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ILS655 Assignment – Digital Library Project Review Paper 02

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An Examination of  
The Cuneiform Digital Library Initiative

**Project Background**

The Cuneiform Digital Library Initiative (CDLI), located at <http://cdli.ucla.edu/>, is a fascinating and comprehensive collection of cuneiform holdings at various museums around the world. At first I feared that this would mean a disparate, disjointed collection, but the CDLI has cohesively joined all the holdings into one large digital library of the world's cuneiform. The collections are separated by physical site location, but they look, feel, and work as one. This makes a visitor's experience smooth and seamless, no matter where his interest lies.

The CDLI was created by an international group which included members of the fields of science, history, archeology, and museums. The effort was implemented to display the world's various cuneiform holdings in one place; currently, the initiative has cataloged and digitized over half of the estimated 500,000 cuneiform artifacts (from the beginning of writing through the pre-Christian era) which still exist (CDLI, n.d.).

The CDLI was begun in 2000 as a joint effort between the University of California at Los Angeles and the Max Planck Institute for the History of Science (Berlin, Germany), and has been funded by various sources, including the Digital Library Initiative of the National Science Foundation, the National Endowment for the Humanities, and the Institute for Museum and Library Services (CDLI, n.d.). The importance of this project lies in its not only

bringing these fragile tablets to the world's computer screens (thereby lessening the amount of travel which scholars have to undertake in order to view the disparate collections), but its completion has also become quite urgent: many worry that if the physical pieces are not digitized, they will be lost forever. The pieces are brittle, of course, but they are also prone to loss on the world antiquities market and to pillagers in Iraq (USA Today, 2002). And as an additional benefit, with many of its pieces coming from the Middle East, the CDLI is pleased to be able to “assist an Iraqi nation now struggling to re-establish its historical and social unity” (CDLI, n.d.) and to allow students of all ages and from all over the world to better understand the history and culture of this long-standing cradle of civilization.

## Organization of Resources

Because the CDLI brings together collections from all over the world, its highest level of organization comes from resource location: which museum or repository its physical counterpart can be found in (see Figure 1 for the current collections navigation bar).

Within each collection, the pieces are then organized in the following three ways:

- by period (e.g. Late Uruk (ca. 3400-3000 BC), Middle Assyrian (ca. 1500-1000 BC), Hellenistic (ca. 330-140 BC), etc.).
- by provenience – read: birthplace of the cuneiform (e.g., Babylon, Fara, Sippar, Ur, etc.)

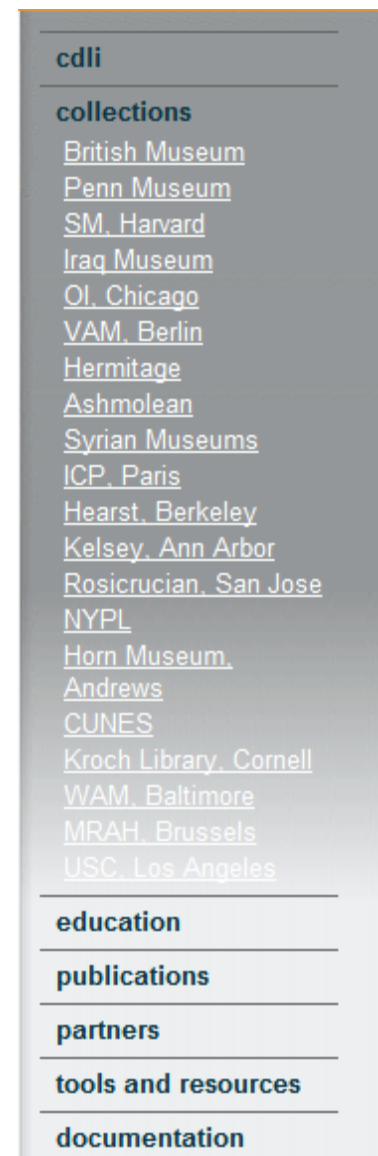


Figure 1

- by text genre (e.g. Administrative texts, Literary texts, School texts, Scientific texts, etc.)

This is done consistently across all sites so that navigation is simple and clear, but of course varies depending on which periods, places, and genres each collection covers.

Once the user selects one of the eras, proveniences, or text genres by clicking on a link, he is brought to a “Search results” page which displays scores of results all on one page. All metadata is listed to the left, and images (where available) are displayed on the right. Images can be clicked on to view a high resolution version, but otherwise, there is no further navigation of the materials. (see Figure 2 for a screenshot of a results page listing).

