Report on the second year of the Mellon Emeritus Grant:

An Archaeological Grammar and a Global Record for the Monumental Urban Context Complex of Urkesh

March 31, 2013

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1 Introduction

The Mellon Emeritus grant for which I am submitting the final report has been extremely successful with regard to its stated objectives, about which I report in detail below, under headings 2 and 3. But there has been another major benefit, and that was to serve as a trampoline for further continued research: this I will address under heading 4. In the appendix (heading 5) I include two letters that may be considered as external evaluations of the project, and an extensive graphic overview of the results embodied in the Urkesh Global Record.

2 The Archaeological Grammar

2.1 The concept

The Grammar of the Archaeological record is the theoretical centerpiece of the project. It defines the conceptual goal with regard to the very nature of archaeology and to the deep conceptual impact of the digital embodiment. Originally conceived as a single printed book, I have in the course of the work on the Mellon grant decided to subdivide it into two major distinct components: a printed version of the theoretical presuppositions and a digital version of the grammar in its operational mode. I describe both in the following two sections.

2.2 The printed version

2.2.1 The venue

The book has been accepted for publication by Cambridge University Press. I have submitted a large portion of the text for their review, and I am now working on revisions suggested by the reviewers and on completing the missing portions. The delivery date as per the contract is January 31, 2014.

2.2.2 The excavation as a conceptual process

The volume develops a theoretical approach to the process of archaeological excavation, seen as an intellectual endeavor. In the first section (Parts One and Two) I focus on the nature of the data and our confrontation with them. Excavation of cultural remains embedded in the ground entails looking for physical contacts among elements: this is the *emplacement*, i. e., a static juxtaposition that is the only reality we can effectively observe and document. This needs to be sharply differentiated from *deposition*, which is the inferential process through which we argue as to how these elements have come to be in the ground. Being inferential, deposition cannot be observed nor documented, even though it is the more interesting part of excavation, providing as it does a dynamic understanding of the situation in the ground.

The extrication of the data from their inert matrix is emblematic of a deeper reality. Our distance from a past embedded in the ground is proportional to the presence or ab-

sence of living carriers of its traditions. Where we have no such carriers, we face a broken tradition. This means that we cannot rely on the "competence" of living human beings to interpret their own culture, just as there are no living speakers on whose linguistic "competence" we can rely to analyze their language. This requires the development of special methods of analysis, apt at recovering the experience behind the data. The one I develop in the book is distributional analysis, on the basis of which we can reasonably argue for a single focal point from which the multitude of specific data can be derived, as with the vanishing point in perspective.

2.2.3 The digital embodiment as a structural correlate

The effectiveness of distributional analysis is correlative to the universe of data available and to the way in which it has been categorized for an in-depth utilization of the data. Thus in the case of archaeology, publication (specifically with regard to emplacement and the depositional inference built on it) is not an epiphenomenon, it is rather constitutive of the evidence. For this reason, it is indispensable that the physical record be translated into a published record that guarantees full transparency and offers the totality, not just a selection, of the emplacement observations and the depositional inferences established in the process of excavation.

The book argues for a broader understanding of the notion of publication, one that includes conservation, site presentation and storage (Part Three), and in particular it shows how the digital dimension must be inscribed at the very core of the record, i. e., at the moment when it is established during the process of excavation (Part Four). In other words, the record must be born digital, according to a "grammatical" categorization that establishes a true structural correlate to the totality of the data as excavated in the ground.

2.2.4 Archaeology as a hermeneutic model

There are important hermeneutic implications to this approach, and they are addressed in Part Five. The interpretive question is profoundly affected by the relationship of the excavator to a broken tradition. Hermeneutic theory rests on the assumption of continuity. The pre-understanding of a tradition means that there are living carriers with a specific competence that can colors and even defines the analysis. Such is not the case with archaeological cultures that have been severed from the stream of history. The book addresses two particular aspects of this question.

On the one hand, there is the specific issue of how to deal with the data at hand. Excavation can be seen as the process through which the break is mended: we recover the pieces, as they are juxtaposed in the ground, and infer not only how they have come to be there (deposition), but also how they functioned in real life, what their historical dimension was. The feasibility of this aim depends, in my argument, on the application of a thorough distributional analysis that relies on the totality of the elements excavated. In this final section of the book, I argue further for the broader theoretical implications of this approach – why is it that, doing so, we can plausibly claim to recover experience. It is a special perspective from which to look at the issue, among others, of "cognitive archaeology,"

so prominent in current archaeological thought.

On the other hand, I develop the implications that this approach has for various philosophical interests. The theory of excavation as developed in the book proposes the special status of a severed human tradition. It is human, hence ours. Yet severed, hence irretrievably, it would seem, theirs. From semiotics to phenomenology to hermeneutics, a theory of excavation proposes a serious issue, one that must be faced archaeologically and only then can impact directly on the question of its re-appropriation for our sphere of understanding. It is the case that archaeology, instead of borrowing from philosophy, can uniquely contribute to it.

2.2.5 Relation to other books

The book takes a special place within the rich field of archaeological theory. Its special focus is (1) the role of stratigraphy as the specific determinant of archaeology, and (2) the hermeneutic dimension of interpreting a "broken tradition," i. e., a culture for which there are no living carriers.

A theory of excavation has not been in the forefront of current interests, and yet it is at the core of what archaeology does that no other field does. In this sense the book harks back to the presuppositions elaborated in earlier years by David Clarke, Edward Harris or Andrea Carandini, but it relies on two important new factors. On the one hand, it is closely associated to the Urkesh website (below, section 3), hence it is solidly based on empirical data on which the theory has been fully tested. On the other hand, it benefits from the intense recent reflection on the nature and the goals of the discipline of archaeology.

2.2.6 Reviewers opinions

I quote a few relevant portions of the letters of anonymous reviewers that Cambridge University Press forwarded to me. Since the book is a result of my work on the Mellon project, their evaluation seems pertinent as a from of evaluation of what I have done.

Reader A:

> The manuscript is timely, important, and interesting. The author is a noted archeologist, so the manuscript is based on extensive experience in the field, but he is also able to reflect philosophically on the practice and science of archeology in all its dimensions, from the dig to the published historical record.
>
> The author argues that digital technology has opened new possibilities both for the execution of archeological work and for the way we theoretically understand what it is. He makes use of categories derived from the science of linguistics to make his case. A distinction that is pivotal for the author is that between a tradition that has "living carriers" in the present who can interpret the objects involved in it, and a "broken" tradition, in which there are no such carriers. In the latter, archeology comes to the fore as the singular interpreter of what it is bringing to light, and it thereby acquires a special status as a humane science. It needs its own epistemology and the manuscript is an ambitious attempt to provide it, hence the bold title, A Critique of Archeological Reason. The archeologist is taken as not just the person on the site but also the one who enters what he discovers into the digital record and so presents it to the scientific community. This is a comprehensive understanding of this kind of scientist and it takes into account the possibilities opened up by digital communication.
>
> Traditional archeology focuses on the objects that have been excavated. As a science it begins with these objects and tries to reconstruct the human community that gave them their meaning and use. The author argues that digital technology makes it possible for archeologists to encode far more than the

found objects; it is now possible to document the stratification and emplacement of objects as they are uncovered in archeological digs, so that the subsequent database can include, not just the items found, but also their coming to light in the various stages of discovery and transfer. Making use of digital technology would allow the archeologist to encode what the author calls a continuous "Global Record" of a particular dig.

A distinctive contribution of the author is his analysis of archeological "Grammar." He claims that a property of linguistic grammar is that it encodes the objects it captures (in sentences) and it also enrolls them into the entire human language, so that it becomes possible to make inferences over large swaths of information and conceptual domains. He then claims that such an encoding can be carried out not just on the archeological objects but on their emplacement and discovery, so that larger-scale reasoning can be carried out on what is given to the archeological project. Archeological grammar does not start with objects but with the initial presentation of the objects in the excavation. This enlargement is the core of the author's claim to provide a critique of archeological reason. It also allows him to go beyond the Kantian understanding of knowledge, because he – the author – takes as the "given" not mere sense impressions but the linguistically codified archeological objects along with their emplacements.

Reader B:

The whole book is of utmost importance since it is a major contribution to the contemporary debate about the theoretical roots of an archaeological thought which is in crisis, in its methods and goals. There has been a lot of reflection on archaeological theory of course (from Harris to Hodder, Renfrew or Tilley more recently) but none goes so far in discussing the actual link between the field practice and the construction of knowledge, not after excavation but on the field itself. The second strength is the integration of the digital dimension of field archaeology, not as a tool but as a way to construct a complete new approach to the whole structure of this practice, from the field down to the publication. It can be therefore considered as a global and critical approach destined to give new foundations to archaeology, founded upon field practice. overall conceptualization

The title itself situates the work in the Kantian tradition even if finally Kant appears not as much as phenomenology and more specifically semiotics. ... The general philosophical background is there and appears finally clearly in 16:8 and in the following discussion in 16:9 and 10 which are to be be awaited. The conceptualization if founded upon antinomies and systematic confrontation of binomes. The other key notion is the idea of broken tradition which to my knowledge has never been so thoroughfully investigated. Following current debate about archaeological epistemology, the book could appear as a defense of what has been awkwardly defined as «low theory» versus high theory – the general anthropological frame. It is much more than that, since it is a global approach to the data and its very specific situation.

Reader C:

The book title's allusion to Kant's *A Critique of Pure Reason* should immediately alert a reader to the nature of its contents. Like Kant's work, Buccellati's text presents a challenging, though elegant, read. Despite the effort required to absorb this text, in my opinion, the title's allusion to Kant is not a simple pretentious affectation; rather, this book will play an important role in advancing archaeological theory by directly confronting key issues in how archaeologists gather, absorb, document, manage, organize, and synthesize information especially in the context of digital information systems.

The book's central theme lies in Buccellati's thoughtful exploration of digital data and its role in shaping meaning and understanding in archaeological excavation. One of the greatest strengths of this book comes from Buccellati's deep understanding of archaeology. Over and over, the book demonstrates the author's decades of experience and self-reflection shaping his opinions and observations on how archaeological knowledge is constructed. What is also clear is that Buccellati has a great passion for his chosen discipline, as well as a keen insight into the shortcomings and shortcuts archaeologists often take in using field observations to build interpretation. To build his case for putting archaeological interpretation on a firmer foundation, Buccellati begins with a deep and insightful look at excavation and its purpose, methodologies, and recording challenges.

As far as writing style goes, as I already mentioned, this is a difficult and challenging text. This comment is not meant to be a critique, since the reader is richly rewarded for his effort in working through

this book. I suppose one can consider this book to be something like the *Foucult's Pendulum* (Eco) of archaeological theory, which was also a challenging, through rewarding, read. In contrast to some theoretical works in archaeology, which can be turgid and prone to obfuscating rather than illuminating theoretical jargon, I found Buccellati's use of language elegant, highly literary, precise and highly refined (in the best sense of that term). It is difficult because it carefully constructs unfamiliar concepts at a level of abstraction I think unfamiliar to many archaeologists. In that sense, this book expects much of its readers, and there are areas where the author may offer a bit more help in reducing the effort required to digest its contents. Notes I made on the text itself highlight some of these areas.

As I noted above, the book grapples with the role played by digital data in archaeological understanding. This focus represents a timely and vitally needed advance in archaeological theory. Digital data is now earning more attention from archaeological funders (witness the new "Data Management Plan" requirements of the US National Science Foundation and National Endowment for the Humanities). Nevertheless, digital data has not yet seen extensive theoretical treatment, despite its ubiquity and centrality in modern research practice. Thus, the discipline vitally needs the kinds of careful consideration and nuanced understanding of how digital data can work to build archaeological knowledge as offered by Buccellati.

