

A Browser Edition of the Royal Palace of Urkesh: Principles and Presuppositions

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Having proceeded in the time honored fashion of preliminary reports, the publication of the Royal Palace of Urkesh is now entering a new phase, which does not, however, consist of final reports. We are publishing instead a browser edition. While meeting in several respects the needs of a final report, such an edition goes its own separate way on a number of different points. Here I would like to explain the rationale for my choices, and what I perceive to be the main benefits. In describing the principles and presuppositions behind this novel type of publication, I will present a sort of theoretical introduction to the browser edition of the palace, which can easily be viewed on the urkesh.org website as well as on published compact disks.

At the dawn of the computer age, during the International Congress on Mari held in 1978 in Der ez-Zor, Marilyn and I had the privilege to host the participants for a lunch in Ashara, on which occasion we had on display the first results of our computer work based on data from Terqa. That so much time should have passed before our effort could come to a full fruition is, I would like to think, a measure of the commitment that went into it. Jean-Claude Margueron, who was present on that occasion, has written eloquently about “la progressive maîtrise du milieu” (in his insightful work on “The Mesopotamians”): thus I would like to take comfort in his stress on progression when looking back over the quarter century that has since intervened! The underlying theme of his writing is that technologies afford ever greater means of control, and that therein lies the gauge and measure of how effective these technologies really are. Following his lead, I will try to assess the impact of electronic analysis on our field by questioning the degree to which they can afford us a higher degree of real “maîtrise” over our data. That we should do so by using as a concrete example the Royal Palace of Urkesh is also meant to serve as a tribute to the great master who has so brilliantly brought to life the Mesopotamian palace as a true organism, newly disclosed to our perception in its full dimensions of space and volume. Margueron’s reading of the Syro-Mesopotamian palace has been a constant source of inspiration in our ongoing effort at understanding the remarkable building that we are bringing to light in Tell Mozan, as well as in our effort to preserve it precisely not as a ruin, but as monument.

Between technique and method

It seems fair to say that the current use of the computer in our discipline is for the most part in the nature of an *alternative technology*. Its applications are in the first place in the service of tasks that belong, conceptually, to what we were already doing in the pre-digital age. The computer is, in this regard, a tool that allows us to do “better” what was already being done before – typing, drawing, photographing, cataloguing, surveying. The qualification “better” entails greater speed, a wider range of manipulatory techniques, economy of storage, ease of retrieval, and so on. It is easier to write text, and it is easier to “use” it, through a digital venue that makes it searchable. It is more convenient to review digital photographs and drawings that appear as thumbnails and can be enlarged at will. It is practically cost free to distribute enormous amounts of data, including color graphics that would be prohibitive if printed on paper. A total station in the field gives us more rapid and more precise topographic resolution than any of the pre-digital surveying tools. No one will dispute this, and it is on account of these advantages that the computer dominates by now as an alternative technology.

Even if these are translations onto a new medium of tasks that we already performed with older media, clearly there are areas where the new technique goes beyond mere improved ease. This is especially the case in matters that require, appropriately, computing or, following the French term for the computer, “ordering” (organizing). The search through inventories is characteristic in this respect. An electronic data base far exceeds a card file, certainly more than word processing surpasses typing. The first reason is that the amount of data is almost without limits in the case of a digital data base, and so is the speed with which it can be searched.

The second reason takes us beyond technique into the realm of method. A structured categorization of the data has to precede any type of sorting and searching, because the power of the latter is only proportional to the rigor of the former. We cannot operate with a data mass; we need a data base. Just as a linguist cannot ultimately simply ask an informant to speak, but must ask pointed questions that are aimed at specific answers, so we cannot ask archaeological data to sort themselves out without a typological categorization that informs the universe of analysis. The rigor and vastness of the new typologies that have emerged in consequence of computer applications bears witness to all this. It is proper to speak of such a process,

whereby the technique impacts on method, as a “grammar.” The main virtue of the term, and especially of the concept that it evokes, is that it excludes ad hoc solutions. A grammar has to be fully comprehensive of the entire universe of data; it has to establish distributional classes that are truly mutually exclusive; it has to articulate a hierarchy of conceptual nodes into which the categories properly fit; it has to identify explicitly the attributes that define each category. And in all this, a grammar must combine, through a constant give and take, the power of deduction derived from generalized systems of principles with the skill of induction based on the observation of the actual data.

