Locating the Victim: An Overview of Census-Taking, Tabulation Technology, and Persecution in Nazi Germany

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Nazi persecution of racial victim groups presupposed not only precise legal definitions and close cooperation among multiple governmental agencies, but also sophisticated technical procedures for locating those groups according to complex age, occupational, and racial criteria. This article shows how a variety of administrative tools — including two national censuses, a system of resident registration, and several special racial databases — were used to locate groups eventually slated for deportation and death, as well as the possible role played in this process by Hollerith tabulation technology. Patterns in the expulsion of Jews from Germany suggest that aggregate census data may have been used to guide this process as well. The precise role played by punched-card tabulation technology remains a matter of speculation. However, it is certain that as early as 1933, Nazi officials and statisticians envisioned a future in which the racial characteristics and vital statistics of every resident would be monitored through tabulation technology in a system of comprehensive surveillance. While the “final solution” was in no sense caused by the availability of sophisticated census-taking and tabulation technologies, concrete evidence suggests that Hollerith machines rationalized the management of concentration camp labor, an important element in the Nazi program of “extermination through work.”

The task of locating and persecuting racially defined victim groups posed a mammoth challenge to the administrative bureaucracy of Nazi Germany. At a minimum, it required the close cooperation of civil authorities with the national police, the Reich criminal detective forces (Kriminalpolizei or Kripo) and the political police (Geheime Staatspolizei or Gestapo), the Nazi party, the German railroad, the German Army, and civilian authorities in German-occupied territories, to say nothing of the Inspectorate of Concentration Camps (part of the SS or Schutzstaffel Central Office). Achieving ethnic and “biological” homogeneity in Germany entailed the social exclusion and eventual destruction of minority groups considered alien and inferior — particularly Jews, Roma (“Gypsies”)*, the mentally and physically handicapped, and persons of mixed African and German descent** — which in turn presupposed a lengthy process of definition, segregation, and isolation, as well as a modern bureaucracy willing to implement it. In the words of Götz Aly and Karl Heinz Roth, each “selection” at the Auschwitz-Birkenau concentration camp “fulfilled a prior selection on paper.”

The bureaucracy of persecution has been studied since the Nuremberg trials in 1946, but few scholars have explored the personal data and statistical bases required to implement interrelated and incremental Nazi policies of exclusion and destruction. Historians of Nazi Germany have all but ignored the subject — with the outstanding exception of Aly and Roth — while most historians of computing technology have overlooked the misapplications of statistics and computing technology during the Nazi period. This is due only in part to a dearth of evidence. In the spring of 1945, the German police authorities that had been in charge of deportation destroyed most files not already lost in bombing raids (a notable exception was the Gestapo subdistrict office in Würzburg). Furthermore, the SS and Gestapo were not in the habit of publicizing their inner workings. Thus fundamental questions remain open. How, for example, was the regime able to collect its information? Was this information used to persecute racial victims in Nazi Germany and occupied Europe, and if so, how? Finally, what role did mechanical tabulation technology play in the process?

*We have not used the term “Gypsy” and its German equivalent “Zigeuner” because of their pejorative connotations. “Roma” is the broadest term of ethnic self-description used for this group and applies to “Sinti” (a central European subgroup) and “Roma” (a term often used to describe Balkan subgroups). “Romani” is the adjectival form of Roma.
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Tools of Enrollment

The answer to the first question is perhaps the simplest. The Nazi regime gathered its information with two relatively conventional tools of modern administration: the national census and police registration. Of course, not every Nazi persecution was based on information contained in census or police records, nor were the data always used for the purposes of political, eugenic, or racial persecution. During the phase of the Nazi consolidation of power (1933-1934), the purging of Jews and political opponents from the civil service, courts of law, cultural institutions, and public health administration was implemented by complex ad hoc screening mechanisms based on questionnaires that routinely increased in number and length. For example, provisions under the Gesetz zur Wiederherstellung des Berufsbeamtenstands (Law for the Restoration of the Professional Civil Service) of April 7, 1933, required that all employees and job applicants complete a four-page questionnaire proving their "Aryan" ancestry and political loyalty. Similarly, the applicants for membership in the Reichskulturkammer (Reich Chamber of Culture) — required for any cultural activity in Nazi Germany — were required to complete a questionnaire that screened potential members by race and political affiliation. It would be equally misleading to suggest that patterns of Nazi census-taking betray a continuous intent to commit genocide against Jews and Roma from an early date in the Nazi regime. The structure of decision-making in the Nazi state was at first too complex and, perhaps more important, too chaotic, to sustain such a conclusion. Despite these limitations, however, leading statisticians in government and industry loudly announced their intention to apply their craft, with the help of mechanical tabulation technology, to accomplish what Aly and Roth have called the "total enumeration" of Germans along racial and eugenic lines. To be sure, the use of tabulated punched cards from censuses and other data to identify specific individuals remained a technical impossibility until after 1945. But the balance of evidence suggests that registration data, census forms, and — used in the aggregate — tabulated census data facilitated the speed, efficiency, and thoroughness of racial persecution and exploitation characteristic of Nazi Germany.

The national census. The urgency of assembling comprehensive personal data was reflected in the speed with which the Nazi regime began to compile it. Only four months after Adolf Hitler was appointed German chancellor in January 1933, his government launched an ambitious program to compile, catalog, and diagnose comprehensive information on all aspects of the lives of all Germans. While that goal was never reached, the struggle to attain it began at once. The new regime announced a national census on April 12, 1933, even before opposition parties had been outlawed and the Nazi dictatorship had been consolidated. Already the regime possessed the legal means to pursue its objectives, disregarding all political opposition. These were the so-called "Reichstag Fire" decrees of February 28, 1933, issued on the authority of German President Paul von Hindenburg, which gave Chancellor Hitler arbitrary dictatorial powers. These decrees specifically enabled the central government to suspend civil liberties and usurp the authority of state and local governments, which the new regime promptly did. This permitted the regime to enforce a degree of uniformity in census-taking that had proved impossible in 1925, the last time a nationwide census had been held, when qualms and hesitations by state and local governments had complicated the process. It is therefore no accident that the first Nazi census followed the subordination of state governments to the central authority in Berlin.

