan. 1946, RG 40, OTS Webb files, box 126, file DI 254–78, WNRC; Charles Fahy, Director, Legal Division, OMGUS, to FIAT, subj: right of U.S. to remove from Germany documents and information, and related questions, 3 Nov. 1945, RG 260, box 11/2-2, file 19 (98 Scientific Research), WNRC.

31. FIAT, Industry Branch, weekly progress report, 1–15 May 1946, RG 40, box 99, file Staff Memoranda, 1946, WNRC.

32. Reiss to Green, subj: progress report no. 6, 28 June 1946, RG 40, box 26, file TIID—Progress Reports by Reiss 1946–47, WNRC. British T-Force units apparently regarded German noncompliance as a violation of legal orders and thus an infringement on the Additional Terms of Surrender, Section V, Article 12, "a serious offense." See Captain H. Howard, No. 1 T-Force Unit, to Manager, Gutehoffnungshütte Forschungsinstitut, Oberhausen-Sterkrade, 29 Sept. 1947, file NW 99, no. 28, HSA Düsseldorf.

33. Ernst Rogowski to Eberhardt, Staatssekretariat für besondere Aufgaben (DBfF), 12 Feb. 1947, file EA 1/11, 16, HSA Stuttgart.

34. Degussa to Grosshessisches Staatsministerium, Minister für Wirtschaft und Verkehr, subj: Besuche industrieller Betriebe durch amerikanische und nicht-amerikanische Wirtschaftsoffiziere, 8 Oct. 1946, file Verhandlungen mit Besatzungsbehörden, 1 Apr. 1945 bis . . . , Degussa archives.

35. Auszug aus Aktenvermerk über die 8. Sitzung "Forschungskontrolle" im Länderrat 25 Mar. 1947, subj: Betriebsbesichtigung durch Ausländer, file EA 6/3, 321, HSA Stuttgart.

36. H. A. Waldrich, GmbH, Maschinenfabrik, Siegen/W., to Wirtschaftsverband Maschinenbau, Düsseldorf-Oberkassel, 29 Apr. 1947, file NW 99, no. 63, HSA Düsseldorf.

37. W. C. Schroeder, "Investigation by the U.S. Government Technical Oil Mission," *American Petroleum Institute Proceedings*, 25, no. 3 (1945), 24–29; Warren F. Faragher, "Collecting German Industrial Information," *Chemical and Engineering News*, 26 (27 Dec. 1948), 3816–20.

38. Dr. Robert Gehrke to Wirtschaftsministerium Düsseldorf, 25 July 1950, file NW 99, no. 58, HSA Düsseldorf. A German description of the meeting and the suggestion that attendance was akin to a command performance is given by Dr. Ewers, Wirtschaftsministerium NRW Düsseldorf, to *Land* Commissioner, BAOR 4, Düsseldorf, 19 Aug. 1950, *ibid.* Ewers states: "Im Januar 1947 hatte Dr. Faragher von der Field Information Agency Technical (FIAT) eine grössere Zahl von Fachkräften aus der chemischen Industrie zu einer Besprechung nach Leverkusen gebeten. Auf dieser Besprechung wurde den deutschen Wissenschaftlern die Ausarbeitung von Berichten über das Fischer-Tropsch-Verfahren zur Synthese von Kohlenwasserstoffen übertragen. Eine Befragung der einzelnen Herren über die Bereitwilligkeit zur Übernahme der zugewiesenen Arbeiten fand nicht statt."

39. Various letters in file NW 99, no. 58, HSA Düsseldorf.

40. Warren F. Faragher, "Collecting German Industrial Information," *Chemical and Engineering News*, 26 (27 Dec. 1948), 3818. See also Haertel to Green, weekly report no. 32, 11 Apr. 1946, RG 40, box 156, file FIAT letters from Haertel, WNRC: "The matter of paying German scientists for preparing papers for us is a particularly sticky one, especially where the scientists were known to be Nazis."

41. Albert E. Miller, Chairman, API Technical Oil Mission Study, to Green, 24 Jan. 1951, RG 330, JIOA General Correspondence, box 33, file Army-Miscellaneous, NA.

42. See John H. Backer, *Priming the German Economy: American Occupational Policies, 1945–1948* (Durham, N.C., 1971), esp. chap. 5, pp. 126–56, for details on the Joint Import-Export Agency (JIEA).

43. HICOG, Office of Economic Affairs, to Dr. H. Tramm, 12 May 1950, RG 330, JIOA General Correspondence, box 31, file Department of State, NA.

44. Dr. Ewers, Wirtschaftsministerium NRW Düsseldorf, to *Land* Commissioner, BAOR 4, Düsseldorf, 19 Aug. 1950, file NW 99, no. 58, HSA Düsseldorf.

45. Director, JIOA, to Geoffry W. Lewis, GER, State Department, subj: Tramm report, 25 July 1950, RG 330, JIOA General Correspondence, box 31, file Department of State, NA. See Ralph M. Osborne, Department of the Army, to JIOA, subj: Tramm report, 7 Feb. 1951, RG 330, JIOA General Correspondence, box 35, file Army-Miscellaneous, NA, in which Osborne refers to a cable that showed Ruhrchemie asking ECA for equipment valued at $245,000, and suggests that if Ruhrchemie needed the equipment, perhaps they could exert pressure on Tramm to deliver the manuscript prepared for FIAT.

46. Director, JIOA, to Quartermaster General, subj: Tramm report on Fischer-Tropsch process, 1 Feb. 1951, RG 330, JIOA General Correspondence, box 35, file Army-Miscellaneous, NA; Green to Ellis, JIOA, subj: JIOA-Commerce Mission to acquire scientific report, 28 Mar. 1951, *ibid.*, box 35, file Department of Commerce, NA; Green, office memorandum, subj: Tramm report, 9 Feb. 1951, *ibid.*; JIOA to CINCEUR, JCS-87396, 2 Apr. 1951, *ibid.*, box 34, file Cables, NA.

47. Green to Faragher, Excelsior Hotel, Frankfurt, 5 Sept. 1951, RG 330, JIOA General Correspondence, box 35, file Department of Commerce, NA. A cross-reference sheet in the JIOA files refers to a letter from Green to Faragher, albeit without giving the date of the letter, directing him to stop acting as a U.S. government representative upon receipt of the letter.

48. Arnold Krammer, "Technology Transfer as War Booty: The U.S.

Technical Oil Mission to Europe, 1945," *Technology and Culture*, 22 (Jan. 1981), 99.

49. "Buna Is Back at Hüls," *Chemical and Engineering News*, 36 (6 Oct. 1958), 124–28; "West German Synthetic Rubber Plant," *The Engineer*, 208 (23 Oct. 1959), 489–90.

50. Department of Commerce, Publication Board, press release, 29 May 1946, RG 40, OTS Worden and Mayer files, box 98, file Press Releases, WNRC.

51. OTS, press release, OTS-450, 30 Oct. 1946, RG 40, OTS Hilbourne files, box 146, file Publication Board, WNRC.

52. Legation of Switzerland, aide-mémoire, 13 Nov. 1946, RG 40, OTS Reiss files, box 156, file FIAT letters from Haertel, Sept.–Nov., WNRC.

53. Green to Reiss, transmittal slip, 15 Nov. 1946, *ibid.*

54. See RG 40, box 107, file Memoranda OTS, WNRC, for an interoffice memorandum of 16 Dec. 1946, attached to the Swiss aide-mémoire, showing that OTS had checked carefully to see that Karas's reports contained no references to "Coffarom" and that Karas had been warned "to withhold mention of this formula in public," a phrase that appeared in the typewritten memorandum, but was penciled over later.

55. Degussa to Grosshessisches Staatsministerium, subj: Besuche industrieller Betriebe durch amerikanische und nicht-amerikanische Wirtschaftsoffiziere [with attached tabulation], 8 Oct. 1946, file Verhandlungen mit Besatzungsbehörden, 1 Apr. 1945 bis . . . , Degussa archives.

56. Dr. Harant, Besuch einer norwegischen Wirtschaftskommission, 18 Mar. 1946, file Knapsack, 1 Mar. 1944–31 Dec. 1946, Natrium, Degussa archives; Harder, Notiz betreffend Besuch eines Angehörigen der kanadischen Armee mit Dolmetscher am 30 Mar. 1946, file Keram. Farben, 1 Mar. 1944–30 Sept. 1949, *ibid.*; W. Kersten, Besuch des kanadischen Leutnants Abbott, in der Abteilung Keramische Farben Werk Gutleutstrasse, am 16, 17, und 18 Apr. 1946, *ibid.*

57. Dipl.-Ing. Anderson, Betriebsforschungen durch alliierte Wehrmachtsangehörige, 17 May 1946, file Verhandlungen mit Besatzungsbehörden, 1 Apr. 1945 bis . . . , Degussa archives; Degussa to Minister für Wirtschaft u. Verkehr, subj: Besuch industrieller Betriebe durch Angehörige nicht amerikanischer alliierter Staaten, 24 May 1946, *ibid.*; Degussa to IHK Frankfurt, subj: Besuch industrieller Betriebe . . . , 24 May 1946, *ibid.*; Dr. F. Scheller, Notiz, Betr. Besuche alliierter Staatsangehöriger in deutschen Fabriken, 27 June 1946, *ibid.*; Dipl.-Ing. Anderson, subj: Unterredung mit Ministerpräsident Prof. Dr. Geiler am 19 June 1946 wegen Betriebserkundungen durch alliierte Wehrmachtsangehörige, 24 June 1946, *ibid.*

58. Degussa to Minister für Wirtschaft u. Verkehr, subj: Stellungnahme zur Meldung der Degussa betr. Besuche durch Angehörige nicht amerikanischer Staaten, 24 May 1946, *ibid.*

59. OMG Greater Hesse, Economics Division, to Minister for Economics and Transportation, 24 June 1946, RG 260, FIAT 7,748th Unit, box 1 file 200.2–77, WNRC.

60. Dr. F. Scheller, Notiz. Betr. Besuche industrieller Betriebe durch Ausländer, 16 July 1946, file Verhandlungen mit Besatzungsbehörden, 1 Apr. 1945 bis . . . , Degussa archives.

61. Degussa to Grosshessische Staatsministerium, subj: Besuche industrieller Betriebe durch amerikanische und nicht-amerikanische Wirtschaftsoffiziere, 8 Oct. 1946, *ibid.*

62. Steins, Gen. Mgr. Robert Bosch, to O'Grady, subj: technical data, 20 Mar. 1946, RG 260, box 11/2-2, file 19 (98 Scientific Research), WNRC.

63. O'Grady to OMGUS, Economics Division, subj: visitors and items withdrawn from German concerns [with attached tabulation of visits in Feb. and Mar. 1946], 28 Mar. 1946, *ibid.* For FIAT's difficulties with OMG W/B, see F. H. McBerty to F. O. Robitschek, subj: Stuttgart difficulties and errand, 4 Apr. 1946, and T. G. Haertel to Deputy Chief, FIAT, subj: investigation difficulties in Stuttgart, 12 Apr. 1946, both *ibid.*

64. Osborne, FIAT, to OMGUS, Economics Division, subj: visitors and items withdrawn from German concerns, 11 Apr. 1946, RG 260, box 11/2-2, file 19 (98 Scientific Research), WNRC.

65. Osborne, FIAT, to Chief, Industry Branch, Economics Division, OMG W/B, subj: difficulties in investigation clearance in Stuttgart, 17 Apr. 1946, *ibid.* Osborne sent a similar letter to OMG Bavaria on 9 May 1946, after he had heard of complaints from there. See FIAT to Chief, Finance Division, OMG Bavaria, subj: release of information, 9 May 1946, RG 260, FIAT 7,748th Unit, box 1, file 321.01, WNRC.

66. Verein der Bayerischen Bleistiftfabriken, Nürnberg, Geschäftsstelle Fürth, to Das Staatliche Aussenhandelskontor Bayern, 21 May 1947, file B 102/3767, BA.

67. Optische Werke C. A. Steinheil Söhne to IHK München, 27 Aug. 1947, file B 102/3767, BA.

68. Degussa to Hessisches Staatsministerium, subj: Werksbesichtigungen: Herausgabe von technischen Unterlagen an Investigators, 29 May 1947, file Verhandlungen mit Besatzungsbehörden, 1 Apr. 1945 bis . . . , Degussa archives.

69. Victoria-Werke AG to Bundeswirtschaftsministerium, subj: Deutsche Konstruktionspatente als Kriegsbeute, 22 Nov. 1949, file B 102/3768, BA; Osborne, FIAT, to Chief, Operations Branch, 28 Oct. 1946, RG 260, FIAT 7,748th Unit, box 17/1, file 15, WNRC.

Chapter Six

1. FIAT, "Handbook for the Guidance of Members and Leaders of Field Teams Operating under the Authority of Field Information Agency, Technical (U.S.)," 6 Sept. 1945, copy in RG 260, FIAT 7,771st Document Center, box 14, WNRC; T. G. Haertel, "Three Months in Germany: A Factual Account in Fiction Form of the Investigation of German Industrial 'Know-How'," *Federal Science Progress*, 1 (Apr. 1947), 7; John C. Green, to Whom It May Concern, 20 May 1949, RG 40, box 107, file Declassified Reports, WNRC.

2. Robert Reiss to All Unit Chiefs, memorandum, subj: publicity on TIIB findings, 15 Mar. 1946, RG 40, OTS Worden files, box 88, file TIIB, WNRC.

3. John C. Green, the director of the Office of Technical Services, told the House Appropriations Committee in Jan. 1946 that his office had had several hundred personal visitors and had received about 5,000 written inquiries from industrial and research groups. See U.S. Congress, House, *Hearings before the Subcommittee of the Committee on Appropriations*, 79th Cong., 2d sess., 26 Jan. 1946, 84.

4. John C. Green, "Scientific Information from Enemy Sources and Government Sponsored Research," *Chemical and Engineering News*, 24 (10 July 1946), 1796; Lawrence S. Thompson, "The Bibliography of Scientific and Industrial Reports," *The Journal of Documentation*, 3 (June 1947), 3–8.

5. OTS, publicity brochure, July 1946, RG 40, box 99, file Publicity, WNRC; OTS, seven guides to technology, OTS technology guide circular no. 1, RG 40, OTS Reiss files, box 153, WNRC. See also RG 40, box 108, for a file of special bibliographies.

6. U.S. Congress, House, *Hearings before the Subcommittee of the Committee on Appropriations*, 80th Cong., 1st sess., 26 Feb. 1947, 113–15 and 129. See also Hanns D. Ahrens, *Demontage: Nachkriegspolitik der Alliierten* (Munich, 1982), 62ff, for an account of Congressman Karl Stefan's reception in Kamen, Germany, the sister city of Bloomfield, Nebraska, on 31 May 1948, when he delivered one hundred CARE packages donated by a Nebraska farmer.

7. C. Lester Walker, "Secrets by the Thousands," *Harper's Magazine*, 193 (Oct. 1946), 335–36.

8. *New York Times*, 26 May 1947, 35.

9. John L. Kent, "Manufacturing Advances in Wartime Germany: Machines and Processes Which Were Developed in Competition with Allied Engineering Brains Are Now Available to U.S. Industry," *Scientific American*, 178 (Apr. 1948), 161–64.

