*ArchaeoCore:* A new standard being implemented in Shared Shelf

The Digital World of Art History: Standards and their Applications
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Jenni Rodda, Institute of Fine Arts/NYU

Thank you to Princeton University, the University's Art Museum, the Index of Christian Art, the Princeton Department of Art's Visual Resources Center, and Artstor for supporting today's symposium. I will be talking about ArchaeoCore, a new standard for description of archaeological records of all sorts, now being implemented in IFA's Abydos excavation archive through Artstor's Shared Shelf platform. Special thanks to Matthew Adams, the Senior Research Scholar and Director of the Excavations at Abydos; to Ileana Selejan, an IFA PhD candidate and the manager of Abydos's image archive initiative; to Jason Varone, IFA's web master; and to Sian Evans at Artstor for releasing a copy of the video you will see at the end of my talk. For those of you who may not know me, I am the Manager of Digital Media Services at IFA, and my responsibilities include the development and management of the Institute's various image databasing projects. Our over-arching goal is to make information, either textual or visual, *easily* retrievable, or, we believe, it ceases to be useful.
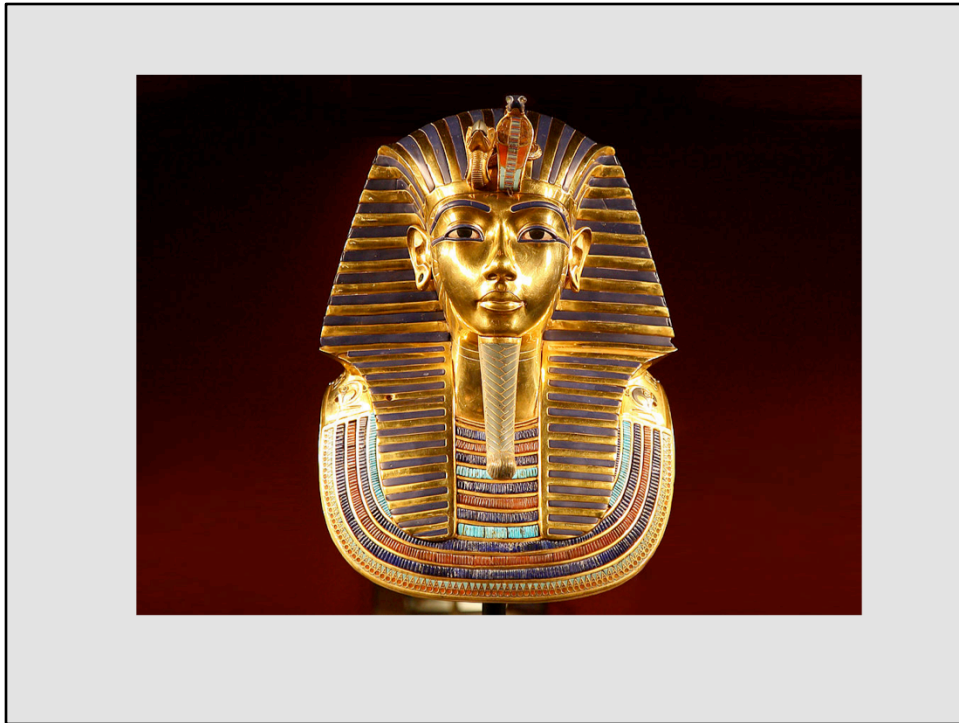
Death Mask of Tutankamun, New Kingdom, Dynasty XVIII. Egyptian Museum, Cairo (V43.001). Photo by Carsten Frenzl from Obernburg, Deutschland (TUT-Ausstellung_FFM_2012_47) [CC-BY-2.0 (http://creativecommons.org/licenses/by/2.0)], via Wikimedia Commons.