In June 1933, the regime mustered some 500,000 pollsters, consisting mainly of teachers, war veterans, unemployed persons, storm troopers and members of the SS. These census-takers used a questionnaire that was modeled on the 1925 precedent, with an important difference: The 1933 form directed new questions at married women about their date of marriage and the number of children they had borne. These data were specifically intended to guide "positive eugenic" policies designed to promote the fecundity of "racially superior," "Aryan" women. This was, to be sure, a relatively modest objective, especially in light of what was to come. But Nazi genocide emerged in part from the complement of "positive eugenics" — that is, "negative eugenic" policies designed to destroy "unwanted" racial or genetic elements in the German population. Thus a racial and eugenic agenda was evident from the start of Nazi census-taking.

In light of these pretensions, it is perhaps ironic that Germany was a latecomer, both to census-taking and to the electrical tabulation of census data. This was due mainly to the late date of German unification. While the United States had held decennial censuses since 1790, the first all-German census dates only from December 1, 1871. After 1875, a census was taken every five years until 1910. World War I interrupted this continuum, and one census occurred under the unstable conditions of the Weimar Republic (1925); many of the statisticians who organized it, such as Friedrich Burgdörfer, also played leading roles in later Nazi censuses. Likewise, Hollerith machines had been used to tabulate the decennial American census since 1890. Despite the relative youth of census-taking in Germany, a strong continuity existed between the Nazi censuses and their predecessors. Indeed, many leading statisticians and census officials welcomed the arrival of Nazi rule, and the new tasks and challenges it posed to their profession. In 1934, for example, the president of the State Statistical Bureau of Thuringia, Johannes Müller, noted with satisfaction that "The days when...statisticians were first and foremost scientists are over" (quoted by Aly and Roth, p. 13). In a similar vein, Willy Heidinger, the director of the Dehomag Corporation, IBM’s German subsidiary, offered an especially hubristic assessment of the future role of statisticians and tabulation technology in the Nazi state:

We are recording the individual characteristics of every single member of the nation onto a little card... We are
proud to be able to contribute to such a task, a task that makes available to the physician [i.e., Adolf Hitler] of our German body-social the material for his examination, so that our physician can determine whether, from the standpoint of the health of the nation, the results calculated in this manner stand in a harmonious, healthy relation to one another, or whether unhealthy conditions must be cured by corrective interventions.... We have firm trust in our physician and will follow his orders blindly, because we know that he will lead our nation toward a great future. Hail to our German people and their leader!17

A new day had dawned, when statistical science and technology would take on new problems, such as political opposition and “racial hygiene.” As states were growing more dependent on Berlin, a central institution assumed greater authority over census-taking nationwide: This was the Statis-
tisches Reichsamt (Reich Statistical Office, or SRA), headed by Burgdörfer. Although state statistical bureaus were responsible for collecting the data, the 1933 census decree centralized overall authority for the analysis and publication of census data with the SRA.20,29

The 1933 census was processed in record time; this can be attributed not only to public resources invested in that project, but to technical innovations as well.20 Although German businesses had used punched-card tabulators and sorters for decades, German statisticians were only beginning to realize the potential applications of this technology to social policy.22,23,24 In the state of Prussia, the processing of census data was fully mechanized — for the first time in German history — through tabulators and sorters leased from Dehomag (see Figure 1). Dehomag was also contracted to enter and tabulate all data from Prussia, which at that time comprised about three-fifths of the total German population.25 All the other German states tabulated data manually, as in the past. To meet a May 30, 1934, deadline for the completion of data processing, about 900 Dehomag keypunch operators and editors, punching and verifying around the clock in three 7½-hour shifts (see Figure 2), transferred data on about 40 million Prussian citizens onto 60-column punched cards at a rate of 150 cards per person per hour.26,27 These cards were then processed with 35 Dehomag sorters with a capacity of 24,000 punched cards per hour, 13 combined Dehomag sorter-tabulators with a

Figure I. The Dehomag D-11 tabulator (a) and sorter (b) manufactured by the German Hollerith Machine Co. (Courtesy US Holocaust Memorial Museum, Washington, D.C. Photographer: Arnold Kramer.)
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Figure 2. Women clerks entering 1933 census data onto punched cards for the German Hollerith Machine Co. The table posted at the front of the room specifies that column 22, hole 3, classifies Jewish individuals and hole 10 specifies nationality (e.g., Poles). This photograph was first published in the official commemorative program for the dedication of the new Hollerith factory in Berlin-Lichterfelde on January 8, 1934. It was also printed in the April 1934 issue of the corporate publication Hollerith-Nachrichten. (Courtesy Annett Ehmann, Berlin.)

capacity of 20,000 punched cards per hour, and 25 Dehomag tabulators with a capacity of 12,000 punched cards per hour.14 Some of these Hollerith machines were of a type specialized for counting cards sharing as many as 13 categories at once.15 Already by March 1934, all the categories of data had been sorted and tabulated. Included in this process was a special census of religiously observant Jews (so-called Glaubensjuden).16 The speed of this data-processing system erased all initial misgivings among Prussian census officials about the effectiveness of mechanized census-data tabulation. Meanwhile, the profitability of Dehomag’s collaboration encouraged it to build a Hollerith machine factory in Berlin-Lichterfelde. (The Berlin facility was not, however, Dehomag’s only plant; the first plant — located in Wiblingen — was purchased in 1918, and the second factory in Sindelfingen near Stuttgart was bought in about 1920.)17

