

INTEGRATED DATABASE PROJECT

FOY SCALF

With remote work becoming the norm since March 2019, the OI’s IDB project has taken on even greater importance, with remote access to our collections through the EMu software platform. Faculty, staff, students, and volunteers have continued to work, cataloging, assessing, and improving the management of these collections and the data necessary for such work. This report will provide an overview for the general progress of the project. Details of specific department achievements, as well as individual achievements, will be found under their respective entries elsewhere in this annual report.

At over one million records and growing, the OI’s integrated database serves as the digital repository for the data related to the primary departmental divisions of the institute. The EMu client software powering the IDB serves as a hub linking together the OI’s collections data; such data is exported to a Solr database for public access through the web portal (oi-idb.uchicago.edu). The breakdown of the records can be found in Table 1. Major contributions over the last year include the transcribing of registration cards for photographic negatives from the Museum Archives as well as the transcribing of registration cards for objects from the OI Museum collection. Over fifty thousand such cards have been transcribed and are now searchable within the database, providing an extremely useful addition and the foundation of a complete digital archive of our collections and their provenance.

Table 1. Approximate Total Records in the Integrated Database

<i>Department</i>	<i>Records in EMu</i>	<i>Records on Website</i>
Research Archives	565,540	560,591
Photo Archives	323,392	170,683
Museum Registration	278,279	235,731
Museum Archives	84,106	84,106
Epigraphic Survey	22,026	21,502
CAMEL	20,889	8,869
Museum Conservation	11,720	-----

At the recommendation of University of Chicago IT Services and our server administrator Scott Wilson, we began the process this academic year of upgrading the server hardware for the Integrated Database Project. This involves moving all application and data files from four VMs (virtual machines) to four new VM spaces. VM spaces can be thought of as “the cloud”—a single physical server is divided up into multiple “virtual” servers that then can host various kinds of content, applications, and websites (see fig. 1). For the internal EMu client, there are two dedicated VMs: one for testing and development and one for live, ongoing use. Likewise, there are similarly two VMs for the public website: one for testing and development and one for live, ongoing use. As of June 2020, the server