10. The OTS solicited voluntary responses from 425 former investigators on 15 Aug. 1946, but the replies, some of which were filed in a folder labeled "Boosters," were few in number and apparently disappointing. A progress report of 30 Aug. shows thirty-seven replies having been received by the end of the month, but there is no further reference to the number of replies in later reports. I have, however, found a few bearing later dates in the OTS records. See John C. Green, OTS, memorandum for all former TIIC investigators, 15 Aug. 1946, RG 40, box 116, file Inter-Office Memoranda, WNRC, and TIID, progress report no. 8, 30 Aug. 1946, RG 40, box 99, WNRC.

11. Dick Ranger to Dear R. S., 10 June 1945, RG 40, box 110, file Reports of TIIC, folder TIIC/C Investigators' Reports—Informal, WNRC.

12. TIID, progress report no. 10, 1 Nov. 1946; TIID, progress report no. 11, 10 Dec. 1946, both in RG 40, box 99, WNRC.

13. Ranger to Robert Reiss, OTS, 2 May 1947, RG 40, OTS Reiss files, box 153, file Replies to Letters of 29 Apr. 1947, WNRC.

14. A. Orden, Electronics Section, Bureau of Standards, to E. Y. Webb, OTS, 3 June 1947, RG 40, box 115, file Magnetophone, WNRC; Ranger to Webb, 2 July 1947, RG 40, box 117, file Ranger, WNRC.

15. Speed to Webb, 28 Jan. 1947, attached to progress report no. 13, Jan. 1947, p. 21, RG 40, box 26, file TIID—Progress Reports by Reiss 1946–47, WNRC.

16. Goss to Robert Reiss, TIID, 12 Dec. 1946, RG 40, OTS Reiss files, box 153, file TIID, WNRC; Goss to the author, 28 Oct. 1981, in my possession. John C. Green read portions of Goss's letter of 12 Dec. 1946 in testimony before a subcommittee of the House Appropriations Committee on 26 Feb. 1947. See U.S. Congress, House, *Hearings before the Subcommittee of the Committee on Appropriations*, 80th Cong., 1st sess., 26 Feb. 1947, 131.

17. Reiss to Green, memorandum, 2 Mar. 1948, RG 40, OTS Reiss files, box 153, file Budget, WNRC.

18. "German Fibers," *Business Week*, 13 Oct. 1945, 63–66+; "German Textiles Relied Heavily on Synthetics," *Textile World*, 95 (Oct. 1945), 139+; Ernest C. Grier, "Germans Trailed U.S. in Throwing and Twisting," *ibid.*, 96 (Apr. 1946), 123–25; "Denkendorf Reports Disclose Advanced German Technology," *ibid.*, 97 (Mar. 1947), 133–37; "German Textile Technology Can Advance U.S. Industry," *ibid.*, 96 (May 1946), 101–15; "German Fibers," *Chemical and Metallurgical Engineering*, 53 (Feb. 1946), 162–63; "Reports from Germany," *Mechanical Engineering*, 68 (July 1946), 657–58.

19. Costa to Green, 19 Oct. 1946, RG 40, box 99, file Year End Review, WNRC.

20. Peter J. Whelihan, "German Genius Pays a Debt," *Nation's Business*, 37 (May 1949), 80.

21. Phillips to Reiss, TIID, 4 Sept. 1946, RG 40, OTS Reiss files, box 153, file TIID, WNRC.

22. Waugh to Green, 16 Dec. 1946, RG 40, OTS Worden files, box 90, file John D. Waugh, WNRC.

23. Banca to Albert M. Orme, TIIC, 21 Jan. 1946, RG 40, OTS Webb files, box 124, file Banca, WNRC.

24. Buck to Webb, 27 Oct. 1947, RG 40, box 102, Chronological file no. 6, WNRC.

25. Jackson to Reiss, 17 Dec. 1946, RG 40, box 99, file Year End Review, WNRC.

26. Reiss to Green, subj: products or processes now being manufactured or used in American industry as a result of our investigations in Germany, 20 May 1947, RG 40, OTS Hilbourne files, box 147, file Reiss, WNRC. It is indicative of how hard it is to come by information on American companies' use of German technology that after John C. Green presented some of Reiss's information in testimony before Congress, some firms denied vigorously that they had, in fact, used or benefited from German technology. For example, Bruce K. Brown, of the Standard Oil Company, denied Green's assertion that Stanolind Oil and Gas Company of Kansas was using Fischer-Tropsch process techniques, arguing that the information was available before the war and that the basic principles were generally known. U.S. research laboratories and pilot plants, he said, had existed in the United States "since well before World War II." But this argument flies in the face of the verifiable fact that the U.S. Technical Oil Mission swarmed over Germany in 1945 and that the American Petroleum Institute and the Bureau of Mines sent several follow-up missions to Germany to gather information on the Fischer-Tropsch process—information that, as we have seen elsewhere in this study, American industry and the American government continued to try to expropriate as late as 1951. See Brown to Representative Karl Stefan, in U.S. Congress, House, *Congressional Record*, 80th Cong., 2d sess., 5 Mar. 1948, 2238, and above, chap. 5, pp. 85–88. Further, W. A. Steiger, the patent attorney for Westinghouse Electric Company, wrote to Congressman Karl Stefan—also in response to Green's testimony before Congress—that the OTS/FIAT operation had been useless to his company. "So far as our company is concerned, I have investigated the situation, and it is my personal opinion that this particular Government activity is of no value to us." Steiger to Stefan, 1 Mar. 1948, *ibid.*, 2238–39. Green reacted by informing Steiger that OTS records showed that between 1945 and Feb. 1948, Westinghouse had purchased 388 copies of reports at a total cost of $795.75. See Green to Steiger, 30 Mar. 1948, RG 40, OTS Reiss files, box 153, file Green, WNRC.

27. OTS, TIID, "Collection of Technical Industrial Intelligence in Germany," 10 Dec. 1946, esp. p. 13, RG 40, box 26, file TIID—Inquiries . . . 1946–47, WNRC.

28. Publication Board, press release OPB-57, 3 Mar. 1946, RG 40, box 108, file 1–99, WNRC; program, "Transportation Corps Display of Captured Materiel," Army Service Forces, Fort Monroe, Virginia, 4–8 Mar. 1946, RG 40, box 85, WNRC; clippings from *Railway Age*, 9 Feb. 1946 and 16 Mar. 1946, in letter from Anne O. Benoff, Manager, Educational and Informational Services, Association of American Railroads, to the author, 5 Aug. 1981, in my possession.

29. Brochure and notice in RG 40, box 85, WNRC.

30. Program, "Exhibition of German Machine Tools," Frankford Arsenal, RG 40, OTS Worden files, box 92, WNRC.

31. C. S. Weaver, FIAT, to Albert M. Orme, Civilian Production Administration, 3 Sept. 1946, RG 40, box 115, file Correspondence, OTS, WNRC; OTS, press release, OTS-404, 27 Sept. 1946, RG 40, box 108, file 400–499, WNRC; OTS, press release on Frankford Arsenal exhibit, 16 Apr. 1947, RG 40, OTS Worden and Mayer files, box 98, file Press Releases 300–, WNRC.

32. TIID, Machinery Unit, progress report for Machinery Unit, Nov. 1946, RG 40, box 99, file Progress Reports, 1946, WNRC; program, "Exhibition of German Machine Tools," Frankford Arsenal, RG 40, OTS Worden files, box 92, WNRC.

33. E. Y. Webb to Robert Reiss, OTS, with attached OTS press release, "German Technology in American Industry," 26 Mar. 1948, RG 40, box 102, Chronological file no. 6, WNRC.

34. Publication Board, press release OPB-60, 6 Mar. 1946, RG 40, box 108, file 1–99, WNRC.

35. Publication Board, press release OPB-60, 6 Mar. 1946, RG 40, box 108, file 1–99, WNRC; Henry A. Wallace, "A Way to Check Depressions," *The American Magazine*, 141 (June 1946), 132; TIID, progress report no. 10, 1 Nov. 1946, RG 40, box 99, WNRC.

36. Reiss to Green, subj: progress report no. 6, 28 June 1946, RG 40, box 26, file TIID—Progress Reports by Reiss 1946–47, WNRC; TIID, progress report no. 10, 1 Nov. 1946, RG 40, box 99, WNRC; "Register of Visitors Observing Bosch Condenser Tissue Lacquering and Metallizing Facilities," n.d. [exhibit began on 26 Sept. 1946], RG 40, box 128, WNRC.

37. E. Y. Webb to Robert Reiss, OTS, with attached OTS press release, "German Technology in American Industry," 26 Mar. 1948, RG 40, box 102, Chronological file no. 6, WNRC.

38. Goodall to Webb, OTS, 4 May 1948, RG 40, OTS Webb files, box 124, file TIIC, WNRC. The information that he had a contract with the military is in Webb to Reiss, 26 Mar. 1948, RG 40, box 102, Chronological

file no. 6, WNRC; the information that he asked for two experts—about whom I have been unable to find additional information—is in TIID, progress report no. 10, 1 Nov. 1946, RG 40, box 99, WNRC.

39. Department of Commerce, press release, RG 40, box 114, file American Lava Company, WNRC; Webb to Reiss, OTS, 26 Mar. 1948, RG 40, box 102, file Chronological file no. 6, WNRC.

40. Thurnauer to Webb, OTS, 9 May 1947, RG 40, box 114, file American Lava Company, WNRC; shipping instructions, FEA for JIOA, attn: Safety and Technical Subcommittee, n.d., RG 260, FIAT records, box 17/18, file 25, WNRC.

41. Publicity notice regarding SAE German engineering evaluation meeting, Detroit, 4 Mar. 1946, sent to me by SAE, Warrendale, Pa., in my possession; *SAE Journal*, 54 (June 1946), 20–32; T. G. Haertel, FIAT, "Summary of 1946 Overseas Operations, TIID," 20 Nov. 1946, RG 40, OTS Reiss files, box 156, file FIAT letters from Haertel, Sept.–Nov. 1946, WNRC; Worden to Haertel, 27 May 1946, RG 40, OTS Worden files, box 87, file Foreign Offices: Correspondence, 1946, WNRC; Ray L. Hicks to Robert Frye, 10 June 1946, RG 40, box 101, Day file OTS, WNRC.

42. TIID, progress report no. 10, 1 Nov. 1946, RG 40, box 99, WNRC; TIID, progress report no. 11, 10 Dec. 1946, *ibid.*; E. W. Gruhn, JIOA, to SecState Byrnes, 23 Nov. 1945, RG 40, box 26, file TIID—General Correspondence, 1945–46, WNRC; AmEmbassy Paris to USPOLAD, 18 Feb. 1946, RG 84, box 760, file 7 (854 Patents, Trademarks, Copyrights), WNRC; TIID, Electronics and Communications Unit, review, 1 Jan. 1947, RG 40, box 99, file Year End Review, WNRC.

43. S. R. Ryan to Webb, OTS, 15 Nov. 1946, RG 40, box 99, file Progress Reports, 1946, WNRC; "German Technical Developments," *Federal Science Progress*, 1 (Feb. 1947), 18; George H. Copeland, "Nazi Science Secrets: A Technological Treasure Hunt in Conquered Germany Enriches U.S. Research and Business," *New York Times Magazine*, 23 Feb. 1947, 33–35; "Introductory Speech for the Showing of the 'Girl of My Dreams,'" George Washington University, 21 Mar. 1947, RG 40, OTS Webb files, box 102, Chronological file, WNRC.

44. O. R. Hauser, President, and B. Hofmann, National Secretary, American Relief for Germany, Inc., to E. Webb, OTS, 1 Feb. 1947, RG 40, box 115, file Senatorial Correspondence, WNRC. Hauser and Hofmann also asked Senators James O. Eastland, of Mississippi, and Alexander Wiley, of Wisconsin, to intercede on their behalf. See Eastland to Webb, 1 Feb. 1947, *ibid.*, and Webb to Wiley, 20 Feb. 1947, RG 40, OTS Reiss files, box 153, file Webb, WNRC. Copeland, "Nazi Science Secrets," reports that the film's "color has been described almost lyrically by reviewers."

45. Thorp to Green, 29 Apr. 1947, RG 40, box 115, file Senatorial Correspondence, WNRC.

46. Webb to Reiss, 6 May 1947, *ibid.* It will be noted that in this instance there is no reference to "intellectual reparations" as FIAT's justification for taking things. It is now payment for food and supplies.

47. Webb to Reiss, 17 Nov. 1947, RG 40, box 102, Chronological file no. 6, WNRC.

48. F. J. Baum, Northrop Aircraft; W. C. Heath, Solar Aircraft Co.; and L. R. Worden, ARCO, to Executive Secretary, Aeronautical Subcommittee, report, 25 May 1946, RG 40, box 86, file Heath, WNRC.

49. T. G. Haertel, FIAT, "Summary of 1946 Overseas Operations, TIID," 20 Nov. 1946, RG 40, OTS Reiss files, box 156, file FIAT letters from Haertel, Sept.–Nov. 1946, WNRC. See also George Scatchard to Clay, subj: evaluation of FIAT information, 4 Nov. 1946, RG 260, Shipment 3, box 176-3, file 9 (Patents—FIAT Evaluations), WNRC, for a comment—attributed to Bradley Dewey, the president of the American Chemical Society—"that most valuable material is not in reports but in the ideas which [the] investigator keeps in his own head."

50. U.S. Congress, House, *Hearings before the Subcommittee of the Committee on Appropriations*, 79th Cong., 2d sess., 26 Jan. 1946, 77; John C. Green, "Last Call for Germany," *Federal Science Progress*, 1 (Feb. 1947), 24–25; John C. Green, "Technology Imports from Germany: New World-Trade Opportunities," *Foreign Commerce Weekly*, 27 (3 May 1947), 3. Noteworthy is Green's use of the singular ("American firm"), which implies that the information was not part of that shared with the rest of the industry.

51. Green to Haertel, 12 Nov. 1946, RG 40, OTS Reiss files, box 156, file FIAT letters to Haertel, WNRC. Kent, in "Manufacturing Advances in Wartime Germany," commented that "some of the smallest details may prove a great advantage to an American company" (p. 164).

52. Haertel to Green, 21 Nov. 1946, RG 40, OTS Reiss files, box 156, file FIAT letters from Haertel, WNRC.

53. Green to Haertel, 14 Mar. 1946, *ibid.*, file FIAT letters to Haertel, WNRC.

54. Haertel to Green, weekly report no. 39, 30 May 1946, RG 40, OTS Reiss files, box 156, file FIAT letters from Haertel, WNRC. There are internal references by German firms to investigators who said they had to file reports as part of their missions but who left a clear impression that they would be perfunctory at best. See H. Kohl, Zweiter Besuch von Dr. Harbert . . . am 24 Apr. 1946, file Keram. Farben 1 Mar. 1944–30 Sept. 1949; Albrecht, Notiz betr. Besuch des Herrn Waterfall . . . 5 Aug. 1946, file Durferrit, 1 Apr. 1946–30 Sept. 1963, no. 4, Degussa archives.