In terms of technique and personnel, the second Nazi census of May 17, 1939, was an even grander affair than the 1933 census. The muster of census-takers increased 50 percent to 750,000, who, as a result of the territorial annexations of 1938, now also included Austrians.18 The process of tabulating data was now fully mechanized throughout Germany and centralized under the authority of the SRA, which had doubled in size to include a staff of more than 5,000 employees.19,20 The SRA itself conducted the census in the states of Prussia, Oldenburg, Lippe, Schaumburg-Lippe, and the Saarland; elsewhere, the SRA assigned responsibility for collecting census forms to state-level statistical bureaus. The Sudetenland and the Protectorate of Bohemia and Moravia were not included because those territories had been acquired too recently and because the Czech census of 1930 was regarded as adequate. To tabulate the 1939 data, Dehomag leased the labor of 1,200 keypunch operators and editors.21 Technical improvements also accelerated the tabulation of 1939 census data. As early as 1933, the SRA had exploited the enhanced speed and capacity afforded by Dehomag’s new punched cards with rectangular holes, which permitted the number of data categories contained on each card to increase from 45 to either 60 or 80, depending on which of two standard card sizes were used. In the 1933 census, 60-column cards were used.22,23 After 1933, the SRA had its Hollerith machines rebuilt to accommodate either the 60-column or 80-column cards, and for the 1939 census used the more capacious 80-column cards.24,25 (Figure 3 shows an 80-column card used by the SS Race Office.) Some of the data were processed with a stripped-down, high-speed version of the new D-11 model Hollerith.26,27 Once again, tabulation was completed within a year.

Resident registration. While the statisticians in Berlin were compiling their data, the second tool of enrollment was being developed at the local level. This was the requirement for all residents to register with the local police. Present-day Germans are accustomed to reporting their residence and other personal data to local police, but few realize that this obligation is a legacy of the Nazi regime. The Reichs- meldeordnung (Reich Registration Law, or RMO) of January 6, 1938, required that all inhabitants of Germany (including foreigners) report any changes in residence to local police.28 By 1941, its stipulations had been extended to Austria, the Sudetenland, and territories annexed from Poland.29 Failure to comply with the RMO was punishable with six weeks’ imprisonment (RMO34 IV, §26, 1-3). Inside Germany proper, these data on domicile were exchanged among local police forces (and still are). The explicit purpose of resident registration was social control. Artur Käb and Erich Liebermann von Sonnenberg, architects of the Reich Registration Law, wrote that the system of resident registration was

the indispensable basis of activity for numerous authorities that work...at the national level and which are therefore dependent on registration material reported in town and country throughout the Reich. Fragmentary data and incomplete information would serve the Reich Postal Service [and] the Reich Statistical Office...no less poorly than the Kripo and the Gestapo.... Considerations of a security nature figure more prominently in the Reich Registration Law than in earlier state registration laws (quoted by Aly and Roth, p. 45).
Registration bureaus were created in police precincts across the country and were instructed to report any change in residence to the SRA in Berlin, which used the information to update local population totals.

Among the 63 items of information recorded in the 80 columns were year of birth, place of birth, profession, marital status, religious affiliation, year of marriage, total male children, total female children, nationality, height, weight, racial elements, labor and military service, and the examiner's number. (Courtesy Götz Aly, Berlin.)

The sheer number of state and Nazi party institutions collecting specialized racial data was astounding. To name but a few examples, the Russenpolitisches Amt (Racial Policy Bureau or RPA) of the Nazi party launched a project to compile a comprehensive register of all Jews, Roma, so-called “asocials,” and other racial “aliens” living within German borders. Meanwhile, the head of the Reichsstelle für Sippenforschung (Reich Office for Genealogical Research), Dr. Achim Gercke, began laying the groundwork for what he hoped one day would amount to a “Reich Genealogical Catalog”, which would contain the racial pedigree of every German.

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How did the Nazi state use this data to locate its victims? The answer to this question is complex, in part because the structure of decision making in the Nazi state was often surprisingly haphazard. Eventually, registers of specific victim groups were compiled systematically from a variety of sources. But this was a relatively late development, the result of increasing centralization of police authority and the preparations for war. A long road had been traveled to reach that point. Prior to 1938 and 1939, efforts to locate victims were hampered by what has been called the “totalitarian anarchy” and “polycentrism” of the Nazi state. Party and government institutions battled constantly for power and influence, not just in matters of data collection but in virtually every other area of activity as well. These competing institutions set goals of data collection too ambitious for the means available to them. Moreover, matters were complicated since coherent definitions of various victim groups emerged only gradually between 1933 and 1939.

In 1935 and 1936, the Reichsgesundheitsamt (Reich Health Office) started compiling a card catalog of genetically diseased persons. In 1936, the Kripo established a Reichszentrale für die Bekämpfung der Zigeunerplage (Reich Central Office for the Fight against the Gypsy Plague). In the same year, a Rassenhygienische und Bevölkerungsbiologische Forschungsstelle (Eugenics and Demographic Biology Research Unit) was created within the Reich Health Office under the direction of Dr. Robert Ritter to accomplish the systematic registration and fingerprinting of all Roma living in Germany. In addition to authorities at the national level, regional police officials also attempted to locate Jews. In February 1936, for example, the political police of Württemberg, noting the recent “influx of German and...foreign Jews,” ordered that each and every newly arrived Jew was to be interrogated and
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registered with the Stuttgart central office. Thus, throughout the 1930s, the process of locating victims was neither centralized nor systematic. Competition between state and Nazi party agencies resulted in administrative confusion and the proliferation of institutions charged with the same general tasks.