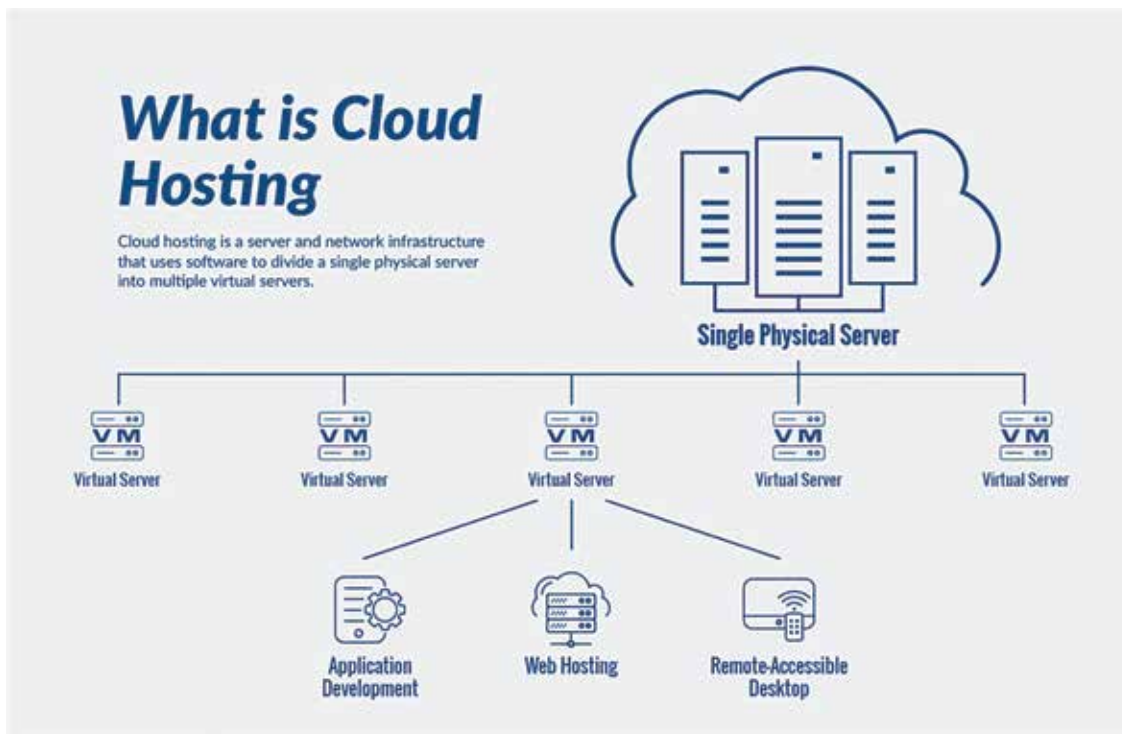


Figure 1. The design of VM cloud hosting (by atlantic.net).

upgrades for the public collections search website have been completed. We have also finished the upgrade for the testing and development environment for the EMu client. We are looking to finish the upgrade for the ongoing live EMu server by the beginning of the academic year in September 2020. These upgrades will ensure the functionality and security of the IDB system moving forward.

In November 2019, a grant application was submitted to IMLS (Institute for Museum and Library Services) for the development and integration of an educational portal into the OI's online collections search (oi-idb.uchicago.edu). The grant was written through the collaboration and teamwork of Foy Scalf, Tasha Vorderstrasse, Calgary Haines-Trautman, Susan Alison, Rose Pezzuti Dyer, Alan Takaoka, Brenda Janish, Tony Lauricella, Chris Woods, Brendan Bulger, and Nate Francia. We will learn about the outcome of this grant in September 2020. Grant funds would go toward expanding functionality of the online collections search to better serve non-academic audiences by incorporating a more public-friendly entry portal designed to lead educators, students, lifelong learners, and the general public through basic information about the ancient Middle East, linked ultimately to the OI collections. Preliminary interface mock-ups were designed around STEAM-related topics (fig. 2), a map (fig. 3), and a timeline (fig. 4) for users to explore the content of the database. If the grant application is successful, graduate students from the OI would be employed to write and organize educational information about introductory topics, providing users with a structured pathway they could follow as they researched a topic. At each step in the process, these overviews would be linked (fig. 5) to over one million records in the database from the museum object collection, Research Archives library, Museum Archives, CAMEL, and the Epigraphic Survey. These web tools would allow the OI to support a global audience only limited by access to the internet.

Page views for the online collections search (oi-idb.uchicago.edu) were up nearly 20 percent to 253,631 from July 1, 2019, to June 30, 2020 (up from 218,000 over the same period in the previ-



CLOCKWISE FROM TOP LEFT:
 Figure 2. Mock-up for educational portal topics tab.
 Figure 3. Mock-up for educational portal map tab.
 Figure 4. Mock-up for educational portal timeline tab.
 Figure 5. Mock-up for educational portal showing links between topics, further reading, and museum objects.



ous year). While there was a slight increase in April and May of 2020, potentially as a result of the move to remote work, largely this increase was spread throughout the year (fig. 6). These views represent the collective activity of 18,364 users (up from 14,460 last year) in 36,742 sessions on the internet. Average session duration was over six minutes. Our user base continues to be over 73 percent English speakers, with Spanish, French, Italian, and German speakers each contributing roughly 2 to 3 percent each. Over 55 percent of visitors were from the United States, followed by the United Kingdom, Germany, Spain, France, Canada, Egypt, Italy, Iran, and Australia, to round out the top ten countries of origin.

