The article discusses the events and proceedings of the "Geographies of the Holocaust" workshop hosted by the Center for Advanced Holocaust Studies at the U.S. Holocaust Memorial Museum in Washington D.C. Presentations by Tim Cole, Paul Jaskot and Simone Gigliotti are discussed, citing the social philosophical understanding of space, the locations and travels surrounding German concentration camps, and the geography of ghettos.
The World War II Holocaust was a profoundly geographical event, rooted in specific physical spaces, times, and landscapes. Because it was also characterized by a spatiality of process — concentration, deportation, dispersal, dislocation — its study requires subtle and critical geographical analysis. The seizure and reallocation of property, the devastation of national infrastructures, and the mass exodus and forced migration of millions of individuals are only some of the obvious geographical components involved in the implementation of the Nazis' genocidal policies. Although some scholars have dealt with particular geographical questions in regional studies and others have analyzed specific aspects of space or the built environment, no comprehensive interpretations have identified and investigated the spaces and geographical patterns of the Holocaust. Nor have the analytical possibilities of geographic information science (GIScience) been applied to the massive data sets compiled by the perpetrators and discovered by postwar agencies representing victims, information that provides an enormous amount of evidence to support the spatial analysis of historical events. In addition to the bureaucratic data so essential to the implementation of the genocide, physical evidence of the Holocaust also remains in plain sight, for the structures created and sites used by the perpetrators are scattered throughout Europe. Much untapped visual evidence, including maps and photographs created by the perpetrators and by military forces on all sides, also exists.

Scholars know surprisingly little about the tangible places that were created, altered, or destroyed by the Holocaust, be they rural Jewish communities, urban ghettos, or the many kinds of camps established during World War II. We know perhaps even less about the unique spaces and buildings associated with the Holocaust, such as those generated by the transportation, communication, and labor networks that grew with the expansion of the camp system and the changing military situation during the war. Identifying the types of confinement...
and surveillance and the spatial experiences they produced, examining the geographical distribution of decentralized and small-scale killing, bringing together the available bureaucratic data sets and physical evidence, and establishing criteria for technical and historical analyses are daunting tasks. But they are essential for examining the historical geography of the Holocaust, which we believe will expose previously unknown, yet fundamental, dimensions of this pivotal event.

WORKSHOP AT THE CENTER FOR ADVANCED HOLOCAUST STUDIES

To begin to address these essential broad questions, Tim Cole, Alberto Giordano, and Anne Kelly Knowles organized a summer research workshop on the "Geographies of the Holocaust," which took place in August 2007 at the Center for Advanced Holocaust Studies (CAHS) at the U.S. Holocaust Memorial Museum in Washington, D.C. Their close collaborator in organizing and shaping the workshop was Marc Jean Masurovsky, a senior researcher at the Holocaust Museum. The two-week workshop brought together nine scholars from historical geography, GIScience, cartography, history, and architectural history to consider how spatial analysis and geographical visualization of the built environment and forced movement of people during the Holocaust might inspire new research questions and pedagogical applications. The possibilities of GIScience were of central importance. GIScience methods and the conceptualization of space that underlies them were unfamiliar to most of the participating historians. The ability to generate maps and other visualizations that represent the layers of individual experience, that combine multiple variables, display change over time, and combine and manipulate information from huge sets of statistical data allows for a wide range of new analytical approaches to even the most familiar evidence from the period. In relation to these possibilities, the workshop built on the interests of the Registry of Survivors, a division of the U.S. Holocaust Memorial Museum, which in 2005 began to seek ways to incorporate geography into its efforts to document and memorialize thousands of individual lives forever changed or displaced by National Socialist policies between 1933 and 1945. The workshop pointed to the tremendous potential of collaborative work between the humanities and the social sciences, framed around the analytic possibilities of GIScience, to examine the spatiality of the Holocaust and understand the multiple scales at which Nazi policies of war, territorial restructuring, and oppression of civilians were implemented.