The 1933 census illustrated the effect of the lack of coherent definitions: Complete as its coverage was, the category of observant Jews (Glaubensjuden) was inadequately delineated. Nonaffiliated Jews and the descendants of mixed marriages between Jews and Aryans remained statistically indistinguishable from other Germans. Thus the 1933 census counted 499,682 Glaubensjuden,

but missed perhaps as many as 240,000 nonpracticing Jews and persons of part-Jewish descent. The problem boiled down to subjectivity. How, one statistician asked, was a respondent to know what race he or she belonged to, in the absence of objective racial criteria? A much simpler approach, he suggested, would be to inquire after Aryan or non-Aryan descent.

For the same reason, Roma also escaped detection. Nearly all were Christian, and there was no provision in the 1933 census for identifying them on a racial basis, although a Bavarian law of July 16, 1926, and a similar Prussian decree of November 3, 1927, mandated special identity cards (with fingerprints and photographs) for all Roma above the age of six. These cards were to be filed with the police, local registry offices, and labor exchanges. Despite this partial registration of Roma in two of the largest German states, data was reported only to the Munich headquarters of the "Center for the Fight against Gypsies in Germany," but not to the SRA.

Thus the 1933 census was deficient for creating a database for the systematic racial persecution of Jews as well as Roma. Moreover, no national register of persons suffering from supposedly hereditary diseases had yet been created and thus could not be reported to the SRA when the 1933 census was tabulated; this would later be assembled by other ministries.

One explanation for these shortcomings is that the data essential for the implementation of Nazi racial policy developed incrementally after 1933. In 1933, these objectives were still not fully defined and the bureaucratic process of destruction was not yet centrally coordinated. Not until September 1935 did the Nazi regime even determine who, for the purposes of racial definition, was Jewish. The Blutschutzgesetz and the Reichsbürgergesetz (Blood Protection Law and Reich Citizenship Law, known together as the "Nuremberg Race Laws"), along with their supplemental decrees, resolved that problem by defining "Jewishness" not by faith, culture, or any other criterion based on self-identification, but by ethnic ancestry. Broadly speaking, every Jew was grouped into one of three racial categories: A

*Raoul Hilberg and others have shown that even the racial definition of Jewishness was problematic at Nuremberg rested on a cultural foundation. An individual's race was determined by that of his grandparents. This, in turn, was determined on the basis of their religious practice. The argument was based on the false assumption that prior to 1900, intermarriage between Jews and non-Jews was rare. For analyses of Nazi policy toward part-Jews, see articles by Bütner 1989 and Noakes 1989."

"full" Jew (Volljude) was any person with three or four Jewish great-grandparents. A first-degree Jewish "hybrid" (Mischling ersten Grades) had two Jewish great-grandparents and a second-degree Jewish hybrid (Mischling zweiten Grades) had only one Jewish great-grandparent. In view of these legal innovations, top Nazi officials were keenly aware of the inadequacies of the 1933 census as a tool for locating racially defined victim groups. In October 1936, the national Chief of Security Police, Reinhard Heydrich, noted with acid frustration that

Since the [Nazi] seizure of power, it has been ascertained that a large proportion of the Jewish population living in Germany has allowed itself to be baptized as Protestants or Catholics with the intention, following a change of residence, of avoiding occurring as Jews in registration records and furthermore to hamper the efforts of other authorities, particularly the political police (i.e., Gestapo), to establish individual cases of Jewish ethnic descent (quoted by Aly and Roth, p. 69).

Heydrich referred here to local civilian resident registration offices (Einwohnermeldeämter), not to resident registration by the police. Many localities implemented the RMO simply by transferring existing Einwohnermeldeämter to police authority.

The shift from a "polycentric" to a more systematic and centralized operation to locate groups targeted as "racial aliens" coincided with two major developments in the Nazi state: first, the emergence of a monopoly over police powers in the hands of SS Chief Heinrich Himmler, and second, Hitler's decision to launch a major European land war. The consolidation of police authority under the SS gave Himmler the power to impose greater uniformity on the process of identifying victim groups, as well as the ability to persecute them systematically. In addition, Hitler intended the war to serve as the pretext for a massive racial and eugenic "cleaning" of German society. It is no accident, for example, that Hitler backed his authorization for the so-called euthanasia program to kill institutionalized physically and psychologically handicapped people, and persons identified as having hereditary diseases or defects, to the same day that the German army invaded Poland.

The 1939 census and the Reich Registration Law must be understood against the background of these parallel developments. The more sophisticated 1939 census was designed to fulfill Heydrich's demand for explicitly racial criteria of social classification. In contrast to 1933, the 1939 census contained a supplemental questionnaire (Ergänzungskarte) that required respondents to report if any of their grandparents were Jews. This questionnaire enabled government statisticians to classify individual Jews not by religious observance, but by the racial categories of the Nuremberg Race Laws: full Jews and Jewish hybrids of the first or second degree. Each form also required identification of the
respondent’s place of birth and residence, which further facilitated the process of locating Jews. To ensure the most exact racial information possible, this supplemental form was to be delivered in a separate mailing to the statistical bureau responsible for its processing. While there was some confusion about which bureau was meant,107 it seems that the SRA was implied. In any case, it was the SRA that in 1940 published the tabulated results from the Ergänzungskarten.

