The Urkesh Ceramics Digital Book

Marilyn Kelly-Buccellati

1. Introduction

Throughout the thirty year history of our work on the Urkesh project the digital dimension has been a fundamental focus of the effort and a formative as well as innovative part of the research design. My contribution to the volume for Lucio Milano will reflect his interest in digital publication, especially the cuneiform texts of Ebla, and his serious interest in archaeology as shown by his participation in the Urkesh excavations and his leadership in the excavations at Tell Beydar.

The digital publication of the Urkesh ceramics was viewed early on as an absolute necessity for the dissemination of such a large volume of material. We wanted, on the one hand, to give as complete a documentation as possible of the vast amount of ceramics found during every excavation season, and, on the other, to provide easy access to this material in its most complete form; in other words the total ceramic corpus needed to be included in the digital database. It is impossible for Near Eastern excavations to publish on paper every sherd found as the numbers are enormous, but in a digital format this is not only possible but, I think, necessary. From the initiation of the project it was also seen that the digital publication, in order to be effective, could obviously not be a "data dump" but rather had to be articulated (tagged) so that it might effectively provide a complete description of the individual sherds and vessels. Also, these sherds and vessels had to be integrated on an individual basis in their specific stratigraphic contexts.

The Urkesh browser edition accomplishes this aim. It has resulted in a separate digital book, which I have authored within the Urkesh website.[1] The focus of the present article is to explain the framework of this Urkesh digital book on ceramics showing how the data are structured and organized.[2]

As a preliminary I should explain what is the nature of the total corpus in the Urkesh excavations. All sherds from the excavations are analyzed from every context with one exception: sherds from the topsoil contexts. These are checked for distinctive typological characteristics of ware, shape or decoration not found in other, better stratified, contexts; only these distinctive sherds from topsoil contexts are analyzed; for the non-distinct topsoil sherds the totals for each sherd lot are tallied and the sherds are discarded. The sherds from all other stratigraphic contexts are collected in small groups, called q-lots, so that all the sherds from

[1] It is available at www.urkesh.org > RECORD > TOPICAL > CERAMICS.

[2] For an early description of the methodology used for the analysis cf. Buccellati – Kelly-Buccellati 2000, especially 167–183.

the lot fit into a single sherd bag. This means that normally the sherds come from a tightly controlled excavation context, that is from a 1m × 1m square, which is not more than 10 cm deep and is triangulated by the excavators. In these q-lots all body and shape sherds are analyzed: as shown in Fig. 1,[3] the figures are very high. The body sherds from all stratified contexts are analyzed according to ware types, shape types if this is discernible, and decoration types. The distinctive body sherds are retained but for the most part the body sherds are discarded after being recorded. All the shape types and distinctive decorated sherds from all stratified contexts are retained after analysis and stored in a large on-site storeroom where they are arranged on shelves by excavation unit and stratigraphic context (*i.e.* by features). In this way the primary ceramic data are available for additional future analysis.

2. Questions of classification

Upstream of any ceramics classification system and basic to any classification in general is the assumption that the original production choices are structured. That is, the choices made by the producer of the artifact, in this case the potter, are part of a complex of relationships, the linkages of which are perceived by the potter.[4] In order to pursue the craft, the potter had to acquire constellations of concepts attained within the repertoire of day-to-day changes and experimentation strategies. These concepts are set within a framework, that is a structure; if we can detect this structure then clearly the choices are not random or accidental. The solution to this problem, proposed by G. Buccellati, is that the basic ancient structure can be recognized through three fundamental "triggers":[5] tensionality, inclusivity, and referentiality. Tensionality refers to the interconnectedness of the various factors that contribute to the final product. Here, as an example of tensional interconnections, the interrelatedness of temper and plasticity, fundamental for ceramic technology, were clearly perceived by the potter. Inclusivity encompasses a view of the whole when looked at through the integration of the tensional factors. Within this some, but not most, of the factors can be co-present even if they are not part of the structure. Referentiality refers to the fact that the whole relates to something outside in an organic way. Within a structured framework it is clear that the successful intuition and experience of the ancient potters, even in early periods when ceramics were handmade, led to similar methods being used by most potters. There are exceptions to this rule,

[3] The totals are slightly different from those published in Buccellati – Kelly-Buccellati 2008, due to subsequent revisions.