The impact on method is in itself quite significant, and it has left a profound trace already in archaeological studies, at least at the level of typology. Classifications of objects and statistical studies based on careful attribute analysis are by now second nature, with all the concomitant apparatus of numeric tabulations and graphic charts. They go beyond the limits of an alternative technology and provide instead an *alternative method*: it is not so much that one does statistics better than one did before, but rather that one does what could simply not be done before. We can now ask questions which were not previously imaginable as questions, such as correlations of vast quantities of data which can be both inspected in minute documentary detail and at the same time defined as synthetic trends overarching all the details. This impact on method reminds us of a change that followed (even if by a couple of centuries) the introduction of the printing press: the parallel introduction of the scholarly journal and of the encyclopedia. These two tools allowed a whole new systematization of organized research, providing new channels for specialization and generalization. It is in a similar vein that electronic analysis allows the merging, in a single tool, of the most analytical or specialized and the most synthetic or generalized aspects of research.

The new constructs

The next question is whether we can go beyond even this level. Are we changing not just because we do new things, but because we do them with a wholly different mental outlook? Do the new techniques, the new methods, impact our very culture, do they affect our *mental templates*?

The nature of the question is especially pertinent for scholars focusing on Mesopotamia, since the introduction of writing can justly be compared to that of the computer. Writing projected onto an extra-somatic medium data that until then could only be perceived in memory. The manipulation of these data changed drastically the avenues through which humans could relate to their own thoughts: discrete segments of a written text could be compared in ways that were simply not possible when the same information was only contained, somatically, in an individual’s memory. Emblematic in this respect are the lexical lists, which embody artificial sequences that do not occur in nature and appear designed specifically for the written medium. The computer extends even further the same process. We project not only an extra-somatic, segmental representation of what is in our mind (as with writing), but also the dynamic interaction among those segments. It is not only the passive brain functions (remembering) that acquire their own embodiment outside our mind, but the active ones (processing) as well. We may say that writing reifies the object of thought, while *the computer reifies the very process of thought*. So the expectation is quite legitimate that the advent of the new technology should impact the structure of our thinking, just as writing impacted the structure of reasoning at the dawn of urban life.

In our case, the question narrows down to how this impact may be assessed in the field of archaeology. To put it in concrete terms, does a hyperlink in our browser edition differ, substantially, from a footnote or a cross-reference in a printed edition? Does a virtual reality model differ, substantially, from Margueron’s architectural renderings?

I do believe that the answer is in the affirmative, and that we are indeed dealing with new constructs that are qualitatively different from those that guided earlier scholarship. To help articulate the answer it is useful to define these new constructs in the light of deconstructionism – and this not just to pay lip service to a current trend. What one aims to deconstruct is not so much a built-up framework (in the way in which one takes down a scaffolding), as rather the reliance on thought viewed as an inflexible mechanism of control. Thus the major aim of deconstruction is to remove controls, but this – and herein lies the inherent paradox that has often been recognized – can itself become a new form of control. Either deconstruction forsakes control altogether and does thereby seem to lose coherence, or else it imposes the control of non-control and does thereby elicit the same rigidity which it aimed to avoid in the first place.

Now, a way out of the deconstructionist paradox is the same that throws light on our initial question. For a digital mindset affects the very structure of thinking inasmuch as it combines fluidity and stability as never before. Digital constructs possess by their very nature what may be called a *structured fluidity*. The universe of data is never frozen, and need not be in order to utilize the processes that aim to make sense of it. This is in contrast with the printed page, where one instinctively aims (*scripta manent*) for a “definitive” publication – a term which must evoke skepticism since it implies that further research is precluded. Digital processes are fluid in themselves, not because they are ill-defined, but because *their controls are self adapting*.