Over the course of the year, 42,743 new searches were conducted. From those searches, 29,006 individual detail records were viewed, 13,341 searches were revised, 1,022 users searched within their initial results, and 1,021 records were accessed via a direct link. The lamassu (OIM A7369) continued to be the most popular record, with 2,284 views (oi-idb.uchicago.edu/id/10443a90-e395-4a2f-a81f-75a3b2312c1c). The second most popular record was for volume one of *A New Concordance of the Pyramid Texts* by Jim Allen (oi-idb.uchicago.edu/id/b154b937-6036-43f4-a28d-3c92adc04aab), with 558 views. Next most popular was the re-





Figure 6. Google analytics for online collections search usage.

cord for *Creativity and Innovation in the Reign of Hatshepsut*, a publication of the OI, with 361 views (oi-idb.uchicago.edu/id/60617d97-8a21-4d38-9850-983603caf09d). A general search for the “Mesopotamian Gallery” was conducted 342 times, of which 255 searches were limited only to records with accompanying images.

The analytics demonstrate that users of the online collections search are very active. Nearly three thousand sessions included at least six events. An event is recorded any time a user continues in the database by either clicking links or conducting further searches. For example, it is clear that the highlights slideshow on the homepage results in many events from users clicking on the images and then further interacting with various records. The lamassu (OIM A7369), for instance, is the first highlight in the slideshow, and the detail record for the lamassu (oi-idb.uchicago.edu/id/10443a90-e395-4a2f-a81f-75a3b2312c1c) was the most popular first event for many users. From there, one of the most popular second events for a user who initially clicked on the lamassu highlight was the notebook of James Henry Breasted from the archives (oi-idb.uchicago.edu/id/c945dbe1-a68d-43f8-b60d-109900332602). Tracking this activity demonstrates the power of the landing page in shaping user interaction with this web resource. It further supports the need for an educational portal like the one described above, to help visitors with less expertise navigate to information that interests them. We hope that future financial support will allow us to further develop these tools, thereby increasing the reach and accessibility of the OI collections.

ACKNOWLEDGMENTS

Funding from the Oriental Institute, the University of Chicago, the Institute for Museum and Library Services, and Aimee Drolet Rossi has been absolutely critical to the IDB’s existence and future, and we would like to thank our funders for their ongoing support. OI faculty, staff, and volunteers continue to make daily additions and improvements to data in the database (see separate annual reports for named individuals). With the rise in online engagement during the pandemic, this work has taken on a new dimension of relevance and importance. We would like to thank all those who have been involved in the project, working diligently, submitting feedback, correcting errors, gathering data, tracking objects, issuing permissions, and all the other tasks that go into a major collective initiative. Without your continued perseverance, none of this would be possible, and we are extremely grateful for your sustained participation and commitment.

JOURNAL OF NEAR EASTERN STUDIES

SETH RICHARDSON

This year marked a major transition at the journal: after more than a decade at the helm, Christopher Woods handed the editorship over to James Osborne, assistant professor of Anatolian Archaeology. As James wrote in the introduction to the April 2020 issue:

“Besides marking a decade since my first foray into the world of academic publishing, this same decade from 2009–2019 represents almost exactly the period in which JNES was under the editorial leadership of Christopher Woods, now the John A. Wilson Professor of Sumerian and the Director of the University of Chicago’s Oriental Institute. The present issue will be the final one produced under his editorship. Taking the helm in March of 2009, Professor Woods was responsible for transforming the journal into the format we enjoy today, including an updated and expanded layout, color images, and a revamped cover design, all while maintaining the journal’s intellectual rigor and its role as the world’s leading ‘big tent’ venue for peer-reviewed scholarship in Near Eastern studies. On behalf of the entire faculty in the University of Chicago’s Department of Near Eastern Languages and Civilizations and the Oriental Institute, I thank Professor Woods for his remarkable dedication and service to the Journal of Near Eastern Studies.”

In addition to the editorship, James continues his role as book review editor for the ancient side of the journal; Fred Donner signed on as book review editor for the “modern” side; and Seth Richardson continues as managing editor.