The format of the workshop was rather unusual. Because the purpose was to see what interdisciplinary collaboration on geographical research might yield, the organizers decided to allocate significant time to introducing participants to the data sets, photographic collections, maps, and other key sources in the museum's archives that seemed most suitable for geographical analysis. Participants then formed teams to work on several trial projects during the second week. That was a first test of the feasibility of collaborating across disciplines, exploring data from many angles, and experimenting with geographical methods. Although at times this approach felt a little like interspecies communication, by the end of the workshop it
had generated an exhilarating fusion of ideas and approaches whose outcomes exceeded everyone’s expectations.

The basic questions of space, location, and movement were easy to agree upon from the outset of the workshop, but finding a common language to discuss ideas as they emerged was challenging. Disciplinary and methodological barriers at first seemed quite high. The workshop began with individual presentations by the participants covering three sometimes overlapping themes: analysis of specific Holocaust spaces, transformation of space and spatial experience over time, and possibilities for using geographical questions and methods to study historical events. As the presentations progressed, the importance of variable scale, the scope and quality of data, the physical evidence of buildings and sites, and the possibilities of using testimony to answer spatial questions were recurring issues. Throughout, discussion returned to how GIScience could manage the complexity of diverse social, physical, and temporal scales while posing new questions that would generate further historical, geographical, and visual analysis.

The spaces of the Holocaust were addressed most directly in the presentations by Tim Cole and Paul Jaskot. Cole introduced his research on the physicality of ghetto formation in Budapest, which led us into different ways of thinking about the perpetrators as well as the victims and bystanders. He highlighted, for example, how the determination of housing within or outside the ghetto was an important foundational element to the genocide and how, as a result, one’s survival often depended on spatial criteria. The local, even street-level, scale of implementation through the manipulation of fences, roads, and housing provides new evidence for the historical development of the destruction of the Jews. Not only physical traces but also bureaucratic records and real estate data available for Budapest and other important locales such as Berlin, or the real estate census for Tunisian Jews under French authority, could open up new paths for mapping and analyzing the Holocaust. Taking a longer historical view, Jaskot focused on the typologies of punishment in the modern era from which the Schutzstaffel (SS) drew in constructing its concentration camps. Looking at the physical spaces of the camps and their basis in concepts of rational planning, Jaskot argued for the importance of evidence from the built environment, including the significant materials created by ss architectural offices. Complementing Cole’s analysis of the ghetto, Jaskot questioned how the camp plans, architectural drawings, choice of materials, location, and forced labor shaped the meaning of the site and its role in implementing oppressive policies. Cole’s and Jaskot’s analyses used evidence related to physical spaces to account for their development into Holocaust "places" with specific political meaning.

Although the other historians also highlighted specific spaces in their presentations, they further emphasized the question of how changing conditions affected the various geographies of the Holocaust. Waitman Beorn explained how the movement of the Eastern Front, as well
as differing characteristics of military units, affected the implementation of the genocide over region and time. As the Wehrmacht's role shifted from offering logistical support to the SS mobile killing units (Einsatzgruppen) to providing tactical support as well, the extent to which "ordinary soldiers" avoided participation or colluded in the destruction process often depended on their proximity to the front, which military or political officials dominated a specific region, or the nature of the terrain itself. Given that the antipartisan war was often the hinge between the "Final Solution" in the East and the conventional war, a geographical approach that visually portrayed locations of atrocities and areas of partisan activity, along with changing unit boundaries, could answer important questions about this area of the Holocaust. Such variability over time and place along the moving military front contrasted with the captive spaces of the transport trains, the topic of Simone Gigliotti's presentation. Gigliotti noted that the transitional spaces of transit from cities to ghettos to camps are rarely accounted for in the Holocaust literature. She sought to recover the microgeography and experience of transit by analyzing postwar testimony, which highlights the trauma and physical nature of the space of the train. The permanence of other, better-known spaces must be seen in contrast to the impermanence of transitional spaces that marked movement and time. For the SS, coordinating the timing of trains was as crucial in the organization of death as was that of the arrival at camps. Relying on the "visuality of testimony," Gigliotti emphasized the importance of accounting for ephemeral spaces.