The 1939 census form also asked citizens to declare all skills of potential use to the military.99 Indeed, the tandem goals of racial persecution and military preparation emerged clearly in the arrangements for tabulating the national census of 1939. The minutes of a meeting of key ministerial officials held at the SRA on September 6, 1939, record that

The representatives of Reich Interior Ministry and the Reichsführer-SS [Himmler] considered it an essential priority for their work to draw up lists of names of foreigners and persons of foreign ethnic affiliation (Volkstumsgeschöpf), as well as to separate data on Jews and Jewish hybrids. Accordingly, the fulfillment of the aforementioned tasks were recognized as an "immediate program," for which the Reich Statistical Office promised a likely completion date at the end of November 1939.

In response to the urgent wishes of the Military High Command and the Reich Labor Ministry, the completion of these tasks will be followed by the preparation of a professional census (professions in combination with social structure), for which the Reich Statistical Office requires a time period until the middle of next year [1940] (quoted by Aly and Roth 1984, p. 25).

The 1939 census enabled Himmler and Heydrich to identify populations of nonaffiliated, nonpracticing Jews and persons of part-Jewish descent who had eluded earlier registration attempts. Preliminary census results published in early 1940 indicated that 330,892 full Jews, 72,738 first-degree hybrids, and 42,811 second-degree hybrids still resided within the German boundaries of May 1939.98 (A large proportion of the German Jewish population had died, emigrated, or been expelled between 1933 and 1939.) Comparative machine analysis of census data enabled Reich statisticians to determine the exact geographic, demographic, and professional composition of Nazi Germany’s largest victim group.99 It also enabled the SRA, acting on orders from Heydrich and Interior Minister Wilhelm Frick, to extract an "Ethnic Catalog" (Volkstumskartei) of racially non-Aryan residents from the 1939 census data. On October 12, 1942, Frick announced its completion: "At the common instigation of myself and [Heydrich]." He wrote,

the [SRA] has produced a Volkstumskartei...from basic material in the national census of...1939. Each individual card contains the surname (also maiden name), personal name, residence (including district and community), sex, date of birth and information concerning religion, mother tongue, ethnic affiliation [i.e., race], profession, for household heads the number of children under the age of 14 living in his household, and a declaration (yes or no) whether arable land is under cultivation."

Meanwhile, data from resident registration files also provided the informational basis for another new database: the "Catalog of the People" (Volkskartei). The primary function of the Volkskartei, decreed on April 21, 1939, was to facilitate the military draft.99 Placed under the jurisdiction of the Ordnungspolizei (regular uniformed police) and maintained at the local level, the Volkskartei augmented existing resident registration databases with a uniform, nationwide system of index card files detailing vital statistics and occupational information on every person resident in the Reich. All Germans between the ages of six and seventy were required to fill out a card indicating

- year of birth,
- profession,
- employment history,
- physical disabilities,
- name and marital status,
- level of education,
- foreign language ability and history of travel outside Germany,
- areas of specialized knowledge,
- ability to drive cars, ride horses, or fly airplanes,
- record of military service, and
- place of residence.99

These cards were sorted locally by year of birth and gender to facilitate military conscription. But the Volkskartei was also linked to the project of racial enrollment from the outset. Initially, the index cards of Jewish residents were to be marked with a black letter "J," and as of March 1940, the file card of each full or part Jew was marked with a black tab affixed to the top of the card.102 This was accomplished by comparing Volkskartei cards with records of the special identification papers every full Jew was obliged to carry. The explicit purpose of specially labeling Volkskartei cards of Jews was "to obtain a general overview of the Jewish population still remaining in a locality" and because, in the event of war, it was best suited to facilitate a "comprehensive labor draft" (Gesamtarbeitsbesatz) of Jews.103

After 1939, German efforts to accumulate precise statistical data on the populations under its rule extended to occupied and annexed regions of Czechoslovakia, Poland, Vichy
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France, Belgium, and the Netherlands. The registration of Jewish property and persons was especially complete in the occupied Netherlands. In occupied eastern Europe, the Nazi state relied on census data compiled by the Interior Ministry’s Publications Unit. Both inside Germany proper and in German-occupied Europe, local registration and Jewish census data were linked to the distribution of J-stamped identification papers, Star of David badges, work permits for Jews, and ration cards. Ultimately, these bureaucratic forms were the essential prerequisites for the roundup, internment, and deportation of Jews. The cooperation of local statistical offices throughout German-occupied Europe more than compensated for the isolation and paucity of German police personnel, spread thinly across the lands Germany had conquered.

We can gauge the significance of the 1939 census and its derivative, the Volksstumskartei, by comparing their results with the Gestapo’s earlier efforts to accumulate a comprehensive catalog of German Jews. Four years before, in 1935, SS Major Adolf Eichmann was assigned the task of organizing the compilation of “Catalogs of Jews” (Judenkarten) on the basis of congregational and Jewish communal membership lists. On August 17, 1935, his superior, Heydrich, had ordered all Ghetto district offices to retrieve the membership lists of all Jewish congregations and communities and to assemble the data in a standardized format, for the explicit purpose of enforcing Nazi racial laws. Heydrich’s instructions to these offices stipulated that

A Jewish register shall be established to list all Jews in Germany. This register should be based on [congregational] membership lists provided in triplicate by all Jewish organizations to every district office. These membership lists should show the actual status as of 1 October 1935. These membership lists should be obtained from the local and district level.... Two copies of the submitted membership lists are to be transmitted to me no later than 1 November [1935]. The third copy is to remain at each local [Gestapo] office for evaluation and for the creation of a district register. Any changes are to be sent automatically on a quarterly basis; such supplementary records are also to be transmitted in triplicate. These records should list new members as well as those removed due to resignation, death, or emigration. These supplemental lists are to be sent to me on the first day of the month following each quarterly report.... Reports indicating no data are also mandatory. But this effort remained incomplete for the same reasons that the 1933 census had proven inadequate: Although they included greater numbers of nonpracticing Jews, congregational and communal lists offered no advantage for the systematic identification of half- or quarter-Jews, let alone for the identification of Jewish converts to Christianity. Moreover, Eichmann’s resources were insufficient, and initially the project made little headway. Some evidence suggests that the Volksstumskartei was consciously intended to compensate for the defects of the Judenkartei.