The academic year 2019–20 (issues 78/2 and 79/1) continued the journal’s tradition of excellence. In eighteen articles of original research, JNES authors covered everything from the Early Bronze Age Iran to Umayyad Syria-Palestine; the culture of the Near East seen through its literature, science, archaeology, art, and historical texts. Among others, the journal published works on a newly discovered inscription of the Akkadian king Naram-Sin (twenty-third century BC) about his fabled war against Armanum and Ebla, an analysis of tax practices and symbolism in the Persian Empire; the “anthropology of science” in the cuneiform world, a new list of Sumerian demons, evidence for a second-millennium frontier wall in the Zagros Mountains, women warriors in early Islam, a Babylonian historical omen describing the fall of Babylon in 1595 BC; the ritual “mutilation” of Egyptian gods, and much more. Alongside these appeared twenty-one reviews of books on cyber research and archaeological data, the historical geography of the Hittite heartland, ancient Egyptian pseudo-scripts, child custody in Islamic law, Levantine cookware, and concepts of time in the Seleucid Empire. The journal’s authors, as usual, hail from all corners of the world: Cairo, Ankara, Würzburg, Leiden, Jerusalem, Moscow, Kufa, Bologna, Kermanshah, Cambridge (UK), Belgrade, Tehran, Helsinki, Strasbourg, Kiel, and Lyon.

It is worth pausing to explain the work that goes on behind the doors that allows the journal to get the good results it does: the largely unrecognized work of the anonymous external reviewers to whom we turn to not only evaluate manuscripts and recommend action on them but also provide copious and detailed advice for authors. Our authors thus receive the benefit of a substantial double-blind peer-review process, which helps make their work better, whether it is ultimately accepted for publication or not. In the year running from July 1, 2019, to June 30, 2020, we sent out fifty-nine manuscripts for a full and formal review process to 127 external readers. Our belief that

JNES speaks to a global audience of scholars is reflected in the origins not only of our authors, but of our manuscript evaluators as well: seventy-two of the 127 readers this year work at institutions not in the United States. We would like to extend our most heartfelt thanks to all the colleagues who offered their time and knowledge to advance the quality of what we all read.

While we do not claim the credit of doing much of this formal review work ourselves, we can claim credit for expeditiousness. The speed with which we coordinate the completion of the review process magnifies its benefits, because timely review is crucial in order to get important new work to press and to get advice for revision to authors while their work is still in a formative stage. In the year running from July 1, 2019, to June 30, 2020, the journal received exactly one hundred manuscripts. Of those, forty-one manuscripts were not advanced to the review process after consideration by the editors; the average time-to-decision (TTD, i.e., from date of submission to date of decision) for those manuscripts was seven days. These authors may not have received the answer they wanted, but we make it a point not to keep them waiting unduly.

Of the fifty-nine manuscripts, then, which were sent out the 127 external reviewers, the following results and turnaround time pertain to the same 2019–20 period:

<i>Result</i>	<i>No. of Manuscripts</i>	<i>Average TTD</i>
Accept	14	43 days
Revise & Resubmit	15	69 days
Reject	23	61 days
Currently under Review	7	no decision yet

Thus, for the fifty-nine manuscripts submitted, reviewed, and brought to decision within this year, authors received news of the process in an average of fifty-nine days (eight-and-a-half weeks). In tandem with the fact that accepted manuscripts are moved to publication in under one year from the date of decision, JNES authors get a full peer-review process, a timely decision, and quick publication of their work. We think the advantages for all are clear enough!

OCHRE DATA SERVICE

MILLER PROSSER

COLLABORATING FROM A DISTANCE

One of the peculiarities about working in an online, collaborative environment like OCHRE is that when other types of research are put on hold, digital research shifts into overdrive. Our archaeology field projects had amazing, productive seasons excavating in 2019. Looking ahead to the summer of 2020 would require a different strategy. Many of our colleagues have taken this unfortunate moment in history as an opportunity to concentrate efforts on their data. Despite being separated by physical distance and all the attendant risks and challenges of this moment, this past year—and especially the 2020 quarantine period—has been a time of great productivity.