The records of an archaeological excavation are many and varied. They range from the objects unearthed during an excavation;
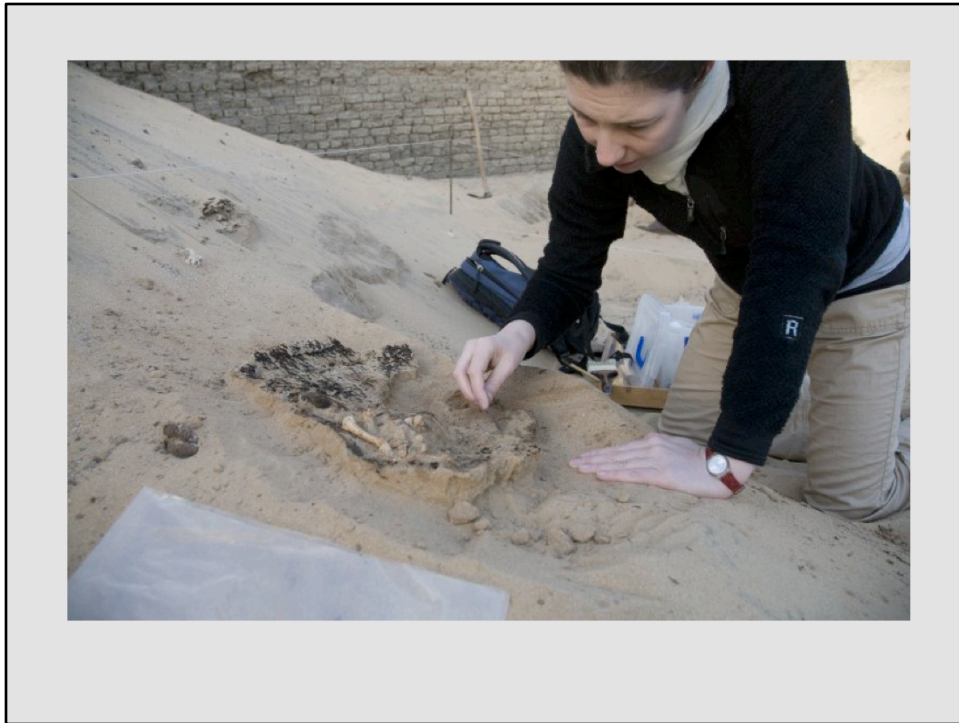
Photo by Greg Maka, courtesy Abydos Archive, Institute of Fine Arts/NYU.

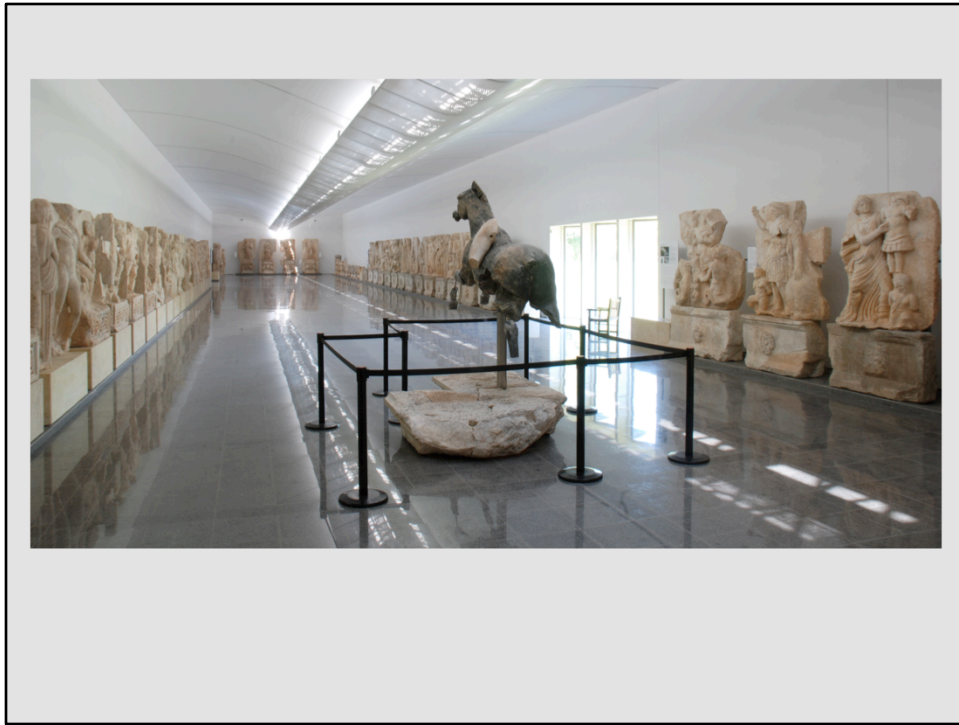to images of the people working at the site;

Photo courtesy Aphrodisias Archive, Institute of Fine Arts/NYU.