It should be emphasized that even before the Gestapo began to compile its Judenkartei, a parallel effort to had begun to catalog the Romani population of Germany. Throughout the 1930s, the same process of centralization that characterized the compilation of data on Jews also occurred for Roma and Roma married with Germans. Special provisions for the registration of Roma under the Reich Registration Law were decreed in December 1938. Increasingly, the project of locating Roma was concentrated in the Kripo’s “Reich Central Office for the Fight against the Gypsy Plague” and their comprehensive “racial scrutiny” of the Romani population in the Reich. Based on Dr. Robert Ritter’s conclusion that the “Gypsy Problem” was best solved with the tools of “racial science,” Himmler ordered the cataloging of all Roma by degrees of “racial purity.” Accordingly, the Kripo used Ritter’s system of racial notation, in which “Z” (Zigeuner) indicated “full Gypsy”; “ZM+” (Zigeunermischling) meant a “Gypsy hybrid” of predominantly Romani blood; “ZM” indicated a Gypsy hybrid with equal amounts of German and Romani blood; and “ZM−” indicated a Gypsy hybrid of predominantly German blood. This racial classification was virtually identical to that used for Jews, and ultimately served the same purpose.

As with Jews, the process of locating Roma was carried beyond the borders of Germany in 1939. The registration of Austrian Roma was begun in late October 1939; a similar census of Roma was conducted in the Protectorate of Bohemia and Moravia in August 1942. The Dutch Ministry of Justice had already created a central register of Roma in 1936. In early 1941, a central Dutch registry of Roma, nomads, aliens, and stateless persons in the occupied Netherlands was opened to facilitate the implementation of German measures for the arrest, internment, and deportation of Dutch Roma. In France, the Vichy Commissariat for Jewish Affairs under Xavier Vallat held jurisdiction over the fate of Roma, as part of its responsibility for the administration of “measures for the maintenance of racial purity.”

In Germany, the massive project to identify and locate all Jews and Roma was, for all intents and purposes, completed by the end of 1940. To be sure, the Volksstumskartei required rather more time to complete (until December 1942), but most of the necessary information was available before the first deportations of German Jews began in October 1941.

The data behind deportations

Census data and resident registration data helped the Nazi regime locate victims on a national scale, but were they used to guide the planning and administration of deportations? The answer would require detailed knowledge of the Gestapo’s internal bureaucratic procedures, and this information is still not fully established. Any conclusion about the overall use of centralized ethnographic databases and the role of mechanical tabulation in the process of deporting and killing the racial victims of Nazi must therefore remain tentative. Given the importance Heydrich attached to national ethnographic databases and considering the pan-European scale on which Adolf Eichmann operated as the Gestapo’s supervisor of deportations, it seems likely that
material derived from the 1939 census and resident registration was used in developing the overall plan of deportations. But how? Aly and Roth suggest that census data facilitated Heydrich’s decision to deport all Jewish war veterans above the age of 65 to the Theresienstadt ghetto. We also know that SS statistician Richard Korherr regularly supplied the Gestapo with information derived from the SRA’s census data on the number and location of Jewish hybrids (see Hilberg’s book, p. 188, n. 1; p. 247, n. 24; pp. 469, 735). On the other hand, over half of all Jews killed in the Holocaust were already dead before Interior Minister Frick announced the completion of the Volkskundekartei in December 1942.

Still, the process by which the deportations of Jews was coordinated offers us a glimpse of where the Gestapo obtained its information and how they used this data. Responsibility for the overall administration of deportations was centralized in Adolf Eichmann’s office, since he was assigned to serve as the Judenreferent (Jewish expert) at Gestapo headquarters in Berlin. The process of deportation varied slightly by locality, but generally followed a consistent pattern. Each deportation from Germany proper began with a directive from Eichmann’s bureau stipulating the total number of Jews to be deported in a specific roundup. In turn, this was accompanied by detailed instructions that assigned, among other things, train timetables and the quota of Jews each locality was to produce. In Germany, deportations were carried out by Gestapo offices at the district and subdistrict levels, which enlisted the aid of local police, rural gendarmes, district administrators (Landraths), and the local administrations of Jewish communities to translate the designated quotas into lists of specific persons for deportation.

In short, Berlin dictated aggregate numbers, while local police and Jewish communal officials drew up lists of the names and addresses of individual deportees. There is still no definitive information about local deportation lists, and whether socioeconomic factors or professional skills were factors in Jewish communal decisions about the allocation of any individual or family to a specific transport. Current historical evidence suggests that after the Gestapo assigned a specific quota to Jewish communities in Germany and Austria, the community itself was required to select their own members for each transport.

Where did Berlin get these totals? Some evidence points to the Judenkartei. As we have seen, Jewish communities had been forced to supply membership lists to the Gestapo since October 1935. Heydrich’s decree on the creation of a uniform Judenkartei also provided for quarterly updates, which the Gestapo compiled from local lists. Despite Heydrich’s complaints, Jewish communal lists were the best-established source of information about the numbers and locations of most Jews, and among the several index card catalogs on the Jewish population, the Judenkartei was the oldest. The earliest roundups clearly made use of these registers. After the Crystal Night pogrom of November 1938, for example, the Heidelberg Gestapo office ordered the deportation of all adult male Jews to the Dachau concentration camp. A local official compiled a list of 36 names from a local Judenkartei. The Judenkartei seems also to have provided the basis for mass expulsions of full Jews from the states of Baden and the Palatinate on October 22, 1940. The deficiencies of the Judenkartei are revealed in the fact that the Gestapo did not, in these instances, dictate quotas of deportees. This was partly because Jewish communal lists were not designed to provide information classified by racial criteria. Further, the Gestapo district office in the state of Baden initiated a catalog of racially defined Jews only after the deportations of October 1940 were already accomplished.