[4] I have benefited greatly from participating in the Hermeneutics and Archaeology seminar conducted by Giorgio Buccellati at the Catholic University, Milan in 2014–2015. Here he presented his ideas on theory in archaeology which are part of his volume "A Critical Theory of Archaeology" to be published by Cambridge University Press (Buccellati forthcoming).

[5] Buccellati forthcoming.

both caused by the fact that some ceramic vessels were imported as containers but also as luxury items in themselves; these two classes of vessels are few in our archaeological record and in most cases easily identifiable. Also identifiable are the examples of ceramics made by non-experienced potters. As an example of this we have in some Khabur period graves vessels made with non-traditional clays that have non-traditional shapes and are fired in a different way.

Classification is the act of grouping in discrete sets. A classification system relies on the triple association of culture, actions and choices of the artisan and properties of the artifacts. Types, within a classification system, can be defined as the non-random frequency of attribute combinations, in other words, the clustered patterning of attributes. These attributes can be arrived at using both intuition and replicability.[6] Each has advantages. Intuition can be more sensitive to subtle patterning leading to an easier assessment of varying relationships. With an intuitive approach differences can be more easily assessed on both qualitative and quantitative levels and more easily modified through further familiarity with the objects. This last point is of extreme importance for the archaeologist as very often a classification system must be initially built with a limited data set. Replicability has other advantages. Using this as a basis, data differences which occur with most of the objects can be weighed more easily. Intuition is no less valuable than mathematics as a basis for analysis, but a combination of both is the best approach. Optimal procedures are based on the initial classification based on intuition and then the assessment of this classification through quantitative methods.

3. Initial problems in setting up a system

If the full ceramic analysis is carried out during the excavation process then at the earliest stage of setting up the classification system the archaeologist has only a sample of the data set to work with. If the full analysis stage is subsequent to the excavation process then this is not a problem because the entire universe (data set) is available for analysis, in its totality, from the beginning of this stage. But in a methodology where full analysis comes with excavation, then intuitive categories and attributes are a logical basis on which the system can be established. Initially the archaeologist doesn't know which variables are sensitive to be included in any grouping. This means that as new material is analyzed, divergences as well as convergences occur and then the problem is how to assess the divergences. To give an example: in establishing the ware categories of the Urkesh ceramics, I initially set up the description and then when new contexts were being excavated I saw that some of the ware types changed gradually through time but others had changed in a more nuanced fashion. To emphasize both the continuities as well as the divergences, I set up

[6] Read 2007.

sub-categories that took into account the divergences but kept the continuities. As excavations continued I saw with new material that divergences increased through time; in other words my initial attributes in the descriptions of the wares were gradually becoming less important. At this point I started to make sub-categories based on the attributes found in the divergences. This kept the system coherent while allowing for the proper weight being given to what had previously been seen as divergences.

Therefore the methodology used in Urkesh reflects a combination of strategies. A set of attributes was established at a point when the data from these attributes seemed clear with relatively few exceptions. The additions and exceptions were added in the notes section of the analysis sheets. When the additions and or exceptions became numerous then a new set of attributes were incorporated into a new type description. This is what I called "changes through time" because these new attributes were chronologically based in the Urkesh data set. This is only one example of the open-ended categorization that characterizes the Urkesh system of ceramic analysis, and indeed is a fundamental part of the entire system of Urkesh analysis. Open-ended in our case means that categories are changeable and subject to change or subdivision depending on the need, as shown in the example above.

4. Overall structure of the Urkesh Ceramics Digital Book

So far I have been discussing the principles and methods of setting up a classification system in the field. The publication of the Urkesh/Mozan data is embedded in the much larger framework of the Urkesh Global Record which includes all data excavated from all units presented in overarching threads which hold the details together while allowing for immediate access to the most minute data. The Ceramics book is constructed with the same theoretical background and methodology and focuses on the periods excavated at the site, from the Late Chalcolithic (ca. 3500 BC) through the Middle Assyrian period (ca. 1250 BC).

Preface

This section of the Ceramics book introduces the format and organization of the book so that the digital approach of the book is clear from the excavation of the ceramics through analysis and the organization of the data in the digital record.