to records of the processes of conservation and exhibition (this is one of the exhibition spaces at the archaeological museum at Aphrodisias, Turkey, where IFA also sponsors a dig). Archaeological records may be scattered, as scholars move from one institution to another, or as institutions join or leave collaborative digging efforts.
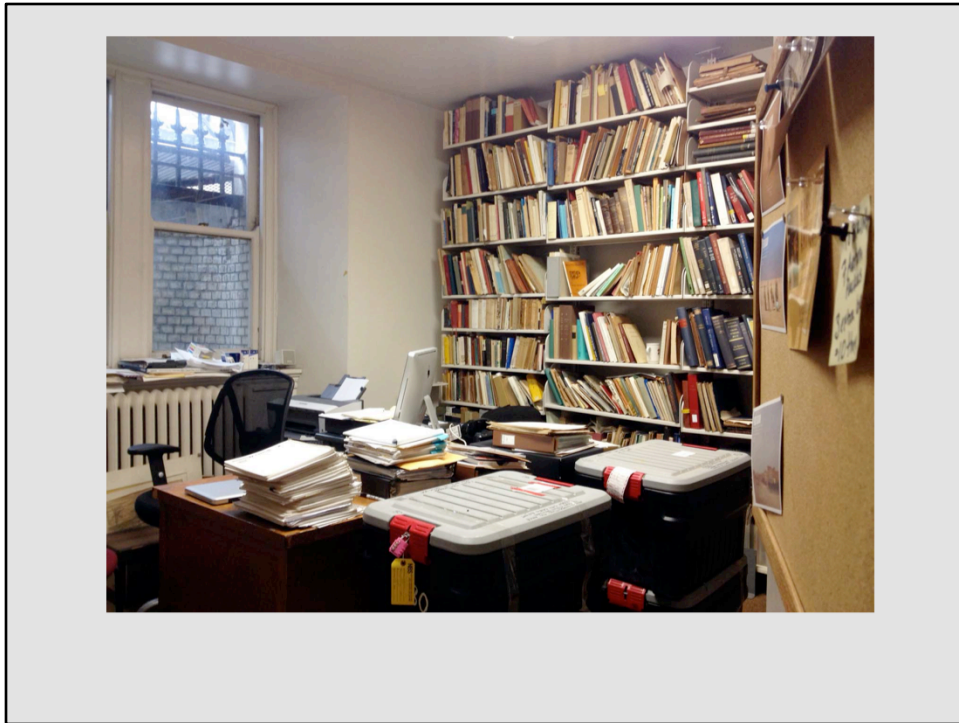
Photo courtesy Ileana Selajan, Institute of Fine Arts/NYU.

Records might be found in museums, libraries, or individual scholar's collections (this is the Abydos field office in the Duke House at IFA).
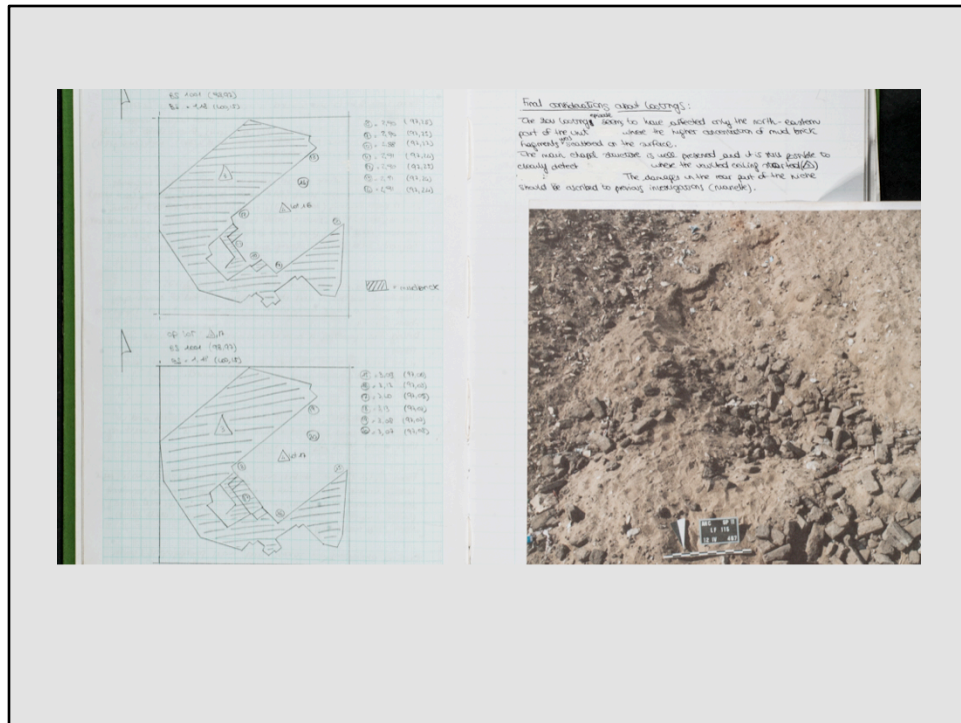
Photo by Nita Roberts, Institute of Fine Arts/NYU. Field notebook courtesy Abydos Archive, Institute of Fine Arts, NYU.