The key strength of Buccellati's exploration of digital data lies in his rich, self-critical, self-reflective, and nuanced understanding of archaeology. His experience as an archaeologist is further informed by an impressive knowledge of philosophy and epistemology that provide his arguments with a firm conceptual basis. These perspectives permeate his discussions of digital data. And these are welcome contributions, since digital data has for too long been mainly viewed through narrow technical lenses, without a great deal of theoretical reflection. The ways in which Buccellati ties recording and documentation of atomistic units of observation to higher level data structures that explicitly encode interpretive decisions, represents a fascinating window on how digital data can link observation to synthesis, interpretation and narrative. This kind of theoretical reflection absolutely must inform the creation of archaeological information systems.

2.3 The digital version

The second component is the grammar proper, seen in its operational functions. It is so closely related to the digital record, that I decided to publish it only digitally, as part of the Urkesh website (below, section 3). Here, the digital embodiment has been fully implemented, in close correlation and integration with the data presentation contained in the rest of the Urkesh Global Record. This is described in the next section (3). I will not expand on the content of this "digital book" because it is available as part of the website, as an embedded separate website: the *Grammar of the Archaeological Record*[1].

3 The Global Record and the Urkesh website

3.1 Introduction

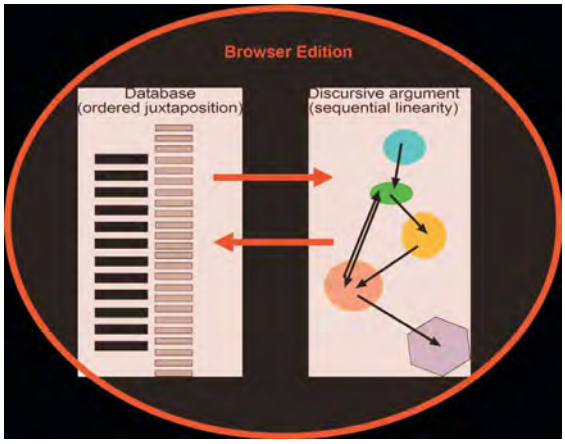
I review here the central goals I had outlined in the initial grant proposal (3.2,) and will then indicate how they have been realized and implemented, within the overall Urkesh website in the first place (3.3), and then the Global Record (3.4).

Throughout this section, links are given to the website. At this point, it is not open to the public. To access it, **please use the ID tupkish and the password urkeshbeta**. It is also recommended that you use **Internet Explorer**. Within the next few weeks, selected portions of the website will be opened to the public without password.

1 http://www.urkesh.org/mz/a/GRAMMAR/ugr/-frame.htm .

3.2 Innovative elements

(1) Conceptually, the main innovation is the integration of database and narrative. This aspect is highlighted on pages 2 and 3 of the Appendix. Here, I will describe briefly its innovative aspects. – A database presents an ordered juxtaposition of records: they are relationally linked, but they remain essentially static. A narrative, on the other hand, develops a thread which is sequential and linear. A browser edition like the Urkesh Global Record integrates the two. In their initial status, the data occur as a large amount of atomistic data: for one digital book (A16), for example, there are more than 3 million records, each derived from a variety of different inputs (Appendix, p. 5). These data remain all accessible individually and in a variety of clusters, but at the same time they are being referred to via hyperlinks (more than 1 million for A16) from within a digital narrative thread. Thus the overarching, synthetic, linear narrative is fundamentally linked, continually and throughout the discussion, to the total universe of specific, analytic elements of the data.



(2) The concept of grammar develops the notion of categorization to a much greater depth than is normally the case: besides defining with utmost specificity the categories of analysis (as one finds in any codification system), it opens up to the maximum their potential for interconnection. It is in fact the grammar that makes it possible to have an automated production of the output from data entered in a variety of simple formats.

(3) The high degree at which the various levels of the website are interwoven may also be considered innovative. It is not that complexity as such is a value. But it is valuable that multiple layers of documentation and of interpretation be accessible within a single intellectual construct (the website). In our case, there is a wealth of data that is not only unimaginable in any paper publication, but also very rarely achieved within a website. The concept of digital books and monographs (Appendix, p. 1) illustrates this point, and so do chapters like the one on temperature and humidity, which feeds into the sections on conservation and is linked with the video-clips that deal with the weather. – Part of this concern is also the effort at combining under one roof multiple audiences, on the assumption that culture is a continuum, and that the scope of the website should be wide enough to accept at one end the lay person and at the other the scholar.

3.3 The Urkesh website

3.3.1 Introduction

The Urkesh website is the system through which the entire publication effort of the Mozan/Urkesh Archeological Project is channeled. While paper publications will continue, the website is the primary and most comprehensive publication venue.

As of May 2013, the Urkesh website will be a coherent entity that can be viewed and utilized for both the substantive information it provides on an important excavation, and for the theoretical contribution it makes to the field of archeology and, beyond that, the humanities in general. Portions of it will be open to the public, while the remainder will be open in a Beta phase for qualified users.

3.3.2 The general website

The major portions of the website are as follows: (1) Overview; (2) PROJECT; (3) WEBSITE; (4) Methodology; (5) Background; (6) Stratigraphy; (7) TYPOLOGY ; (8) Interpretation; (9) Preservation; (10) Record; (11) ELIBRARY.

By clicking on each of the entries above, one enters a section of the website, which is also listed on the top horizontal bar.

Certain topics are given an extensive monographic treatment, among which the following are particularly important: digital thought,[2] site preservation,[3] site presentation,[4] and storage.[5]

3.4 The Urkesh Global Record

The core of the project is contained in the section on the Record. Within this, there are a series of "digital books" (listed on the left vertical bar). which correspond to individual excavation units and are in effect separate websites embedded in the overall Urkesh website. The major ones are A16, J1, J2, J3, J5, J6, J7, OH2.

There are also thematic books, the first being the Grammar[6] already referred to above, and the other the book on Ceramics[7].

The details of the data organization are explained in Appendix 5.2.

4 The grant's wider impact

4.1 A new motivation for the staff

An important result of the grant was that it gave a strong motivation to the staff to continue our work on this project, especially since in the last two years, because of the civil unrest in Syria, we have been unable to do any fieldwork. We have thus been able to have study seasons in which we refined and extended considerably the scope of the Mellon grant project.

4.2 Expansion of the project

I have been successful in obtaining additional funding for the coming year from the

2 http://www.urkesh.org/hi-links/312.htm
3 http://www.urkesh.org/hi-links/7.htm
4 http://www.urkesh.org/hi-links/23.htm
5 http://www.urkesh.org/hi-links/78.htm
6 http://www.urkesh.org/mz/a/GRAMMAR/ugr/-frame.htm .
7 http://www.urkesh.org/mz/a/CERAMICS/ugr/-frame.htm .

Gulfsands Urkesh Exploration Fund: this will allow us to expand the coverage of the website with regard to some of the "digital books" that wsre not included in the Mellon grant.

I have also applied for a substantial Digital Implementation grant from National Endowment for the Humanities to thoroughly upgrade the software that is by now obsolete. This would bring us to a new level of technical sophistication.

Finally, I have also applied for a grant from the European Research Council aimed at expanding the philosophical implications of the Mellon grant. Entitled "The Hermeneutics of Archaeology," this project would be based in Europe and elaborate the interconnection between the conceptual and the digital dimensions of the project.

4.3 Potential impact and replicability

If the NEH proposal just mentioned is successful, the programs will be made available to all interested scholars on an Open Source basis. We will also conduct demonstrations showing how they can be used. Given sufficient interest, the website approach to integral archaeological publishing will be within reach of all interested parties. But regardless of the degree of interest that our project may generate, the website should demonstrate in practice the advantages of a browser approach that merges, as ours does, database and narrative. This would be applicable to other fields in the humanities and the social sciences, besides archeology.

The seriousness of the approach and the quality of the results should also encourage a deeper appreciation for the value of digital analysis in the humanities. We will be able to show how a major body of data from a key archaeological site can benefit from this type of research in ways that normal digital approaches do not achieve, and, as a result, uniquely benefit the humanist. This will be especially important for younger scholars who may still find it difficult to get adequate credit for computer oriented work.

Within the more limited confines of archeology, it is hoped that the "philosophical" emphasis on emplacement (as explained above), and the correlative demonstration of a realistic implementation of its immediate publication, may have an impact on the field, especially by calling attention to the real underlying causes for the chronic delays in archaeological publishing.

4.4 Presentations

I have given a number of presentations at several universities and congresses, in Los Angeles, Berlin, Moscow, Frankfurt, Milan, Rome, Florence, Turin, Udine, Seattle, Austin.

In the coming months, and once the website will be opened partly to the general public and partly in a beta mode (as mentioned above), I will work actively on bringing attention to the wider community of scholars. This will be facilitated by the publication of the book *A Critique of Archaeological Reason* with Cambridge University Press. I will also encourage our staff members to give similar presentations.

4.5 Significance for the humanities in general

(1) Hermeneutics. The archeology of Mesopotamia in general, and of our site in particular, is the study of "broken" traditions, i. e., cultures that do not have a current self-understanding. Our interpretation is based exclusively on what is recovered from the ground, and this, coupled with the lack of a native interpretive framework, challenges to the extreme our task to extract a full meaning from the data. The theoretical model I follow rests on a careful application of distributional analysis: we can more safely attribute meaning to the identification of recurrent patterns when these are extracted from quantities of data as vast as those we find in the excavations. I have compared our task to that of an archaeologist on Mars, borrowing the title from Oliver Sacks (*An Anthropologist on Mars*, New York 1995) who describes an autistic person's successful effort at appropriating unfelt emotions by building up, cognitively, "a vast library of [other people's] experiences" (p. 259). The digital approach makes it possible to integrate in real time all these data as we collect them on a daily basis, and the coherence of the larger picture that we gain for Urkesh is, it seems to me, a good proof of the validity of this hermeneutical experiment.

(2) Narrative and databases. Electronic publications in the humanities (and the social sciences) fall into two major categories: linear narratives and databases (see below under 4. Environmental Scan, for details). The narratives, which are generally files in PDF format, develop a proper argument but, other than for being searchable, do not differ conceptually from a paper edition: they are electronic, but not properly digital. Databases, on the other hand, are indeed digital, but they are static: the categorization system that underlies them is often of high conceptual value, but there is no argumentative discourse that develops within the parameters of the database itself. In the Urkesh Global Record, instead, the static function of a database *is interwoven* with the dynamic nature of an argument. What I wish to stress here is the significance that this concrete interlacing of argument and database has for the humanities.

(3) Digital thought. The concept that underlies this new "product" deserves special attention. The use of hyperlinks is amply familiar to all, and the notion of "non-linearity" refers to it: a non-linear text encourages a zigzag approach to reading as one follows one link after the other. But, for the most part, hyperlinks are informational, and do not help in the construction of an argument. Besides defining more properly the concept of *multi*-linearity (multiple argumentative threads going forward in consonance), I argue for the importance of the concepts of non-contiguity (among the data) and of discontinuity (in the construction of the argument). It is summed up in the notion of digital thought, a new way of writing and reading, which has only partially been implemented as yet in the humanities (or the social sciences, for that matter). I have discussed the concept at length both in an article and in a digital monograph within the Urkesh website.

4.6 Significance for archeology

(1) Archaeological theory. When excavating, we inevitably destroy the context that tells us how things are correlated with each other in space. Since we can never repeat the

excavation, the only record we have of how things are found in the ground ("emplacement") consists of the observations made during the excavation. On this basis we can then build our understanding of how things have come to be where they are ("deposition"), of how they were used ("function"), and so on. The standard approach in the discipline is to arrive at an interpretive synthesis as a first step in preparing a publication, and then to select the data to be published in function of that synthesis. My approach instead gives total primacy to the initial observations, which must never be deleted or altered. This applies to both the observations and the graphic documentation (photos and drawings) made during the initial discovery, when first confronting the data in the ground.

(2) The notion of a "global" record. Retention of the totality of the observations cannot, however, result in the publication of an inarticulate congeries. Rather, they must be so organized as to cohere into a meaningful whole. It is the digital medium that makes it possible to produce a construct that is at the same time global and coherent. This Global Record is generated on a daily basis as the excavation progresses, in real time. A major consequence is the impact this has on strategy: since all the data are constantly available in a cumulative manner, decisions about how to proceed are informed by an ongoing confrontation with the actual data, not by subjective impressions.