Authorship

Under authorship, the contributions of all the members of the team working on the analysis and the digital publication are described. The main assistant in the field for the analysis of the wares and shapes is Hammade Hamza; Ibrahim Khellu managed the work flow and helped with the analysis; Kamiran al-Beg created most of the vector drawings from the original pencil and managed the excel files. From 1992–2010 Hammade Hamza first was trained as a ceramics

analyst and then with proficiency became the principal trainer of new student assistants. In 2011, with the onset of the civil war in Syria, we were able to move many of the unanalyzed sherds from our on-site storage so that he has been able to continue to analyze the pottery, if without the continuous interchange that characterized the collaboration during the analysis that existed before.

Layout

The Ceramics Digital Book follows the other digital books in the Urkesh website in that the book is presented on the website page in three sections: the left side is the synthetic side, the center displays the data, and the right relates to the analytical presentation (Fig. 2). In the Ceramics Digital Book the left hand sidebar includes two main sections, Ceramic Typology gives a general introduction to the book, an explanation of authorship, a detailed explanation of the page layout, and the history of the ceramics project in Urkesh from 1984 to the present. The second major section on Categorization includes the explanation of the principles of the system, and the roster and lexicon. Time assignment methods and attributes of ware, shape, decoration, color, etc. are included here.

The right sidebar contains all analyzed ceramics arranged by horizon within catalogs of shapes from the Late Chalcolithic period through the Middle Assyrian period, from all areas of the site. The second major section contains ceramic shapes organized by strata from all the excavated areas of the site. The third section on the right hand sidebar contains a description of the ware types and their variations through time.

5. The categorization system

In the Urkesh Global Record recording system the term "roster" is used to refer to a set of variables (*e.g.*, the variable "color"), and the term "lexicon" for the multiple variants allowed for that variable (*e.g.*, gray or red with the reference to the Munsell color system). The main roster and lexicon refer to the overall stratigraphic and typological analysis, and they are supplemented by special rosters and lexica for specific typological categories.

The special roster for ceramics is embedded in a system of special rosters aimed at describing specific categories of material, so for instance there is a separate special roster for seal impressions which includes the description of the different types of sealings as well as the iconography. All special rosters give a high degree of detail, which, in the case of ceramics include descriptions of color, decoration, measurement, function, shape and ware. In the lexicon all of these roster categories have individual codes to describe the types of, for instance, ceramic wares, with codes for the individual wares, the main temper, additional tempers, surface treatment, fracture type, firing, etc. (Fig. 3). In this

case Ellery Frahm conducted in-depth research through an electron micro-probe analysis of the various temper types (Fig. 4).[7]

Shape analysis of the ceramics from the excavation is organized through site-wide horizon catalogs which are divided into the various chronological periods excavated dating from the Late Chalcolithic period, the earliest excavated period, and ending with a catalog for the Middle Assyrian period, after which the site was abandoned (Fig. 5). Depending on the excavated stratigraphy, some catalogs contain more shapes, and examples of shape variation within a single type, than others. To give an example, the Mittani catalog contains 414 shapes while the Late Chalcolithic catalog contains 63; the discrepancy in numbers reflects the much larger number of Mittani excavation units and the fact that Mittani ceramics have much more articulated forms. Within the horizon the shapes are divided into the basic shapes of jars, bowls (Fig. 6), cups, etc. and sub-divided into families, for example necked jars, sub-families, for example, necked jars with flaring necks and finally into types which have individual numbers (Fig. 7). In addition to these basic catalogs ceramic shapes are organized by phases, strata, individual context and shape in another section of the Ceramics book (Fig. 8) which is also site-wide and from all periods excavated at the site. This organization is in addition to the statistics from the analysis of all the sherds in each context, thereby giving the complete description of the ceramics from the context.

The individual excavation books contain the analysis of the stratigraphy and typology of all time periods excavated in that unit (Figg. 9, 10). By clicking on the frequencies link a graph with the basic shapes found in the feature appears (Fig. 11). By following the links in the individual q-lots on the J1f224 page the records of the analysis of the individual sherds can be found (Fig. 12). As this example shows, by following the links in the individual digital books it is possible to go from a description of the stratigraphy as well as the description of objects and ceramics found there including all the sherds down to the description of each single sherd.