55. Gerald B. O'Grady, OMG W/B, to OMGUS, Economics Division, subj: visitors and items withdrawn from German concerns, 28 Mar. 1946, RG 260, box 11/2-2, file 19 (98 Scientific Research), WNRC.

56. Chief, FIAT, to Economics Division, OMGUS, 11 Apr. 1946, *ibid.*

57. Osborne to O'Grady, subj: difficulties in investigation clearance in Stuttgart, 17 Apr. 1946, *ibid.*

58. Reiss, memorandum for All Industry Units, 3 Apr. 1946, RG 40, OTS Hilbourne files, box 145, file Reports on Targets, WNRC.

59. Reiss to All Unit Chiefs, 7 June 1946, and 16 July 1946, RG 40, box 99, file Staff Memoranda, 1946, WNRC.

60. Reiss to Haertel, 25 July 1946, RG 40, OTS Reiss files, box 156, file FIAT letters to Haertel, WNRC.

61. Clay, OMGUS, to AGWAR, 20 Oct. 1946, RG 260, box 4/2-1, file AG 072, WNRC.

62. Scatchard to Clay, subj: evaluation of FIAT information, 4 Nov. 1946, RG 260, shipment 3, box 176-3, file 9 (Patents—FIAT Evaluation), WNRC.

63. Behn to Edwin Y. Webb, TIID, 8 Apr. 1946, RG 40, box 116, file ITT, WNRC; OTS, press release, RG 40, box 116, file Odarenko, WNRC. See also "Improving American Production," *Mechanical Engineering*, 69 (Feb. 1947), 149, for a story based on the OTS release. The story repeated Odarenko's call to send investigators at once because "the possible signing of a peace treaty and the return to more normal conditions in Germany may eventually bring an end to American investigations."

64. TIID, progress report no. 10, 1 Nov. 1946, RG 40, box 99, WNRC.

65. *New York Times*, 21 Feb. 1947, 17L; Green, "Last Call for Germany," 24–25.

Chapter Seven

1. Clay to McCloy, 29 June 1945, in Jean Edward Smith, ed., *The Papers of General Lucius D. Clay: Germany 1945–1949*, vol. 1 (Bloomington, Ill., 1974), 39–40.

2. OMGUS, Economics Division, [draft] "Amendment to Directive re Administration of Military Government in the U.S. Zone of Germany," Oct. 1945, RG 260, shipment 3, box 150–2, file 3, WNRC.

3. Memorandum of telephone conversation re draft Economics Division order to stop further FIAT shipments, 1 Nov. 1945, *ibid.*

4. OMGUS, Armed Forces Division, to OMGUS, Economics Division, subj: research and experimental equipment located in the U.S. zone, 24 Nov. 1945, *ibid.*

5. Charles D. Ginsburg, OMGUS, Economics Division, to Clifford S. Strike, OMGUS, Industry Branch, subj: removals of industrial capital equipment by FIAT, 15 Feb. 1946, RG 260, FIAT 7,748th Unit, box 4, file 24, WNRC.

6. Clay, OMGUS, to War Department, CC-19959, 6 Dec. 1945, RG 218, JCS decimal files, box 229, file CCS 350.05, sec. 1, NA. Clay also used the occasion to reiterate his position that investigations and Publication Board work should not be run from Washington independently of

the military government in Germany, stating that if the people involved reported directly to Washington he might just as well close out FIAT. See OMGUS to AGWAR, CC-20113, 8 Dec. 1945, RG 260, OMGUS AG decimal files, box 64, file AG 322 (FIAT), WNRC. The War Department replied two days later that all interested parties in Washington agreed that the Publication Board program in Germany was the full responsibility of OMGUS, under the supervision of Colonel Ralph Osborne, the chief of FIAT. AGWAR to USFET, W-87832, 10 Dec. 1945, in OMGUS, Historical Office, *History of Field Information Agency, Technical* (FIAT), *Period 8 May 1945–30 June 1946*, app. 24, p. 130, MS in RG 319, CMH, Historical Manuscripts file, NA. See Osborne, FIAT, to All Branch Chiefs, memorandum, subj: procurement and shipment of equipment, 7 Dec. 1945, FIAT 7,748th Unit, box 4, file 400.7–76, WNRC, for a reference to Clay's order to hold up all FIAT shipments from Germany until the arrival of JCS policy.

7. Clay, OMGUS, to War Department, CC-19959, 6 Dec. 1945, RG 218, JCS decimal files, box 229, file CCS 350.05, sec. 1, NA. For the JCS directive of 3 Oct. 1945, see JCS to CG, USFET, WAR-72620, 3 Oct. 1945, RG 218, JCS, Combined Chiefs of Staff decimal files, 1942–45, box 246, file CCS 350.05 (5-15-45), Sec. 1, NA.

8. JCS to Clay, OMGUS, WAR-91413, 4 Jan. 1946, RG 218, JCS decimal files, box 229, file CCS 350.05, sec. 1, NA.

9. Charles D. Ginsburg, OMGUS, Economics Division, to Clifford S. Strike, OMGUS, Industry Branch, subj: removals of industrial capital equipment by FIAT, 15 Feb. 1946, RG 260, FIAT 7,748th Unit, box 4, file 24, WNRC; FIAT, circular no. 19, operations series 4, subj: FIAT operating procedure for the evacuation of technical intelligence equipment from Germany, 17 Apr. 1946, RG 260, shipment 11, box 2-2, file 19 (98 Scientific Research), WNRC.

10. Osborne to Green, 13 Apr. 1946, RG 260, shipment 11, box 2-2, file 19 (98 Scientific Research), WNRC.

11. R. R. Sayers, Bureau of Mines, to E. Q. Gruhn, JIOA, 28 Jan. 1946, RG 260, FIAT 7,771st Document Center, box 14, file Ind ACE 24, WNRC; AGWAR to OMGUS, WX-97199, 15 Feb. 1946, *ibid.* For the statement that the Bureau of Mines had no money available see OMGUS, FIAT, Osborne, to OMGUS, Economics Division, subj: dollar payments for synthetic oil equipment and other materials requested by Bureau of Mines, 25 June 1946, RG 260, FIAT 7,748th Unit, box 5, file 400.7–76, WNRC.

12. Clay, OMGUS, to War Department, CC-19959, 6 Dec. 1945, RG 218, JCS decimal files, box 229, file CCS 350.05, sec. 1, NA.

13. See Inter-Allied Reparation Agency, *First Report of the Secretary General for the Year 1946* (Brussels, 1947), *passim.*

14. Clay, OMGUS, to JCS, CC-22783, 7 Feb. 1946; JCS to Clay, WAR-

80137, 11 Mar. 1946, both in RG 218, JCS decimal files, box 229, file CCS 360.05, Sec 1, NA.

15. Dorr, AmEmbassy Brussels, to SecState, 3 May 1946, RG 59, box C-247, file 740.00119 EW, NA. For a discussion of the broader context and Clay's frustrations, see my "The American Reparations Stop in Germany: An Essay on the Political Uses of History," *The Historian*, 37, no. 2 (Feb. 1975), 276–96.

16. Clay, OMGUS, to War Department, for Echols, 4 May 1946, RG 165, box 351, file WDSCA 387.6, sec. 2, NA.

17. Chesldine [WDCAD] to My Dear General [either Clay or Draper, OMGUS], 12 June 1946, RG 260, shipment 3, box 150–2, file 3, WNRC, notes that one of the reasons for the Commerce Department's desire to ship directly was to avoid having to pay for the material. Further, it notes that State Department representatives questioned Green's argument that the United States needed the equipment, since the Commerce Department was also gathering plans, drawings, and other documents for distribution to American industry.

18. Kindelberger to UnderSecState, office memorandum, 13 June 1946, RG 59, box 3865, file 750.00119 EW, NA.

19. SecState to AmEmbassy Brussels, 29 May 1946, RG 59, box C-248, file 740.00119 EW, NA; Clay, OMGUS, to War Department, 5 June 1946, and Clay to War Department, 18 June 1946, both in RG 165, box 351, file WDSCA 387.6, Sec. II, NA. The internal discussions on how to deal with IARA could lead us far astray, but their essentials are interesting. One suggestion, attributed to John Kenneth Galbraith, who was in Brussels at the time, was that the United States not try to justify taking unilateral reparations on the ground of urgent need, even though such a justification might be shored up by pointing to the lack of a common policy on German economic unity. "Other nations will certainly feel their needs are more pressing" than ours, states one record of Galbraith's suggestion, and the "U.K. and France . . . may take our statement as a signal for intensified unilateral removals with obvious IARA repercussion." The United States should not even announce its unilateral removals at this time, "particularly in view of Clay's order stopping reparations deliveries." Rather, it should wait and announce them in response to an IARA request (of 20 June 1946) to the United States, the United Kingdom, and France for statements on removals of all kinds. By the time such a statement can be prepared for the United States, "it is presumably possible that withdrawal of Clay's order may occur. . . . Announcement of withdrawal of Clay's order and making of allocations prior to statement as to unilateral removals would much soften IARA reaction." Meanwhile, the United States should take the position that equipment on the FIAT list is of no concern to IARA since FIAT was a cooperative wartime intelligence project undertaken at the expense of the occupying powers, and that removing the materials gathered as wartime intelligence is "not inconsistent with U.S. policy of opposing unilateral removals." "Provided no further removals are made," Galbraith reportedly believed, "this position can be maintained as well as any." Murphy, USPOLAD, to Clay, memorandum, 25 June 1946, RG 260, OMGUS decimal files, AG 1945–46, box 64, file AG 322 FIAT, WNRC.

20. The IARA request of 20 June 1946 is identified and summarized in SWNCC 328/3, 19 May 1947, RG 218, JCS central decimal files, CCS 007 (3-13-45), sec. 7, NA. This document also says that the United States had not yet replied.

21. AGWAR to OMGUS, W-93067, 29 June 1946, RG 260, FIAT 7,748th Unit, box 5, file 400.7–77, WNRC. See Acheson to USPOLAD, 12 July 1946, RG 59, box C-249, file 740.00119 EW, NA, in which Acheson asked Murphy to call OMGUS's attention to the portion of the War Department cable "which prohibits further unilateral removals except under normal reparation procedures."

22. OMGUS to FIAT, subj: shipment of sample items of equipment to the United States, 5 July 1946, RG 260, FIAT 7,748th Unit, box 5, file 400.7–77, WNRC.

23. Clay, OMGUS, to War Department, for Echols, 4 May 1946, RG 165, box 351, file WDSCA 387.6, sec. 2, NA. Clay, OMGUS, to War Department, for CAD, 18 Sept. 1946, *ibid.*, lists the items by number and shows the estimated value of each in *Reichsmarks*, for a total of *RM* 2,554,555.

24. OMGUS to War Department, subj: reparations accounting, 5 Aug. 1946, RG 260, shipment 3, box 150–2, file 3, WNRC.

25. John H. Backer, *Priming the German Economy: American Occupational Policies, 1945–1948* (Durham, N.C., 1971), and my *The American Occupation of Germany: Politics and the Military, 1945–1949* (Stanford, Calif., 1968) and *The Origins of the Marshall Plan* (Stanford, Calif., 1976).

26. Clay, OMGUS, to AGWAR, for Echols, CC-5929, 20 Oct. 1946, RG 84, box 760, file 7 (854 Patents, Trademarks, Copyrights), WNRC.

27. OMGUS, Historical Office, *History of Field Information Agency, Technical* (FIAT), *Period 1 July 1946–30 June 1947*, 9, MS in RG 319, CMH, Historical Manuscripts file, NA; USFA to USFET, P-3995, 16 Sept. 1946, and Reiss to Green, 18 Sept. 1946, both in RG 40, OTS Reiss files, box 156, file FIAT letters from Haertel, WNRC.

28. FIAT, Operations Branch, to Chief, FIAT, subj: entrance of technical investigators to plants in the U.S. zone of Germany, 15 Mar. 1946, RG 260, FIAT 7,748th Unit, box 4, file 10 (370.2 Correspondence . . .), WNRC. See the handwritten memorandum from "Chess" to Major Clay, n.d. (attached to OMGUS, Economics Division [Ginsburg to Strike], subj: removals of industrial capital equipment, 15 Feb. 1946), RG 260,

shipment 11, box 2-2, file 19 (98 Scientific Research), WNRC, which states that "Col McGiffert, Bavaria, phoned today that there are 4 British teams in Bavaria without clearing in Munich; one [consisting of] 6 Lt. Cols., is operating on an expired pass. He has refused to let them in his plants."

29. Osborne to C/S, OMGUS, subj: background information on Department of Commerce activities in Germany, 22 May 1946, RG 260, shipment 17, box 1, file 51, WNRC.

30. O'Grady to OMGUS, Economics Division, subj: visitors and items withdrawn from German concerns, 28 Mar. 1946, RG 260, shipment 11, box 2-2, file 19 (98 Scientific Research), WNRC. See above, chap. 5, pp. 91–92.

31. OMG Hesse, Economics Division, to Minister for Economics and Transportation, 24 June 1946, RG 260, FIAT 7,748th Unit, box 1, file 200.2–77, WNRC. See above, chap. 5, pp. 89–91.

32. Degussa to Grosshessische Staatsministerium, Minister für Wirtschaft und Verkehr, subj: Besuche industrieller Betriebe durch amerikanische und nicht-amerikanische Wirtschaftsoffiziere, 8 Oct. 1946, file Verhandlungen mit Besatzungsbehörden, 1 Apr. 1945 bis . . . , Degussa archives.

33. See Minister für Wirtschaft und Verkehr, Wiesbaden, to various addressees, 10 July 1946, file Abt. 507, no. 716(180), HSA Wiesbaden.

34. Dr. Scheller, Notiz. Betr. Besuche industrieller Betriebe durch Ausländer, 26 July 1946, file Verhandlungen mit Besatzungsbehörden, 1 Apr. 1945 bis . . . , Degussa archives.

35. FIAT to Chief, Finance Division, OMG Bavaria, subj: release of information, 9 May 1946, RG 260, FIAT 7,748th Unit, box 1, file 321.01, WNRC.

36. Mitteilungen der Handelskammer Frankfurt a. Main, no. 8, 1 Apr. 1946, p. 50, copy in file Verhandlungen mit Besatzungsbehörden, 1 Apr. 1945 bis . . . , Degussa archives. See Maschinenfabrik Sack, Düsseldorf-Rath, to Wirtschaftsverband Maschinenbau, Düsseldorf-Oberkassel, 13 July 1946, file NW 99, no. 63, HSA Düsseldorf, and Wirtschaftsverband Maschinenbau to Demag AG, Duisburg, 12 Sept. 1946, subj: Rundschreiben M 10/46, Lieferung von Zeichnungen an die Besatzungsbehörden, file NW 99, no. 60, HSA Düsseldorf, both of which refer to the Wirtschaftsverband Maschinenbau Rundschreiben M 10/46, of which I have been unable to find a copy. See also Oberpräsident der Nord-Rheinprovinz, Düsseldorf, an die Industrie- und Handelskammern [and others], 21 June 1946, file NW 99, no. 58, HSA Düsseldorf.