(3) The notion of a "definitive" publication. This is one case when it makes sense to speak of a publication that cannot possibly be replaced, one that is, in other words, truly "definitive." Any single primary observation that pertains to emplacement (as described above) can never be improved, not because it is necessarily correct, but because it cannot be repeated and it will remain forever the only evidence available of the initial act of witnessing. The publication of these observations is indeed definitive, and it should happen immediately upon the close of the excavations. The nature of the digital medium, specifically in the form of a website available online, makes it possible to add as needed the results of later interpretations based on subsequent depositional, typological, comparative analysis. But the core evidence relating to emplacement will remain forever as the basic foundation. This approach resolves the problem of the chronic delay in archaeological publishing. This delay is bound to occur if, as indicated earlier, the publication of the data is subordinated to the attempt at establishing a synthesis: it follows logically that the longer one waits, the more convincing the synthesis becomes – but, by the same token, less objective. Since emplacement observations, on the other hand, can never be changed, immediate publication is not only possible but, in fact, necessary.

(4) Updates to data analysis. While the data will have a "definitive" form in the sense just described, an essential component of the project is to allow constant updating with regard to the analysis that can be applied to the data, particularly as it concerns the depositional, typological, functional and comparative aspects. I plan to do that in the form of "ephemerides" after the use that is made of this term in astronomy, where it refers to tables that define the orbital movements of celestial bodies. For a similar concept implemented in other websites, see the Stanford Encyclopedia of Philosophy's "Fixed Editions."

5 Appendices

5.1 Project evaluations

I append below two letters of reference that were requested as part of the application to NEH described above (4.2). The first is from Prof. Willeke Wendrich of UCLA, and the second from Drs. Neville Agnew and Martha Demas of the Getty Conservation Institute. They provide an evaluation of the project as undertaken so far under the aegis of the Mellon grant, and to this extent I consider them pertinent to the scope of this final report.

5.2 Urkesh Website Overview

The second appendix (in ten pages) offers an overview of the main structure of the website and its main features.

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National Endowment for the Humanities

Los Angeles, January 23, 2013

Dear Colleagues,

The grant application "Urkesh: the Digital Invention of an Ancient Site" is a request for support for an extremely important endeavor that pushes the agenda of digital publishing from digitized content to data management which makes full use of the integration of data analysis and publication. By not just linking, but fully integrating the textual interpretation of archaeological excavations with the rich and pluriform data structure typical for archaeological research results, the Urkesh digital record is at the forefront of data publishing.

Archaeological research typically generates a great many of different types of (increasingly digital) files, such as texts documents, spreadsheets, databases, photographs, plans, drawings, measurements, complex analyses and GIS. For the excavations in Tell Mozan most of these are incorporated in the Urkesh Global Record which links a digital narrative to the complete documentation of data available from the site. This is the result of several decades of pioneering work, based on a well-established method and theoretical base.

The scholarly reputation of Professor Buccellati should not need any introduction. Among his recent significant publications are two books: *A Structural Grammar of Babylonian.* Wiesbaden: Harrassowitz, pp. xxxiv, 512 (1996) in philology; *Urkesh and the Hurrians. Studies in Honor of Lloyd Cotsen.* Bibliotheca Mesopotamica 26. Malibu: Undena (editor with M. Kelly-Buccellati) (1998). Additionally he has published more than 25 articles relating to the site of Mozan (ancient Urkesh) and several more on the innovation, conservation and digital projects linked to his excavation. He has written 7 articles on cuneiform studies. In sum the diversity of his publications reflect the breath on his activities and the energy with which he pursues them.

To illustrate the pioneering spirit of Professor Buccellati: he not only takes great care in recording, analysis and publishing, but also has taken innovative and very effective measures for the preservation of the ancient mud-brick remains at Tell Mozan. For this he was granted the Best Practices in Site Preservation Award by the Archaeological Institute of America. He

involves the local population in all aspects of the archaeological and conservation work, thus embedding the project in its present day social and cultural context. I had the privilege to visit his excavations at Tell Mozan, Syria, in September 2008 and am greatly impressed by his full integration of theory, method and archaeological practice. He is far ahead of developments in the field, such as integrated research, site management and presentation; digital asset management and online publishing.

The online archaeological archive and publication platform that Professor Buccellati mostly designed and programmed himself is ahead of the curve. There are many discussions and initiatives on how archaeology in the digital age should benefit from the new possibilities that web-based technology brings us. One of the great advantages of online publication is that the article or excavation report can refer directly to the database, and enable the reader to check in real time whether the analyses and conclusions are done properly and consistently. It is as close as archaeology, which by definition destroys its evidence by excavating it, will ever come to a laboratory situation in which experiments can be duplicated. Initiatives such as www.digital antiquity.org are just beginning to explore the potential, while such a system exists since approximately four years for the Tell Mozan / Urkesh records.

Apart from being innovative and at the heart of the recent developments in Digital Archaeology, Professor Buccellati's activities are also important to demonstrate to colleagues, academic administration and the Councils on Academic Personnel that high quality online publications are a valid research output which qualifies faculty to get tenure and promotions.

It is not only the quality of the visionary and innovative approach of this proposal that deserves support by the National Endowment for the Humanities, but also the PI's prolific publication record and the far-reaching influence he has as an example and inspiration for his students and his colleagues.

Sincerely Yours,

Willeke Wendrich
Professor Egyptian Archaeology and Digital Humanities
wendrich@humnet.ucla.edu

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CONSERVATION
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The J. Paul Getty Museum
Research Institute
Conservation Institute
Grant Program

22 January, 2013

Letter in Support of Professor Emeritus Giorgio Buccellati's Application for a National Endowment for the Humanities Digital Humanities Implementation Grant

For nearly 30 years, Professor Giorgio Buccellati and his team have excavated at the site of Tell Mozan (ancient Urkesh) in northern Syria. This huge site, some 150 hectares in size, dating from the 3rd millennium, was an important urban center of the Hurrian civilization, and contemporary with the Sumerian early dynastic and Akkadian periods further to the south. We write with firsthand experience of the site, having visited to review the condition monitoring of the excavated walls after having been approached by Professor Buccellati for advice some 10 years ago.

The outline of the NEH application which we reviewed is extraordinary in terms of its vision and ambition and is thoroughly conceived. As Buccellati states, "The primary purpose is complete publication of an important archaeological site. But there is much more at stake". He lucidly enumerates details of the project, which he points out is a unique publication model, with the eventual objective of making accessible the total record of excavation of the period 1984 to the present time.

The website is intended for all scholars, and it is for this beneficial reason that the standard browser approach has been chosen in that it is intuitive and does not require any expertise. The long-term sustainability of the website is essential, and it is noteworthy that the application addresses this issue through planning and cooperation with other institutions to open mirror servers.

Much of the excavated architecture comprises mud brick. The fragility of archaeological mud brick upon exposure to the elements is well known. Around the world one may see many sites that have been excavated and have deteriorated rapidly under the onslaught of the elements. Invariably, these require some level of reconstruction after time, with consequent impact on the authenticity of the archaeological record. Throughout the Middle East and Central Asia the widely practiced technique is to encase the original walls in mudbrick. Such is not the case at

Mozan. From the very beginning, Giorgio Buccellati has addressed in an integrated way the issue of preservation of the fragile archaeological remains in parallel with his archaeological research. The creative and inventive solutions that have been put in place at Mozan are manifold. It can be truly said that his approach is a totally integrated one, in which, as excavation proceeds, so does conservation. It is extremely rare to find so holistic an approach in the field of archaeology, where the conservation of excavated sites, while certainly having improved in recent decades, nonetheless, too often is still an afterthought.

To be specific, Professor Buccellati has developed protective covers that display the form of the mud brick walls, and yet are low-cost, renewable, locally constructed using his mission's workmen whom he has trained, and allow interpretive aspects of the buildings to be immediately understandable for the visitor in quite compelling ways. The covers are easily removable to allow inspection of the walls.

Monitoring (photographic and visual inspection) of condition of the walls over the years, coupled with meteorological data has proven the effectiveness of the measures. So novel has the approach been that the site protection system was selected as the cover image of the publication "Of the Past, For the Future: Integrating Archaeology and Conservation", the conservation theme of the 5th World Archaeological Conference held in Washington, D.C., in 2003 and received an award from the Archaeological Institute of America in 2011 for best practice in site preservation.

As far as the present website is concerned, an especially effective outcome of the development of monitoring documentation maximizes the resources of the digital medium by allowing the user to access thousands of photographs, so arranged that minute detail can be obtained, yet always having clear the whole picture of the conservation project. Moreover, the system allows the monitoring to be kept up to date, because new photos and observations are easily integrated. To our knowledge, there is no other comparable monitoring documentation system for a shelter project.

The site presentation section of the website is similar, in that it presents the complete set of pages on display at the site. Downloaded from the website, and printed individually, they add up to a book of more than 200 pages. In this case, too, we do not know of other archaeological sites that blend so effectively the situation on the ground with the wider dissemination made possible by the internet.

Buccellati's contribution to the integration of preservation and archaeology comprises a milestone. He addresses all aspects of his site: from archaeological excellence to creative preservation solutions, to presentation of the site and its interpretation to the public at all levels, both professional and local, by working harmoniously with the local community, and providing training and income. His project creates awareness of the significance of the site, its archaeological values, and the need for its protection.

Not only is his work scholarly and theoretically sound, but it is eminently practical. The publication mentioned above has two papers by Buccellati: "Conservation qua Archaeology at

Tell Mozan-Urkesh". This paper makes a cogent plea for conservation to be seen as intrinsic to the excavation process. His other paper in the same volume, "Presentation and Interpretation of Archaeological Sites: the Case of Tell Mozan, Ancient Urkesh" addresses a common understanding of the importance of presentation at all levels of society, from the local to professional and political, both within Syria and beyond. Professor Buccellati's work is increasingly being recognized as pioneering, and in a further recent development, he has conceived plans, accepted by the authorities and supported by local stakeholders, for an eco-archaeological park encompassing the site of some 50 square kilometers.

Finally, we would emphasize the multiplicity of purposes that support for this proposal would meet, beyond the primary objective of publication in totality, these are: access to the archaeological record and documentation for future conservation, monitoring and interventions; having the entire site record in digital form clearly provides immeasurable benefit; public and professional access and ultimately on-site interpretation and visitation would be enhanced by this information. Professor Buccellati's record of accomplishment is stellar and we can only applaud the global vision of the new developments for which he seeks funding and readily comprehend how its benefits would filter through to all strata of stakeholders, including local communities.

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The Getty Conservation Institute

Bibliography:

Buccellati, G. 2006. Conservation qua Archaeology at Tell Mozan/Urkesh. In *Of the Past, for the Future: Integrating Archaeology and Conservation*, ed. N. Agnew and J. Bridgland, 73-81. Los Angeles: The Getty Conservation Institute.

Buccellati, G. 2006. Presentation and Interpretation of Archaeological Sites: the Case of Tell Mozan, Ancient Urkesh. In *Of the Past, for the Future: Integrating Archaeology and Conservation*, ed. N. Agnew and J. Bridgland, 152-156. Los Angeles: The Getty Conservation Institute.

The system

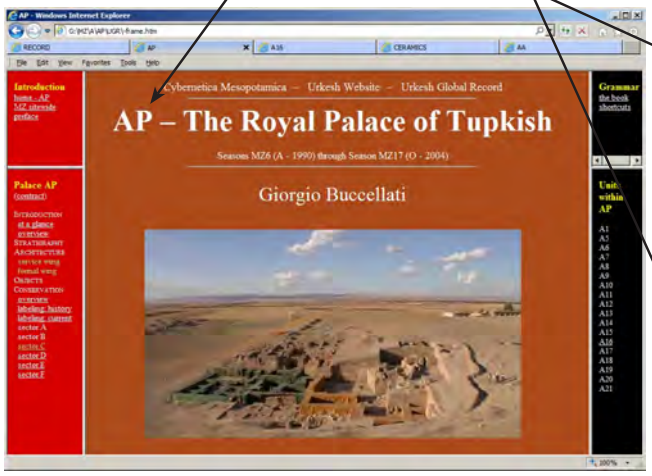
1 The Urkesh general website

The website includes twelve thematic sections in the top bar, plus a Search section.