In our previous report, we mentioned the new CEDAR project ([funded by the Neubauer Collegium for Culture and Society](#)), which involves researchers in various domain areas (ancient Near East, Divinity School, English) implementing OCHRE as a common text-analysis platform. Over the last year, this project has blossomed to include new partnerships between researchers here in the United States, in the United Kingdom, and in Finland. At the annual Society of Biblical Literature meeting in November 2019, a group of nearly two dozen international researchers agreed to join efforts to work toward the common goal of pursuing digital textual criticism of the Hebrew Bible. Since then, plans have continued to expand. At our annual workshop at the Neubauer Collegium in February 2020, various CEDAR team members presented progress updates and inspiring visions for the future of the project. One prospective expansion involves the inclusion of the Melville Electronic Library in the CEDAR family of projects. Working with Chicago alumnus John L. Bryant, professor emeritus of English at Hofstra University, the CEDAR project hopes to implement for Melville studies the same digital tools as are being used to record and analyze the content of *Gilgamesh*, Shakespeare's *Taming of the Shrew*, and the Hebrew Bible.

Related to our work on text criticism and the CEDAR project, the ODS developed a new visual reconstruction tool to help researchers propose readings where the tablet or manuscript preserves only traces. This new tool uses real examples from the scribe's own handwriting and allows the user to overlay signs on an image to determine possible reconstructions. In the figure below, we compare forms of the Hebrew letter *mem* against an image of a Dead Sea Scroll fragment. By layering real examples from elsewhere in the fragment, the researcher can make a stronger argument for or against a certain reconstruction.¹

Back when such things were possible, a casual conversation over dinner after a workshop led to a new collaboration between the

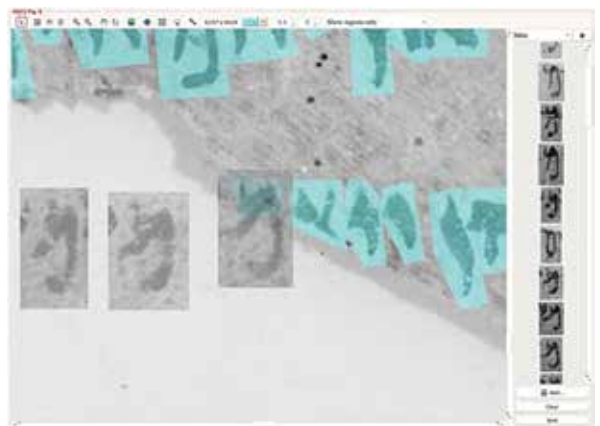


Figure 1. OCHRE text reconstruction tool.

OCHRE Data Service and the Computer Science Department at the University of Chicago. When Sandra Schloen and Dr. Sanjay Krishnan struck up this conversation, the OCHRE Data Service had already been collaborating with a highly skilled machine-learning researcher (Eddie Williams) on the first steps toward applying computer vision to reading cuneiform. Together, the newly formed team of Schloen, Krishnan, Prosser, and Susanne Paulus decided to attempt to use machine learning strategies to decipher cuneiform. From these early discussions would emerge [the DeepScribe project](#), an experimental research effort funded by the Center for Data and Computing and the University of Chicago. DeepScribe uses the richly tagged Persepolis Fortification Archive project² images as a training set for the machine-learning artificial-intelligence program. The early results are showing [great potential](#) for creating a computer program that can read ancient cuneiform. Computers can be trained to recognize modern scripts and even modern handwriting. Can a computer be taught to recognize ancient cuneiform handwriting? And if so, what are the approaches that might make this possible?

The OCHRE database is tailor-made for handling data characterized by features of time and space. As we learned this year, “time” is not limited to the ancient horizon, and “space” is not limited to the Near East. This year we began collaborating with professor Bonnie Clark from the University of Denver on a project investigating the archaeological remains of the World War II internment camp in Amache, Colorado. While we are used to thinking about ceramic vessels and mudbrick walls built by people who speak now-dead languages written in cuneiform, the Amache project has shown that OCHRE is just as useful for reconstructing barracks built of concrete and lumber, and just as helpful for recording data about the spatial distribution of Coca-Cola bottles and Ponds Beauty Cream jars. So far, we have migrated various databases, spreadsheets, photographs, and spatial data files from a variety of sources into the single, unified, and integrated Amache project in OCHRE. We look forward to working with Bonnie, her co-field director April Kamp-Whittaker, and the entire Amache team, once they are able to return to the field for continued research!