37. Gerald B. O'Grady, OMG W/B to OMGUS, Economics Division, subj: visitors and items withdrawn from German concerns, 28 Mar. 1946; F. H. McBerty to F. O. Robitschek, FIAT, subj: Stuttgart difficulties and errand, 4 Apr. 1946, both in RG 260, shipment 11, box 2-2, file 19 (98 Scientific Research), WNRC.

38. Osborne to O'Grady, subj: difficulties in investigation clearance in Stuttgart, 17 Apr. 1946, *ibid.* For a discussion of the broader context of Osborne's letter, see above, chap. 5, pp. 91–92.

39. FIAT to Chief, Finance Division, OMG Bavaria, subj: release of information, 9 May 1946, RG 260, FIAT 7,748th Unit, box 1, file 321.01, WNRC.

40. Osborne, FIAT, to General Sibert, G-2, USFET, 3 Aug. 1946, RG 332, ETO, USFET G-2 Section, Miscellaneous Records, 1942–46, box 19, WNRC; USFET to Commanding Generals [and others], subj: entrance of technical intelligence investigators into the occupied zones of Germany and Austria, 10 Aug. 1946, in OMGUS, Historical Office, *History of Field Information Agency, Technical* (FIAT), *Period 1 July 1946–30 June 1947*, app. 22, pp. 105–6, MS in RG 319, CMH, Historical Manuscript file, NA.

41. For details and proposals see AsstSecWar Petersen to SecWar Patterson, 26 June 1946, RG 335, SecWar Patterson subject file (Safe), box 6, file Scientific Research no. 2, WNRC; Osborne to C/S, USFET, subj: Washington discussions on Publication Board program, 17 June 1946, RG 260, OMGUS AGTS files, box 11, file 7 (334 Public Board), WNRC; Osborne to General Sibert, G-2 USFET, 3 Aug. 1946, RG 332, ETO, USFET G-2 Section, Miscellaneous Records, 1942–46, box 19, WNRC; OMGUS, Gailey to Clay, memorandum, 13 Aug. 1946, RG 260, OMGUS decimal files, AG 1945–46, box 64, file AG 322 FIAT, WNRC.

42. Scatchard, a professor of chemistry at the Massachusetts Institute of Technology, had succeeded Roger Adams as Clay's scientific adviser early in 1946. See FIAT, Planning Office, daily journal, 26 July 1946, RG 260, FIAT records, box 17/8, file 4, WNRC, which records that a FIAT official "spent most of the morning" escorting Scatchard around the various branches and sections of FIAT and explaining the operations of FIAT to him.

43. Green to Wallace, 8 Aug. 1946, Truman papers, Official file, box 677, file 192 (1945–Aug. 1947), Truman Library. The reason for the proposed letter to Harriman was that FIAT had a liaison office in London whose function was to facilitate the exchange of information gathered by the British and American investigators, respectively.

44. Reiss to Unit Chiefs, subj: examples of TIID findings useful to industry, 14 Aug. 1946, RG 40, OTS Hilbourne files, box 147, file Reiss, WNRC; Green, memorandum for All Former TIIC Investigators, 15 Aug. 1946, RG 40, box 116, file Inter-Office Memoranda, WNRC.

45. Wallace to Connelly, 14 Aug. 1946, Truman papers, Official file, box 677, file 192 (1945–Aug. 1947), Truman Library.

46. Truman to McNarney, 28 Aug. 1946, and Truman to Harriman, 28 Aug. 1946, both *ibid.*

47. Harriman to Truman, 13 Sept. 1946; Huebner to Dear Mr. President, 9 Sept. 1946, both *ibid.*

48. C. K. G. to General Clay, memorandum, 9 Sept. 1946, RG 260, OMGUS decimal files, AG 1945–46, box 25, file 2 (AG 090 General), WNRC.

49. OMGUS, Acting C/S, to *Land* Directors, subj: national importance of FIAT program, 12 Sept. 1946, RG 260, shipment 17, box 1, file 15, WNRC.

50. See Clay to General H. S. Aurand, Director of Research and Development, WDGS, 9 Sept. 1946, RG 260, OMGUS AG decimal files, box 120, file AG 322 (FIAT), WNRC, which was written on the day that Clay's office received the contents of Truman's letter of 28 Aug. 1946, by telephone from Frankfurt.

51. FIAT, minutes of meeting of Technical Chiefs and Unit Chiefs, 11 Sept. 1946, RG 40, OTS Reiss files, box 156, file FIAT letters from Haertel, WNRC.

52. Haertel to Green, progress report no. 46, 12 Sept. 1946, and Reiss to Green, 18 Sept. 1946, both *ibid.* Robert Reiss, the OTS administrator in the Department of Commerce, was visiting Germany at the time and reported the news that FIAT investigators had been denied access to Austria. He compared the reasons for this (the State Department's desire to stop aggravating Austrian industry "to counteract Russian influence in that area") with the motivations behind "the movement in Berlin (i.e., Scatchard, etc.) to curtail our investigations and document screening program."

53. C/S to DMG, OMGUS, memorandum, subj: TWX conference re FIAT, 18 Sept. 1946, RG 260, OMGUS decimal files, AG 1945–46, box 25, file 2 (AG 080 General), WNRC; OMGUS to AGWAR, CC-4090, 20 Sept. 1946, *ibid.*, box 64, file 11 (AG 322 FIAT), WNRC.

54. Clay, OMGUS, to AGWAR, for Echols, CC-5929, 20 Oct. 1946, RG 84, box 760, file 7 (854 Patents, Trademarks, Copyrights), WNRC.

55. Spencer to Petersen, 15 Oct. 1946, RG 260, shipment 3, box 176-3, file 9 (Patents—FIAT Evaluation), WNRC.

56. Department of State, memorandum of conversation between Todd and Rudlin (U.S.) and Albert Frost (U.K.), 7 Feb. 1947, RG 59, records of the Office of the Assistant Secretary of State for Occupied Areas, 1946–49, box 1, file Germany, NA; memorandum of conversation, subj: termination of technical investigations in Germany, 11 Feb. 1947, *ibid.*, box 5, file 333.5, NA.

57. Clay, OMGUS, to WARCAD, for Noce, CC-7866, 30 Jan. 1947, in OMGUS, Historical Office. *History of Field Information Agency, Technical* (FIAT), *Period 1 July 1946–30 June 1947*, app. 8, MS in RG 319, CMH, Historical Manuscripts file, NA; OMGUS to War Department, 7 Feb. 1947, RG 165, box 354, file WDSCA 387.6, sec. 9, NA.

58. John C. Green, "Last Call for Germany," *Federal Science Progress*, 1 (Feb. 1947), 24; Green to Joseph A. Todd, State Department, subj: rumor of immediate "cut off date" for industrial surveys in Germany, 6 Feb. 1947, RG 59, records of the Assistant Secretary of State for Occupied Areas, box 5, file 333.5, NA.

59. War Department to OMGUS, for Clay, 18 Feb. 1947, RG 165, box 354, file WDSCA 387.6, sec. 9, NA. For references to the continuing discussions see above, n. 56 for this chap.

60. Clay, OMGUS, to AGWAR, CC-8116, 21 Feb. 1947, in OMGUS, Historical Office, *History of Field Information Agency, Technical* (FIAT), *Period 1 July 1946–30 June 1947*, app. 10, MS in RG 319, CMH, Historical Manuscripts file, NA. War Department to OMGUS, 25 Feb. 1947, RG 165, box 354, file WDSCA 387.6, sec. 9, NA. Because the release from Berlin on the termination of FIAT reflects important aspects of the official, public interpretation of the nature and purposes of FIAT as well as the major reason for FIAT's discontinuance, it is worth quoting in full:

"Allied technical investigations into German industry under BIOS and FIAT auspices have been continuing since June 1945. It has been open to all Allies to participate in these investigations and many Allied governments have sent in teams of investigators who have profited from facilities offered them by Zone authorities.

"Results of these investigations are, subject to security considerations, public and available to all.

"British and United States and French authorities having regard for [the] current German economic situation in the western Zones and to increasing difficulties of providing accommodation, etc., have decided to bring all technical investigations in [the] field under BIOS and FIAT auspices to a close. After 15 May 1947, no industrial technical investigators of the above organizations will be permitted to enter British and US and French Zones of Germany and all these industrial technical investigations will be terminated on 30 June 1947. This announcement does not modify or rescind Article 12 of [the] Additional Terms of Surrender issued as Proclamation Number 2 of the Control Council." Text as repeated in Keating, OMGUS, to AGWAR, CC-8566, 28 Mar. 1947, RG 260, OMGUS decimal files, AG 1947, box 120, file AG 322 (FIAT), WNRC.

61. See Osborne to Green, 25 Mar. 1947, and Osborne to Green, 28 Mar. 1947, both in RG 260, FIAT 7,748th Unit, box 3, file 350.09–76, Intelligence General, WNRC, for references to Green's public relations activities. See Reiss to TIID Units, 5 May 1947, RG 40, OTS Worden files,

box 88, file Inter-Office Memoranda, WNRC, for a summary of congressional action as well as the quotation from the House Appropriations Committee.

62. Reiss to TIID Units, 26 May 1947, RG 40, OTS Hilbourne files, box 147, file Reiss, WNRC; FIAT to C/S, OMGUS, subj: termination of FIAT activities (staff study), 29 May 1947, RG 260, OMGUS decimal files, AG 1947, box 120, file 322 (FIAT), WNRC; War Department to OMGUS, 7 June 1947, RG 165, box 356, file WDSCA 387.6, sec. 13, NA; Clay, CINCEUR, to AGWAR, for Noce, CC-9459, 7 June 1947, RG 260, OMGUS decimal files, AG 1947, box 120, file 322 (FIAT), WNRC.

63. War Department to CINCEUR, 21 June 1947, RG 165, box 239, file WDSCA 014 Germany, sec. 23, NA; Clay, CINCEUR, to AGWAR, for Petersen, 23 June 1947, RG 84, box 767, file 35 (May–June/400a), WNRC. At the same time, Clay recommended an end to the denial phase of Project Paperclip, that other aspect of the U.S. scientific and technical exploitation program in Germany: "I should like to point out the illegality and impracticability of the detention of a scientist or any other individual solely because of scientific knowledge, ability or preeminence in his field. The indefinite detention of all or any of the scientists on your denial lists for these reasons is undemocratic and illegal under present laws. All efforts to establish a German government based on democratic principles . . . would be definitely jeopardized." After commenting on the practical problems of denial, such as the lack of suitable housing, the lack of funds for building any, and the shortage of guards and maintenance people under current strength tables, Clay concluded that "those scientists who should be denied other nations and who are politically acceptable should be offered PAPERCLIP contracts and shipped to the United States . . . the denial program in Germany should be abandoned upon the termination of the procurement phase of PAPERCLIP." Clay to JCS, subj: detention of German scientific personnel, 25 June 1947, RG 260, OMGUS AGTS files, box 17, file 5 (370.2 Paperclip), WNRC. For Clay's earlier criticism of the denial program (in July 1946) see above, chap. 3, p. 47.

64. OMGUS, general orders, no. 54, 23 June 1947, RG 260, OMGUS decimal files, AG 1947, box 120, file AG 322 (FIAT), WNRC; FIAT, "Final Summary Report, Field Information Agency, Technical (FIAT)," 1 July 1947, 10 pp., with enclosures, *ibid.* For the record, Assistant Secretary of War Howard C. Petersen did respond to Clay's decision to go ahead unless ordered not to. He transmitted to Clay the text of a memorandum that W. Averell Harriman (who had in the meantime succeeded Henry A. Wallace as Secretary of Commerce) had sent to the Secretary of War. In it Harriman summarized the Commerce Department's position and asked the War Department to direct Clay to continue FIAT until 1 Oct. 1947; but Petersen said he would leave it up to Clay. Petersen to Clay, W-80999, 27 June 1947, RG 84, box 767, file 35 (May–June/400a), WNRC. See also Petersen to Clay, W-81201, 1 July 1947, RG 260, OMGUS decimal files, AG 1947, box 120, file AG 322 (FIAT), WNRC, which tells that Harriman had seen Clay's cables, became convinced of the soundness of the arguments, and agreed that Clay was the best judge of what should be done.

65. For examples see Adlerwerke, Frankfurt, to Filiale Hamburg, 8 July 1947, file C 1211/5, Beschlagnahme von Maschinen . . . , Handelskammer Hamburg archives; Schmid, VfW, to British Zone Ministers of Economics, 8 Aug. 1947, and Dr. Beuchel, Wirtschaftsverband Maschinenbau, to VfW, Referat Demontagefragen, Schmid, 3 Sept. 1947, both in file B 102/3767, BA.

66. Headquarters, Land Niedersachsen, Hannover, to Minister-President, Land Niedersachsen, subj: production of documents, 3 Sept. 1947, file B 102/3767, BA. The authority cited and quoted in this instance was Article 12 of the Additional Terms of Surrender, issued as Allied Control Council Proclamation No. 2, which states, among other things: "Without prejudice to any specific obligations contained in the provisions of the Declaration [regarding the defeat of Germany, signed at Berlin on 5 June 1945] or any proclamations, orders, ordinances or instructions issued thereunder, the German authorities and any other person in a position to do so will furnish or cause to be furnished all such information and documents of every kind, public or private, as the Allied Representatives may require." The full text of the Additional Terms of Surrender is printed in James K. Pollock, James H. Meisel, and Henry L. Bretton, eds., *Germany Under Occupation: Illustrative Materials and Documents* (Ann Arbor, Mich., 1949), 24–32.

67. Headquarters, Land NRW, BAOR, to Wirtschaftsministerium, subj: Beschaffung technisch-industrieller Informationen aus deutschen Quellen, 16 Oct. 1947, file B 102/3936, BA. For the additional lists of 22 Oct. and 8 Dec. see similar letters, *ibid.*

68. See, for example, Dr. Kutscher, Aufzeichnung, Herrn Sen. Rat Schmid vorgelegt, 11 Oct. 1947, *ibid.*, which reports on confidential information Kutscher had received from a "Miss Collins" in the offices of the Bipartite Economic Control Group. According to Kutscher, British officials in these offices had asked for a change in British policy to prohibit further investigations by T-Forces, the Ministry of Supply, and all other British ministries and agencies. Kutscher said he got the information orally, but that he had also been shown copies of correspondence.

Chapter Eight

1. *FRUS*, 1947, 2: 259–60. Although he did not identify the precise location of Green's statement, Molotov may have been referring to an article by George H. Copeland, "Nazi Science Secrets: A Technological Treasure Hunt in Conquered Germany Enriches U.S. Research and Business," *New York Times Magazine*, 23 Feb. 1947, 33–35. More likely, however, he took his information from stories in the Soviet press, stories that *The New York Times* identified and summarized early in 1947. According to the latter (which regarded the stories as a smoke screen for Russia's own reparations demands), D. Melnikov, the author of an item in *New Times* (reprinted in *Pravda*), stated that the United States and the United Kingdom had not announced their demands for reparations, but that they had "already received from Germany reparations valued at more than $10,000,000,000." *New York Times*, 10 Feb. 1947, 11, and 16 Feb. 1947, 3.