The website develops in detail topics of general interest that serve as a background to an understanding of the excavations of ancient Urkesh.

In particular, those pertaining to EDUCATION, INTERPRETATION and PRESERVATION have a bearing on the Humanities as a whole.

The section on the RECORD serves as the porrtal for access to the Urkesh Global Record, which quantitatively constitutes the majority of the overall website.



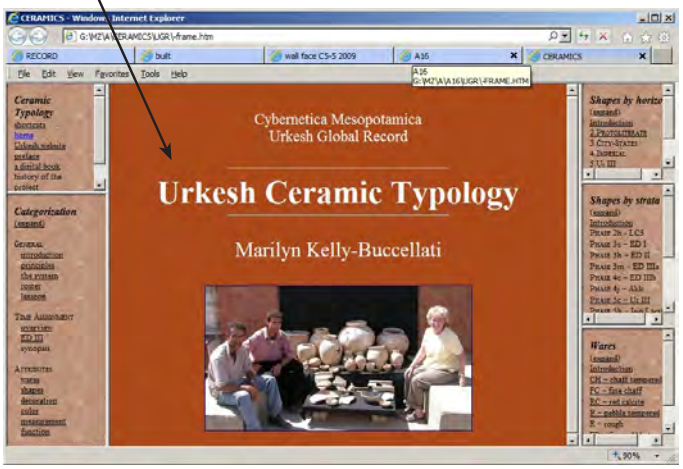
2 The Urkesh Global Record (UGR)

The UGR includes a number of "digital books" that are in effect autonomous websites, identified by a different layout and color scheme. They belong to three types.

Area books describe typologically defined areas, that subsume different excavation units (e.g., the Royal Palace AP).

Most are devoted to Excavation units, which match only portions of the Area books (e.g., A16 within the area of the Royal Palace).

Topical books are devoted to special sets of data that cut across excavation boundaries, such as the Ceramics book.



Self-generated digital narrative

Quantitatively, the bulk of the website (i.e., most of the pages of the UGR digital books) is generated automatically.

The input consists of atomistic data that are processed by a suite of programs (specificaly written for our project).

The outcome is a a "digital narrative": it is so conceptually, because it builds a linear thread.

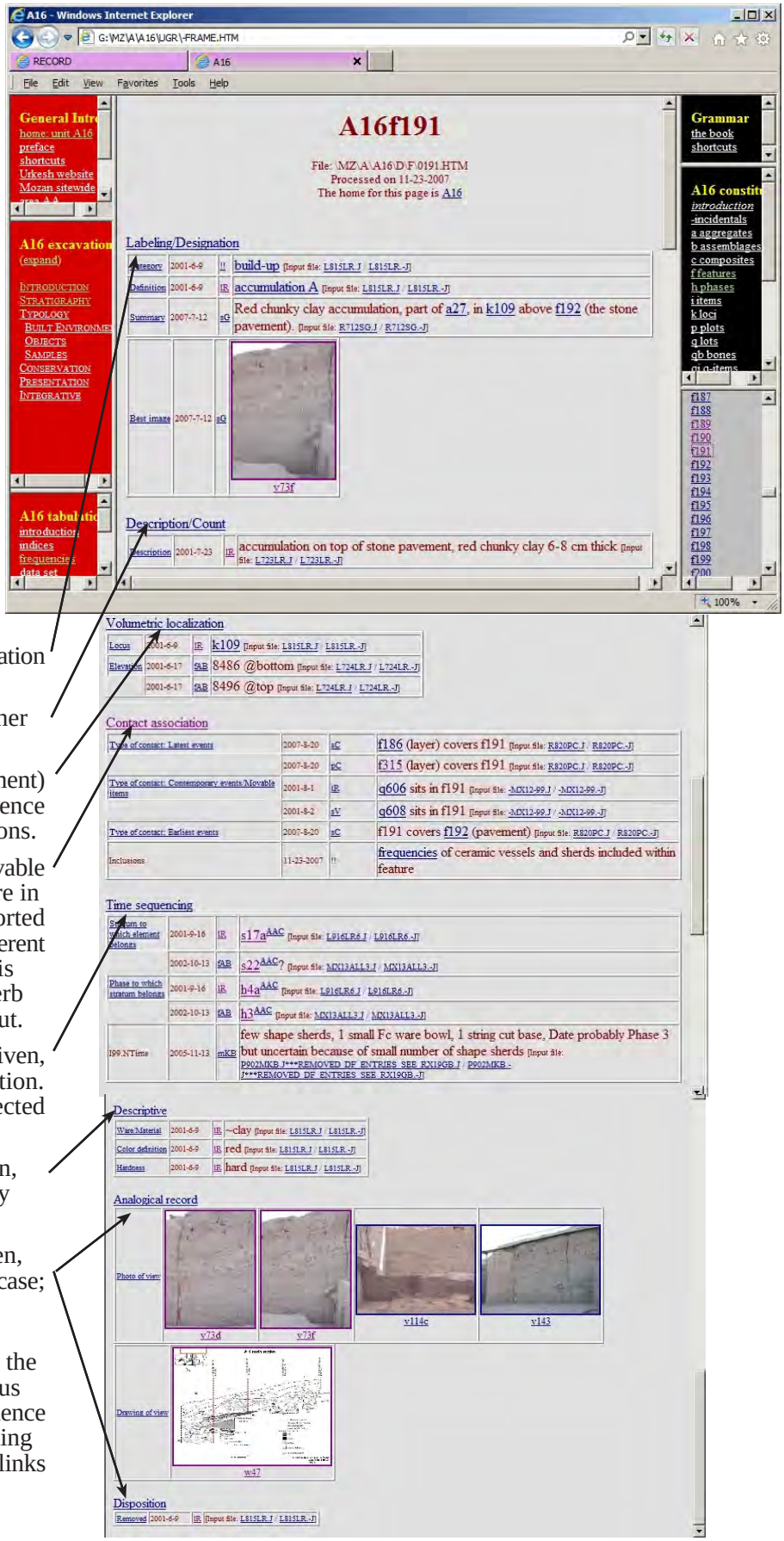
Formally, however, it is a "digital" narrative couched in a distinctive format, which I am illustrating here.

The page to the right is chosen at random from the thousands available.

It is shown here as it would appear by scrolling down.

It is invoked from the right hand vertical bar (or from any link, anywhere in the website, to A16f191).

The data, which come from a variety of different inputs, at different times and from different people, are organized by the programs in the proper sequence.



It begins with the primary descriptive information that includes the best image.

This is followed by a description that in other instances can be quite detailed.

The feature (an accumulation above a pavement) is then localized precisely in space, with reference to the locus and to the top and bottom elevations.

What follows are all the features and the movable items (in this case, only pottery lots) which are in physical contact with our feature. These are sorted in a chronological sequence that reflects the different moments when the contact occurs. This, too, is generated automatically on the basis of the verb with which the contact is described in the input.

The attribution to a given stratum/phase is given, with a reference to the reasons for this attribution. In this case, there is an uncertainty that is reflected in the double attribution.

At this point, a typological analysis is given, which, especially for objects, is generally very detailed.

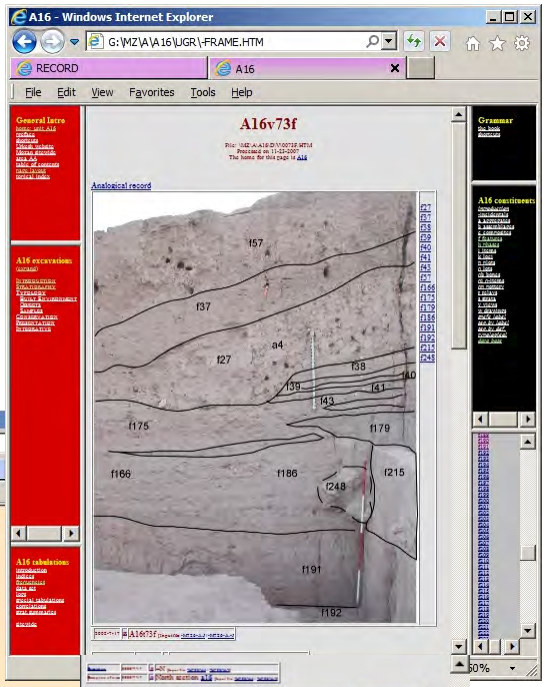
Finally, photographs and drawings are given, followed by the disposition ("removed" in this case; for objects there is an indication of storage).

This procedure is especially significant for the humanities because it shows how the enormous quantity of data finds its place in a logical sequence much like that of a normal prose text, generating at the same time an immense quantity of hyperlinks that buttress the analysis.

Links to supporting materials

Dealing with the great quantity of material originating outside any given excavation unit is one of the more difficult tasks. Because of the rigorous "grammatical" nature of the input (directories, text or spreadsheet files), this can be accomplished through the operation of our suite of programs: they convey the proper information to its right place, so that all is integrated within the flow of the digital narrative.

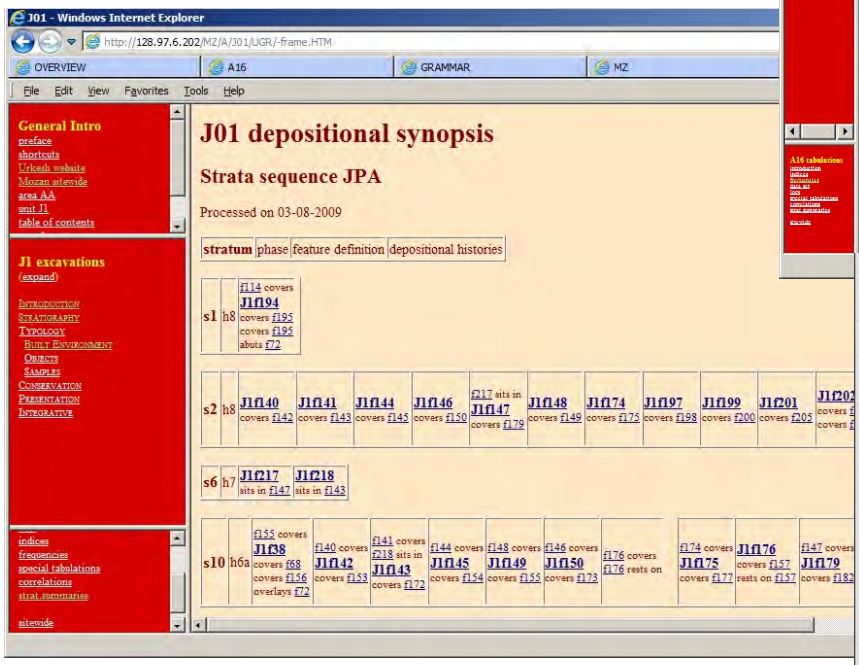
1 The preceding page shows how photographs and drawings find their way to the correct place in the flow of the presentation. Clicking on any photograph yields a page with an overlay showing the details of what appears in the photo; a web of all related photos; and a view of the same photo without overlay.