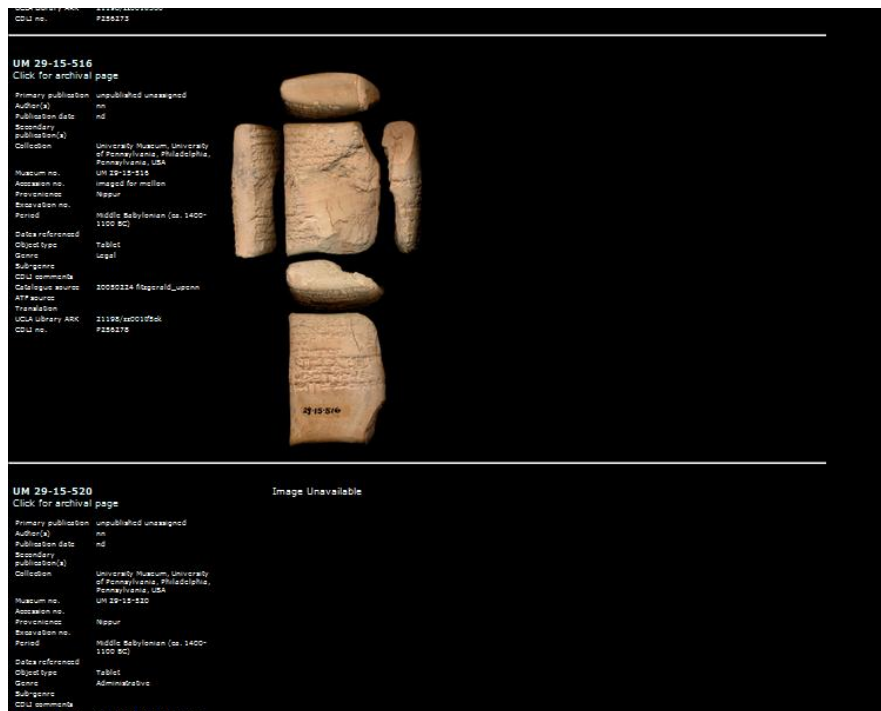


Figure 2

While the project does adhere to many digital library standards, it does not appear to utilize the Dublin Core metadata. Perhaps this is due to the nature of the information surrounding these pieces being quite different from those describing a more modern book or

manuscript. Whatever the case, the CDLI has developed its own metadata scheme (Riemer et al., 2009), which describes the tablet's origin, the museum where it can be found, its physical characteristics, and transliterations/ translations/transcripts (where applicable). This metadata is capable of being mapped to the Library of Congress MODS schema, which helps improve its interoperability. All in all, the data tags used certainly seem adequate for describing the pieces, and all fields can be searched in the "search" and "full search" options offered on the site's main page. Therefore, there appears only to be a limitation regarding interconnectivity of this digital library with others; the functionality and accessibility of the CDLI itself seem otherwise unaffected.

### **Service Features**

Browsing, as described above, is done through via physical location of the cuneiform artifact, followed either by period, provenience, or genre. While browsing is separated and therefore limited by its location, it is not too difficult to enter each institution link and then look for the specific categorization – it is simply a little bit more work. To avoid this, the user can also perform searches on the entire collection, regardless of location, in order to obtain access to all pieces from a single era or genre, for instance. This is done using the "Search" or "Full Search" option. The former is a more limited version of the latter, which offers a transliteration search box, which can optionally be combined with an extensive Catalogue Search. This includes breakdowns by:

- Publication (Primary publication, Author(s), Date of publication, Secondary publication(s), Citation)
- Collection Information (Collection, Accession Number, Museum Number)

- Provenience (Provenience, Provenience remarks, Excavation number)
- Chronology (Period, Period remarks, Dates referenced, Date remarks, Date of origin)
- CDLI data (CDLI number, ATF source, Catalogue Source, Translation Source)
- Physical Information (Object type, Object remarks, Material, Seal ID)
- Text Content (Language, Genre, Sub-genre, Subgenre remarks, CDLI comments)

Any of the subjects listed above in parentheses can be searched alone or in combination with others. This is certainly an extensive search capability – clearly geared towards scholars and those quite versed in cuneiform study. For the layperson, it appears that he or she would not know enough about the field to do more than browse, which is a safe enough assumption. Once a user is familiar with the site, perhaps the search functionality would be taken advantage of more often.