Unfixed spaces like military fronts and transit can be extended temporally into the postwar period, as Anna Holian pointed out in her presentation on displaced persons (DPs) in postwar Germany. She examined how the treatment of displaced persons oscillated between "care and control." On one hand, the Allied occupation forces and the international relief agencies sought to provide DPs with food, shelter, and medical care; on the other, they saw controlling the movement and activities of displaced persons as their responsibility. Both care and control were profoundly spatialized processes, especially through the use of DP camps, which were established along a military model as sites for mass feeding and housing. For Holian, seeing the DP camps not as fixed spaces but as fluid, temporal spaces that often came from preexisting National Socialist installations is one way of questioning the established chronologies and geographies of the Holocaust. Thinking about the camps as sites of care and control makes it possible to pose spatial questions at both the most intimate, private level and the most abstract, political level.

The presentations that focused on the possibilities of historical geography and GIScience intersected with these concerns specific to Holocaust Studies. Anne Kelly Knowles pointed out that historical geographers tend to think comparatively. She argued that visualizing data is itself an important step toward understanding how patterns and processes vary with scale. Knowles presented several examples of such visualizations, including her own work on the development of the U.S. iron industry, which raised questions of distribution, production,
labor, and development over time that could be usefully compared with the Nazi bureaucratic organization. Common to many projects in historical geography are both the issues of physical control and the construction of real and conceptual territories. Focusing on how human agents take the physicality of space and make it the meaningful signifier of place, Knowles highlighted the need to think elastically.

In his presentation, GIScientist Alberto Giordano took up this concept of elastic thinking, pushing the workshop participants to discuss the analytical problems that focusing on spatial and geographical components of the Holocaust pose. He laid out how GIScience could respond to a variety of different problems and be applied to issues as diverse as spatial statistics, network analysis, or cluster analysis. Giordano emphasized the need for quantitative and qualitative data. Plotting these data and giving them a temporal dimension allows one to identify spatiotemporal patterns and trends. Comparative thinking here needs to occur not only between different historical events but also within a particular historical event. Following up on this, Marc Masurovsky, a French historian representing the CAHS, presented a session on the kinds of data that are available for analysis. The Registry of Survivors contains extraordinarily detailed archival materials, including camp and transit registry information. Using the documentation concerning French Jews as an example, Masurovsky pointed to the variety of data available, including not only bureaucratic evidence but also testimonial sources and census information. He emphasized the value of the quantitative data, little of which has been systematically analyzed, but added that much can also be achieved by combining quantitative analysis with the qualitative interpretations of the Holocaust.

The sessions focused on geographical methods and the possibilities of databases ended with Erik Steiner's presentation on visualizing change over space and time. Steiner emphasized that the question of using technologies like GIScience and the databases at the U.S. Holocaust Memorial Museum needs to be thought of as part of a broader project of dynamic geovisualization. The macrolevel of the aggregate statistical analysis needed to grapple with bureaucratic processes that operated at national and international scales can be balanced by the microlevel of individual experience. For Steiner, the diverse disciplinary perspectives represented by the participants were joined to overarching questions about space, place, and the built environment. We need to think about the ever-heightened levels of complexity involved in tracing the millions of people — both perpetrators and victims — involved in the process and find or develop methods that allow for the individual as well as the large social group to emerge through interactive, dynamic cartography.