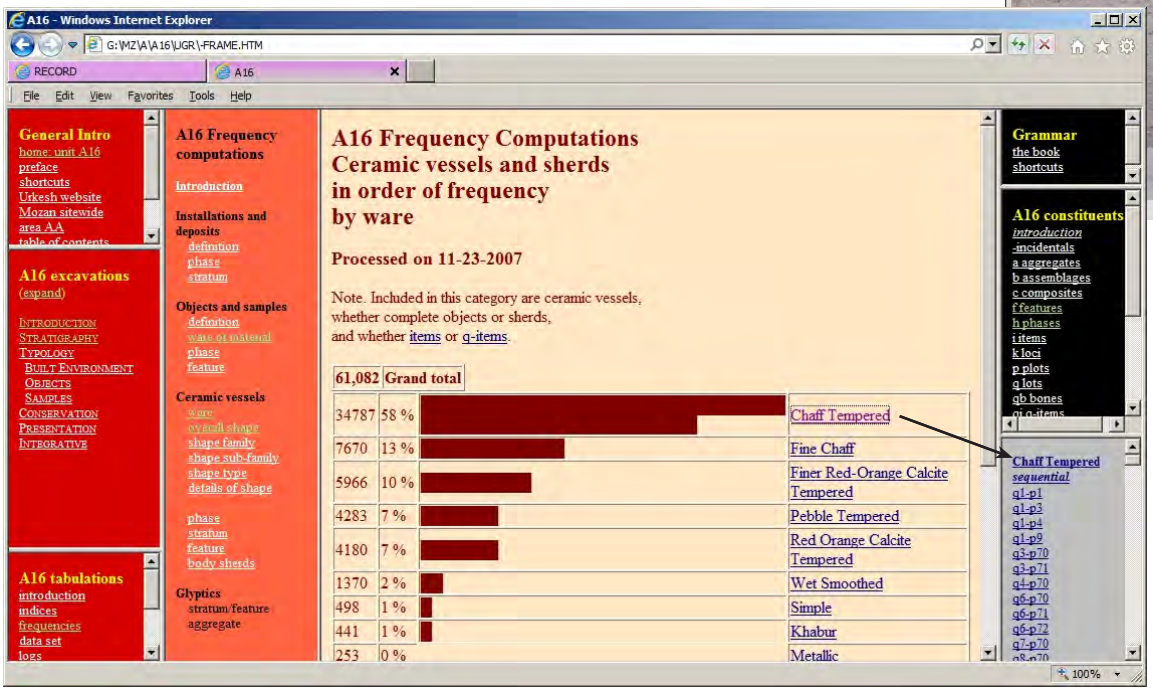


2

The depositional synopsis, which is also generated automatically, describes all the contacts among features in the ground, assigning them to strata and phases.

It is the equivalent of the so-called "Harris matrix," but gives much more information.





3

The analysis of the ceramics includes a study of all the sherds – for a total of more than 60,000 in A16 alone.
The programs process the data and produce a variety of statistical tabulations, where all the totals are linked to each single sherd.

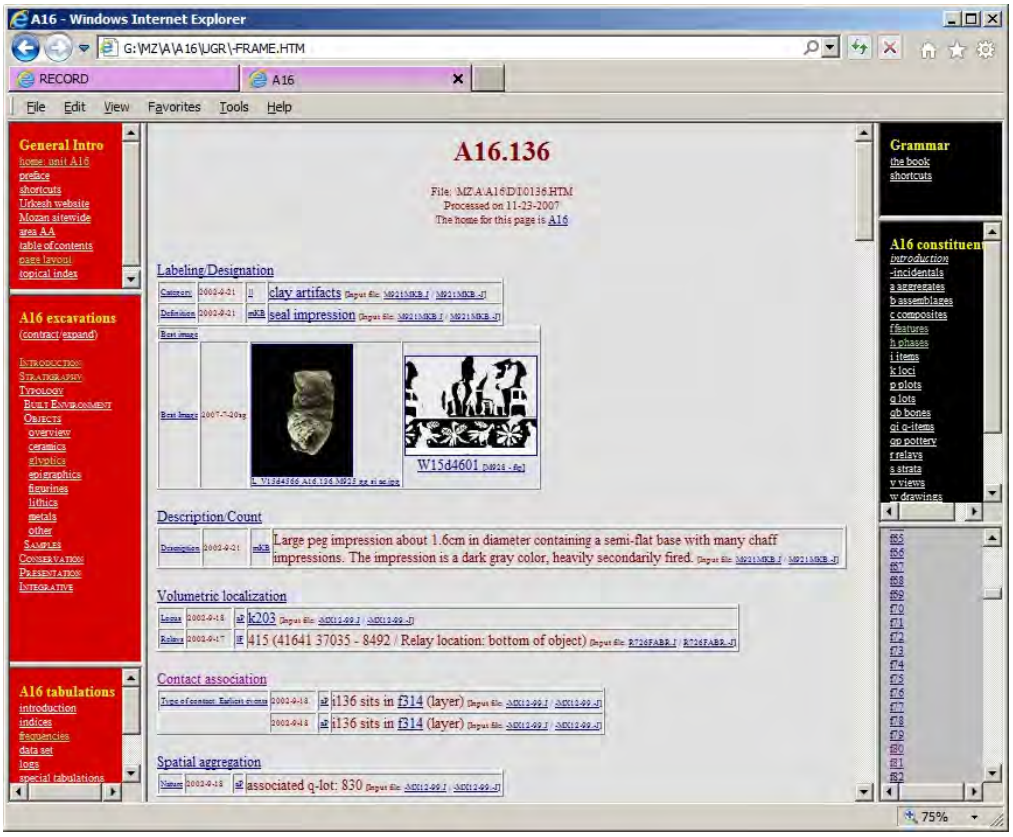
Typology

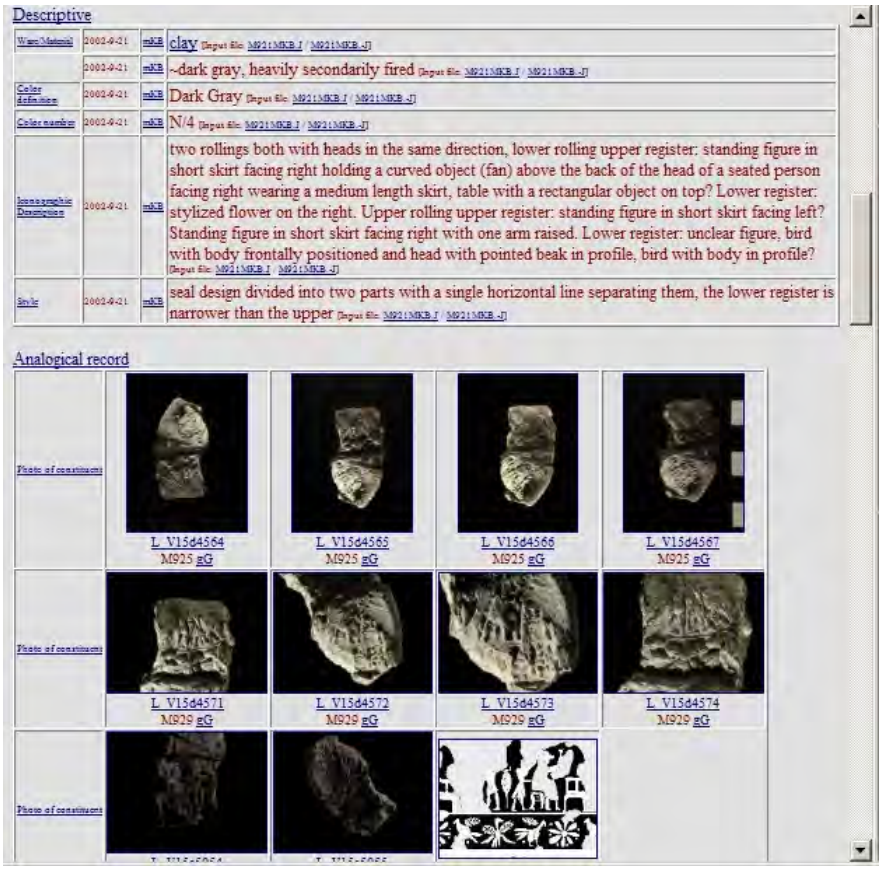
While the first concern of the Urkesh Global Record is with emplacement and stratigraphy, all due attention is given to typological analysis as well.

For this seal impression, an extensive typological analysis is provided after the record is given of the pertinent stratigraphic data. It is based on a special roster of attributes, that develop a full categorization of all glyptic elements, given here in full detail.

A specific advantage of the digital medium is that such details can be added at any time, and they are integrated seamlessly in the overall system.

The significance for the humanities lies in our proposal to keep the iconographic and stylistic analysis of the objects open at all times for a deepening understanding of the items in their individuality and in their relationship to the entire record.





Input and programs

```
.bk A16
.fl L723LR.J
.fd L723LR.J

.ri lR
.rd L723

f 190
A01 f0182
B11 red layer next to wall =f182

f 191
B11 accumulation ontop of stone pavement, red
chunky clay 6-8 cm thick

f 192
B11 stone pavement in k109 found throughout
entire area
```

ASCII input in journal format

L_V14d0501 A9q687.1 L715 gg zc bt .jpg	8/15/2007 9:29 PM	IrfanView JPG File
L_V14d0502 A9q678.1 L715 gg zc bt.jpg	8/15/2007 9:29 PM	IrfanView JPG File
L_V14d0503 A9.98 L716 gg zc bt .jpg	8/15/2007	IrfanView JPG File
L_V14d0504 A9.98 L716 gg zc bt .jpg	8/15/	IrfanView JPG File
L_V14d0505 A9q687.1 L716 gg zc at .jpg	8/15/2	29 PM IrfanView JPG File
L_V14d0506 A9.98 L716 gg zc at .jpg	8/15/2007 9:29 PM	IrfanView JPG File
L_V14d0507 A9.148 VDL722 08002315.jpg	8/15/2007 9:29 PM	IrfanView JPG File
L_V14d0508 A9.148 L722 gg .jpg	8/15/2007 9:29 PM	IrfanView JPG File
L_V14d0509 A9.148 L722 gg.jpg	8/15/2007 9:29 PM	IrfanView JPG File
L_V14d0510 A9.148 L722 gg .jpg	8/15/2007 9:29 PM	IrfanView JPG File
L_V14d0511 A9.137 L722 gg .jpg	8/15/2007 9:29 PM	IrfanView JPG File
L_V14d0512 A9.137 L722 gg .jpg	8/15/2007 9:29 PM	IrfanView JPG File
L_V14d0513 A9.137 L722 gg .jpg	8/15/2007 9:29 PM	IrfanView JPG File

ASCII input in directory format

Area and Object number	df	ds	wm	K90	Lg/J2	Diam (max) w2/J4	Diam (min)w 2/J4	thick th/J7	P 99
J06.0010	ma	Fragment of circular-sectioned copper-alloy shaft, slightly bent and tapering toward pointed end; possibly a needle. The whole surface is oxidated and encrusted with soil	copper-alloy		6.4	0.1 @ max diam shaft	0.05 @ min diam shaft		Cons Room
J06.0010	to	Fragment of copper-alloy metal sheet/blade, rounded-shaped, flat, very thin section (lens sectioned); possible fragment of spatula or spoon; most of the surface is oxidated and encrusted with soil.	copper-alloy	One fragment took for Ch. Analysis S904 (sC)					Cons Room
J06.0014	to	Copper-alloy needle (in the Mz. Typoloy corresponds to needle type 1); circular-sectioned shaft tapering, bent, complete; circular eyelet, made through perforation of the shaft. Most of the surface is oxidated and encrusted wi the diameter wm has been taken from th preserved section.							

ASCII input in spreadsheet format

1 Some samples of primary text input

The programs create first an output in plain ASCII that serves as a data base for our own further processing and for importing into commercial programs (see next page in this Appendix).