And not all of those records have to do with static objects: As we learned in the 3-panel series "Excavating the Record" in 2013, many of archaeology's records have to do with the process of archaeology—field notebooks (this is a pair of pages from an Abydos field notebook), moving images, sound recordings, scientific data. Archaeology is a continuum of destruction (as materials are excavated), and preservation (as materials are found and conserved).

Photo by Greg Maka, courtesy Abydos Archive, Institute of Fine Arts, NYU.

There is a need to record and describe these processes, in-the-field, ongoing, at every step. This is perhaps the biggest single difference between the materials that comprise most of our general teaching collections, and the materials archaeologists want to preserve and make accessible. Add to this the challenges associated with making legacy collections accessible, and you have some idea of the true scope of the problem archaeologists face in preserving and describing their records, for teaching, for continuing research by their colleagues, or for publication.

Photo by Greg Maka, courtesy Abydos Archive, Institute of Fine Arts, NYU.

Images of objects can be described in ways that are very familiar to librarians and visual resources professionals, using the field structures of the VRA Core, Dublin Core, CDWA, or other standard, following the protocols outlined in CCO or other local guidelines. And there have been significant efforts made to create such standardized metadata structures for the sharing of archaeological records: tDAR and CIDOC spring immediately to mind. However, there is as yet no single, acknowledged-as-authoritative data structure for archaeological records that ties together legacy records, newly created records; static records (such as object images) and 'moving' records (such as sound or video clips). The ArchaeoCore dataset initiative is an attempt to meet that need.

Photo by Greg Maka, courtesy Abydos Archive, Institute of Fine Arts, NYU.

Building a new, standardized metadata template and having it accepted by scholars in the targeted discipline is one challenge. Making records described in the new template accessible is another. Getting archaeology records to 'hold still' for data construction has proved especially difficult: Archaeology is a discipline that covers long expanses of time, not just in its objects, but also in the records of its processes. Many people, and multiple institutions, may be involved in work on a single site, in a single season, or on a single object, creating layers of information in an organizational tangle. Helping to meet these challenges—building a new metadata template, untangling the data, making the resulting records accessible across institutions—is the job of Artstor's Shared Shelf cataloging platform.

In the following discussion, I will briefly describe the Institute's excavations at Abydos, Egypt, and the records resulting from that work, as they affect the Institute's digital media infrastructure. I will then outline ArchaeoCore, and its relationship with Artstor and the Shared Shelf platform. Lastly, I will let the archaeologists at IFA speak for themselves, by way of a video prepared describing the use of Shared Shelf in the field.

Photo by Greg Maka ,courtesy Abydos Archive, Institute of Fine Arts, NYU.

As described on the excavation's web page, "IFA is engaged in an ambitious, multi-dimensional, and long-term archaeological research program, under permit from the Egyptian Ministry of State for Antiquities, to investigate the history of north Abydos, …the burial place of Egypt's first kings and later the primary cult place of the god Osiris, ruler of the land of the dead." (see http://www.nyu.edu/gsas/dept/fineart/academics/abydos/abydos.htm for more information.) Abydos is a very large site, with multiple institutions participating in the excavations in different areas. IFA collaborates with Yale and the University of Pennsylvania; Brown and the University of Michigan also send teams to Abydos; scholars from all over the world visit the site as part of these teams. Prior to the current political difficulties, teams of scholars were sent to Abydos to work at the site on a regular basis, as has been the case for more than a century. IFA's excavation season is usually an annual event.

Photo by Greg Maka, courtesy Abydos Archive, Institute of Fine Arts, NYU.