Hence they are properly “structured” even while they remain fluid. This is then our clue for an answer to the question about the distinctiveness of a digital argument and its potential impact on our very mindset. A hyperlink is not just a fancy term for a mere cross-reference, nor is virtual reality the precise equivalent of a perspective drawing. The difference is in the rigor and yet fluidity of the controlling structures. Thus a digital 3-D rendering of a partially incomplete building becomes a heuristic model for projecting alternative options at reconstructing it, by modifying pertinent variables and verifying instantly the potential impact of any one proposal. Within the rigor of the overarching structure the fluidity of alternatives acquires its own independent existence, as it were. The alertness that is thereby required for competing interpretations can, and should, affect deeply our scholarly stance to the evidentiary value of the architectural remains. If the process takes place during the excavation, it will affect just as deeply our excavation strategy: different, and yet equally documented projections of the whole, condition deeply the procedural approach in clearing the rest of the building.

The nature of the argument and the role of perception

We will see in a moment some concrete applications drawn from archaeology and specifically from our work at ancient Urkesh. But first I wish to address a complementary issue, namely how the digital dimension affects the intrinsic structure of the argument and our perception of the way it is presented. By nature, it would seem that an argument is essentially linear, in that it follows a given sequence of steps which build on each other. Even when sub-arguments are nested within a larger one, they are seen as self-contained building blocks which develop along their own linear path, and are juxtaposed to the others. In this respect, the printed page is the natural locus for the development of an argument. And, in fact, all digital presentations of an argument that I know of in our field, are no more than the digital transposition of a printed page. Conceptually, arguments as we know them today are not “born digital.”

This is further substantiated when we look at the role of perception. We can follow a (linear) argument orally, but when it gets complex, its graphic representation supports our ability to take in (to “comprehend”) the flow of its logic. Here is a case where it can be said that writing altered in a substantive way the human mindset, by introducing, as we just saw, an extra-somatic embodiment of thought that gave it, as it were, a physical consistency of its own. Our understanding of an argument can indeed rest on our perception of graphic representations of it, from the plain stream of the written text to outlines, flowcharts, and such data configurations as bar histograms. The fact that the computer makes it ever easier to produce any of these does not alter the fact that the graphic embodiment as such is essentially linear and serves the needs of a static perception.

It is interesting to see how digital metaphors that are in common use apply readily to the single page but not to the book as a whole. Many have come into computer parlance from the world of printed paper – the digital library, the desktop, the folder, the page (of a website), and so on. But one metaphor that would not be applicable would be to say that we “read a website from cover to cover” or “a folder from A to Z.” The reason is that websites and folders have *no perceptual consistency*: even by looking at a site map or opening a directory we do not gain the sense of comprehensive overview that we have with a book in our hands. With a book, we have at one and the same time a perception of the whole *and* of any given individual part. It is also interesting to note two other metaphors that refer specifically to web use: “browsing” and “surfing” (the latter is used for television as well). Both verbs entail a surface approach to the data. And the net result is indeed, in most cases, plain and simple superficiality, with all its negative connotations. (Even though, admittedly, we expect to go deeper in the case of our “browser” edition ...)

The conclusion that I want to draw from these considerations is that it is useful both to search for a new form of argument and to adjust our perception accordingly. The structured fluidity of a digital data-base suggests that one can go beyond linear arguments, thereby incorporating a greater power of analysis and, ultimately, a deeper insight. It would seem that we can aim for a multi-layered access to the evidence, not just because more of this evidence is accessible and in a highly differentiated form, but also and especially because *the analysis itself can be intrinsically and dynamically multi-referential*: any node in a distributional chain can refer at the same time to any number of other nodes, and the nodes themselves can quickly vary in time as they are adjusted to account for the input of new data. If we wish to use a geometrical image parallel to that of linearity, we might think of such a new type of argument as “polyhedral” – referring to a solid figure that comprises many planes. Connections among the points on these planes are not based on contiguity (in this sense they are not “linear”), but can jump in any direction within the volume of the solid figure. It seems like an apt image also on account of what it suggest in terms of perception: we do not perceive the links (the way we can perceive footnotes and bibliographies in a linear publication such as a book), but we know they are there and can pursue them at will. If we can accomplish something along these lines, we will indeed progress on the way towards developing proper digital arguments. For we all know how to extract data from inventories in response to questions we know how to ask; but we are still learning how to guide the process to where it will self-generate new questions.

Archaeological applications

We may look at four ways in which these theoretical principles can be applied to archaeology.