6. Utilization

The Ceramics Digital Book can be consulted on a basic level by reading the introductions to the book and to the individual sections. This will give an overall impression of the type of ceramics excavated from all the periods at the site. A look at the catalogs by horizon will give a general view of the shapes found for any one period and if the ware descriptions are consulted, then a more in-depth overview of the ceramics from that time period will result. If the researcher is interested in the connection of the stratigraphic context with types, this is possible through the links provided in the context pages or the links in the

[7] Frahm – Nikolaidou – Kelly-Buccellati 2008.

Ceramic Book in the phases pages. In either case the links will lead from catalog pages all the way down through the linked nodes to the individual sherd. This total accessibility of all the data through a structured series of intersections makes the Urkesh Global Record a powerful database that is transparent and relatively easy to use.

7. Conclusion

In a time of scholarly interest in large data sets, scalar models of the past are becoming more important in archaeology. In this sense the Urkesh Global Record has a number of advantages. It was started a number of years ago when the Urkesh excavations began and has been in continuous development since that beginning in 1984. Based on computer programs written by Giorgio Buccellati, the data were added by the excavation team as the excavation was in the field so that it has the distinct advantage that the excavators controlled the data input and could revise it as needed or new interpretations were put forth, all with tags identifying whose work it was. This control of the input via computer programs written by the archaeologist for archaeological data means that the search through the inventories, be they stratigraphic or typological or a combination of both, are integrated at a minute level. The integration of the totality of the data recovered in the excavation including the stratigraphy and the typology means that the digital dimension operates at the very moment of excavation. This has the advantage that the structured categorization of the data by means of a grammar of the archaeological record is immediate and can be utilized in the field. In the case of the ceramics, the very large number of ceramics found every season are analyzed through the structured grammatical categories so that they can generate new questions and insights through a finely detailed distributional analysis. The system, while being open-ended in that at any point new and different data can be added, in its overall concept integrates all its single parts into a unified whole that generates a network of correlations.

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Figures

Excavation unit	Body sherds	Shape sherds	Total sherds analyzed
A9	9,258	5,838	15,096
A14	36,241	6,119	42,360
A15	54,023	10,720	64,743
A16	51,601	8,799	60,400
A18	21,733	4,860	26,593
A20	3,226	656	3,882
J1	37,007	8,323	45,330
J2	28,301	5,512	33,813
J3	9,102	1,172	10,274
J5	13,997	3,665	17,662
All units	**264,489**	**55,664**	**320,153**

Fig. 1. Totals for analyzed sherds from selected palace and temple terrace excavation units