  In 2005, Matthew Adams (seen here), the senior research scholar and field director for IFA's excavation teams at Abydos, asked the Digital Media Services staff for assistance in scanning, preserving, and making accessible their extensive collection of excavation records, at that time almost entirely hard-copy. The Abydos Archive includes slides, black and white photographs, drawings, field notebooks, and a wide variety of written and paper records. It now also counts blog entries, video, time lapse and stop action moving images, and exhibition records, in addition to a vast collection of born-digital still image records among its overall holdings.
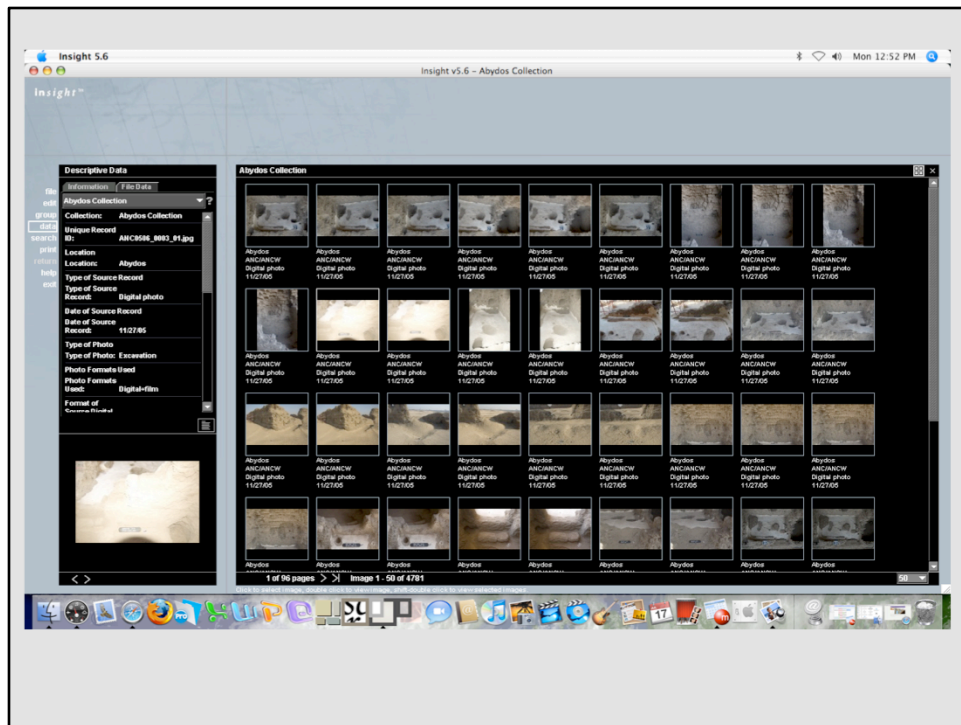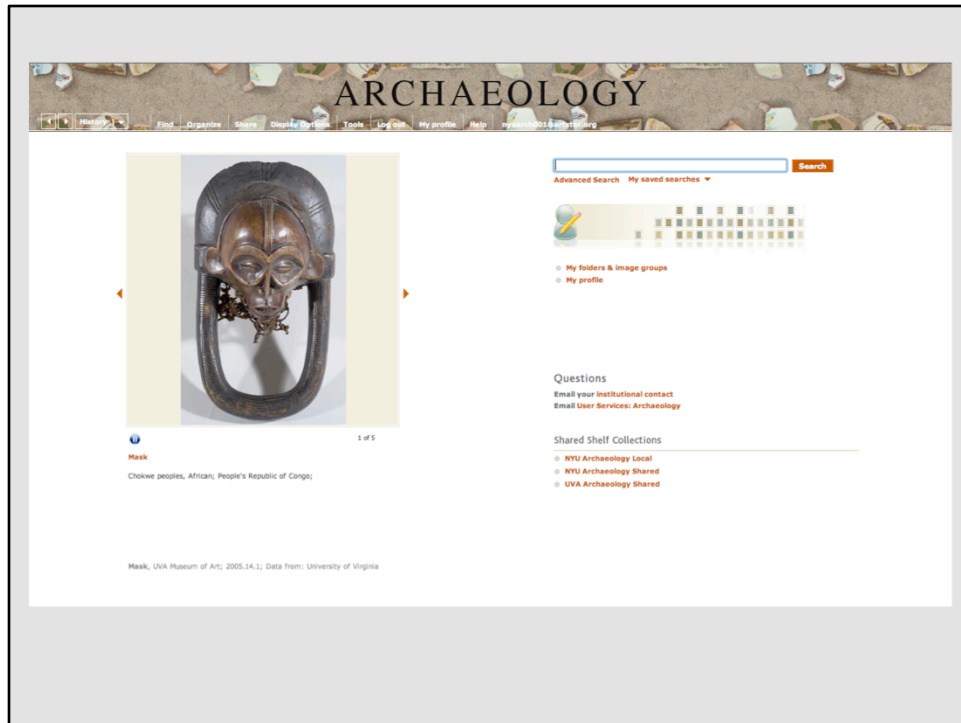
Digital media staff has been able to provide advice, assistance in contacting appropriate technical services staff elsewhere at NYU, and in making it possible for Abydos to piggy-back on to what was in the early '00s a relatively new idea—building an NYU-local image database. Abydos became one of the pilot projects, then managed through Luna's Insight software (this is a screen shot of that first database iteration). Digital Media staff helped the Abydos team build a metadata template specific to the excavation's needs and assisted with the initial scanning of existing slides and opaque materials. The Abydos collections were and are held in the local image database within a separate and locally-controlled collection space. The online Abydos Archive began to slowly take shape, as we scanned existing analog materials to add to the database and assisted with cataloging the new, born-digital materials being collected during each annual excavation season. The Abydos team now adds approximately 6000 new records to its database each season, and is slowly working chronologically backwards to bring its legacy hard-copy images into digital form. As of 2014, almost 40,000 records have been built in the Abydos Archive. It is important to note that the majority of those records are image records, but not all of the images are of discrete objects.