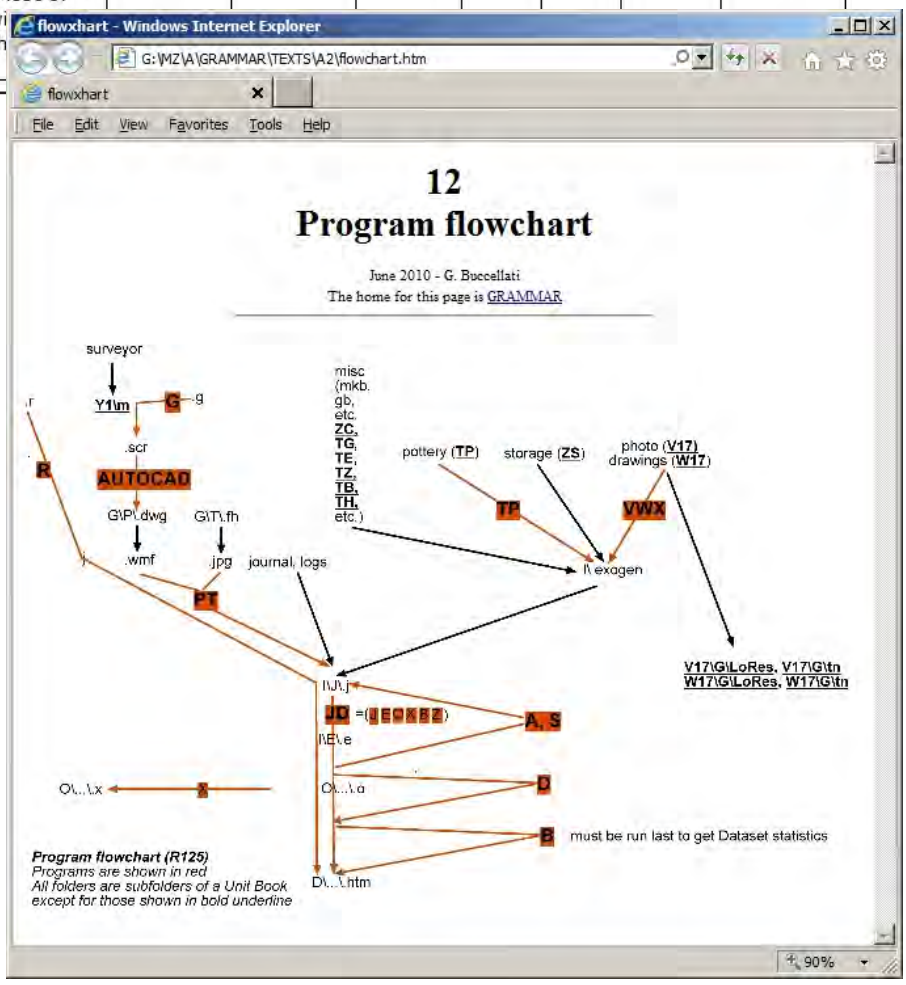
Since all text data are in plain ASCII (graphics are in JPG format), maximum portability is ensured for the data.

.

2 Grammar and programs

The flowchart displays the program suite that has been developed. The programs are DOS based, and one of the goals of the proposed NEH grant is to rewrite them for multi-platform use and distributed as Open Source software

The Flowchart is part of an extensive *Grammar* that is given in the website as a topical digital book within the Urkesh Global Record.

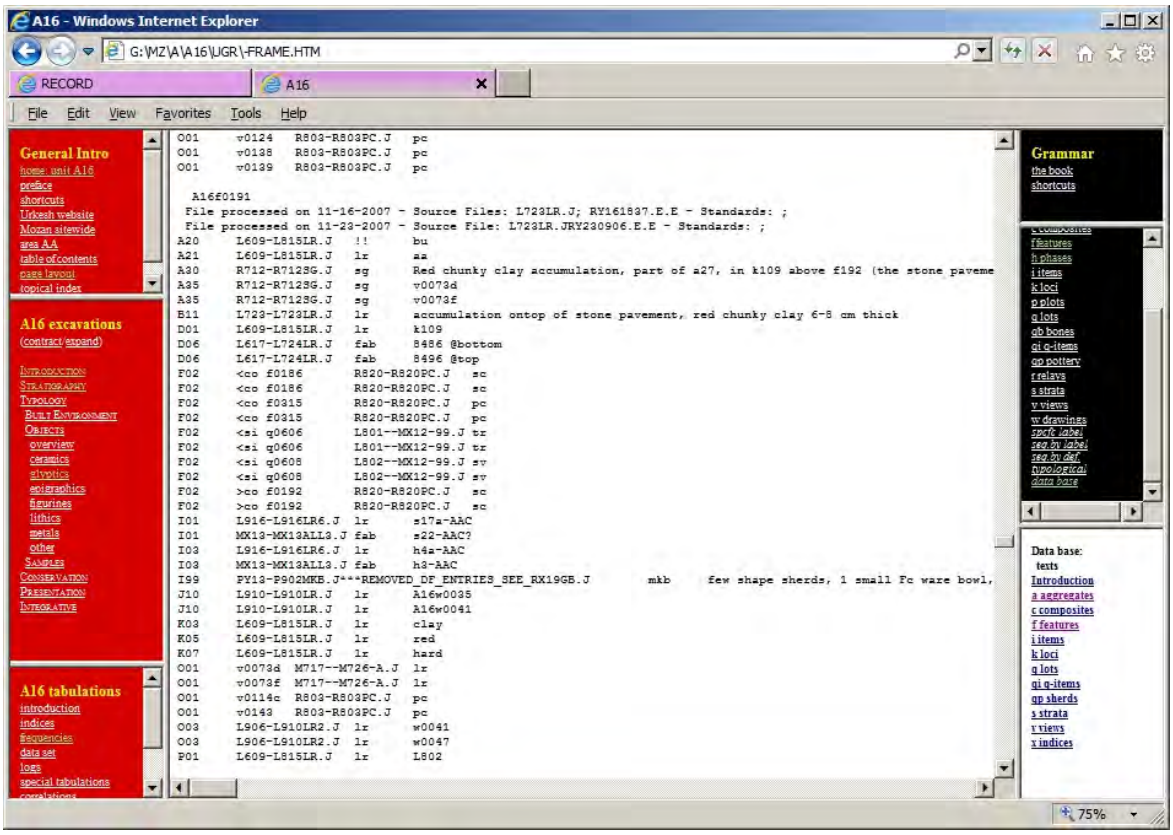


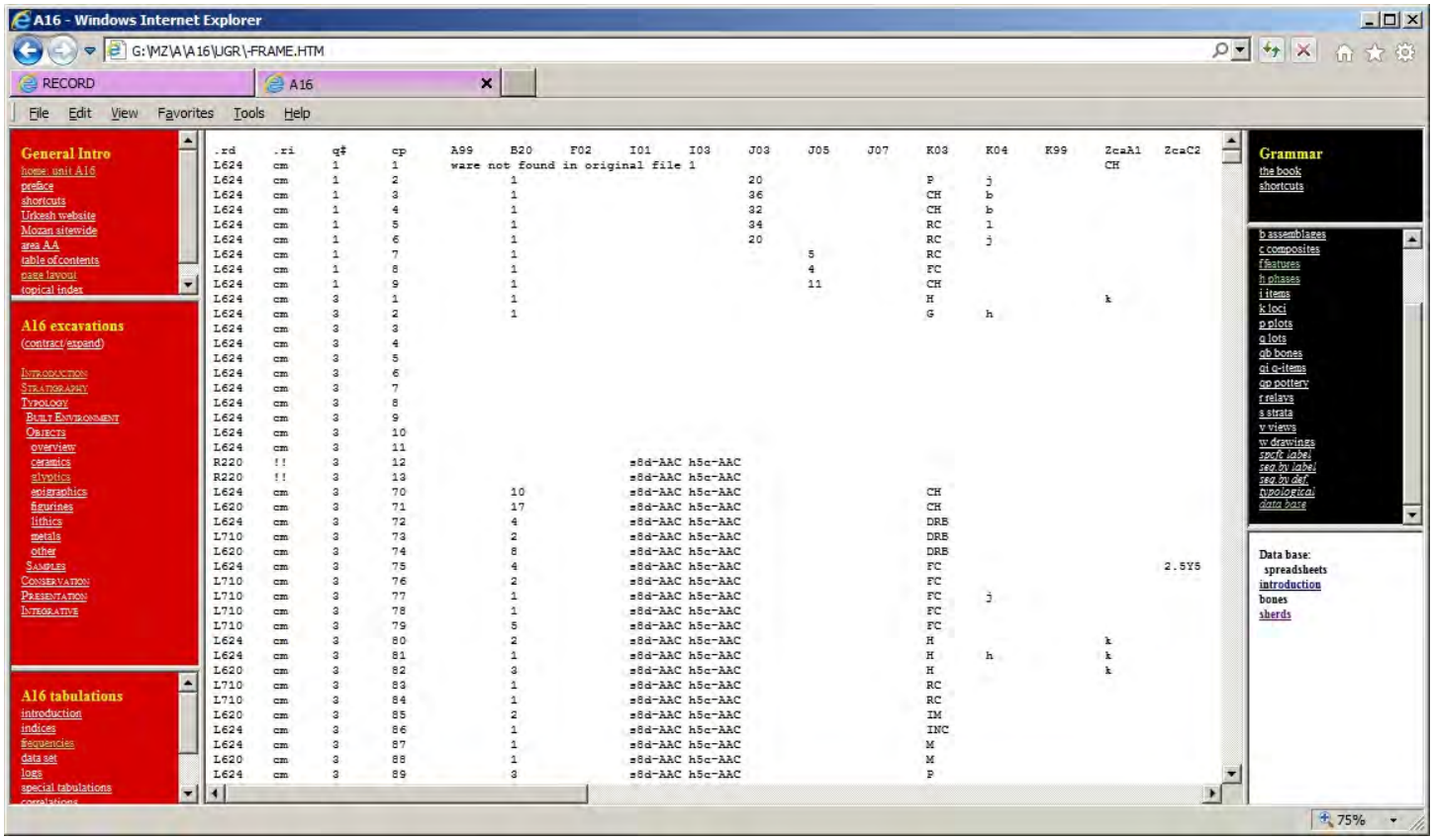
The embedded database

Two main types of ASCII output are made available within the frame of the Urkesh Global Record.

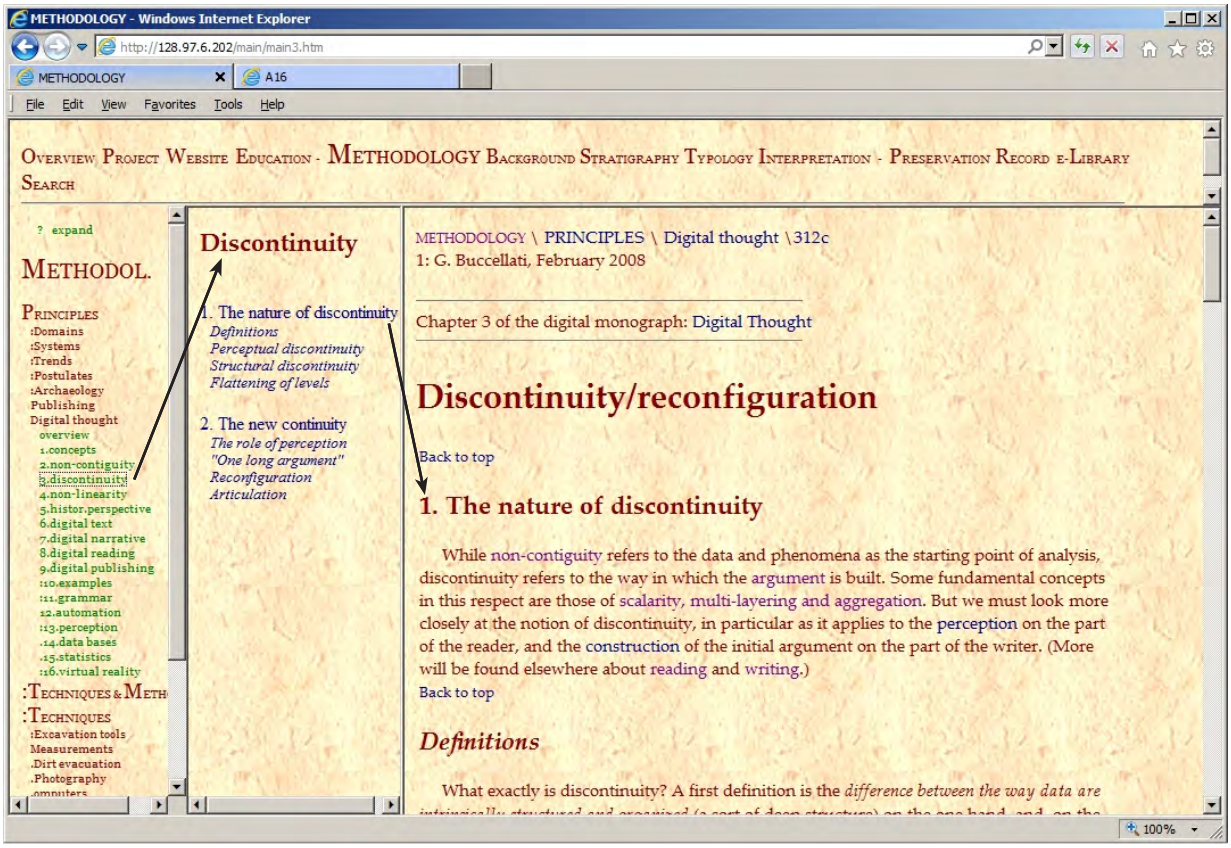
To the right is the ASCII version of the files. The content is the same as in the formatted HTML version, but with no formatting tags.