As is well known within historical geography but relatively unremarked in Holocaust Studies, interrogating historical data at different scales for any period or phenomenon before about 1970 is difficult. Aside from national censuses, few systematic data sets exist in either digital
or analog form that are amenable to historical analysis. The detailed records kept by party, government, and military agencies during the National Socialist period are exceptions to the rule. They are remarkably accurate in locating individuals at specific times and places and in providing sufficient information to trace many individuals' movements through the system. For example, one goal of the workshop was to investigate how GIScience could help compile, integrate, and analyze data provided by the Holocaust Museum that document train transports to concentration camps. The group focusing on this question used GIS to map the arrest and transnational transport of several thousand victims. Another group produced prototype visualizations of the individual journeys of a few Holocaust victims (Figure i). We used Flash, an animation software program, to create animated maps in order to test the possibilities of plotting complex movements over time. In what we called "photographic viewsheds," we conducted experiments in line-of-sight analysis based on detailed camp plans and ground-level photographs as a way to assess the veracity of eyewitness testimony with visual evidence. All of these projects, created by first-time collaborators in just a few days, were proof-of-concept demonstrations of the potential value of visualizing Holocaust data from a variety of sources. We became convinced of the immense potential that this line of inquiry holds for nongeographical disciplines in the humanities, for the workshop demonstrated the unique ability of combined geographical analysis and historical and visual evidence to address the central dynamic between individual experience and structural or systemic developments during the Holocaust.

**CHALLENGES OF INTERDISCIPLINARY COLLABORATION**

Ordinarily, CAHS workshops culminate in public presentations that summarize the results of group discussion after two weeks of intellectual exchange. The Geographies of the Holocaust workshop had been conceived differently, as an opportunity for the participants to conduct collaborative research together in order to test the viability of our interdisciplinary vision. After three days of presentations and discussion we brainstormed research ideas based on the common themes and question that had emerged. We began to define a common language for framing the kinds of spatial questions that could be posed with the vast data sets and other kinds of evidence at our disposal. We then outlined three pilot projects that could be researched with materials in the Holocaust Museum archives and Registry of Survivors databases. These projects moved us all beyond our individual specialties and introduced us to new sources, skills, and questions. The experiment was intentional. We wanted to test the potential for the kind of collaborative project that such interdisciplinary work would clearly require, particularly to capture the variable scales of data and conceptual problems that each scholar hoped to tackle. Once we conquered our initial discomfort of thinking in unfamiliar ways while navigating new terrain, we discovered that integrating concepts from one another's expertise made teamwork possible and exciting.

Collaboration presented specific challenges in the course of conducting research and
preparing for our presentation. The historical geographers, GIScientists, and cartography specialists found it surprisingly difficult to locate a base map for our selected sites in Central Europe with the right level of detail and topography for analysis and visualization at the local scale. The social scientists among us thought that the way to deal with holes in the data would be through statistical sampling, whereas the humanists turned more toward an interpretative interrogation that would account for absences by analyzing how sources were created. At the level of specific narratives, the historians tended to emphasize the agency — or lack thereof — of the individual, whether SS guard or tortured inmate. Agency and experience could be easily connected to questions of policy and bureaucracy but proved difficult to convey visually. Mapping and geovisualization became unexpected tests of what we did and did not know, of what the evidence did and did not reveal. Questions arose: How did one (or why would one) "map" testimony? How would a typological approach to the Holocaust differ from accounts of individual experience? How can the "cognitive mapping" so present in survivor and postwar SS tribunal testimony be reconciled with the physical environment of landscapes and buildings? The problems and possibilities forced participants to reduce their foundational questions to how individual-level qualitative data fit with structural quantitative data. Most important, we grappled with the question of how the human scale of the Holocaust, so evident in the particularity of experience broken down by ethnicity, occupation, gender, nationality, and sexuality, intersects with the variable physical scale of the camp, the regional landscape experienced by the bystanders, and the national and international transformation of space, above all in the geographies of transit and war. Within this complexity, however, we discussed how the plotting of experiences — profoundly spatial experiences — came together with the abstraction of the data that allow for visualizing the organization and paths of millions of lives.