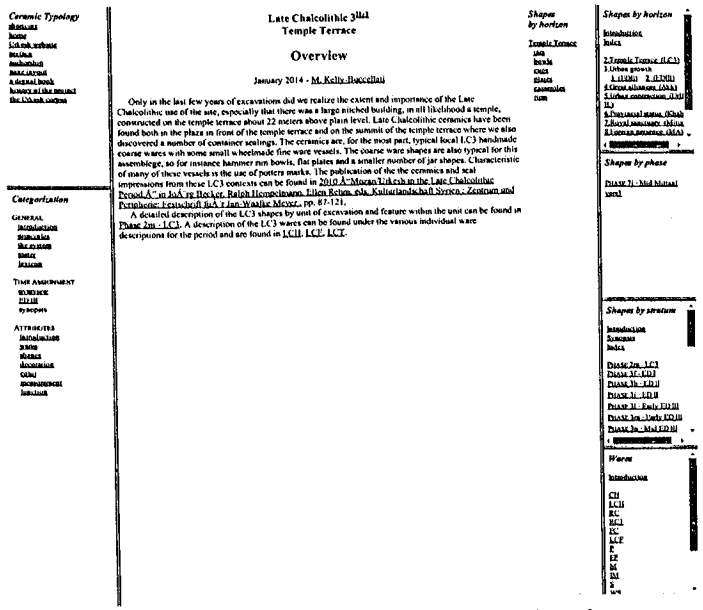

Fig. 2. Page layout of the Ceramics Digital Book

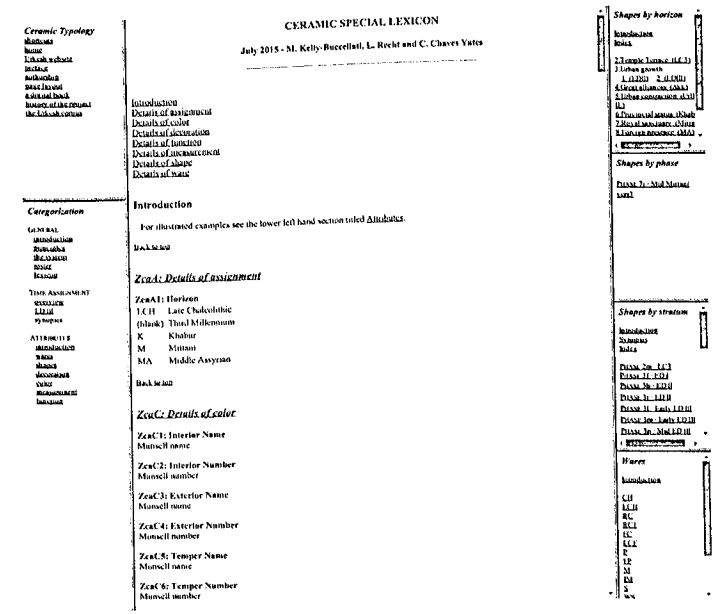

Fig. 3. Ceramic special lexicon page

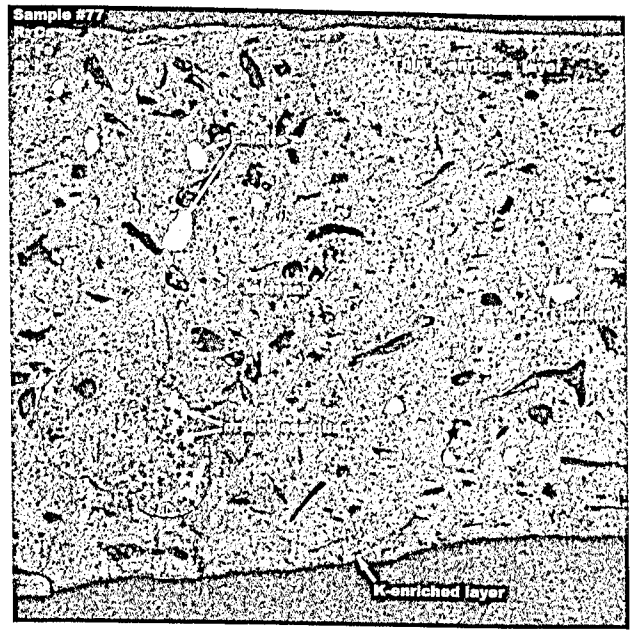

Fig. 4. Example of an X-Ray Element map of an Urkesh ware type

Horizon	Bowls	Jars	Pots	Cups	Other	Total
Late Chalcolithic	12	12	0	2	7	33
Early Dynastic II	5	5	0	2	3	15
Early Dynastic III	27	36	3	5	13	84
Akkadian	57	40	7	10	59	173
Ur III / Isin-Larsa	28	47	4	3	17	99
Khabur	20	13	5	1	16	55
Mittani	75	51	5	8	57	196
Middle Assyrian	20	7	0	2	23	52
Totals	244	211	24	33	195	707