The course of subsequent deportations, moreover, suggests that the Judenkartei was used with census and registration data (and their derivative databases). Communal membership lists could not fail to miss a certain number of Jews: In Düsseldorf, for example, one deportation missed 23 women not included among the members of the Jewish community, among them two women who had converted to Lutheranism and become nurses (Diakonissen). After October 1941, each phase of mass deportations was directed — at least officially — against groups of Jews that were defined with a degree of demographic, occupational, and racial precision that exceeded the limits of information available from the Judenkartei. The initial wave of deportations in late 1941 and early 1942 was directed against full Jews under the age of 65. But the first wave also excluded Jewish hybrids, Jews married to Aryans (with or without children), and those hybrids who counted as full Jews because they practiced the Jewish religion (so-called Geltungsjuden) but were not married to Jews, physically infirm Jews over the age of 55, Jews whose work was considered vital to the war effort, and stateless Jews. Later deportation waves in 1943 erased the exemption of foreign Jews and Jews previously exempted because of their work or infirmity. Finally, one of the last waves of deportations in 1944 aimed to deport Jewish hybrids who had previously not been systematically affected by earlier deportations from the Reich.

As H.G. Adler notes, the precondition for every deportation was accurate knowledge of how many Jews in a particular district fitted the racial and demographic descriptions in Berlin’s quotas. Any central database capable of supplying such information had to maintain reasonably exact statistics on the age, ancestry, marital status, occupation, and nationality of Jews in every locality in Germany. Communal lists (and the Judenkarteien) often supplied the basic information, but this had to be corrected for data they did not contain. We know that local Gestapo offices sometimes obtained this information from police registration file cards. But only the 1939 census contained data on the age, ances-
Locating the Victim

try, status, occupation, and nationality of every Jew. Even the 1939 census had certain limitations; its data were current only to May 1939 and could not account for changes in the Jewish population between 1939 and 1941. By the outbreak of war in September 1939, for example, the Jewish population of Germany had decreased to about 185,000, largely as a result of emigration, expulsion, and suicide. The census thus required constant updating to provide exact data for deportations. Indications are that resident registration filled some of these gaps. According to instructions issued by the Interior Ministry on April 10, 1938, local police throughout Germany were obligated to report any changes in residence to the SRA, which updated census records as the statistical "basis for wide-ranging goals of economic and population policy.""\(^{66,67}\)

Armed with these data, the Gestapo often proved able to anticipate with remarkable accuracy the total number of deportees for each racial, status, and age category. On November 18, 1941, for example, the Stuttgart Gestapo informed district administrators of Berlin's instructions to deport 111 Jews from the town of Haigerloch and 19 from the town of Hechingen. The order exempted foreign Jews, Jews living in mixed marriages, and Jews over the age of 65. Local administrators almost met their quota: On November 27, 111 Jews from Haigerloch and 11 from Hechingen were deported by track to Stuttgart and by train to Riga, where they were later killed. Henry Friedlander has pointed out that local Gestapo officials frequently ignored Berlin's stipulations to exclude elderly Jews or part Jews. For instance, two persons in an April 1942 deportation from Würzburg exceeded the age limit of 65. But the point here is that irrespective of whether such orders were obeyed, Eichmann's quotas seem to have been guided by precise information about aggregate statistics of the age, status, and "racial characteristics" of individual Jews.

Nevertheless, the Gestapo often did not have a clear idea of how many full and part Jews resided in a particular district. In the case of a 1942 deportation from Franconia, for example, the local Gestapo office in Würzburg felt compelled to ask a district administrator (Landrat) to provide data about the number of Jews resident in the towns of Bad Neustadt, Unselben, and Oberelsbach. The mayors of these towns supplied the mandated quotas of full Jews and Jews living in mixed marriages, presumably from police residential registers. In this instance, Berlin had overestimated the total by about 30 percent, and the actual deportation included several persons above the age of 65, who should have been exempted.

Irrespective of whether the Judenkartei, the national census, or the Volkszählungskartei provided the data required to implement deportations, the second primary tool of enrollment — resident registration — provided the necessary corrective for the deficiencies of the other three registers. In this connection it is important to bear in mind that the 1939 census was intended in part to fill lacunae in registration files, especially concerning Jewish hybrids. Only the 1939 census provided a database comprising the requisite racial and demographic overview needed to craft the complex and many-staged process of coordinated deportations from various German and foreign localities to distant ghettos and concentration camps in the newly occupied East.

Conclusion: The role of Hollerith technology

The precise role played by punched-card tabulation technology in the bureaucratic apparatus of persecution is still partly speculative, and therefore our conclusions are tentative. As we noted above, Hollerith machines processed Nazi censuses designed to identify, locate, and describe the personal characteristics of individual Jews and non-Jews; they may also have been used by the SRA to keep census figures up to date with the Volkszählung. Although circumstantial evidence suggests that census data were used to guide overall logistical planning of deportation from Germany, we can only speculate whether the SRA supplied the Gestapo with the statistics it needed to dictate quotas of Jews designated for specific local deportations. The SRA almost surely did not preserve and update central punched-card files on specific victim groups: Instead, the cards appear to have been destroyed after each census tabulation was complete. Further, technical limitations probably prevented any other institution from developing fully mechanized card files on individual members of targeted victim groups. Finally, while the parallel deportations of Roma were also based on comprehensive and systematic residential, demographic, and genealogical registrations by local police and public health authorities, it is doubtful that census data were used in their deportation and subsequent murder. The paper-work required for the identification and killing of the handicapped also utilized tabulation technology, although it is not known whether Hollerith machines were used in the process of their destruction.