The resulting public presentation highlighted questions of how geography and related fields can visualize and interpret complex events like the Holocaust and, simultaneously, called for the conceptualization and design of an innovative technical framework for new geographical applications that could transform how we analyze and comprehend historical experience at a vast scale. Such a framework would visualize data in a manner that is challenging and interactive and would apply spatial analytical methods and techniques to discover spatiotemporal patterns in the Holocaust. To approach these questions for the presentation, we chose Konzentrationslager Auschwitz-Birkenau as the focus of our work. None of us is a specialist in the history or geography of Auschwitz, but, given the shared knowledge of the camp among our public audience as well as the wealth of evidence and publications about the camp and its system of subcamps, showing the potential for visualizing spatial problems there made sense. We divided into teams and began to investigate a variety of sources and approaches, including mapping the arrest and deportation of Italian Jews to Auschwitz; specific transport narratives of individual victims such as Elie Wiesel; the experience of survivors from a single city in Hungary; photographs of arrivals at Auschwitz; testimonies of
individuals who experienced different spaces in the camps; and statistics on the transformation over time of the social makeup of particular barracks. We also began to look for base maps of Europe as well as the terrain around Auschwitz, architectural plans for the camp, aerial photographs taken by Allied forces, and ground-level photographs. The various sources — visual, narrative, geographical, and statistical — increasingly overlapped. In our daily summaries it became clear that we could show, at least preliminarily, how dynamic cartography and GIScience could begin to represent the interrelationship between individual experience and the organization of social groups on a vast and destructive scale.

PRESENTATION OF THE WORKSHOP RESULTS
We presented the results of the workshop to the public at the U.S. Holocaust Memorial Museum in a collaborative format. In addition to introducing the core issues of our interdisciplinary venture, we combined visual models with summaries of the analytical and conceptual points that such models could address if extended into long-term research agendas. Two presentations traced the paths of different ethnic and social groups. The first examined the Holocaust in Italy, drawing on a rich database containing information on approximately 9,000 Jews deported from Italy. Focusing on Jews who were initially sent to two Italian "collection points," the city of Verona and the town of Borgo San Dalmazzo, individual maps traced the routes to the concentration camps on both the macrolevel of the transports and the microlevel of an individual family. They examined the intensity of the flow from the collection points to different concentration camps and compared death rates in each of the camps. The second transport study traced survivors from the Hungarian city of Munkacs through the system (see Figure i). Their forced journey began with their transport to Auschwitz in May 1944 and continued on to a variety of labor camps. Comparative mapping revealed shared as well as different paths through the system, characterized in particular by a marked gendering of experience. A study of the individual corporeal experience of transit produced a mobility timeline that illustrated the spatial experience of an individual — Wiesel — as it varied from extremely constrained (for example, in transit), to relatively more open (the ghetto, experience as a displaced person), and finally to freedom. The timeline included quotations from Wiesel's memoir, Night (1955), that emphasized his perceptions of the changing spatial nature of his internment. These parts of the workshop relied most heavily on the use of historical maps, testimony, transport lists, and databases.

Complementing this Europe-wide scale was the presentation of a large-scale dynamic map of Auschwitz (Figure 2), which combined evidence drawn from aerial photography, architectural plans, inmate testimony, photographs, and oral histories. The map had several layers, which allowed the viewer to focus on different scales and questions. For example, one could highlight the old laundry in the main camp, a site of SS violence and random selection of prisoners. From this space, testimonial passages containing quotations by specific inmates could pop up. The testimony of one member of the Sonderkommando — prisoners detailed
for special labor — who was forced to work in the gas chambers contained explicit spatial references that became highlighted areas on another layer of the Auschwitz map. Tracing his movements through the camp emphasized the limited geography experienced — and known — by inmates, just as the creation of viewsheds representing the angle of vision captured in photographs taken by SS guards (from the so-called Auschwitz Album, a series of photographs of the arrival of Hungarian Jews taken at Auschwitz in 1944) indicated the particular geography and racialized perspective of the perpetrators. The comparison of multiple spatial experiences through the combination of text, photographs, and other historical evidence in maps not only revealed both the individuality and the isolation of the eyewitness experience of genocide but also suggested collective patterns at the level of the camp.