To ensure that these resources are available into perpetuity – a very important aspect of this project’s work – the data has been stored both in the University of California’s libraries Digital Preservation Repository and in the Lots of Copies Keeps Stuff Safe (LOCKSS) program based out of Stamford University (CDL, 2003).

## **Technologies**

The CDLI uses proprietary software designed at the University of California: “The DLCS (Digital Library Content System) is a locally developed software to serve the metadata, web delivery, and content needs of diverse digital collections. It is developed and maintained by a section of UCLA Library’s Library Information Technology department that is dedicated solely to digital library architecture” (UCLA, 2007). The use of the DLCS began around 2007, when the UCLA Digital Library Program and the CDLI began working together; prior to this, the

CDLI used its own files and databases to store and maintain the data (Ibid). The change took place because the original database was designed “with an eye more toward collaboration on core data and less on fully functional and articulated web interface for online research” (Ibid). This meant that the CDLI’s content was not always viewable on all browsers; it was therefore a very important step to make the change to the DLCS.

I was unfortunately unable to find any information regarding the software or hardware on which the CDLI resides. Research into the DCLS left me equally empty-handed. This may be because the software is specific to UCLA and the university feels it is either unnecessary or imprudent to share the technological details of their projects. As far as I could tell, the CDLI is interoperable only with the other digital library projects being developed at UCLA. However, the university has committed to adhering to the Metadata Encoding and Transmission Standard (METS), and the CDLI specifically has tested its ability to exchange data via the Sharable Content Object Reference Model (SCORM) (UCLA, 2007). The project is thus working towards becoming more interoperable. However, since it began as a closed project using its own software design, this will take quite a bit of continued effort.

## **Evaluation**

The CDLI is a very impressive collection, and its participants have clearly worked very hard to make the library accessible, consistent, and easy to use. It is very impressive to see such a disparate group of experts all working together to create this large and historically significant library for today and for posterity. I think the project has a lot of promise, and as they have already cataloged more than half of the cuneiform out there within ten years, they are looking at finishing the project in the viable future.

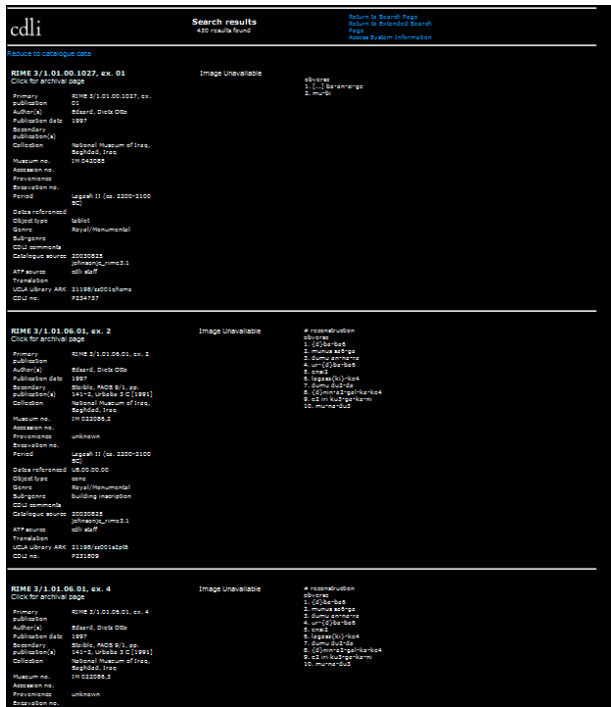


Figure 3

My one real issue with the CDLI is the organization of their results page (see Figure 3 or Appendix I). The results are displayed as one long list on a single page, and the user must scroll through them. Additionally, it appears that there are more pages of results – indicating that perhaps only a certain number are listed per results page – but there is no

telling what number, or how many results pages you might be faced with. There is no intuitive way to select a single result and examine it more closely; it appears that you can click a piece of metadata called “UCLA Library ARK” in order to see a single page with one tablet’s information, but it is uncertain whether that is the complete listing, or how it is related to the CDLI – or if it is an option for every tablet. One can therefore see how confusing a search or even a browse through the resources might become. As I do not approach the CDLI with a cuneiform background of any sort, it is difficult to tell whether this would remain as frustrating or be somewhat ameliorated by a working knowledge of the field.