2. Alexander Werth, "Marshall's Role in Moscow," *The Nation*, 164 (29 Mar. 1947), 350.

3. *FRUS*, 1947, 2: 261. Marshall, obviously prepared for the exchange, read into the record portions of a letter he had received from Green on 18 Feb. 1947, in which Green had asked him to make inquiries at the Moscow Council of Foreign Ministers (CFM) about Russian removals of technology from their zone of occupation, and about whether they would permit access to it "on similar terms to which they are acquiring the mass of material released by this office [the Office of Technical Services]."

4. Department of State, press release, 26 Mar. 1947, printed in *Department of State Bulletin*, 16 (6 Apr. 1947), 609. See Herbert Feis, *From Trust to Terror: The Onset of the Cold War, 1945–1950* (New York, 1970), 214, where he summarizes the U.S. paper and remarks that it "did not contain any estimate of value of patents and processes procured, which probably were of greater ultimate value than all the rest."

5. Edward A. Routheau, War Department Representative, Publication Board, to USFET, subj: report of visit, 20 Mar. 1946, RG 260, OMGUS decimal files, AG 1945–46, box 64, file AG 322 FIAT, WNRC; Routheau to Deputy C/S, War Department, New Developments Division, subj: report of visit to European theater in connection with Publication Board activities, 1 Apr. 1946, RG 165, New Developments Division decimal files, box 136, file 334 Publication Board no. 1, NA.

6. Clay to Aurand, 9 Sept. 1946, RG 260, OMGUS decimal files, AG 1947, box 120, file AG 322 (FIAT), WNRC. For the record of OMGUS's receipt of the telephonic transmission of Truman's message of 28 Aug. 1946 to General McNarney, see C. K. G., memorandum for General Clay, 9 Sept. 1946, RG 260, OMGUS decimal files, AG 1945–46, box 25, file 2, WNRC. For Byrnes's Stuttgart speech see my "On the Implementation of the Potsdam Agreement: An Essay on U.S. Postwar German Policy," *Political Science Quarterly*, 37, no. 2 (June 1972), 242–69.

7. Clay to Echols, 4 Oct. 1946, RG 165, box 351, file WDSCA 387.6, sec. 4, NA.

8. Scatchard to Clay, subj: evaluation of FIAT information, 4 Nov. 1946, RG 260, shipment 3, box 176-3, file 9 (Patents—FIAT Evaluation), WNRC. Among the scientists he consulted, Scatchard named, cited, or quoted Frank B. Jewett, the president of the National Academy of Sciences; James B. Conant, the president of Harvard University; Karl T. Compton, the president of MIT; Bradley Dewey, the president of the American Chemical Society; and Roger Adams, W. A. Noyes, Jr., Linus Pauling, and Detver Bronk, all of whom were members of the National Academy of Sciences. Among the government officials, he named, cited, or quoted John H. Hilldring, Assistant Secretary of State for Occupied Areas; Howard C. Petersen, Assistant Secretary of War; Willard L. Thorp, Assistant Secretary of State for Economic Affairs; Charles P. Kindelberger, the chief of the State Department's Division of German and Austrian Affairs; and John C. Green, the director of the Commerce Department's Office of Technical Services.

9. Reiss to Green, 17 Sept. 1946, RG 40, OTS Reiss files, box 156, file FIAT letters from Haertel, WNRC; Osborne to C/S, OMGUS, subj: evaluation of technical information secured in Germany, 14 Oct. 1946, with attached excerpt from FIAT, progress report no. 8, 30 Aug. 1946, RG 260, OMGUS decimal files, AG 1945–46, box 6, file 5, WNRC. See above, chap. 7, pp. 126–27, for the origins and context of Wallace's request.

10. T. G. Haertel, FIAT, "Summary of 1946 Overseas Operations, TIID," 20 Nov. 1946, RG 40, OTS Reiss files, box 156, file FIAT letters from Haertel, WNRC; Green, OTS, review, 1 Jan. 1947, RG 40, OTS Reiss files, box 153, file TIID, WNRC.

11. Aurand to Clay, 16 Oct. 1946, RG 260, OMGUS decimal files, AG 1947, box 120, file AG 322 (FIAT), WNRC.

12. Echols to Aurand, subj: accounting for FIAT removals from Germany, 17 Oct. 1946, Aurand papers, box 33, file Staff Memorandum —vol. 1, Eisenhower Library. Echols also told Aurand that he did not want to touch the idea of valuations for purposes of establishing a basis for German firms and individuals to file claims for their losses, an idea that Clay had linked with his proposal for reparations accounting.

13. Echols to Clay, W-84549, 1 Nov. 1946, RG 260, shipment 3, box 150–2, file 13, WNRC.

14. Scatchard to Clay, subj: evaluation of FIAT information, 4 Nov.

1946, RG 260, shipment 3, box 176-3, file 9 (Patents—FIAT Evaluation), WNRC.

15. *Ibid.*

16. Kindelberger to Hilldring, with attached "Valuation of FIAT Material for Reparation Purposes," 19 Nov. 1946, RG 59, file 862.542/11—1946, NA. The only recorded dissent came from Fritz P. Oppenheimer, the legal adviser to the discussion group, who wrote a separate memorandum to Hilldring in which he said he agreed with Clay that an evaluation should be made, even "a very fictitious one," so that it could be used as a bargaining chip to reduce Germany's reparations account if an amount was ever determined. Oppenheimer to Hilldring, 29 Nov. 1946, *ibid.* But other State Department officials also thought about the future. Among the papers on this issue in the State Department files is an undated, unsigned draft of a "Proposed Provision in the Treaty of Peace with Germany re Captured Technology." It suggests wording in the peace treaty that would make it impossible to file claims against the United States for disclosing scientific and technical information taken from Germany under President Truman's Executive Orders 9568 and 9604, or against the recipients of the information distributed in the United States. The draft is filed in RG 59, records of the Assistant Secretary of State for Occupied Areas, 1946–69, box 1, file Germany, NA. I have not attempted to trace the route by which the ideas expressed in that draft got there, but they appear in the Contractual Agreements of 26 May 1952 and the Paris Accords of 23 October 1954. See "convention on the Settlement of Matters Arising out of the War and the Occupation," signed on 26 May 1952, amended on 23 Oct. 1954, and in force 5 May 1955, *The American Journal of International Law*, 49, supp. (1955), 69–120, esp. p. 97, chap. 6, "Reparation," Article 3, which reads:

"1. The Federal Republic shall in the future raise no objections against the measures which have been, or will be, carried out with regard to German external assets or other property, seized for the purpose of reparation or restitution, or as a result of the state of war, or on the basis of agreements concluded, or to be concluded by the Three Powers with other Allied countries, neutral countries or former allies of Germany."

[Paragraph 2 treats assets in Austria.]

"3. No claim or action shall be admissable against persons who shall have acquired or transferred title to property . . . or against international organizations, foreign governments or persons who have acted upon instructions of such organizations or governments."

17. AGWAR to OMGUS, for Clay, WX-89926, 17 Jan. 1947, RG 84, box 767, file 33 (400a Reparations), WNRC.

18. Clay, OMGUS, to War Department, for Noce, CC-7783, 22 Jan. 1947, RG 165, box 357, file WDSCA 387.6, sec. 15, NA, also printed in Jean Edward Smith, ed., *The Papers of General Lucius D. Clay: Germany 1945–1949*, vol. 1 (Bloomington, Ill., 1974), 305–6. See Richard Spencer to Clay, subj: accounting for scientific and technical information obtained through FIAT (reparations), 31 Jan. 1947, RG 260, OMGUS decimal files, AG 1947, box 66, file 5 (AG 211 Science and Technology), WNRC, for an OMGUS Legal Division opinion that there was nothing in the Paris Reparations Agreement to indicate that other nations should have their reparations accounts charged for assets received from the United States through FIAT, in a sense secondhand. The section of the Paris Reparations Agreement quoted in the memorandum reads: "Each signatory government shall, under such procedures as it may choose, hold or dispose of German enemy assets. . . . and shall charge [such assets] against its reparations share."

19. For an indication of the nature of the request—or perhaps of the reception it got—with respect to FIAT removals see CNO to COMNAVFORGER, 221813, 23 Mar. 1947, RG 84, box 767, file 34 (Mar.–Apr./400a), WNRC, in which the Chief of Naval Operations asked the Commander of Naval Forces, Europe, for the list with estimated values of the items so far as possible. He added that "Personal removals, items of lesser value than $100, and *FIAT removals need not be included*" (italics mine).

20. SWNCC 328/3, 19 May 1947, RG 218, JCS central decimal files, CCS 007 (3-13-45), sec. 7. NA. For the record, the U.S. Delegation minutes, CFM, . . . 18 Mar. 1947, in *FRUS*, 1947, 2: 261, do not show that Marshall himself said that detailed evaluations were being prepared for submission to the CFM, but the statement of American reparations receipts circulated in the CFM and released to the press on 26 Mar. 1947 says, "Evaluation of the removals conducted by the United States is now being compiled." Department of State, press release, 26 Mar. 1947, printed in *Department of State Bulletin*, 16 (6 Apr. 1947), 609.

21. W. C. Schroeder, Bureau of Mines, to Joseph A. Todd, 28 Mar. 1947, RG 40, OTS Worden files, box 92, WNRC; UnderSecNavy John L. Sullivan to Hilldring, 31 Mar. 1947, and AsstSecWar Petersen to Hilldring, 31 Mar. 1947, both in RG 165, file ABC 387 Germany (18 Dec. 1943), sec. 20, NA. For a belated Commerce Department report see Green to Saltzman, 10 Nov. 1947, RG 40, OTS Reiss files, box 153, file Worden, WNRC.

22. Hilldring to Petersen, 9 Apr. 1947, RG 107, SecArmy Patterson, Project decimal file, 1946–47, box 8, file Germany, NA; Patterson to Hilldring, 21 Apr. 1947, *ibid.*; LeR. Lutes, memorandum: property removed from Germany by the War Department, 17 Apr. 1947, *ibid.*

23. SWNCC 328/3, 19 May 1947, RG 218, JCS central decimal files, CCS 007 (3-13-45), sec. 7, NA.

24. See *FRUS*, 1947, 2: 258–62, for the Marshall-Molotov exchange.

25. SWNCC 328/3, app. B, 19 May 1947, RG 218, JCS central decimal files, CCS 007 (3-13-45), sec. 7, NA.

26. See Caffery to SecState, 11 July 1947, *FRUS*, 1947, 2: 983–86, and my books *The Origins of the Marshall Plan* (Stanford, Calif., 1976), esp. pp. 223–46, and *The American Occupation of Germany: Politics and the Military, 1945–1949* (Stanford, Calif., 1968), esp. pp. 151–59.

27. SWNCC, decision on SWNCC 328/5, "Unilateral Removals from Germany to Be Accounted for as Reparation," 8 Aug. 1947, RG 218, JCS central decimal files, CCS 007 (3-13-45), sec. 7, NA.

28. SWNCC 328/3, 19 May 1947, and SWNCC 328/4, 9 June 1947, both *ibid.*; G. A. L., memorandum for the AsstSecWar, subj: unilateral removals from Germany to be accounted for as reparations (SWNCC 328/3), 3 June 1947; W. H. G., memorandum for Colonel Harris, subj: unilateral removals . . . (SWNCC 328/3), 7 June 1947; L. Wilkinson, OMGUS Economics Division, memorandum for Colonel Harris, subj: unilateral removals . . . (SWNCC 328/3), 26 June 1947, all three in RG 260, shipment 3, box 133-2, file 15 (311.15 Classified Papers), WNRC.

29. SWNCC, decision on SWNCC 328/5, "Unilateral Removals from Germany to Be Accounted for as Reparation," 8 Aug. 1947, RG 218, JCS central decimal files, CCS 007 (3-13-45), sec. 7, NA. Italics added to emphasize the decision not to evaluate the FIAT removals and thus to reject Clay's long-standing request to do so. The ad hoc committee mentioned in the escape clause was made up of one representative each from the State Department, the Army, the Navy, and the Air Force. I have not been able to find any records of its deliberations or recommendations. (For the membership see SWNCC 328, W. A. Schulgren, Acting Secretary, SANACC, 1 Dec. 1947, subj: reconstitution of ad hoc committee, in SWNCC 328, SR microfilm, reel 27, frame 1131, NA.)

30. Noce to Hilldring, 11 Aug. 1947, RG 165, box 354, file WDSCA 387.6, sec. 8, NA. One of Royall's functions in Germany was to try to smooth Clay's ruffled feathers and keep him from resigning because the State Department had ordered him to hold up publication of the new bizonal level-of-industry plan until an agreement could be negotiated with the French. See my *Origins of the Marshall Plan*, 238 and 243.

31. Saltzman to Noce, 29 Aug. 1947, RG 165, box 357, file WDSCA 387.6, sec. 15, NA.

32. Noce to Clay, 17 Sept. 1947; Clay to Noce, 2 Oct. 1947, both *ibid.*

33. Memorandum for the record (Gorman), 14 Oct. 1947, *ibid.*

34. Green, OTS, in his review, 1 Jan. 1947, RG 40, OTS Reiss files, box 153, file TIID, WNRC, stated that "probably a mature judgment will not be possible for five or ten years."

35. "Value of Captured Technology to Industry, AAF, and Other Activities," draft copy, Feb. 1947, in USAF Records, Maxwell AFB, microfilm, reel A 2055, frames 0621ff.

36. Peter H. Spitz, "How to Evaluate Licensed Processes," *Chemical Engineering*, 72 (20 Dec. 1965), 91–98; Dudley B. Smith and Ryle Miller, Jr., "The Buying and Selling of Concepts," *Chemical Engineering*, 74 (25 Sept. 1967), 139–44. See also Bela Gold, Gerald Rosegger, and Myles G. Boylan, Jr., *Evaluating Technological Innovations: Methods, Expectations, and Findings* (Lexington, Mass., 1980).

37. Sargeant to Henry H. Fowler, Chief, Enemy Branch, FEA, subj: TIIC program in Europe, 1 Aug. 1945, RG 40, OTS Reiss files, box 157, file JIOA Early TIIC Papers, WNRC; Sargeant to various agencies, 11 Jan. 1945, *ibid.* Italics added.

38. Webb to Senator Clyde R. Hoey, 11 Feb. 1946, RG 40, box 102, Chronological file no. 2, WNRC.

39. Worden to Green, subj: report on trip to Wright Field, 20 Aug. 1946, RG 40, OTS Worden files, box 88, file Inter-Office Memoranda (Green), WNRC.

40. Lowell B. Kilgore, "Proposal for a Compendium of German War Time Technology," attached to Reiss to All Units, memorandum, 16 Jan. 1947, *ibid.*

41. C. G. [Christopher Gerould], "Target—Germany," *Federal Science Progress*, 1 (Apr. 1947), 6.

42. John C. Green, "Technology Imports from Germany: New World-Trade Opportunities," *Foreign Commerce Weekly*, 27 (3 May 1947), 3 and 33.