(1) The first implication pertains to *the structure of the stratigraphic data*. To clarify its import, I must refer to a fundamental distinction that is not, in my view, sufficiently appreciated – that between emplacement and deposition. The main interest of archaeologists is in the understanding of the cultural configuration of things found in the ground (a house, a sherd scatter), and of how they have come to rest in the position in which we find them (the house has collapsed, the scatter resulted from abandonment). There is no question that this is a valid and appropriate goal. However it must be conceded that *we never observe a house or even a sherd scatter during the excavation process*. What we observe are a few bricks today, some more tomorrow, and only after many a tomorrow (sometimes spanning several seasons) do we see the full house. If the wall were made of cement, and the matrix around it were sterile dust or sand, the process would take a short time, and we might claim that we observe a whole room almost all at once. But our walls are segments and ruins; our matrix is rich and complex, it does not blow away in the wind. So we observe the small individual fragments long before we know they belong to a room that is part of a house.

Thus, whereas the *interest* of the archaeologists is ultimately and properly the function (a house) and the depositional process (a collapse), their *obligation* remains, upstream of all that, the documentation of the primary observation, i.e., of the *emplacement* – the way things are in the ground. Since what we observe is not the collapse, but scattered bricks so emplaced that we infer the collapse, it follows that what we document is not the collapse, but the emplacement on which the inference is based. So, a practical goal of a digital stratigraphic publication is to publish every single observation and every bit of evidence that pertains, first and foremost, to emplacement – regardless of how well (or poorly) we understand deposition and function. It is on such documentary evidence of emplacement that the excavators can build their depositional and functional interpretations, in the same way that alternative inferences may also be drawn from the same record by others. The overall understanding on the part of the excavator will remain privileged, as there is a host of intuitive registers that we cannot (as yet?) make part of the record. But at least the full documentary panoply on which the conscious depositional choices of the excavator are based will be available in such a structured way that they can be used to provide alternative inferences, where warranted.

It is important to stress one aspect of this operation. The observations about emplacement are, and must remain, atomistic in nature: they pertain to the minutest details which are observed in the ground. There is, to be sure, constant reference to a depositional and functional understanding (this particular cluster of bricks belongs to a wall that we project is part of a larger house), but the observation itself pertains exclusively to the individual constituents seen atomistically (the bricks). In fact, this elemental observation (in the specific sense that what is observed is the constitutive element of a larger and as yet undiscovered whole) retains its validity whether or not the larger whole is ever recovered, and whether or not (when recovered) it conforms to the projections made during the excavation. The observation is channeled through a grammar of emplacement that raises it above the range of dispersed, ad hoc or casual notices. But it remains first and fundamentally a single fact, however much it may later be used as a building block in constructing the larger picture.

This approach aims to go beyond the reductionist documentary approach that is generally accepted as a standard *modus operandi*. Within this framework, we (1) *select* a portion of the evidence that we presume to be pertinent to a proposed research strategy; of this portion, (2) *we discard* a certain amount without accurately and consistently stating the criteria; of what we keep, (3) *we record* what is most readily understood; and of this residuum, (4) *we finally publish* what we consider important. Such a publication is akin to that of a text for which the editor chooses only those passages that support a given literary interpretation, that are more readily understood, that seem particularly important. It is to obviate such an approach to archaeological publishing that it is imperative to aim for a “global record,” i.e., a record that allows for, and in fact encourages, the broadest possible collection of emplacement observations and omits not a single item that has been so gained.

That such a record of stratigraphic data is only possible in a fully digital environment goes without saying. The digital dimension is operative at the very point of origin, the moment of excavation. The initial observations must be channeled according to a “grammar” that distinguishes between emplacement and deposition and directs attention to the full range of emplacement attributes. Additional depositional inferences, functional interpretations, comparative remarks, typological explanations are progressively added. But the foundation, irreplaceable and unchangeable, will remain the emplacement record. This record is integrated in such a way that all sources of input (coming as they do from the excavator, the conservator, the photographer, the draftsman, the various specialists) feed seamlessly into the same unified archive. An important consequence of a proper digital approach is that the “globality” of the record must not lead to drowning in the sheer mass of available data. The avoidance of such a pitfall is the main benefit of a grammatical approach – to which we must return once again. The criterion by which one can judge of the quality of a grammar is the power it affords us to reach the most capillary extensions through the most rapid access. An unstructured data