Below is the spreadsheet version of the data. It can be imported in commercial programs (such as Excel) for further elaboration.

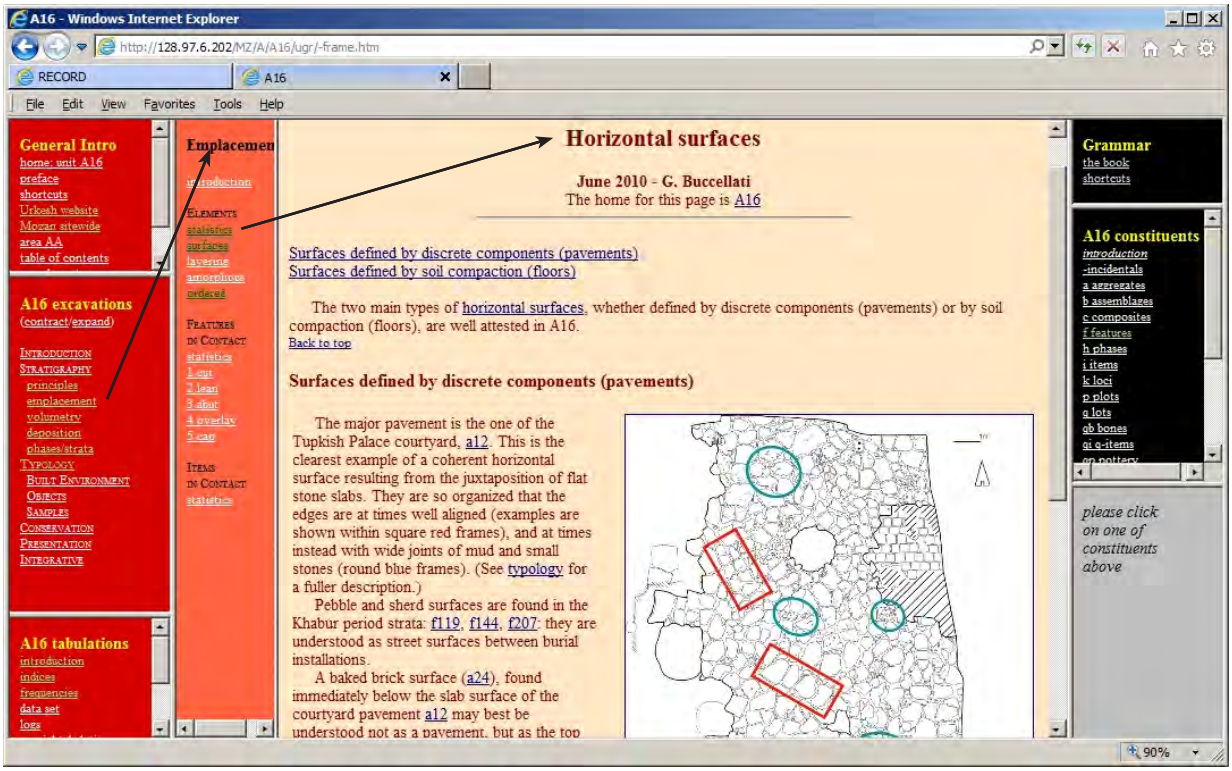




The discursive narrative



In both the website (above) and the Global Record (below), the discursive narrative develops themes along a linear thread (see also above, Appendix, page 1). These pages are not produced automatically, but they adhere to a more explicit digital dimension than electronic files (PDF). This is found in the extensive use of hyperlinks, in the segmentation of the argument, in the detailed lists of topics (often nested).



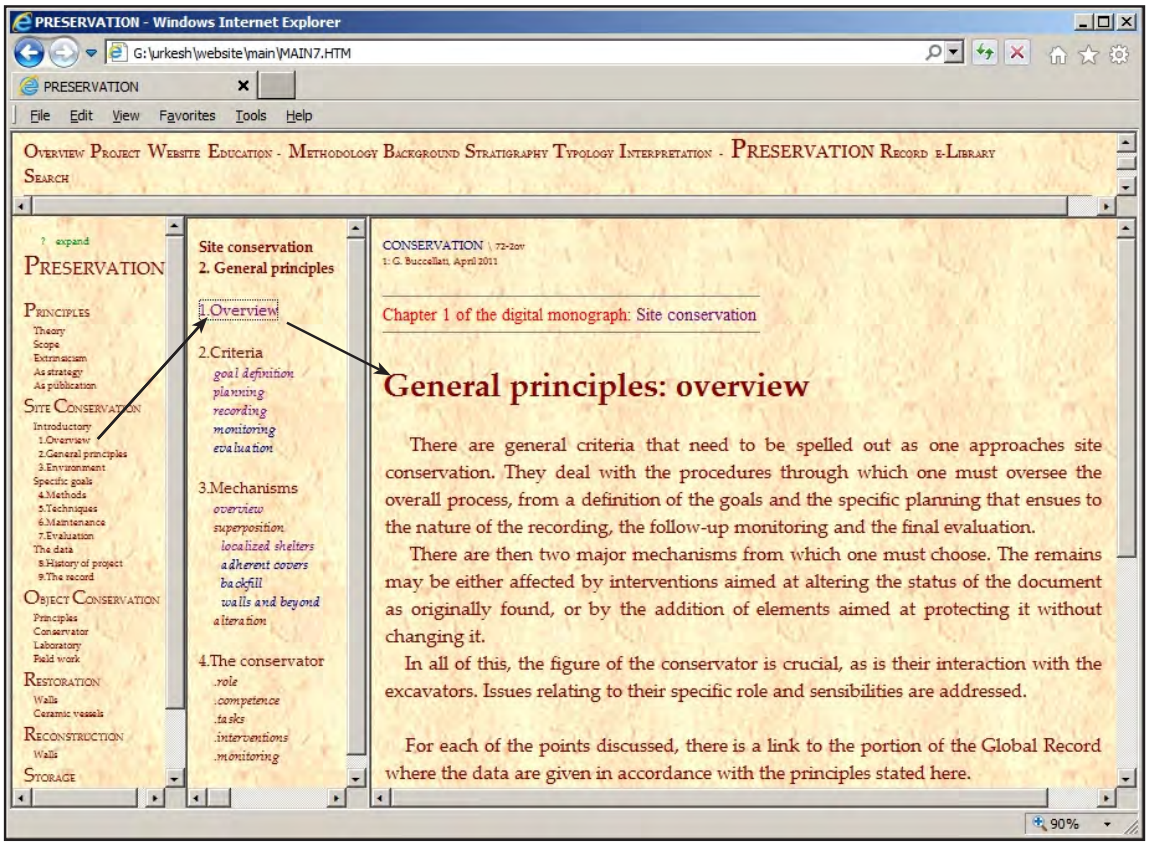
General website: Preservation

1

Organization of a "digital monograph"

The plate illustrates the use of the double vertical bar instead of a pull-down menu: it is intended to facilitate at all times an overview of the structure of the narrative.

It also illustrates the concept of "digital monograph." It is a large section with internal subdivisions that cohere into a longer treatment of a given topic. The first vertical bar gives the contents of the whole, and the second gives the contents of a particular chapter.