43. Green, OTS, review, 1 Jan. 1947, RG 40, OTS Reiss files, box 153, file TIID, WNRC.

44. "Status of German Chemical Industry," *Chemical Industries*, 57 (Aug. 1945), 278; "German Design Improvisation Described by Timken Metallurgist," *Iron Age*, 156 (16 Aug. 1945), 109, which reports the views of Martin Fleischmann, of Timken Roller Bearing Company, who had been in Germany four months as a CIOS investigator; "Industry Getting Nazi Secrets," *Business Week*, 22 Sept. 1945, 49; and "Widening Horizons," editorial in *National Petroleum News*, 37 (7 Nov. 1945), R-936.

45. G. E. Guellich to Albert M. Orme, TIIC, 14 Dec. 1945, RG 40, OTS Webb files, box 123, file Progress Reports, WNRC.

46. Caperton B. Horsley to Orme, 13 Dec. 1945, *ibid.*

47. M. C. Banca to Orme, 21 Jan. 1946, *ibid.*, box 124, file Banca, WNRC.

48. J. B. Quig to Howland H. Sargeant, JIOA, 19 Feb. 1946, RG 40, OTS Reiss files, box 153, file TIID, WNRC.

49. W. F. Sherman, "Technical Intelligence Traces German Defeat to Bungled Production," *SAE Journal*, 54, no. 4 (Apr. 1946), 17–19.

50. C. S. Marvel to Robert Reiss, TIID, 19 Aug. 1946, RG 40, OTS Reiss files, box 153, file TIID, WNRC.

51. T. H. McConica to Ray L. Hicks, OTS, 11 Dec. 1947, RG 330, JIOA General Correspondence, box 6, file Department of Commerce, NA.

52. Edwin Ware Hullinger, "World's Greatest Treasure Hunt," *Nation's Business*, 33 (Oct. 1945), 21–22; Ray Josephs, "The World's Greatest Treasure Hunt," *The American Magazine*, 141 (Feb. 1946), 44; *The Stars and Stripes*, 13 Apr. 1946, 3; *Science News Letter*, 49 (4 May 1946), 279.

53. C. Lester Walker, "Secrets by the Thousands," *Harper's Magazine*, 193 (Oct. 1946), 329–36.

54. George H. Copeland, "Nazi Science Secrets: A Technological Treasure Hunt in Conquered Germany Enriches U.S. Research and Business," *New York Times Magazine*, 23 Feb. 1947, 33–35; John L. Kent, "Manufacturing Advances in Wartime Germany: Machines and Processes which Were Developed in Competition with Allied Engineering Brains Are Now Available to U.S. Industry," *Scientific American*, 178 (Apr. 1948), 161–64.

55. OMGUS, Historical Office, *History of Field Information Agency, Technical (FIAT), Period 8 May 1945–30 June 1946*, 18–19, MS in RG 319, CMH, Historical Manuscripts file, NA.

Chapter Nine

1. Mitteilungen der Handelskammer Frankfurt a. Main, no. 8, 1 Apr. 1946, p. 50, copy in file Verhandlungen mit Besatzungsbehörden, 1 Apr. 1945 bis . . . , Degussa archives; Dr. Starke, VAW Sekretariat, Vermerk für Herrn Dr. Strassmann, subj: Zutritt zu Industriebetrieben, 16 May 1947, file B 102/3767, BA; M.A.N. Werk Augsburg to IHK Augsburg, subj: Ausländische Besuche, 8 July 1947, file B 102/3767, BA; Rud. Otto Meyer, Hamburg, to Handelskammer Hamburg, 16 May 1947, file C 1211/1, Requisitionen . . . Bd. 2, Handelskammer Hamburg archives; Optische Werke C. A. Steinheil Söhne, München, to IHK München, 27 Aug. 1947, file B 102/3767, BA; Fernseh GmbH Taufkirchen/Vils OBB. to IHK München, 12 Aug. 1947, file B 102/3767, BA; VfW, Reparationen, Dr. Kutscher to Vorstand der Patentanwaltskammer, Zweigstelle Nord, Hamburg, 30 Apr. 1947, file B 102/3767, BA; Wirtschaftsverband Maschinenbau to Oberpräsident, Nord-Rheinprovinz, Düsseldorf, 12 Mar. 1946, subj: Wertansatz für requirierte Konstruktions-Zeichnungen, file NW 99, no. 59, HSA Düsseldorf; IHK München to VfW, subj: Bewertung des von den Alliierten entnommenen geistigen Eigentums, 21 July 1948, file B 102/3793, BA; Der Finanzminister des Landes NRW to Wirtschaftsminister NRW, 12 Sept. 1946, file NW 99, no. 58, HSA Düsseldorf; Wirtschaftsministerium W/B, an Fachvereinigungen, IHK, und Handwerkskammern, 6 May 1947, file EA 6/3, 321, HSA Stuttgart;

Minister für Wirtschaft und Verkehr, Wiesbaden, to various addressees, 10 July 1946, file Abt. 507, no. 716(180), HSA Wiesbaden; Deutsches Büro für Friedensfragen to VfW, 11 Feb. 1948, file B 102/3767, BA; G. W. Harmssen, *Reparationen, Sozialprodukt, Lebensstandard: Versuch einer Wirtschaftsbilanz*, 2d ed., 4 pts. (Bremen, 1948).

2. Bürgermeister Rudolf Petersen a. D. to Minister Müller, 23 Dec. 1946, B 102/3754, BA.

3. Dörr, Notiz für Herrn Dr. Müller, Minden, subj: Reparationen an Deutschland [*sic*], 2 Jan. 1947, file B 102/3755, BA.

4. Hans Kallen, Krupp, to V. Agartz, VAW, 25 Apr. 1947, file B 102/3768, BA; Der Finanzminister des Landes NRW to Wirtschaftsminister NRW, 12 Sept. 1946, file NW 99, no. 58 (and additional memoranda and correspondence in the file), HSA Düsseldorf; Wirtschaftsrat des Länderrates, Arbeitsausschuss "Reparationen," Sitzung, 20 Feb. 1947, file B 102/3891, BA; Auszug aus Aktenvermerk über die 8. Sitzung "Forschungskontrolle" im Länderrat 25 Mar. 1947, subj: Betriebsbesichtigung durch Ausländer, file EA 6/3, 321, HSA Stuttgart.

5. VAW, Schmid, Abt. Reparationen, to Direktor Kallen, Krupp, 12 May 1947, file B 102/3768, BA. See also VfW, Kutscher, Reparationen, to Vorstand der Patentanwaltskammer, Zweigstelle Nord, Hamburg, 30 Apr. 1947, and VfW, Schmid, A-Rep., to Dr. Debritz, Institut für praktische Wirtschaftsforschung, Essen, 11 June 1947, file B 102/3767, BA.

6. Wirtschaftsministerium NRW to VfW, Minden, subj: Beschlagnahme von Zeichnungen, 23 May 1947, file B 102/3767, BA.

7. Dr. Franz Petzold and Wilhelm Brückner, "Gutachten über die Bewertung von Zeichnungslieferungen," 27 May 1947, file Senatskanzlei II 039.26-2 Bd 2. Demontagen—Allgemeines, HSA Hamburg.

8. VfW, Schmid, A-Rep., to Dr. Debritz, Institut für praktische Wirtschaftsforschung, Essen, 11 June 1947, file B 102/3767, BA; *Handelsblatt, Westdeutsche Wirtschaftszeitung*, 3 July 1947, 2; VfW, Schmid, A-Demt., to Wirtschaftsministerium NRW, Abt. Demontagefragen, subj: Beschlagnahme von Zeichnungen, 7 July 1947, file B 102/3767, BA.

9. Schmid, VfW, to Dr. Eugen Budde, 2 July 1947, file B 102/3755, BA; Schmid to Wirtschaftsministerium NRW, 7 July 1947, file B 102/3767, BA.

10. Vermerk, Kutscher, Herrn Senatsrat Schmid vorgelegt, 28 Oct. 1947, file B 102/3767, BA; Kutscher, VfW, I/5, Aufzeichnung (Sen. Rat. Schmid vorgelegt), 5 Dec. 1947, file B 102/3755, BA.

11. VfW, I/5, Protokoll über die Tagung mit Firmenvertretern und Sachverständigen am 16. Juni 1948 in Königstein zum Thema: "Bewertung des von den Alliierten entnommenen geistigen Eigentums," 30 June 1948, file B 102/3899, BA. See Wirtschaftsministerium NRW,

Gruppe Reparationen (Schwefer) to VfW, Demontageabteilung, 23 July 1948, file B 102/3793, BA, according to which the minutes of the Königstein Conference show that no appreciable advance had been made there.

12. VfW, Schmid, to IHKs in U.S. and U.K. Zones, subj: Bewertung des von den Alliierten entnommenen geistigen Eigentums, 28 June 1948, file B 102/3792, BA.

13. IHK München to VfW, subj: Bewertung des von den Alliierten entnommenen geistigen Eigentums, 21 July 1948, file B 102/3793, BA; VfW, Kutscher, I/5, to IHK München, 3 Aug. 1948, *ibid.*

14. IHK zu Solingen to VfW, 31 July 1948, *ibid.*

15. Handelskammer Hamburg to VfW, 28 Oct. 1948; IHK Darmstadt to VfW, 17 Sept. 1948, both *ibid.*

16. IHK Mannheim to VfW, 16 Oct. 1948, *ibid.*

17. Robert Bosch, GmBH, Stuttgart, to VfW, Schmid, subj: Bewertung des von den Alliierten entnommenen geistigen Eigentums, 28 Mar. 1949, file B 102/3794, BA; IHK Frankfurt to VfW, subj: Bewertung . . . , 30 Mar. 1949, *ibid.*; Wirtschaftsverband Eisen- und Stahlindustrie, Düsseldorf, to various addressees, 22 Apr. 1949, file NW 99, no. 15, HSA Düsseldorf. See also Schmid, VfW, IR 2, to Deutsche Treuhand- und Organisationsgesellschaft, subj: Abteilung für Demontagefragen, 23 Mar. 1949, file B 102/3767, BA.

18. VfW, IR 2, Protokoll, Besprechung über die Bewertung des von den Alliierten entnommenen geistigen Eigentums . . . 23 May 1949, Königstein, file B 102/171496, BA.

19. *Ibid.*

20. VfW, Schmid, IR 2, to various firms and associations, subj: Bewertung . . . 27 July 1949, file B 102/3794, BA. In this letter Schmid states, "Kompetenzmässig sieht sich die Verwaltung für Finanzen nicht in der Lage, hierfür verbindliche Erklärungen abzugeben."

21. VfW, Schmid, IR 2, to Verwaltung für Finanzen, 29 July 1949, *ibid.*

22. In his letter of 29 July 1949, *ibid.*, Schmid had asked the Finance Ministers to put the following resolution on the agenda of their meeting: "Entbindung der Wirtschaftsverbände von der Auskunftspflicht gegenüber den Steuerbehörden in folgendem Spezialfall: statistische Erhebung über das von den Alliierten entnommene geistige Eigentum (Auslandspatente, Warenzeichen und nur in Deutschland geschütztes oder überhaupt nicht durch Schutzrechte erfasstes Eigentum wie Konstruktionsunterlagen, Verfahren usw., die bei deutschen Betrieben entnommen wurden) für die Aufrechnung deutscher Reparationsleistungen." A VfW memorandum, III S 11171–24/29, 10 Oct. 1949, file B 102/3794, BA, notes that the Finance Ministers approved on 11/12 Aug. 1949.

23. The chairman was Dr. Otto Kampf, who corresponded on stationery with the letterhead Gewerkschaft Victor, Chemische Werke, Castrop-Rauxel. The business manager was Dr. Heinrich Gattineau, about whom I have no further information. See Kampf to VfW, Schmid, 25 Oct. 1949, file B 102/3794, and Notgemeinschaft für Reparationsgeschädigte Industrie to Wirtschaftsminister Nölting, NRW, 10 Nov. 1949, file NW 203, no. 56, HSA Düsseldorf.

24. Notgemeinschaft . . . to VfW, Dr. Walrod, 26 Nov. 1949, file B 102/3794, BA; Notgemeinschaft . . . to Wirtschaftsministerium NRW, 3 Feb. 1950, file NW 99, no. 58, HSA Düsseldorf; IR 2–1861/50, Aufzeichnung, subj: Reparationskartei, Bonn, 15 Apr. 1950, file 4,94—I.C.f.1, Reparationen, HSA Bremen.

25. Notgemeinschaft . . . "Bericht über das Ergebnis der Umfrage 1950 'Geistiges Eigentum' (Bewertung 'geistigen Gutes')," 14 Feb. 1951, file B 102/171458, BA.

26. The Harmssen study and report has an interesting history of its own. Authorized early on by the Minister-Presidents of the bizonal *Länder*, it was first published in Nov. 1947, reissued in four parts as a 2d ed. in 1948 under the title *Reparationen, Sozialprodukt, Lebensstandard: Versuch einer Wirtschaftsbilanz* (Bremen, 1948), and then revised and published once again in 1951, under the title *Am Abend der Demontage: Sechs Jahre Reparationspolitik. Mit Dokumentenanhang* (Bremen, 1951). Although it received high praise in Germany when it was first published (see *Die Welt*, 12 Feb. 1948; *Wirtschafts Zeitung*, 13 Feb. 1948; *Sozialistische Presse-Korrespondenz*, 25 Aug. 1948, in Hamburgische Weltwirtschafts-Archiv press clippings), British and American reviewers were vicious in their criticism. The London *Economist* commented that it should indeed be taken seriously, "not because it is moral, objective, accurate and realistic—it has none of these qualities—but because it may become the *Mein Kampf* of the new German nationalism." Quoted in John H. Backer, *Priming the German Economy: American Occupational Policies, 1945–1948* (Durham, N.C., 1971), 167. See also E. Rosenbaum, *International Affairs*, 25 (Apr. 1949), 213–15, for a very critical review that also mentions the *Economist*'s reference to "a little *Mein Kampf*." An American analysis of the report, which was done internally in the War Department's Civil Affairs Division early in 1948, commented that Harmssen "seems to be dragging the skeleton of 'Versailles' out of the closet" and concluded that Harmssen's arguments followed the lines of "renascent German Nationalism and growing anti-allied sentiment." F. E. Ropshaw to Lieutenant Colonel Loux, CAD, memorandum, subj: Harmssen report, 7 Apr. 1948, RG 165, file WDSCA 387.6, NA. In May 1949, during an internal discussion (VfW, IR 2, Protokoll, Besprechung über die Bewertung . . . Königstein, 23 May 1949, file B 102/171496, BA), a member

of Harmssen's staff admitted that the $5 billion figure was not based on research, but had in fact been taken over from the Russian literature—at a time when "relations between the Russians and the Western Allies were not as tense as they are now," he said—simply as a "politically tactical estimate" of the value of an item that could not be ignored. He did not explain, however, why the Russian figure of $10 billion had become $5 billion in the Harmssen report, and my own research in the Bremen archives, which verified the fact that the figure was not based on research, sheds no further light on the subject. In any event, in 1951, after commenting that the value of the know-how to the recipients was as impossible to calculate precisely as was the loss to the Germans who gave it up, Harmssen wrote that in the light of published information on the secrets collected by the United States through the Office of Technical Services he wanted to revise his 1948 estimate upward by about one and a half times, from the equivalent of *DM* 12.5 billion to about *DM* 17 to 20 billion. This of course put his own estimate midway between the *DM* 12 to 30 billion range estimated by Bunke and the Notgemeinschaft für Reparationsgeschädigte Industrie. Harmssen, *Am Abend der Demontage*, 125.