If indeed the Nazi state did not exploit fully the potential of Hollerith technology to facilitate racial persecution, this was not for lack of ambition or cooperation from Demag. Director Heidinger's vision of a totalitarian future in which every resident would be monitored and manipulated in a system of "comprehensive surveillance" was shared widely by Nazi party and German state officials. Figure 4 shows a poster issued by Demag that suggests this vision. There was also a substantial increase in the number of institutions using punched-card tabulators and sorters in Nazi Germany. By the end of the war, Demag had approximately 500 customers (counting each public authority as one customer), using about 2,000 Hollerith machines, each consisting of two card punchers, several verifiers, one sorter, and one tabulator. Virtually all of these machines were leased from Demag, although during the war every new lease required prior approval from the military high command and the government could force private firms to surrender their machines to "enterprises of greater importance to the war effort."\(^{68,69}\) The list of governmental and Nazi party institutions using Hollerith machines included the Nazi Party Treasury, the Reichspost (postal system), the Reichsbank (central bank), the Reichsbahn (national railroad system), the Minis-
try of Air Travel, the War Ministry, the Army, Navy, and Air Force High Commands, the Armaments Ministry, "the central SS personnel office," and numerous city governments. The SRA remained one of Dehomag's largest customers, with about 40 Hollerith machine sets at its disposal. The sizable demand for Dehomag's services in the public sector resulted in the formation of a special department to deal exclusively with leases of equipment to government agencies. Of official enthusiasm for Hollerith technology redounded to the commercial benefit of Dehomag. As a result, Dehomag grew both in work-force and market share, though it remained an IBM subsidiary, even throughout the war years. In early 1945, Dehomag's regional director in Saarbrücken, Jakob Häring, estimated that the corporation had grown to employ over 10,000 people throughout Germany, 8,000 of them at the central offices in Berlin. More important, Dehomag succeeded in overcoming competition from the Powers and Siemens-Halske companies to establish a near monopoly over punched-card tabulation technology in Nazi Germany: Häring estimated that for every competitor's machine, "there were ten [Dehomag] Holleriths at work."

The Nazi regime's ambitions for punched-card technology are perhaps best illustrated by the state institution created to manage the labor force and flow of matériel in a total war economy. This was the Maschinelles Berichtswesen (Mechanical Reporting Institute, or MB), a branch of Albert Speer's Armaments Ministry. The MB (as well as its precursor within the Army Munitions Bureau) sought to provide a nationwide system of data transfer, whereby individual industrial firms engaged in war-related production would report available supplies of labor and matériel via telex to regional offices of the MB, which would then tabulate the information and pass it on to central offices in Märkisch-Rietz. The central office produced monthly national status reports, which were delivered to Hitler, Speer, and other planners within a month of data collection.

The MB held out the promise of continuous, massive, and detailed scrutiny over major aspects of economic and social life. For example, the monthly statistical reports were to include data on the numbers of prisoners of war, conscripted laborers from eastern Europe, and Jews exploited in more or less slave-like conditions by each industrial firm. All in all, the MB dealt with about 700,000 workers. This system was first tested in the Breslau area in late 1943, and despite technical difficulties was expanded to the rest of Germany in 1944 and early 1945. By that time, of course, Allied military gains had begun to impede the MB's progress to the realization of what one historian has described as the Nazi "fantasy of a thoroughly punch-card encoded society." The emphasis from straightforward killing in open fields, gas chambers, or so-called euthanasia institutions, to a more complex and sometimes contradictory policy of killing their victims through forced labor. To facilitate the movement and concentration camp labor, the Abteilung Arbeitseinsatz (Labor Allocation Division) within each concentration camp was equipped with Hollerith machines and SS personnel to operate them, with the assistance of prisoner clerks. The arrival, transfer, or death of every camp inmate was recorded on individual punched cards, processed in Hollerith tabulators, and reported weekly to the central Inspectorate of Concentration Camps in Berlin-Oranienburg. There is solid documentary evidence (see Figure 5 on the next page) indicating that after mid-1944, Hollerith offices were installed at the main concentration camps at Mauthausen, Ravensbrück, Flossenbürg, and Buchenwald, and were probably present at Auschwitz and other main camps as well. These Hollerith offices may have rationalized the management of the flow of prisoner laborers to and from industrial subcamps, as well as prisoner transfers between the main concentration camps. It may also have provided the central authorities in Berlin with a continuous overview of available prisoner labor reserves.

Figure 4. Poster issued by Dehomag and published in the October 1934 issue of Hollerith-Nachrichten. It reads "Surveillance [Übersicht] through Hollerith punched cards." (Courtesy Götz Ayl, Berlin.)
It must be emphasized that neither the Jewish Shoa nor the Romani Porrajmos was in any sense caused by the availability of relatively sophisticated census-taking technologies, including punched-card technology. Hitler’s preoccupation with racial purity and the escalating radicalization of state policies of persecution, segregation, and coercion after 1933 were sufficient to bring about genocide, with or without punched-card technology. Moreover, the architects of the “final solution” utilized technologies that were well known long before the Nazi ascent to power in 1933. However, both the Nazi party and state aggressively mobilized the knowledge and skills of various professions for the implementation of their racial agenda. Similarly, Dehomburg and the official statisticians of Nazi Germany contributed in no small way to the comprehensive enrollment that facilitated so vast and deadly a persecution.

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