Fig. 5. Total of basic shapes by horizon

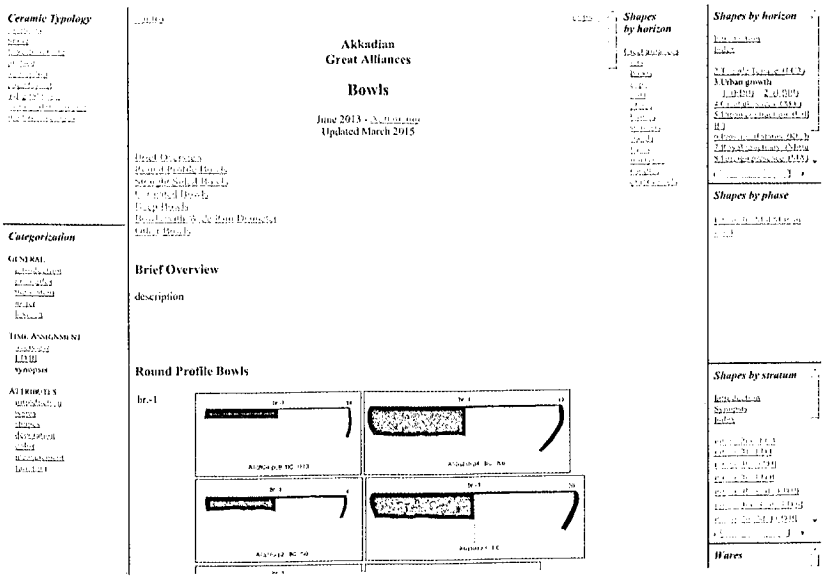

Fig. 6. Bowls from the Akkadian horizon page

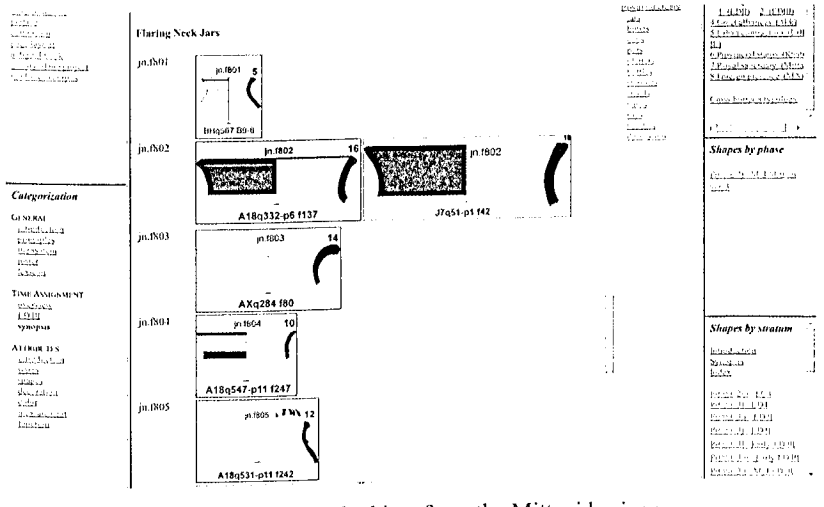

Fig. 7. Flaring necked jars from the Mittani horizon

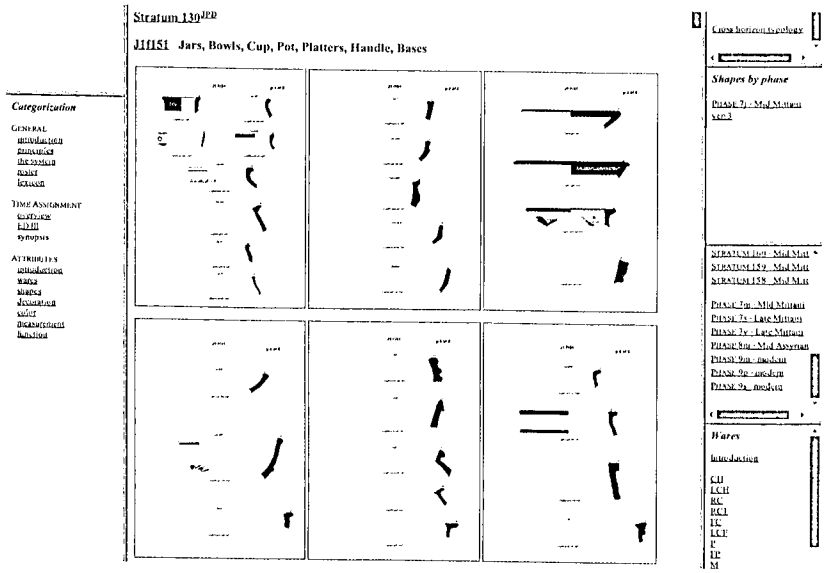

Fig. 8. Vessel shapes from one stratum

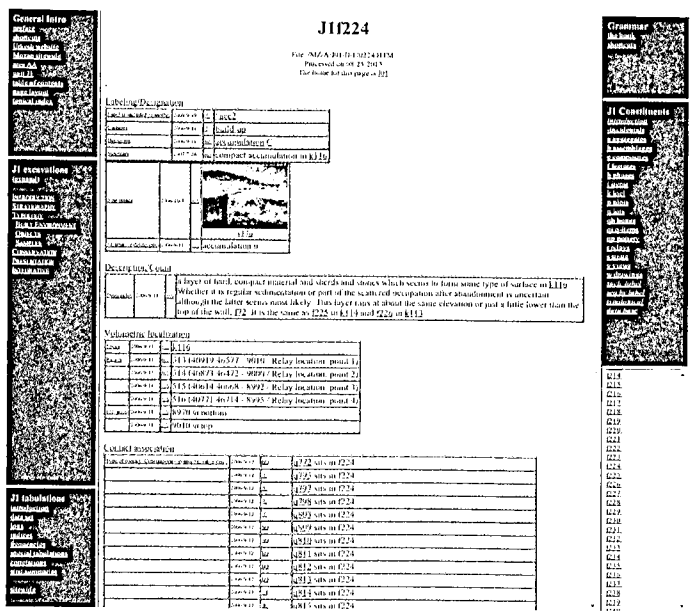

Fig. 9. Upper portion of J1 feature 224 page

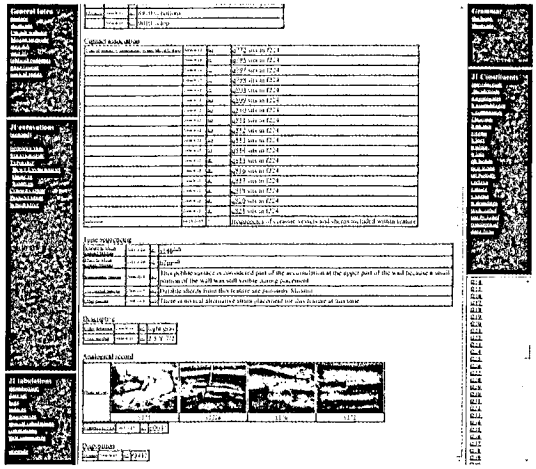

Fig. 10. Lower portion of J1 feature 224 page

f224		
1741	total ceramic vessels and sherds for f224	
1616	93%	total body sherds for f224
125	7%	total diagnostic shapes for f224

62	4%		bowls
36	2%		jars
23	1%		platters
3	0%		cups
1	0%		pot

Fig. 11. Frequencies of basic shapes in one feature, J1 feature 224

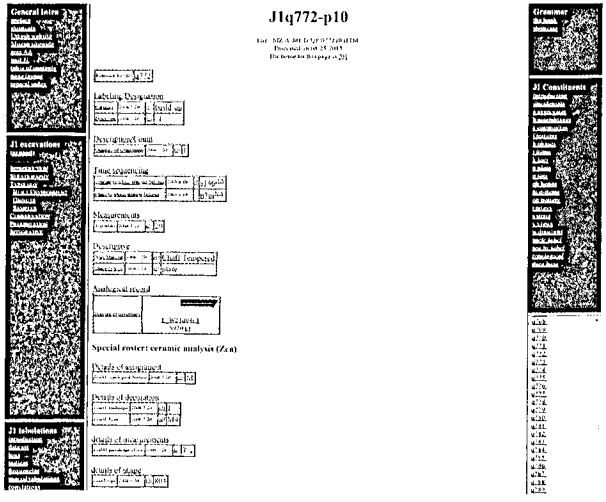

Fig. 12. Individual sherd page for J1q772-p10

Alter Orient und Altes Testament

Veröffentlichungen zur Kultur und Geschichte des Alten Orients
und des Alten Testaments

Band 436

Ugarit Verlag

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edited by
Paola Corò, Elena Devecchi, Nicla De Zorzi,
and Massimo Maiocchi
with the collaboration of Stefania Ermidoro
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2016
Ugarit-Verlag
Münster

Paola Corò, Elena Devecchi, Nicla De Zorzi, and Massimo Maiocchi (eds.)
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Alter Orient und Altes Testament Band 436

Printed in Germany

ISBN 978-3-86835-197-2

ISSN 0931-4296

Printed on acid-free paper

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