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Searching, Linking, and Matching Documents on Nazi-Era Cultural Plunder: The Central Data Repository of the Jewish Digital Cultural Recovery Project

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Why we need digitized archival evidence of Nazi-era cultural plunder

For nearly 80 years, a veil of secrecy has shrouded the scale and scope of Nazi-era cultural plunder. Victims were humiliated and traumatized by the theft of their identities and cultural anchors, while perpetrators, accomplices and bystanders often resisted acknowledging their roles in the dehumanizing looting process that accompanied the Holocaust. Only now are we learning details of the active concealment of the looting crimes in the post-war cultural world, including further stigmatization of Jewish artists and intellectuals. Perpetrators seamlessly assumed leadership positions in cultural affairs

after the war, with few consequences for their complicity in a crime of still difficult-to-imagine proportions.

Significant gaps remain in key questions about the looting campaign: Who organized the looting, who implemented it, who were the willing helpers, how did they plan and implement the operations, who were the wartime profiteers and beneficiaries, and what was the destiny of the objects and their owners? To answer these questions, easily accessible digitized archival evidence is needed.

Who we are: A Central Digital Archival Repository

Allied Forces during and after World War II captured large quantities of perpetrator documentation of the vast Nazi-era looting campaign and microfilmed much of it. In recent decades, some archives began the enormous task of digitizing the documents for computer use, but the technical standards and searchability of the documents vary widely. Other documents have not yet been digitized. In addition, privacy regulations have often prevented public access to material.

Due to difficulties accessing archival material on cultural plunder, interest developed amongst researchers and family descendants in the creation of a central digital archival repository that can be a key tool unlocking the history of the looting.

Accordingly, in 1998, the Washington Conference Principles on Holocaust-Era Assets called for a central registry of information on looted cultural property. With support from the Claims Conference, the initial breakthrough in digital archival compilation was the 2010 publication of the ERR Jeu de Paume Database, a documentation of cultural objects looted by Nazi officials in France. The database was the first of its kind to show what was taken, from whom it was taken, and the fate of the

objects. Following the success of this database, the Claims Conference, together with the Commission for Art Recovery, convened a meeting in Paris in 2016 with international experts to discuss next steps.

The participants identified a clear need for a comprehensive archival platform on Nazi-era looted art. They were encouraged by improvements in digitization and growing accessibility to relevant archives, resulting from the expiration of some privacy regulations, growing public interest in the subject, and technological advances in computer text conversion programs, increasing the available volume of digitized archival material.

In 2019, the growing interest in a centralized registry prompted the Claims Conference and the Commission for Art Recovery to cofound the Jewish Digital Cultural Recovery Project Foundation in Berlin, in cooperation with U.S. and European archival partners and looted art experts.

What we do: Compiling a Cross-Searchable Digital Registry

To illustrate new possibilities of presenting provenance research and archival documentation through digital compilation of provenance research, JDCRP launched an EU co-funded pilot project to investigate the history and fate of the Adolphe Schloss Collection of Old Masters. The research on the collection, which was stolen jointly by Nazi and French authorities, revealed in previously unknown detail the roles of the perpetrators and collaborators, as well as the significance of contributions by major Jewish collectors to European cultural heritage. It also highlighted the added value of integrating original archival sources into provenance research projects.

Despite this success, the time-consuming research needed to reconstruct the provenance

of individual objects was not scalable. As a result, JDCRP shifted its focus to compiling archival datasets on a central digital platform. This will enable users to search for archival material across archives and then look for information within documents. New developments in artificial intelligence have resulted in faster and more accurate computer transcription and conversion programs. Knowledge graphs used in the back-end programming of digital platforms make it possible from a central digital location to create links amongst documents from various archival sources. Such technological advances will open new possibilities to uncover and reconstruct stolen family histories.

The JDCRP platform can therefore be seen as a central digital address for information on looted cultural property, with three main areas of focus: First, a central data repository for searching, matching, and linking documents across archives. Second, selected research projects and exhibitions that uncover forgotten Jewish lives and cultural contributions to European heritage. Third, education modules on Nazi-era cultural plunder that are planned for non-expert users to demonstrate the use of archival documents as an innovative pathway to Holocaust education.

How we work: Creating Machine-Readable Documents for Matching and Linking

Building and populating a digital repository that links disparate sets of archival records, many microfilmed in the 1940s to 1960s, has proven more challenging than originally envisioned. Optical character recognition technology, known as OCR, is in ever more widespread use to make scanned documents machine readable. However, the accuracy of this computer conversion process fluctuates greatly, particularly for archival records with variations in format, such as inventory cards, in- and out-shipment lists, shipping records, and other such documents.