Photo courtesy Rose Trentinella. Institute of Fine Arts, NYU.

Digital Media Services continues to be a valuable resource for the Abydos Archive. Over the years of our collaboration, we have assisted with scanning (including the development of preservation parameters and electronic storage, both on-site and elsewhere at the University), helped build three cataloging templates (as will shortly be described); trained staff and sent them to Egypt for on-site work (this is one of our student staff, Rose Trentinella, working at the Abydos site); trained staff working in the excavation office in New York City; helped migrate records as database platform softwares were upgraded or changed. The Abydos Archive's staff, in return, has been an eager partner as we experiment with different avenues of exploration and organization within database structures, and has been extremely supportive of our other work, even as budgets fluctuated during the recent Recession.

There are three separate iterations of the Abydos Archive: the teaching collection (this is the general Artstor search results screen);

the excavation-specific collection (this is a screen shot of an Abydos image as it is cataloged in Shared Shelf);

and now the ArchaeoCore collection (this is the ArchaeoCore demo site landing page). Each has a different purpose, and each has a different cataloging template specific to that purpose. All are maintained through different project spaces in the Shared Shelf cataloging environment. There are some points of overlap, but very few; the largest single iteration of the Abydos Archive, as you might expect, is the excavation-specific collection. This is the collection into which new born-digital materials are added during each subsequent excavation season. The three cataloging templates are only minimally cross-walked and are not cross-searchable, at least not at this juncture, since each record grouping "lives" in its own project space, and not all are published to the same end-user environment.

The DMS staff is responsible for cataloging and maintaining the IFA's teaching collection, and some images from the Abydos Archive are available there and to anyone at NYU for general use. The excavation-specific collection is described using a template developed by DMS in consultation with the Abydos scholars. This collection is closed (that is, it is only used by the scholars who visit or work at the site). It records rather a lot of administrative and technical metadata that is simply not needed in the teaching collection, but which is crucial to keep accurate records in the excavation's own archives.
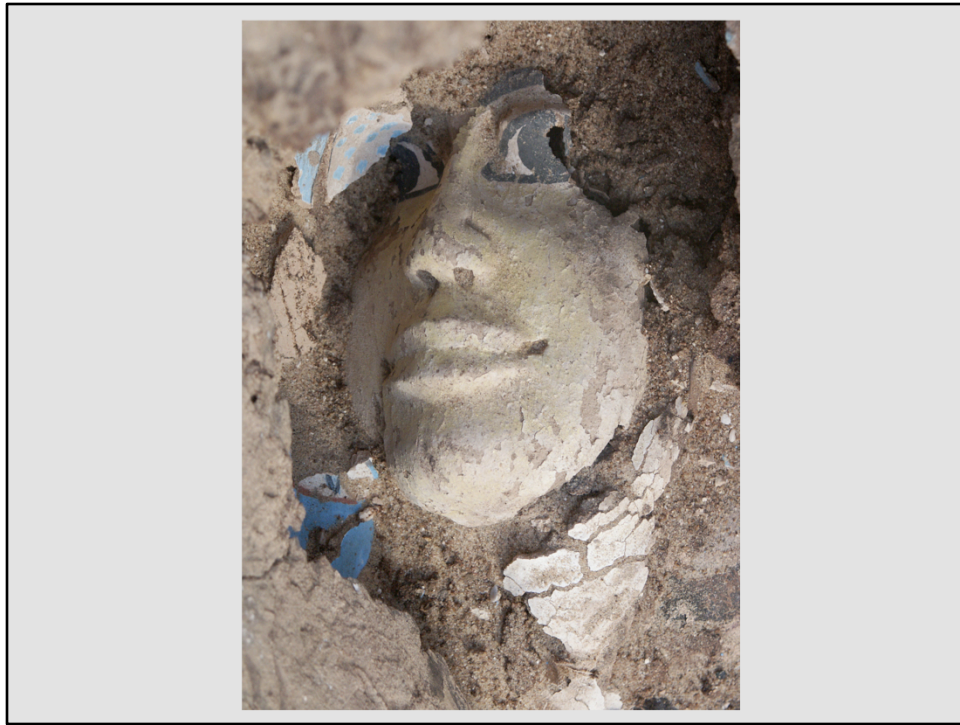
Photo by Robert Fletcher, courtesy Abydos Archive, Institute of Fine Arts/NYU.