This year also found us expanding on the use of OCHRE as a research publication platform. For many years now, OCHRE has been employed as a database for collecting and curating data. It is now time to progress through the data lifecycle to the publication phase. With some recently enhanced features, any research project may now quickly and easily publish all or any part of their data from OCHRE directly to a standard website viewable on a computer or mobile device. With a single click, an entire appendix of data becomes available as a navigable HTML page. This expansion has proven useful for researchers who need a means to publish legacy data or digital projects that are no longer supported on their current platform. Because the OCHRE Data Service works closely

Do computer vision models trained on other scripts help?

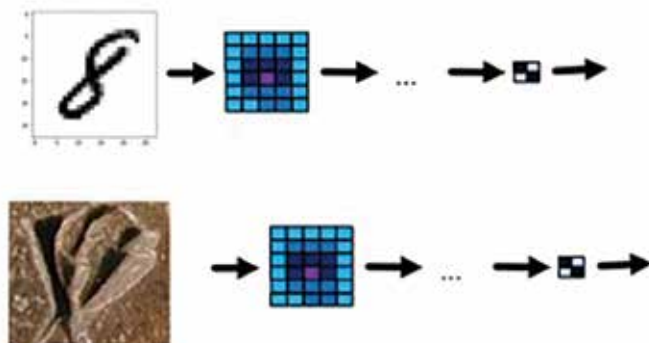


Figure 2. DeepScribe computer vision for cuneiform.

with the [Digital Library Development Center](#) at the Regenstein Library, we can offer a long-term home for digital projects. UChicago professor Alan L. Kolata (Bernard E. and Ellen C. Sunny Distinguished Service Professor of Anthropology and of Social Sciences in the College) has published his extensive research on [Tiwanaku and Its Hinterland](#) through his OCHRE project. UChicago professor John Lucy (William Benton Professor Emeritus) turned to OCHRE to support his language training website on [Mayan Yucatec](#).³ Sometimes legacy data is trapped on old media formats like DVD or CD-ROM discs. We discovered this year that the companion disc provided with the printed edition of [OIP volume 127](#) (*Megiddo 3: Final Report on the Stratum VI Excavations*, edited by Timothy P. Harrison) was password protected and that the password had been long forgotten! As an aside, our apologies to those who were unable to access the data on this disc. However, we rescued the data, imported it into the OCHRE database, and published it to the web, now unlocking it for all to access as the [Megiddo III Digital Archive](#). Included in this online presentation are various plates, raw data, and an interactive GIS map.



Figure 3. Megiddo III digital archive, GIS app.

We would be remiss if we failed to mention the continued work of many of our other OCHRE projects. The Persepolis Fortification

Archive project continues its work creating text editions, producing digital photographs, and generating an English-Elamite glossary of the archive. The Ras Shamra Tablet Inventory continues adding and curating data on the texts from Ras Shamra-Ugarit. NELC PhD candidate Rhyne King continues editing and analyzing the economics of Late Babylonian Archives. The Chicago-Tübingen Archaeological Project in Sam'al—while not able to excavate as expected this year at the site of Zincirli, Turkey—has launched a many-pronged approach to adding, curating, analyzing, and publishing data already collected.

Looking ahead to the coming year, we can already spy a number of exciting opportunities on the horizon. We are looking forward to working with UChicago linguistics professor Alan C. Yu on his research on the Washo language and UChicago Art History professor Niall Atkinson on his study of the Florentine Catasto of 1427.

The OCHRE Data Service is managed by Sandra R. Schloen and consists of Dr. Miller C. Prosser (database consultant), Dr. David Schloen (professor of Near Eastern archaeology), and Charles Blair (University of Chicago, DLDC).

Visit us at ochre.uchicago.edu.

Endnotes

¹ See more on the reconstruction tool on the OCHRE Wiki: sites.google.com/view/ochrewiki/projects/cedar/reconstruction-tool.

² See the Annual Report on the Persepolis Fortification Archive project by professor Matthew Stolper.

³ We wish to acknowledge the work of John Jung in the DLDC for the development of the LUCY website using OCHRE data.