Although computers can be programmed to handle the conversion of large blocks of scanned text, the transcription is complicated by documents with non-standard formats, such as different types of script on the same page, irregular page structures, and columns and fields set up in variable formats.

Building a Digital Archival Repository

The first step for JDCRP in populating its archival repository is the compilation of documents from various Allied Forces collecting points for recovered looted property. JDCRP has started its compilation by using OCR computer conversion technology to enable digital searches of individual inventory cards from two Central Collecting Point datasets, Wiesbaden and Marburg, making them fully searchable at the document level for the first time. The U.S. Allied Forces division tasked with cataloguing property it recovered created property cards for each object.

JDCRP is also scanning two sets of photographs in the archives at the U.S. National Archives and Record Administration (NARA) and at the Zentralinstitut für Kunstgeschichte (ZIK) in Munich that are attached to recovered objects from the Central Collecting Points.

Recent advances in artificial intelligence make a notable difference deciphering and converting text on property cards into machine-readable documents. The AI improvements have enabled JDCRP's IT programming team to achieve an unusually low rate of error. Nonetheless, challenges remain that require human intervention, meaning manual review and correction checks. For instance, JDCRP follows the standard of leaving text from the source unchanged, including errors and inconsistencies such as spelling errors, unrecognizable abbreviations, or variations in spellings of names and locations. However, OCR computer transcription software, which is programmed with artificial intelligence, is trained to auto-correct all text errors in a document. Therefore, despite the growing accuracy of computer con-

version, a manual review process remains essential to prevent unwanted changes in the original source text, both in typewritten and handwritten content, and restore the errors as written on the original document.

Once the documents are digitized and converted into machine-readable text, the next step is to upload them on a platform where documents from different archives can be linked. Three layers of information in the backend are needed for the linkage: Fetching the datasets, extracting the identifiers, and finding the matches in the results that are returned. The JDCRP backend platform, Spinque desk, offers the space to upload the digitized documents and subsequently link them. A knowledge graph is then developed that makes it possible to search for information through special object identifiers, such as document numbers, artist, title, original owner, and locations.

An example of information that JDCRP has been able to uncover using the Spinque desk platform to link documents from different archival sets is property card WIE 1790 Heidelberg (Bundesarchiv Koblenz, B 323/589, fol.1045). The photograph depicts a Madonna statue with broken off parts. Using the search mechanism, a match was made with the U.S. National Archives negative image for the Madonna statue (WIE 1790, NARA, Record Group 260 WLA, Roll 1). With the property card and its matching photograph reunited, it became possible for JDCRP to match the photograph of missing parts in the NARA archives with the Wiesbaden inventory card of the damaged Madonna statue.

Therefore, linking two archival sources from different archival sets makes it possible to retrieve information about all parts of the damaged Madonna statue. This breakthrough in identifying previously unknown information with only two datasets in the JDCRP archival repository demonstrates the significant future potential of a central platform to link and match archival records. As the pace of populating the repository increases, such matches will become more common.

Nazi cultural plunder was a well-documented crime, with extensive documentation on the original Jewish owners, the agencies and perpetrators who confiscated and seized property, the routes of distribution, the Allied recovery process of looted property, and postwar claims by victims to regain stolen objects. Extensive sets of surviving records help us understand the subsequent path of the looted objects, post-war recovery efforts, and efforts made by original owners to reclaim their property. Absorbing these records in an easily accessible digital space, which allows researchers to link, match and search for individual documents, will enable a new scale of reconstruction of the largest cultural theft in history.

Most surviving documents can be divided broadly into three main categories: Records from the perpetrators, material from Allied Forces investigators, and documents from the victims.

Perpetrator Documents: These include tax and financial records, as well as the records of the main Nazi looting agency, the Einsatzstab Reichsleiter Rosenberg (ERR), which was established as a government-licensed agency for theft and confiscation.

Allied Forces Documents: These records document the recovery of large amounts of the stolen objects, sites of storage, return to countries of origin, and distribution to further organizations. Allied Forces established a network of centralized collecting points with depots where recovered art objects and documentation were brought for safekeeping.

The information collected by the „Monuments, Fine Arts, and Archives Program (MFAA)" of the Allied Forces was extensive. Each object processed by the U.S. military received an individual inventory card that was filled with as much descriptive information as possible. Most cards have a photograph of the object, as well as an inventory number that is invaluable for tracking and matching objects to their former owners.

Victim Documents: These records document postwar claims filed by surviving Holocaust victims and family members, administrative and

court procedures ruling on the claims, and personal documents such as correspondence, records, and photos belonging to victim families. In the immediate postwar years, survivors filed claims in numerous European countries, both for the return of their stolen property and as compensation for professional and personal losses.