27. "Convention on the Settlement of Matters Arising out of the War and the Occupation," signed on 26 May 1952, amended on 23 Oct. 1954, and in force 5 May 1955, *The American Journal of International Law*, 49, supp. (1955), 97.

28. *Ibid.* For a sample of literature on the subject, see Thomas C. Hennings, Jr., "Why Should We Pay for World War II Twice?" *The New Republic*, 137 (18 Oct. 1957), 7–8; Karl Pfeiffer, *Gleichheitsgrundgesetz und Reparationsentschädigung* (Cologne, 1968), esp. pp. 30–31; Ernst Féaux de la Croix, *Die Kriegsfolgenschlussgesetzgebung. 1. Lieferung. Kommentar zum Gesetz über die Abgeltung von Besatzungsschäden* (Stuttgart, 1957), esp. pp. 11 and 54; Kurt Ehlers, "Die Bereinigung der Besatzungsschäden," *Der Betriebs-Berater*, 10 (10 Dec. 1955), 1075–77. See also Josef L. Kunz, "The Contractual Agreements with the Federal Republic of Germany," *The American Journal of International Law*, 47 (Jan. 1953), 109, where he states that the occupation powers got a "clean bill of health for the measures taken in their occupation zones since 1945."

29. For some of the literature, see Notgemeinschaft für Reparationsgeschädigte Industrie Castrop-Rauxel und Studiengesellschaft für Privatrechtliche Auslandsinteressen e. V., Hrsg., *Dokumente zum Rechtsanspruch auf Reparationsentschädigung, mit Stellungnahmen von Parteien und Bundesregierung sowie Gerichtsentscheidungen und Belegen zur Reparationsabrechnung* (Bremen, 1962), esp. p. 3; Georg Erler, "Die Entschädigung für Reparationsdemontagen vor der Entscheidung," *Juristenzeitung*, 17, no. 2 (19 Jan. 1962), 48–53; Ernst Féaux de la Croix, "Die Abgeltung der Reparationsschäden," *Die Öffentliche Verwaltung: Zeitschrift für Verwaltungsrecht und Verwaltungspolitik*, 15 (1962), 211–20; Bernard Wolf, "Die Abgeltung der Reparationsschäden," *Die Öffentliche Verwaltung: Zeitschrift . . .*, 18 (1965), 217–27; Erich Hesse, "Das Reparationsschädengesetz—ein Überblick," *Wertpapier-Mitteilungen*, 23, no. 10 (8 Mar. 1969), 254–64; Eduard Wahl, "Die ungerechtfertigte Bereicherung der Bundesrepublik Deutschland als Rechtsgrundlage für die Ansprüche der Reparationsgeschädigten," *Juristenzeitung*, 26, no. 22 (19 Nov. 1971), 715–21. One of the arguments against payment was that any continuing damages being suffered by individuals could be covered by claims filed under the Equalization of Burdens Laws. However, those laws and others designed to compensate for war damages never provided for "juristische Personen," since—so the arguments in the literature state—the latter had already received tax write-offs, low-interest loans, Marshall Plan assistance, and various other economic and financial benefits that had permitted them to resume production and thus reduce, minimize, or recoup their immediate postwar losses. See Karl Pfeiffer, *Gleichheitsgrundgesetz und Reparationsentschädigung*, 31; Karl Pfeiffer, "Das neue Reparationsschädengesetz," *Aussenwirtschaftsdienst des Betriebs-Beraters*, 14, no. 3 (Mar. 1968), 104–5; and Günter Tröger, "Überblick über das Reparationsschädengesetz," *Der Betrieb: Wochenschrift für Betriebswirtschaft, Steuerrecht, Wirtschaftsrecht, Arbeitsrecht*, 22, no. 12 (21 Mar. 1969), 516. It may be of interest that in interviewing representatives of German firms for this study, I routinely asked if their firms had ever received compensation for intellectual property removed under the auspices of FIAT and other agencies; the answer was always no.

30. J. G. Schwietzke, Metallwerke, to Wirtschaftsverband Maschinenbau, 2 Apr. 1947, file NW 99, no. 63, HSA Düsseldorf.

31. H. A. Waldrich, GmbH, Maschinenfabrik, Siegen/W., to Wirtschaftsverband Maschinenbau, 29 Apr. 1947, *ibid.*

32. Blohm & Voss, "Kategorien von Inanspruchnahme seit 3. Mai 1945," 7 May 1947, file Senatskanzlei, II, 731.06-1, HSA Hamburg.

33. Carl Hurth, Maschinen- und Zahnrad-Fabrik, München, to IHK München, subj: Beschlagnahmungen von Zeichnungen, Patenten, Verfahren und dergleichen, 4 Aug. 1947, file B 102/3767, BA.

34. Anorgana, GmbH, Gendorf, to IHK München, 14 Aug. 1947, *ibid.*

35. Optische Werke G. Rodenstock to IHK München, 31 July 1947, *ibid.*

36. BMW to IHK München, 18 Sept. 1947, *ibid.*

37. Spinnereimaschinenfabrik Seydel & Co., Bielefeld, to IHK Bielefeld, 3 May 1948, file NW 99, no. 63, HSA Düsseldorf.

38. In addition to the references presented in this chapter, see also those to I. G. Farben Ludwigshafen; Dunlop, Hanau; Chemische Werke,

Hüls; and Degussa above in chap. 1, pp. 11–15; to Degussa; I. G. Farben, Leverkusen; Gesellschaft für Linde's Eismaschinen AG, and Dr. Alexander Wacker Gesellschaft für elektrochemische Industrie, GmbH, in chap. 4, pp. 64–67; and to Haarmann & Reimer, Degussa, Bosch, and others in chap. 5, pp. 88–93.

39. Hirtes, Notiz, subj: Besuch einer englisch-amerikanischen Kommission in Dental-Angelegenheiten, 14 Aug. 1945, file Besuchsberichte v. 1 Apr. 1945–1 Sept. 1945, Degussa archives.

40. Wilhelm Steeger, GmbH, to Wirtschaftsverband Maschinenbau, 26 July 1946, file NW 99, no. 63, HSA Düsseldorf.

41. Information from form used by Wirtschaftsministerium NRW, for collecting information on T-Force removals, file NW 99, no. 60, HSA Düsseldorf.

42. T-Force Form 2 (BAOR), "Application for Allocation of Enemy Equipment," serial no. 6961, file B 103, T-Force Unilaterale Entnahmen, Werk no. 5016, Hudora-Werk Radervormwald bei Remscheid, BA.

43. Robert Giebeler, Spezialmaschinenfabrik, Langenfeld, to Wirtschaftsverband Maschinenbau, 17 Feb. 1947, file NW 99, no. 61, HSA Düsseldorf.

44. Fachabteilung Verzinnte Blechwaren im Fachverband Blechwaren Industrie, Hagen, to VAW Minden, subj: Herausgabe von Werkstattzeichnungen, 18 June 1947, file B 102/3768, BA.

45. Maschinenbau-Aktiengesellschaft Balacke, Bochum, Meldung: Erfassung beschlagnahmter Werte auf Grund von T-Force-Aktionen, 4 May 1948, file NW 99, no. 60, HSA Düsseldorf.

46. W. Schlafhorst & Co., Maschinenfabrik, to Wirtschaftsverband Maschinenbau, 12 Dec. 1947, file NW 99, no. 63, HSA Düsseldorf.

47. Margarete Steiff, GmbH, Giengen, to OMG Heidenheim, subj: request for information as regarding visitors to our plant, 31 Oct. 1946, file B 102/3793, BA; Karl Schönemann, employee of U.S. Army Exchange Service, Abschrift, "Report on Inspection of Firm Marg. Steiff, Giengen, by two British civilians . . . on 24 Oct. 1946," n.d., attached to Margarete Steiff, GmbH, to IHK Heidenheim a. d. Brenz, 28 July 1948, *ibid.* See "Teddy's Bear," *Newsweek*, 66 (20 Dec. 1965), 85, and B. F. Michton, letter to the editor, *Newsweek*, 67 (17 Jan. 1966), 2, for discussions of the origins of the teddy bear. See *Time*, 91 (21 June 1968), 74, for the information that the firm has a bronze bust of Theodore Roosevelt displayed in its lobby.

Chapter Ten

1. Richard R. Burt, "Beyond the Zero Hour: The Creation of a Civic Culture in Postwar Germany," speech given at the German-American Institute, Amerika Haus, Nürnberg, 23 May 1986, 40. Copy in my possession. For an earlier, similar statement that the Americans made no

reparations demands see Harry S. Truman, *Years of Trial and Hope, 1946–1952* (Garden City, N.Y., 1956), 238.

2. For State Department references to Molotov's "fantastic" figures and "unsupported charges" at the Moscow meeting of the Council of Foreign Ministers, see SWNCC 328/3, 19 May 1947, RG 218, JCS central decimal files, file CCS 007 (3-13-45), Sec. 7, NA.

3. As a case in point, see Robert Reiss to James M. Mead, Chairman, Special Committee Investigating the National Defense Program, 17 Oct. 1945, and F. E. Hilburn to John C. Green, 18 Feb. 1946, both in RG 40, OTS Hilbourne files, box 145, file Reports on Targets, WNRC. These documents describe a heated controversy between three competing American companies and the intervention of a congressional committee. The president of one of the firms went to Germany to investigate and report on German developments in beryllium. When he returned, the other two companies were sure that he was using the information in his own firm long before the Publication Board was ready to release his report to the general public.

4. See above, chap. 6, pp. 107–12.

5. Dudley B. Smith and Ryle Miller, Jr., "The Buying and Selling of Concepts," *Chemical Engineering*, 74 (25 Sept. 1967), 141. Smith is identified as the president of the Licensing Executives Society and a former corporate patent lawyer; Miller as associate editor of *Chemical Engineering*.

6. Clarence H. Danhof, "Transferring Technology by Transferring People," *Monthly Labor Review*, 93 (May 1970), 62–63.

7. JCS to USFET, WAR-82433, 28 Mar. 1946, RG 260, OMGUS AGTS files, box 4, file 23, WNRC.

8. JIOA, "Statistical Report of Specialists and Dependents Brought to the US under the Paperclip Program," 2 July 1951, RG 40, box 85, WNRC.

9. Clarence G. Lasby, *Project Paperclip: German Scientists and the Cold War* (New York, 1971), 265–66. For other discussions of what happened to Paperclip specialists, see Arthur J. Olsen, "Trackdown of the German Scientist," *New York Times Magazine*, 22 Sept. 1963, esp. p. 73; James McGovern, *Crossbow and Overcast* (New York, 1964), esp. p. 252; and "The Harvest of Operation Paperclip," *Newsweek*, 74 (7 July 1969), 10.

10. William G. Downey, "Captured Enemy Property: Booty of War and Seized Enemy Property," *The American Journal of International Law*, 44 (July 1950), 488–504, esp. pp. 496 and 497 for quoted material.

11. Bush to SecWar Stimson and SecNavy Forrestal, 28 Aug. 1944, RG 165, file ABC 334.8 Post-War Intelligence (30 June 1944), NA.

12. William D. Leahy to Vinson, 8 June 1945, RG 165, box 204, file ABC 334.8 CIOS (30 July 1944), sec. 1-C, NA.

13. Adams to Jewett, 25 June 1946, file GOVT: IR: 1945, 1946, National

Academy of Sciences papers, Washington, D.C. See F. H. McBerty to F. O. Robitschek, FIAT, subj: Stuttgart difficulties and errand, 4 Apr. 1946, RG 260, shipment 11, box 2-2, file 19 (98 Scientific Research), WNRC, for the reference to FIAT's activities as "robbery."

14. "Valuation of FIAT Material for Reparation Purposes," attached to Kindelberger to Hilldring, 19 Nov. 1946, RG 59, file 862.542/11-1946, NA. For further indications of doubts in the State Department, see Willard L. Thorp to John C. Green, 29 Apr. 1947, RG 40, box 115, file Senatorial Correspondence, WNRC, which contains this caustic comment: "At the present time the Department of State does not have a direct interest in property which has been removed from Germany to this country but which has not been allocated to this government as reparation."

15. U.S. Congress, Senate, *Hearings before a Subcommittee of the Committee on Military Affairs*, 79th Cong., 1st sess., 25 June 1945, 60.

16. R. P. Terrill and E. O. Anderson to C. Wilcox and L. Stinebower, memorandum, subj: problems arising out of disclosure in the United States of technical information acquired in Germany, 11 July 1945, and Green H. Hackworth, legal opinion, attached to Anderson to Wilcox, subj: comments of legal adviser on dissemination of German technology, 26 July 1945, both in RG 59, file 862.542/7–1145, NA.

17. Fahy to FIAT, subj: right of U.S. to remove from Germany documents and information, and related questions, 3 Nov. 1945, RG 260, shipment 11, box 2-2, file 19 (98 Scientific Research), WNRC. See JCS to USFET, WAR-72620, 3 Oct. 1945, RG 218, JCS Combined Chiefs of Staff decimal files, 1942–45, box 246, file CCS 350.05 (5-15-45), sec. 1, NA, for JCS's interpretation of U.S. policy on the control of scientific and industrial research in Germany. See also OMGUS, Legal Division, to FIAT, subj: dissemination of enemy scientific and industrial information, 21 Jan. 1947, RG 84, box 767, file 34 (Mar.–Apr./400a), WNRC, for another OMGUS legal opinion, which cites President Truman's Executive Order 9604 as authority. But see Charles D. Ginsburg to Clifford S. Strike, subj: removals of industrial capital equipment by FIAT, 15 Feb. 1946, RG 260, FIAT 7,748th Unit, box 4, file 24, WNRC, which states that OMGUS's Legal Division looked upon "FIAT's activities with considerable trepidation."