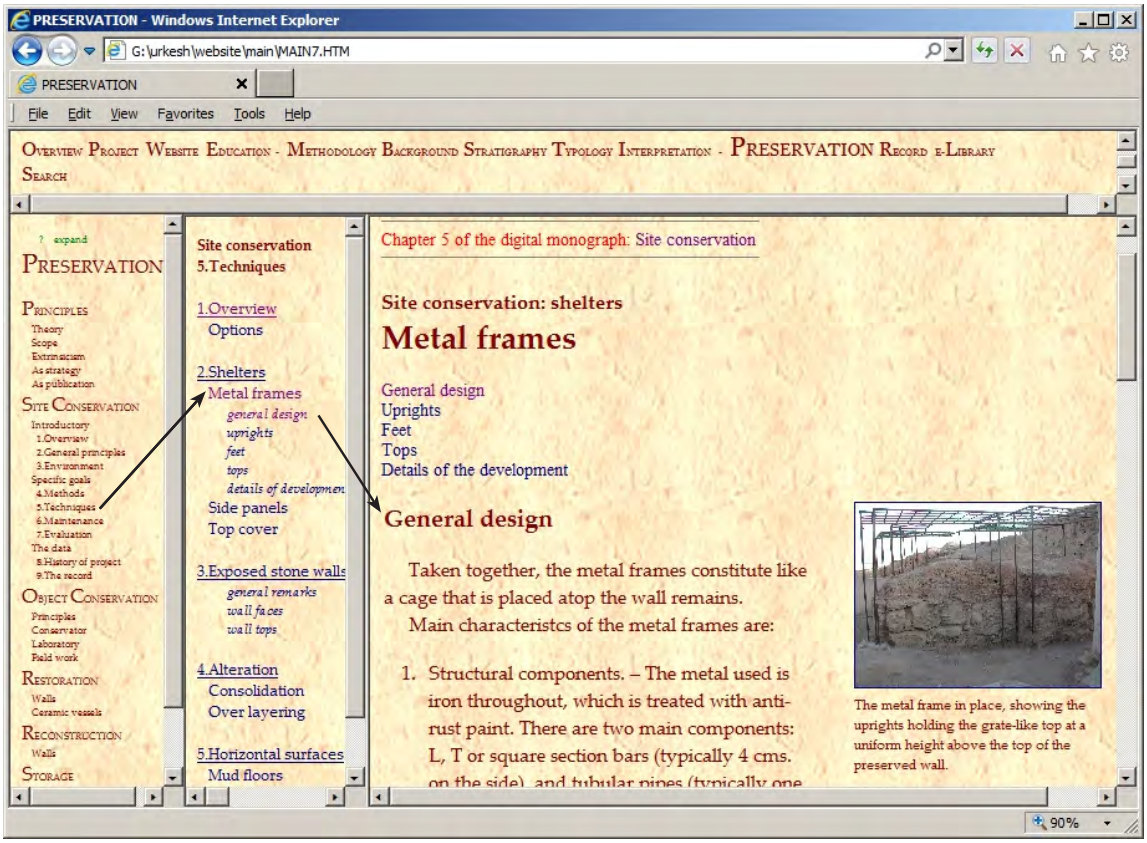


2

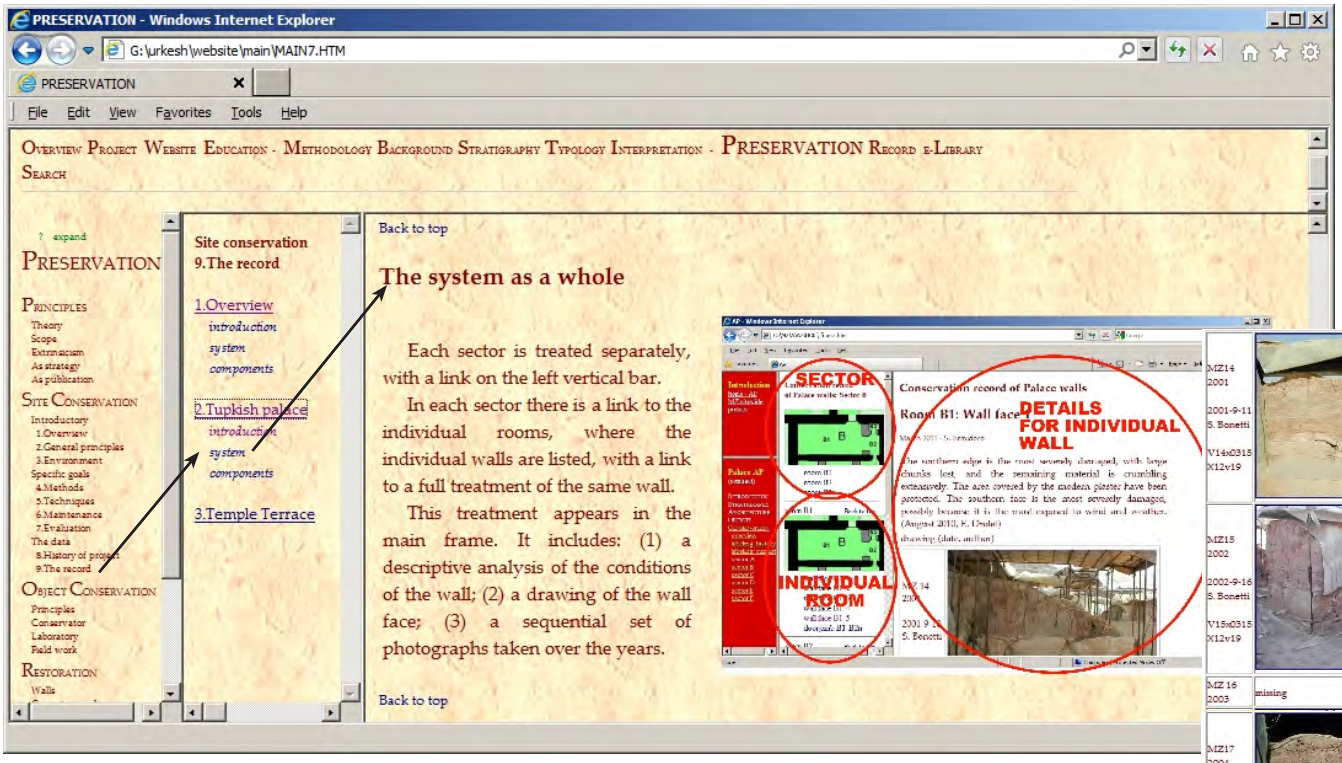
A technical chapter of the digital monograph

The general website discusses topics that pertain to the entire site and are at the same time of general archaeological interest. In this case, the techniques of protection for the walls are described and illustrated.

This chapter contains the full details of construction and installation. It is quite technical in nature, including not only photographs and drawings, but also measurements, costs, and the like.

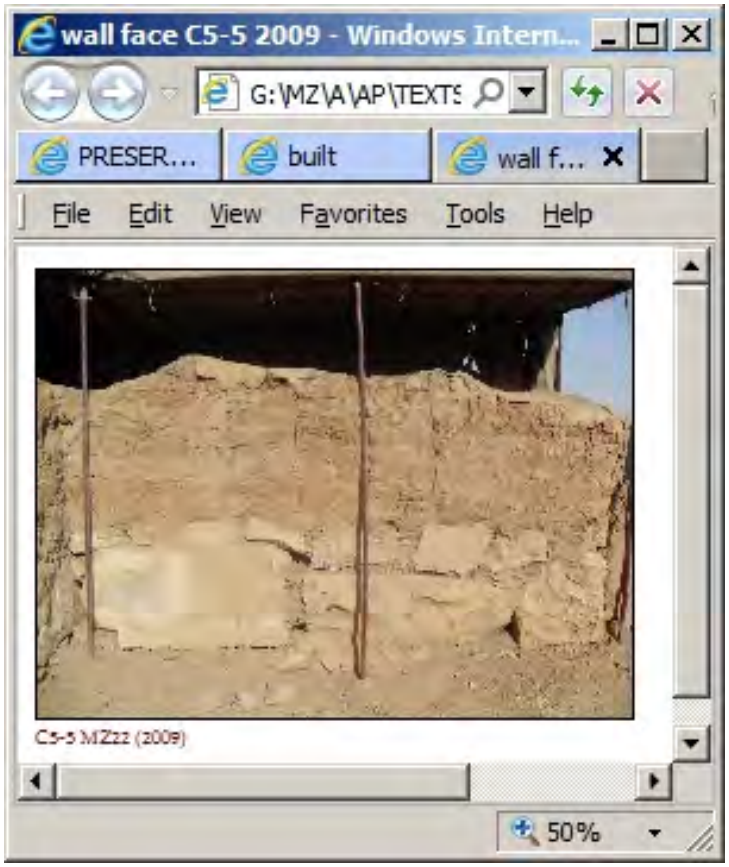


General website to Global Record: Preservation



1 Link to the "Global Record"

The specifics of the individual walls are found within the individual "Digital Books" of the Global Record. The general website gives an explanation of the format and opens a link to the Global Record itself.



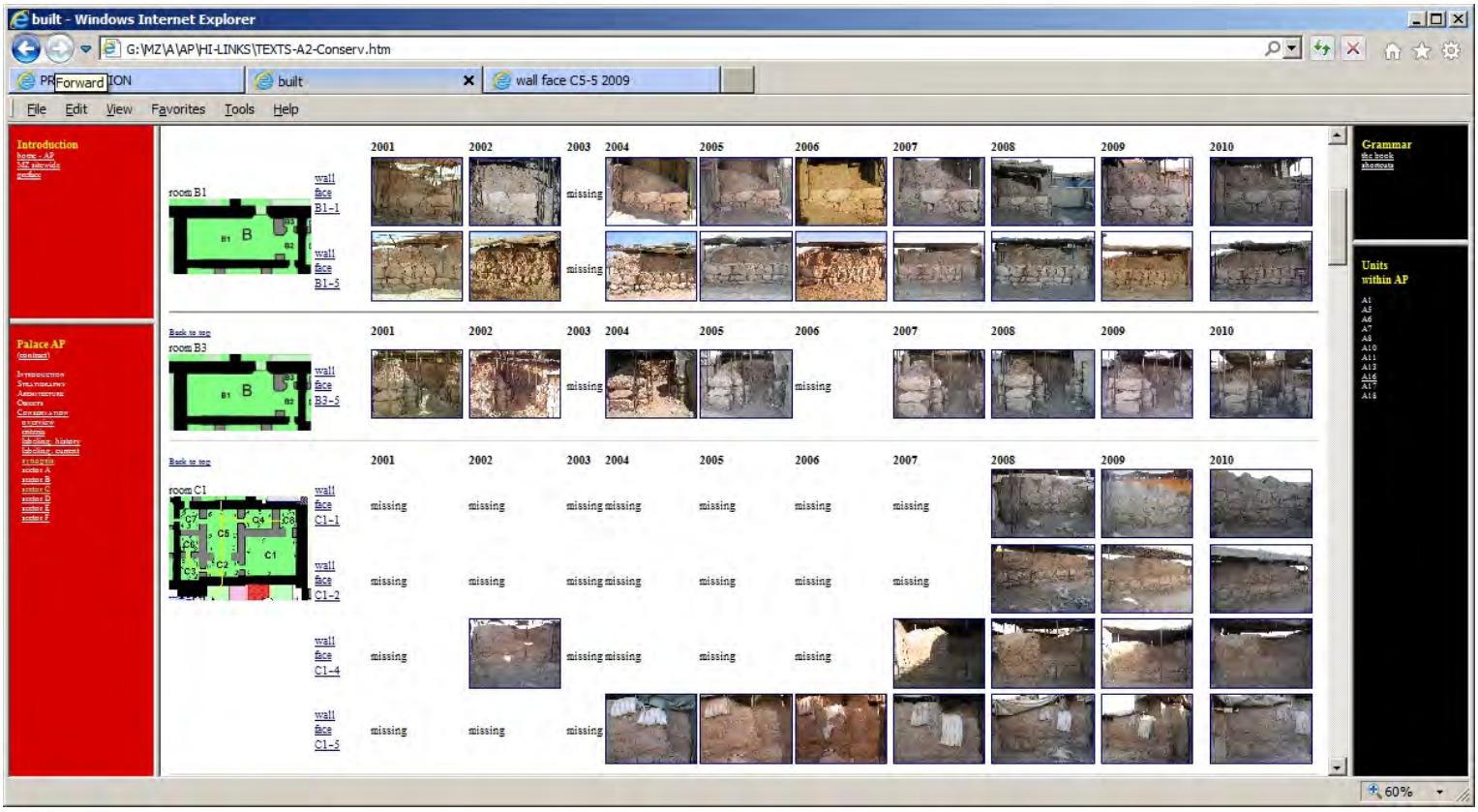
2 Details of one wall

The page relating to a given wall face

Scrolling down one sees the full photographic record for the last ten years

Clicking on any photo one can see it enlarged at will and compare it with other walls.

Preservation and Site Presentation – Significance



1 Synopsis of all photographs for conservation monitoring project of the last ten years (partial view).

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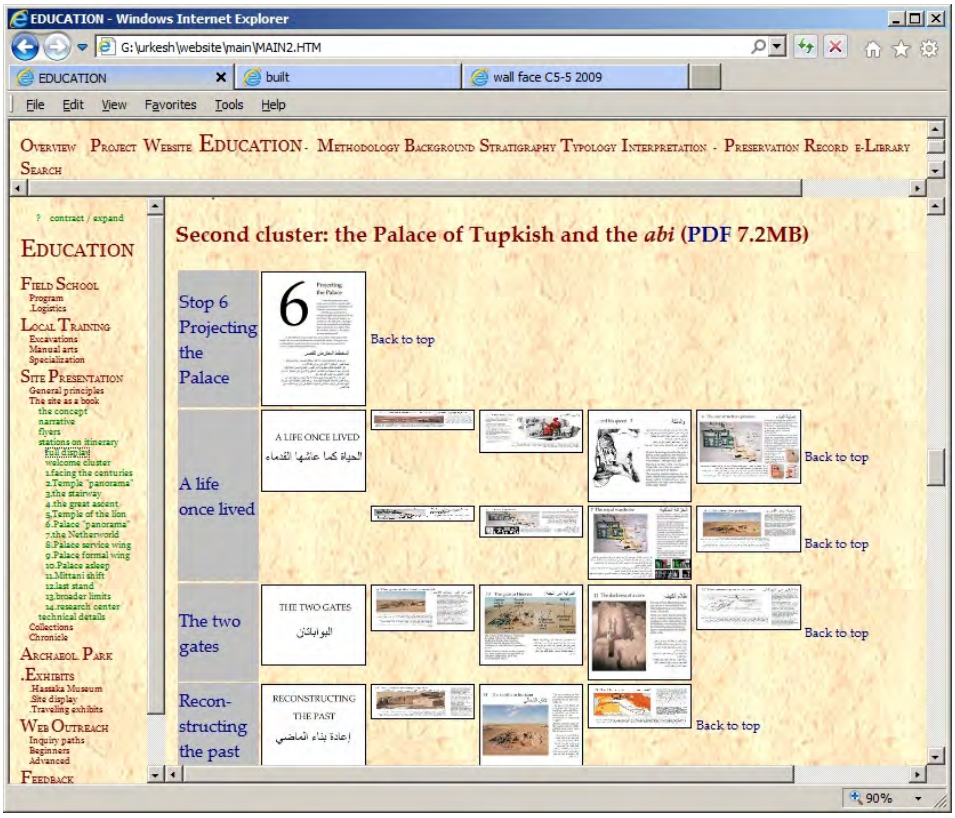

2

Synopsis of all pages placed at the physical site to assist the visitors (partial view).

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Digital significance.
The contrast with a printed version of the data is apparent: no matter how extensive, a paper edition is far from allowing the interaction among data that is possible with a truly digital publication.
The close interaction between website and Global Record, in particular, is only possible online.

Significance for the humanities. It is through conservation and site presentation that a site becomes meaningful to all levels of society, and conveys a sense of the importance of the past and of the correlative need to protect it. While the physical site is of course the primary locus for achieving such goals, the translation onto the digital medium, in the form of an easily accessible website, extends the reach of the effort and demonstrates a system that can easily be replicated.