PROSPECTS FOR FURTHER RESEARCH

In sum, the workshop participants tried to present several questions that could be addressed through an interdisciplinary focus on analyzing historical data with GIScience and geovisualization. Such methods could connect all victims' experiences over all scales, from the individual to the collective. They could provide ways for scholars to draw on previously little-used documents, especially large databases, which would enable a search for patterns embedded in experience and manifested in the results of policy decisions over time. Examination of the physical environment in more localized visualizations of particular moments during the genocide could test the objectivity of oral evidence and other textual sources. Finally, working with both spatial and temporal scales, research could be extended to consider the entire Nazi system and its impact on the spatial experiences of the postwar period. In essence, visualization and a focus on the geographies of the Holocaust open up the large field of how spatial analysis can help scholars rethink the policies, practices, and impact of the genocide.

While we workshop participants continue to work on our individual research projects, we have agreed to pursue some of these questions in a collaborative research agenda. We are currently focusing on five broad themes: victims' experience of transport and analysis of the spatial and temporal characteristics of transports; the evolution of the concentration camp system and the earlier phase of most scattered killing in the East, exploring the spatial logic of both events; the forced evacuations or death marches of inmates from camps such as Auschwitz; mapping and analysis of the physical transformation of the Budapest ghetto; and the potential for using photographic and planning sources to investigate different positions of agency and influence within the camps, particularly for perpetrators. Ultimately, the goals are to expand our abilities to carry out comparative studies of ghettos, camps, and other spaces of confinement, to analyze landscapes of fear and the materiality of power in the built environment, and to begin building a full historical GIS of all camps and killing sites, military fronts, transport networks, and sites of slave labor in order to study the systematic nature of the Holocaust. All of these tasks are rooted in the methodological and technological potential
of historical geography, which helps combine the diverse questions, from the literary to the sociological, from the art historical to the technological.

As the workshop participants reached the final stages of their preparation for the presentation, Steiner created a "spatial concept cloud" as a summary of the discussion (Figure 3). This cloud in many ways presents the goals of the workshop, for it clusters key terms that came up repeatedly in our discussions but also randomizes their order. The varieties of scale and tone suggest different possible associations among concepts. The cloud is a visual object that works as a whole but also clearly breaks down into discrete and even fragmented parts, both static and interactive. It is a metaphor for the collaborative thinking that the topic of geographies of the Holocaust demands while also providing a record of individual contributions and interests. Through the energy and enthusiasm of the engagement at the CARS summer workshop, our group has committed to pushing this potential forward in both collaborative and individual contributions. In so doing, we hope to bring analytical clarity to the variable spatial, temporal, and experiential scales of the Holocaust in order to forge new questions and innovative directions for research. This will further the investigation of the killing of millions of people who fell under the influence of the Nazi state and its drive for political, racial, and territorial domination.

PHOTO (BLACK & WHITE): FIG. 1 — Visualizations of the journeys of eight Hungarian Holocaust victims produced during the August 2007 "Geographies of the Holocaust" workshop at the U.S. Holocaust Museum. (Cartography by Erik B. Steiner)

PHOTO (BLACK & WHITE): FIG. 2 — Lines of sight estimated from Nazi photographs of Auschwitz, shown during the public presentation of the "Geographies of the Holocaust" workshop results in August 2007. (Cartography by Erik B. Steiner)

PHOTO (BLACK & WHITE): FIG. 3 — Erik B. Steiner's "spatial concept cloud" summarizes the discussions among the participants in the August 2007 "Geographies of the Holocaust" workshop.

SELECT RELATED WEB SITES
The Interactive Nolli Website, University of Oregon: [http://nolli.uoregon.edu].

The Spatial History Project, Stanford University: [http://spatialhistory.stanford.edu].


Yad Vashem, Jerusalem: [www.yadvashem.org].

SELECT WORKS RELATED TO GEOGRAPHIES OF THE HOLOCAUST


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