The ArchaeoCore collection, eventually to be made available through one of Artstor's new discipline-specific portals, aims to be accessible by both scholars and lay-people, both specialists and generalists; and acts as a test bed for development and use of the evolving ArchaeoCore cataloging template.

Photo by Walter "Gus" Gusciora, courtesy Abydos Archive, Institute of Fine Arts, NYU.

The ArcheaoCore project, co-directed by Lucy Stylianopolous (UVA) and Shalimar Fojas-White (Dumbarton Oaks); and implemented by Ann Burns at the University of Virginia, with collaborators at Artstor, Dumbarton Oaks, Princeton, the University of Massachusetts and IFA, is intended to create a standardized data set for archaeology records that will permit re-aggregation and end-user discovery of related materials, now scattered among institutions and museums, created across decades, more uniformly formatted and made accessible as digital records.

Photo by Walter 'Gus' Gusciora, Abydos Archive, Institute of Fine Arts/NYU.

The anchor for this data set is information about the *site* that is the source of each record, regardless of whether the record pertains to objects, such as the ostracon shown here (or the mask I showed at the beginning of my talk);

Photo by Walter 'Gus' Gusciora, Abydos Archive, Institute of Fine Arts/NYU.

people, or processes (this is the conservation lab at the site at Abydos). By reasserting the primacy of information about the *site and the projects executed within the site over time*, the ArchaeoCore collaborators hope to connect both legacy and new materials into a single cohesive set. According to the narrative that accompanied the initial proposal for creation of ArchaeoCore, "[Creating] descriptive metadata that preserves the context of archaeological images *by preserving site and project information* [emphasis added] would allow archaeologists and other researchers to access hitherto hidden information, and re-aggregate dispersed materials in the legacy collections in libraries, archives, and museums…. Within legacy collections, site context and chronological framework are often misplaced. At present, our digital data standards foreground the *object* [my emphasis; this seems to be true for the tDAR and CIDOC frameworks] and consequently, much of the site information is lost. The ArchaeoCore Project presents an alternative metadata model for archaeology that foregrounds the *site* [again, my emphasis]. It is [ArchaeoCore's] intention to keep the site attached to the artifact throughout its transmission. The objectives of the ArchaeoCore Project are to answer several questions about the nature of archaeology metadata while examining diverse types of legacy collections:

How can the site and any objects found on site during different stages of excavation be related back to each other? What constitutes a metadata schema for a site and its inventory of finds? What is the relationship of fieldwork to museums and archives?
Can legacy collections carry significant site data in their records? How can an archaeological metadata record link to a network with similar information needs?"

This is a tall order, certainly.

ArchaeoCore was first implemented using the UVA Kore Image Collection as a test bed, in the Shared Shelf cataloging platform, in 2010-2011. Shared Shelf affords local administrators the ability to customize data templates and controlled vocabularies—an ideal combination for the evolution of ArchaeoCore. In 2011, the ArchaeoCore data set structure was offered to the 30+ institutions then using Shared Shelf at their respective sites, to generally positive response. In summer 2012, an informal group of collaborators from a number of the original Shared Shelf implementing institutions gathered in the visual resources department at Princeton to discuss next steps. Included among those informal collaborators were Matthew Adams, research scholar from the Abydos excavation; Jason Varone, IFA's web master; Bill Ying and Megan Marler of Artstor; Louise Putnam from UMass/Boston; Lucie and Ann from UVA; Shalimar from DO; Trudy Jacoby and her colleagues from Princeton; myself; and other interested staff from each institution.

ArchaeoCore 4-screen Structure

- Site
- Campaign
- Asset
- Administrative

Over the course of a day, the ArchaeoCore dataset was re-configured into 4 screens, "site," "campaign," "asset," and "administrative."

Site

- The geographic location; perhaps the one thing about an archaeological dig that does not change

- The reference/parent record

- Links to campaign and to artifact

The "Site" record is the highest in the tree, and may be considered as the parent or work record. *All* records, of all types, will have associated Site information.

Campaign

- Who worked the site
- When the site was worked
- Sectors worked within the site, within a given time period
- Changes to the site over a given time period
- Links to Site in one direction, and to Artifact in the other

Campaign refers to the specifics of time, place, and people associated with particular objects or events at the Site. Campaign information is linked to Site information.