## Conclusion

Overall, the CDLI seems like a very promising library, one which intends to share historical information freely worldwide, and long into the future. The National Humanities

Center (2004) summed the project up best with this quote from the principal investigator of the CDLI:

When asked about the relevance of learning about the details of Babylonian business, familial, and literary lives 4,000 years ago, Englund points to the interdisciplinary goals of the project, engaged as it is in producing a freely scalable access system to Babylonian culture for all levels of online users, from grade school students to university researchers, journalists, even law enforcement officials [regarding the facilitation of artifact-related theft investigations]. He stresses, for instance, how much linguists will learn from the Sumerian grammar and lexicon that will be made available through resources fed by the CDLI, the Pennsylvania Sumerian Dictionary, and other related projects. Ultimately, however, Englund sees a more deeply humanistic value to his work.

“To my mind,” he says, “access to the culture, and to the minds of ancient Babylonians best serves to remind us that when the differences between us are seen most clearly, they disappear altogether.”



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- USA Today. (2002, May 17). Web library assembling ancient written documents. Retrieved from <http://www.usatoday.com/tech/2002/05/17/library.htm>

Appendix I – A CDLI Search Results Screen

[Reduce to catalogue data](#)**RIME 3/1.01.00.1027, ex. 01**

Image Unavailable

obverse  
1. [...] Ba-an-ri-ge  
2. mur-bi[Click for archival page](#)

Primary publication RIME 3/1.01.00.1027, ex. 01  
 Author(s) Édouard, Dietz Otto  
 Publication date 1997  
 Secondary publication(s)  
 Collection National Museum of Iraq, Baghdad, Iraq  
 Museum no. IM 042085  
 Accession no.  
 Provenience  
 Excavation no.  
 Period Lateash II (ca. 2200-2100 BC)  
 Data referenced  
 Object type tablet  
 Genre Royal/Monumental  
 Subgenre  
 CDLI comments  
 Catalogue source 20030825  
 johnsonj\_c\_rime3.1  
 ATF source cdli staff  
 Translation  
 UCLA Library ARK 21198/xt001q1ams  
 CDLI no. P254737

**RIME 3/1.01.06.01, ex. 2**

Image Unavailable

4 reconstruction  
 obverse  
 1. (d)ba-baš  
 2. mu-nu-aš-ri-ge  
 3. du-mu an-na-ri-ge  
 4. ur-(d)ba-baš  
 5. ena2  
 6. la-qa-as(ki)-ka4  
 7. du-mu du2-du  
 8. (d)ni-ni-ra2-gal-ka-ka4  
 9. e2 in ku3-ra-ka-ri  
 10. mu-ni-ra-du3

[Click for archival page](#)

Primary publication RIME 3/1.01.06.01, ex. 2  
 Author(s) Édouard, Dietz Otto  
 Publication date 1997  
 Secondary publication(s) Steible, PACS 9/1, pp. 141-2, Urbahe 3 C [1991]  
 Collection National Museum of Iraq, Baghdad, Iraq  
 Museum no. IM 022086.2  
 Accession no.  
 Provenience unknown  
 Excavation no.  
 Period Lateash II (ca. 2200-2100 BC)  
 Data referenced US.00.00.00  
 Object type cone  
 Genre Royal/Monumental  
 Subgenre building inscription  
 CDLI comments  
 Catalogue source 20030825  
 johnsonj\_c\_rime3.1  
 ATF source cdli staff  
 Translation  
 UCLA Library ARK 21198/xt001a2p8  
 CDLI no. P251809

**RIME 3/1.01.06.01, ex. 4**

Image Unavailable

4 reconstruction  
 obverse  
 1. (d)ba-baš  
 2. mu-nu-aš-ri-ge  
 3. du-mu an-na-ri-ge  
 4. ur-(d)ba-baš  
 5. ena2  
 6. la-qa-as(ki)-ka4  
 7. du-mu du2-du  
 8. (d)ni-ni-ra2-gal-ka-ka4  
 9. e2 in ku3-ra-ka-ri  
 10. mu-ni-ra-du3

[Click for archival page](#)

Primary publication RIME 3/1.01.06.01, ex. 4  
 Author(s) Édouard, Dietz Otto  
 Publication date 1997  
 Secondary publication(s) Steible, PACS 9/1, pp. 141-2, Urbahe 3 C [1991]  
 Collection National Museum of Iraq, Baghdad, Iraq  
 Museum no. IM 022086.3  
 Accession no.  
 Provenience unknown  
 Excavation no.