18. U.S. Congress, House, *Hearings before the Subcommittee of the Committee on Appropriations*, 80th Cong., 1st sess., 26 Feb. 1947, 120. I have found no records to indicate that the Americans ever discussed the question of legality with Germans, but there are records of an interesting example in which a British T-Forces unit did so. On 23 June 1947, Dr. Eugen Budde, a retired German foreign service officer who had obviously done considerable research on the subject, gave a lecture on reparations in the Düsseldorf Industrie- und Handelskammer (IHK). In it he cited cases—and he claimed to have precise information on others—demonstrating that FIAT and T-Forces actions were in violation of the 1907 Hague Rules of International Warfare, which he cited frequently and commented upon at length. Having been asked by IHK Düsseldorf for advice before it communicated the essence of Budde's remarks to its members, the Bizonal Economic Administration's Reparations Office replied that Budde's views were his own, that the victors operated under the provisions of the additional terms of surrender published in the Allied Control Council's Proclamation No. 2, and that—since further exploration of the matter with legal experts was necessary—it did not think the IHK should try to advise the firms under its jurisdiction. But there was no stopping those who had heard Budde's lecture. Two days after the lecture, a Düsseldorf engineering firm that had received a T-Forces request for a complete set of drawings for an automatic processed-cheese filling, wrapping, and labeling machine wrote to the local British T-Forces Detachment. Claiming to have done research on the matter, but clearly repeating Budde's arguments right down to his citation of Article 23 of the 1907 Hague Rules of Land Warfare, the firm asked that it be allowed to refuse to deliver the drawings, or at worst to deliver them only under formal protest. The T-Forces unit's curt reply was that "the interpretation by Germany of the 'Hague Rules of Land Warfare' since 1907 when they were drawn up, makes your reference to them farcical," and that "an altogether more topical document" was Military Government Proclamation No. 2 of 20 Sept. 1945 (the additional requirements arising from the unconditional terms of surrender, which were adopted by representatives of the four occupation powers on 5 June 1945). See Benz & Hilgers, Engineers, to HQ, C Det., No. 1 'T' Force Unit, subj: BIOS trip no. 3015, 25 June 1947, and No. 1 T-Force Unit to Benz & Hilgers, 30 June 1947, both in file NW 99, no. 60, HSA Düsseldorf. For Budde's remarks, see IHK zu Düsseldorf to VfW, Hauptabteilung A 5—Reparationen, Minden, subj: Zurverfügungstellung von Zeichnungen, Patenten, Verfahren u. dergl. an BIOSC und FIAT, 30 June 1947, file B 102/3767, BA, which is a report on Budde's Düsseldorf lecture, entitled "Demontage, Patente, Reparationen und Völkerrecht," and Legationsrat a. D. Dr. Eugen Budde, "Demontagen, Patente, Völkerrecht," 23 Sept. 1947, file B 102/3896, BA, which is a 21-page single-spaced stenographic transcript of a similar lecture by Budde at IHK Frankfurt. The latter shows that after he spoke in Düsseldorf Budde followed the debates on legality that occurred in the British House of Commons, for he cited Harold Macmillan's remarks of 4 Aug. 1947. In these remarks Macmillan reportedly quoted a statement of 18 Jan. 1945 by Winston Churchill to the effect that unconditional

surrender of the enemy did not free the victors from their ties to humankind, or from their responsibilities as civilized, Christian nations. See also Richard Thoma, Ernst Friesenhahn, and Hermann Mosler, with the collaboration of Eugen Budde, "Legal Opinion on the Question in How Far the Occupying Forces Are Entitled, According to Present International Law, to Seize or Destroy Privately Owned Industrial Products and Industrial Plants," rendered at the request of the City of Essen (Institute for International Law and Politics, Bonn, 11 Aug. 1947), 22pp. Mimeographed copy in Bundestagsbibliothek under P63 026. For a later, more systematic treatment of German reparations and the Hague rules see Wilhelm Hasenack, *Bilanz der Demontage: Nachkriegsmethoden internationaler Industriepolitik und ihr Einfluss auf die Zukunft der europäischen Wirtschaft* (Göttingen, 1951).

19. George Scatchard, "The Policy for Controlling German Scientific Work," *Chemical Engineering*, 55 (Jan. 1948), 260–62. This article summarizes a speech Scatchard gave in New York on 17 Sept. 1947 to the Division of Physical and Inorganic Chemistry of the American Chemical Society, after his return from Germany as Clay's Scientific Adviser and chief of the Scientific Research and Control Branch, Economics Division, U.S. Office of Military Government for Germany.

20. See, for example, OMG W/B to Minister-President Reinhold Maier, subj: research control, 4 Apr. 1946, file EA 6/3, 321, HSA Stuttgart, which states, "The Ministry will be responsible for the control of research under supervision of Military Government."

21. In Württemberg-Baden, for example, the Minister-President established a Research Control Branch in the Ministry of Economics and appointed a committee of experts (*wissenschaftlicher Beirat*) to advise it. See Länderrat, Special Committee for "Research Control," 13 Sept. 1946, file Z1/88, pp. 240–41, BA, for the record of the first meeting of the Länderrat's special committee, and Scatchard, "The Policy for Controlling German Scientific Work," 260–62, for further details on ACC Law No. 25 and its implementation by the Americans.

22. See OMGUS, FIAT, Planning Office, daily journal, 26 July 1946, RG 260, box 17/8, file 4, WNRC, for a reference to Scatchard's inspection of FIAT; see Reiss to Green, 30 Aug. 1946, RG 40, OTS Reiss files, box 156, file FIAT letters from Haertel, WNRC, for a report from FIAT headquarters that Scatchard was pushing for FIAT's termination in the interests of German research; and see Green to Echols, subj: future of science and technology in Germany, 30 Oct. 1946, RG 260, shipment 3, box 150–2, file 13, WNRC, for Green's proposal to the Army. See also Scatchard, "The Policy for Controlling German Scientific Work," for his later statement that "we Americans have a responsibility for fostering German research."

23. Draper to John R. Gilchrist, War Department, CAD, 5 Nov. 1946, RG 260, shipment 3, box 150–2, file 13, WNRC.

24. Scatchard to Echols, subj: future of science and technology in Germany, 12 Nov. 1946, *ibid.*

25. Bericht über die 1. Sitzung des Beirates der Forschungsüberwachungsstelle beim Wirtschaftsministerium Württemberg-Baden vom 21 Nov. 1946, file Z1/581, pp. 272ff., BA.

26. Frowein to Eickemeyer, Länderrat, 15 Jan. 1947, file Z1/423, p. 110, BA.

27. Länderrat Economics Council, Special Committee Scientific Research, sixth meeting, 16 Jan. 1947, file Z1/88, p. 217, BA. For further treatment of the Länderrat and the Regional Government Coordinating Office in Stuttgart, see Lia Härtel, *Der Länderrat des amerikanischen Besatzungsgebietes* (Stuttgart, 1951), and my *The American Occupation of Germany: Politics and the Military, 1945–1949* (Stanford, Calif., 1968).

28. RGCO to Rossmann, 23 Jan. 1947, file Z1/423, p. 104, BA. See also FIAT, Scientific Branch, daily journal, 21 Feb. 1947, RG 260, box 17/9, file 5, WNRC, which notes that Colonel Brunton had telephoned FIAT to ask about the authority under which Allied investigators operated and that he had been referred to G-2, USFET, which presumably made the President's executive order available.

29. Minister-Presidents Maier, Ehard, Kaisen, and Stock to Clay, 8 Sept. 1947, file Z1/424, pp. 176–77, BA.

30. Wirtschaftsministerium W/B, Forschungsüberwachung, Aktenvermerk über die 13. Sitzung Arbeitsausschuss Forschungskontrolle Länderrat, 15 Oct. 1947, file Z1/424, pp. 148ff., refers to Clay's response. Thomas Stamm, *Zwischen Staat und Selbstverwaltung. Die deutsche Forschung im Wiederaufbau, 1945–1965* (Cologne, 1981), 57, refers to the 1948 bizonal "Gesetz über die Errichtung von Annahmestellen für Patent-, Gebrauchsmuster- und Warenzeichenmeldungen" and the establishment of a German Patent Office in the Deutsches Museum on 1 Oct. 1949.

31. Wirtschaftsrat des Länderrates, Sonderausschuss Wissenschaftliche Forschung, 7. Sitzung am 24 Feb. 1947 . . . file Z1/423, pp. 19–21, BA.

32. Auszug aus Aktenvermerk über die 8. Sitzung "Forschungskontrolle" im Länderrat 25 Mar. 1947, subj: Betriebsbesichtigung durch Ausländer, file EA 6/3, 321, HSA Stuttgart. Wirtschaftsministerium W/B (Würth) to Länderrat, Sonderausschuss wissenschaftliche Forschung (Eickemeyer), 3 Mar. 1947, file Z1/581, p. 68, BA, expressed skepticism that anything in writing would ever come from OMGUS or from the regional Research Control Officers in the *Länder*.

33. The British T-Forces continued inspections that had been decided

upon before 1 July 1947, and there is evidence that similar follow-up inspections occurred in the American zone as well. For examples, chosen from among many others, see Headquarters, Land Niedersachsen, to Minister-President, subj: production of documents, 3 Sept. 1947, file B 102/3767, BA; Wolff, VfW, Abteilung Demontage (A-Demt. 1175), to BECG, subj: Besichtigung von Industriebetrieben, 19 Aug. 1947, *ibid.*; Dr. Beuchel, Wirtschaftsverband Maschinenbau, to VfW, Referat Demontagefragen, Schmid, 3 Sept. 1947, *ibid.*; VfW, Schmid, to Senat der Hansestadt Hamburg, Sekretariat Friedensvertrag, 10 Sept. 1947, *ibid.*; and HQ *Land* NRW, BAOR, to Wirtschaftsministerium, subj: Beschaffung technisch-industrieller Informationen aus deutschen Quellen, 16 Oct. 1947, file B 102/3936, BA.

34. Wirtschaftsministerium W/B, Forschungsüberwachung, Aktenvermerk zur 12. Sitzung Länderrat Arbeitsausschuss Forschungsüberwachung 28 Aug. 1947, file Z 1/424, pp. 182ff, BA.

35. Dr. Frowein, Wiesbaden, Industrie-Forschungsplan für die Bizone, 21 Apr. 1948, file Z 1/424, pp. 15ff, BA.

36. Wirtschaftsministerium W/B, Forschungsüberwachung, Aktenvermerk über die 11. Sitzung Forschungskontrolle Länderrat, 7 Sept. 1947, file Z 1/424, p. 220, BA.

37. Otto Hahn, *Mein Leben* (Munich, 1968), 216–17, describes the ceremonies in Göttingen.

38. H. Eickemeyer to Rossmann, subj: Arbeitsausschuss Forschungskontrolle, 27 Apr. 1948, file Z 1/425, pp. 321–22, BA, is a detailed report of the conversation between Nordstrom and the chairman of the Länderrat special committee. Arbeitsausschuss Forschungskontrolle beim Länderrat . . . 16. Sitzung am 3. Mai 1948 . . . file Z 1/602, pp. 32ff, BA, is a record of Nordstrom's visit to the Länderrat's special committee in Stuttgart, where the discussion continued, apparently more civilly, however.

39. Stamm, *Zwischen Staat und Selbstverwaltung*, 56.

40. Institut für Besatzungsfragen, Tübingen, *Einwirkungen der Besatzungsmächte auf die westdeutsche Wirtschaft. Dargestellt im Auftrag des Deutschen Büros für Friedensfragen mit Unterstützung des Büros der Ministerpräsidenten* (Nur für den Dienstgebrauch, 1 May 1949), esp. pp. 37–38.

41. Department of the Air Force, Washington, no. 1695, memorandum for Chairman, Intelligence Advisory Committee, subj: nonavailability of German scientist reports, 10 July 1950, RG 330, JIOA, General Correspondence, box 25, file AIR—Miscellaneous, NA.

42. Department of the Army, G-2, to CINCEUR, WAR-88535, 11 Aug. 1950, *ibid.*, box 27, file Cables (Master File), NA; CINCEUR to CSUSA for CSGID, S-1805, 17 Aug. 1950, *ibid.*

43. See Department of the Army from JCS to CINCEUR, W-87915, 8 Oct. 1947, RG 260, OMGUS AGTS files, box 17, file 5 (370.2 Paperclip), WNRC, and EUCOM, ODDI, to OMGUS, ODI, subj: denial policy pertaining to German scientists and technicians, 7 Nov. 1947, *ibid.*, box 55, file 2, WNRC, for instructions and details on how "special cases" could still be brought to the United States after 30 Sept. 1947 by "special arrangement." See also Lasby, *Project Paperclip*, esp. p. 241, for reference to "Project 63," a plan to speed up and expand the denial program, which was tried in the early 1950's, albeit without great success according to Lasby.

44. Green to Draper [draft, not sent], 22 Jan. 1947, RG 40, OTS Reiss files, box 156, file FIAT letters from Haertel—December, WNRC.

45. See my *The Origins of the Marshall Plan* (Stanford, Calif., 1976).

46. But see Werner Link, *Deutsche und amerikanische Gewerkschaften und Geschäftsleute, 1945–1975* (Düsseldorf, 1978); Volker R. Berghahn, *The Americanization of West German Industry, 1945–1973* (Cambridge, 1986); Kurt Blauhorn, *Ausverkauf in Germany?* (Munich, 1966); and Hermann Siemek, "Das amerikanische Kapital in der Bundesrepublik," *Frankfurter Hefte*, 20, no. 4 (Apr. 1965), 238–44.

47. FIAT, "Handbook for the Guidance of Members and Leaders of Field Teams Operating under the Authority of Field Information Agency, Technical (U.S.)," 6 Sept. 1945, copy in RG 260, FIAT 7,771st Document Center, box 14, WNRC; Green to Haertel, 14 Mar. 1946, RG 40, OTS Reiss files, box 156, file FIAT letters from Haertel, WNRC; Reiss to Green, subj: progress report no. 6, 28 June 1946, RG 40, box 26, file TIID—Progress Reports by Reiss, WNRC; Reiss to Unit Chiefs, 16 July 1946, RG 40, OTS Worden and Mayer files, file Utility Divisions, 1946, WNRC.

48. F. A. Paneth, "Scientific Research in the British Zone of Germany," *Nature*, 161 (7 Feb. 1948), 191.

49. Karl Winnacker, *Challenging Years: My Life in Chemistry*, trans. David Goodman (London, 1972), 116–17. Winnacker also identified Friedrich Uhde of Dortmund as a builder of chemical and fertilizer plants, and as a Höchst subsidiary (pp. 341–42).

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RG 165. War Department, General and Special Staffs records, especially those of the Civil Affairs Division (CAD), the Director of Intelligence, G-2, and the American-British Committee and its subcommittees (the so-called ABC files).

RG 218. U.S. Joint Chiefs of Staff (JCS) records, especially the central decimal files, the Combined Chiefs of Staff decimal files, and other records relating to the Combined Civil Affairs Committee, restitution and reparations, German import-export policy and procedure, and the Field Information Agency, Technical (FIAT).

RG 319. U.S. Department of the Army records, especially the Civil Affairs Division (CAD) top secret decimal file, 1945–50, and the Army-Intelligence Division decimal file 400.112 Research.

RG 330. Joint Intelligence Objectives Agency (JIOA) general correspondence, administrative records, and case files for Project Paperclip.

RG 331. Supreme Headquarters, Allied Expeditionary Forces (SHAEF) records, especially the Adjutant General (AG) decimal files and those of the economic, industrial and scientific sections of G-2.

RG 335. Secretary of War Robert P. Patterson's subject file (Safe file).

RG 353. State-War-Navy Coordinating Committee (SWNCC) case files, especially Case 257, regarding German scientists and technicians.

Washington National Records Center (Suitland, Maryland)

RG 40. U.S. Department of Commerce records, especially those of the Office of Technical Services (OTS), the Technical Industrial Intelligence Committee (TIIC) and its subcommittees, and the papers of the TIIC's Division, Branch, and Unit Chiefs.

RG 84. U.S. Political Adviser to the Military Governor in Germany (USPOLAD) records, especially those relating to Project Paperclip and the exploitation of German science and technology.

RG 165. U.S. 6th Army Group, T-Force Target Reports and G-2 publications files, 1941–45.

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