Asset

- Descriptive information about the objects found or data collected, regardless of form
- Specific classification structure (human remains, faunal remains, vegetal remains, etc.)
- Links back to Campaign and to Site

Asset will be what is most familiar; this is the descriptive information about the stuff unearthed.

Administrative/File Data

- Media specs
- Media producer
- Requestor
- File ID
- Rights

Administrative/File records the who/how/when of the creation of the record, regardless of whether it is a Site, Campaign, or Asset record. All records will have attached administrative metadata.

At one time all 4 screens had a relationship field that allowed a cataloger to enter information about how a specific record might relate to other records, from any section of the template. Although the collaborators are still tinkering with how this will work in the long run, I personally think we are getting very close to a transitional metadata structure that can be applied to any and all archaeological records, both legacy and newly-created, that will move from flat-field to relational data structures with fewer difficulties.
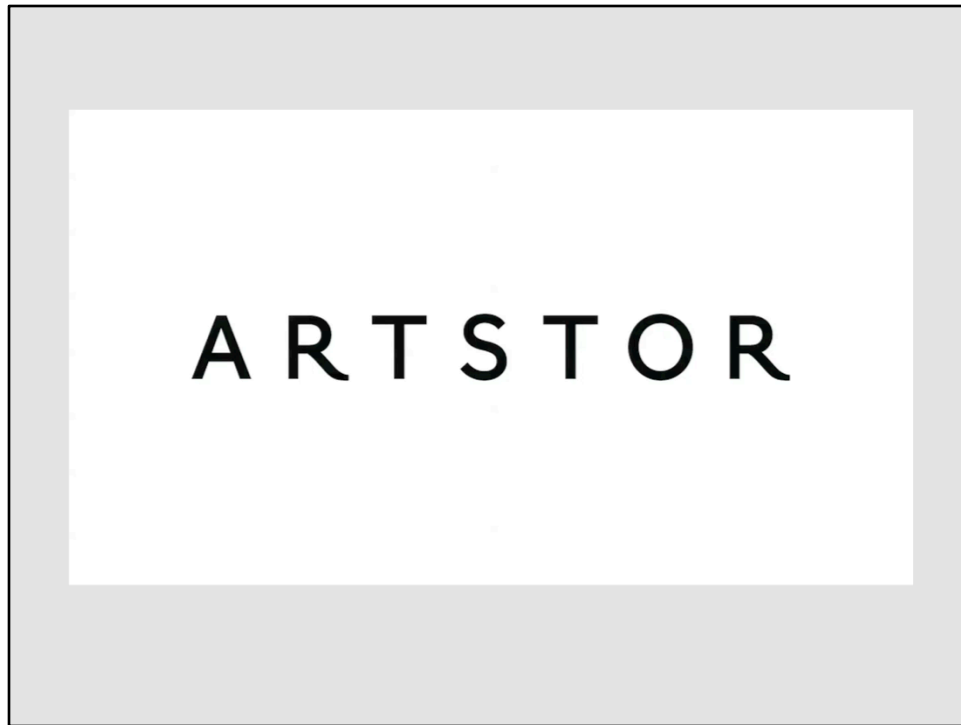
Video link courtesy Sian Evans and the Shared Shelf team at Artstor.

(Please note: If the embedded version of this video does not work, here is the link to the YouTube version: http://www.youtube.com/watch?v=XV8l00O5KN8)

Where does Shared Shelf/Artstor fit in to all this? Shared Shelf works as a customizable, localized cataloging platform, connecting to a variety of publishing outlets. As Artstor expands its collections, and more and more institutions implement Shared Shelf for local use, the possibilities of cross-institutional record sharing expand as well. Artstor has worked with the ArchaeoCore collaborators from the beginning, and as you have seen are now hosting a discipline-specific platform for archaeology, as an experiment in cross-institutional record sharing. All the institutions participating in the test use the same data template, but control whether their records are shared among the participating institutions, or only visible locally. This may prove to be a platform useful in other disciplines, as collaborations across institutions and across fields become more common.

Shared Shelf/Artstor also has the benefit of being cloud-based. The team on the ground at Abydos is able to enter and edit records as they are created in the field, then share them with scholars at other locations, greatly expanding the outreach of the project. This is probably the best time to allow the archaeologists to speak for themselves, as they do in this brief video prepared by Artstor to show what Shared Shelf can do. My thanks to the ArchaeoCore collaborators, and especially to Matthew Adams, for all their work on this project.