Populating the JDCRP Digital Archival Repository

To populate the digital repository, JDCRP has evolved a set of priorities for adding successive groups of archival datasets. The resulting archival roadmap plan is based on the accessibility of records, the degree and resolution quality of scanned documents, privacy regulations, frequency of use, importance for provenance research, availability of previously digitized material, and condition of original documents.

A key source of records for many researchers is the comprehensive documentation of the Allied Forces Central Collecting Points, which provides essential details for the identification of stolen cultural objects. While many of the records are digitally available, they are not yet searchable at the document level. Other records are available online, but in various databanks, each with different logic structures, complicating searches at a document level. Therefore, JDCRP is prioritizing the compilation of these records. JDCRP has begun digitizing and making searchable records from the Wiesbaden and Marburg Central Collecting Points. JDCRP has also begun scanning and digitizing two separate sets of photographs taken by Allied Forces of recovered objects that are stored at the U.S. National Archives and Records Administration and at the Central Institute for Art History in Munich. Records from other collecting points will also be added.

Other valuable records yet to be digitized include much of the archives of the Jewish Reconstruction Successor Organization that relate to Jewish cultural property theft. The JRSO was the

main Jewish organization formed to represent and distribute unclaimed "heirless" Jewish property of murdered victims of the Holocaust and of dissolved Jewish organizations, as well as of former Jewish communal property. Accordingly, Allied Forces entrusted heirless objects and their documentation to the JRSO and its subsidiary Jewish Cultural Reconstruction (JCR) to distribute to Jewish communities and survivors worldwide. The JRSO archives, including in-depth research reports, contain valuable information about personal and communal Jewish property and are an essential resource to help lend depth to considerations of pre-World War II Jewish culture and heritage.

Planning for further stages of the integration of perpetrator documents includes linkage to newly digitized Nazi-era tax and financial records, as well as commercial records and lists, such as shipping lists. JDCRP will seek to link to such archival datasets wherever possible, given the importance for descendants and researchers of such newly accessible records. Important Nazi-era financial records located at the State Archives of Brandenburg are an important resource only recently made accessible online. Another example of newly available perpetrator records are those integrated in the LostLift Database (LostLift Database – German Maritime Museum). This online resource lists the contents of shipping containers of property owned by Jewish families forced to flee that Nazi officials confiscated in Bremen and Hamburg after the start of the war halted civilian shipping traffic.

Archival material on compensation claims, reflecting victim perspectives, has been digitized in several countries, including the Netherlands, Belgium, and France. Recently, a major project to digitize postwar compensation files was also launched in Germany. The linkage of digitized compensation claims to the JDCRP digital portal is envisioned for a later stage.

In addition to the central repository, JDCRP continues to encourage research that reconstructs the biographies and fates of Jews active

in the cultural sphere, thereby highlighting the breadth of the Jewish contribution to European cultural heritage. This work includes current in-depth research projects on collectors throughout Europe, such as Hugo and Elisabeth Andriesse, Dutch-Belgian social philanthropists and collectors of textiles and of Old Master paintings, who fled from Brussels to New York, and Polish-born painter and collector Eugen Spiro, who lived in Munich, Berlin, Paris, and later New York. The work on these selected Jewish cultural figures is being integrated into online exhibitions.

Jewish Persecuted Collectors and Artists Lists

JDCRP is highlighting original archival sources in lists that capture the lives and contributions of largely forgotten persecuted Jewish artists and collectors. This pathbreaking project compiles information on persecuted Jewish collectors and artists throughout Europe. For the first time, these cross-national lists make available the names in one place of a broad cross-section of collectors and artists from numerous European countries. The entries include basic biographical information and cite primary and secondary sources where additional information is available for further research.

The lists published thus far contain entries with available biographical information on about 2600 collectors in 13 countries, with even more detailed entries on about 1000 artists in France, Germany, and Poland. Research is ongoing for both lists, which will appear in considerably expanded form for the next publication phase in the spring of 2025. Compilation of the lists has been greatly enhanced by valuable assistance provided by JDCRP partner institutions, such as the Czech Documentation Center for Property Transfers of the Cultural Assets of WWII Victims in Prague (https://www.lootedart.cz/en/) and the Austrian Commission for Provenance Research in Vienna (https://provenienzforschung.gv.at/en/commis-

sion-for-provenance-research/). Increasingly, the lists are providing survivors and family descendants with more information than previously available about the forced dispersal of their property.

Education Modules

The JDCRP digital repository is planned not just for experts and family members to trace the journey of family cultural property, but as a new learning tool that can be incorporated into Holocaust education programs. During the academic year 2023–24, JDCRP cooperated with the Hasso Plattner Institute at the University of Potsdam, where a group of IT students created their own digital model for JDCRP´s digital platform that can search for documents and enable linkage of relevant archival material. Many of the students' probing questions and innovative solutions have been integrated into the development phase of the JDCRP digital repository. The way in which this project motivated students from disciplines other than history and art to learn first-hand about Nazi-era cultural plunder and experience underscored the cross-disciplinary attraction of provenance research.

Where We Are Going

Historical recognition of the vast scale of the systematic plunder of European Jewry has been slow to evolve. Many public and private owners continue to display little interest in returning stolen property; framework legislation creating legal clarity for the rights of original owners is lacking in most countries. Nonetheless, growing numbers of provenance researchers are tracing the destiny of objects and their owners, looking for more digital accessibility to archives.

With rapid advancements in artificial intelligence and computer technology, the longtime vision of a central archival repository for Nazi-era looted property documents is becoming more feasible.

While the vision is drawing closer, it is important to note the limits of computer technology: AI is unlikely to replace completely human intervention when transcribing historical documents. A manual review and correction process remains essential to the accuracy and quality of digitization. Only a human eye can verify the unknown variables that lurk in computer conversion of archival documents, such as irregular document structures, spelling errors in original documents that should be left unchanged, and alternating types of script within documents.

The solutions JDCRP is forging for a scalable IT architecture are creating a promising trajectory to further populate the JDCRP central data repository. Fortunately, many JDCRP partner institutions have indicated their interest in including their archival material in the developing central data repository. To accelerate the linkage from archives to the JDCRP repository, solutions are being sought for the integration of archival material scanned with widely differing standards and finding aids. As the digital platform grows, it can motivate additional archives, libraries and museums to increase the digitization levels of their own holdings and link them to the JDCRP repository, thereby widening their user audience.

Only recently has public and academic attention focused more on the role of cultural theft in the Holocaust. Even then, the topic is scarcely covered in Holocaust curricula. Due to difficulties accessing records, provenance researchers and family descendants worldwide have long sought to accelerate their research through a digital platform that links archival documentation from various repositories. With an increasing population of documents on the JDCRP central digital platform, it will provide publicly accessible online archival data, linkage across archives, in-depth research analysis, educational strategies on Nazi-era cultural plunder, and a general orientation for non-experts learning how to access archival documentation. JDCRP is poised to become a central digital address to help

chart the thefts and ongoing disappearances of looted cultural property.

JDCRP is grateful for the generous and ongoing support from the Foundation's co-founder, the Claims Conference, as well as from the European Union, the German Federal Cultural Ministry, the German Federal Finance Ministry, and the EVZ Foundation. JDCRP's pilot projects have demonstrated that the digital compilation of archival material is not a temporary matter but the beginning stages of a permanent tool for research and education on the cultural theft that accompanied the Holocaust.

To accomplish this, JDCRP is seeking sustainable funding to increase the rate of integration of archival materials and to maintain existing content. Once the initial phase of the archival repository is established, additional and sometimes previously unknown archival sources are likely to emerge. With growing amounts of archival documentation, the platform can reveal in more detail than previously known the vast dimensions of Nazi-era cultural plunder, a topic often overlooked in academia and Holocaust education.

Why Now? The Path Forward

In an era of increasing antisemitism and ever more frequent incidents of Holocaust distortion, it is vital to digitize all archival evidence of the Holocaust, including records that document the cultural theft that accompanied the genocide of European Jewry. Such a repository of information is an indelible link to the past, providing evidence of the widespread theft of Jewish cultural property and allowing the possibility of locating more stolen cultural property than is currently possible without greater access to records. It will fulfill at long last the vision stated in the 1998 Washington Conference Principles on Nazi-Confiscated Art, "Efforts should be made to establish a central registry of such information."

The JDCRP digital repository is poised to become an essential tool to recover neglected history, stimulate provenance research, open new

paths for Holocaust education, and help families retrieve lost family legacies. Case studies, such as the Schloss and Andriesse collections, dramatically illustrate the extensive Jewish contribution to pre-war European culture but also illuminate the gaping voids left behind in European cultural heritage.

In essence, the JDCRP digital repository is helping uncover the role of cultural plunder in the Holocaust, recapture extinguished lives and legacies of European Jewry, and restore the collective memory of European Jewry. It is doing so with a digital platform that will make the archival evidence widely available, accelerating provenance research for experts and opening such material to more general users. The archives help identify the devastating consequences for victims stripped of their cultural identities, the core of their humanity, and demonstrate the path of cultural plunder as a precursor to genocide. Now is the time to move the JDCRP digital repository towards a long-term solution, so it can provide access to documentation of their stolen legacies, make visible long concealed history, righten distorted historical accounts, and provide families with a measure of moral justice.