mass stored digitally would not yield any insight – no more than the sum total of all possible sentences in a language could properly be considered a grammar (though it would yield an accurate, if unwieldy, “description” of the language in question). Rather, a grammar provides us with the most efficient road map to wade through the data. It is a structured coded system in which the basic constituents are tied to each other by univocal relationships; it is a closed system, wherein each element elicits of its own accord a fixed set of correlations to other elements, and to no others. This is familiar to us from the concept of a linguistic paradigm. If in Latin we hear the words *amor, amoris*, we know what the distinctive sequence is going to be, and the functional valence of each element, even if we ignore the meaning of the word. But a paradigm occurs in a variety of situations, and in each the valence of individual elements is predicated on their correlation to the other elements: thus the red of a stop light in juxtaposition to green and yellow/orange means “stop”, but red in a flag held high may mean “go.” The power of grammar lies precisely in the fact that it allows systemic predictions, and thereby makes instant access possible to the full hierarchy of nodes.

The rigorous regularity of the grammar that informs the record does not mean that this is a frozen construct. Rather, it is self-adapting in especially one fundamental respect: there is a constant build-up of related emplacement observations, because the new ones are integrated with the existing ones at any point in time (during the same season or in subsequent seasons). This does not mean that earlier observations are revised, since these retain forever full primacy: any given observation might have been better when first made, but it never can be bettered, since the data that occasioned it are no longer there. For this reason we can only aim for a cumulative aggregation of observations. The new ones pertain to emplacement situations adjacent to those excavated earlier: what results is not mere juxtaposition, but a structural correlation of old and new emplacement facts, and to that extent one may at any time re-interpret the depositional reconstruction and functional interpretation. It is for this reason that new excavations are always desired (and their expectation serves as a strong factor in delaying publication of an earlier, ever partial, record). What must be stressed is that these new excavations never add to the quality of earlier observations of emplacement facts; they just provide a wider integrative framework. Paradoxically, as it were, *a digital stratigraphic publication is never final and it is always final*. It will always include the full emplacement record of a given body of data, which can never be modified – and yet it is open for the constant integration of additional new material, that subsumes all adjacent emplacement facts. The digital publication achieves the goal of providing the kind of self-adapting update that allows the necessary flexibility. And this flexibility reflects the structured fluidity described above as a goal of the new digital frame of mind.

(2) The second main archaeological application pertains to *procedures used in the recording*. This is not a matter of mere practicality. Or rather: practicality is important, but it has strong theoretical implications. The practical dimension entails ease of input, intuitive coding, flexibility in the choice of hard- and software, etc. The implications are that (a) the entire universe of recorded observations be integrated into a single unified whole, and (b) that they be transformed automatically into a correlative universe where each element bears within itself a potential link to the other elements. As an analogy, we may think of members of an orchestra practicing their respective parts individually but with the obvious intent of merging at some point, symphonically, with the other instruments. This is the way in which the atomistic observations, for the value of which I have just argued, acquire their own distinctive potential for synthesis. Thus the excavator’s stratigraphic observation of a fragment of a given clay artifact in the ground emerges in the record with a built-in reference to the photographs and the drawings of the object itself and of its setting, to the observations of the conservator who may address issues of retrieval in the field and artifactual consistency in the laboratory, to the comments by the typological specialist (a ceramicist, an epigraphist, etc.) on the internal characteristics of the artifact *qua* object, and so on, all the way to observations by additional stratigraphic observations by another excavator working in the same context at a later date. Thus each element of the observed archaeological universe emerges in the record as endowed with a multiplicity of correlations that are not only potential, but actively embedded in the element itself.

(3) The third application takes advantage of precisely this prerogative, which is built into data that are grammatically structured, so as to *generate networks of correlations*. The simplest of these correlations is in the form of what are known traditionally as indices and concordances. But the digital indices are really different, not so much because they are generated automatically and afresh each time new data are entered, but especially because each element actively points in a multitude of different directions which can be pursued at will. In this respect, the intuitive statistics that an excavator regularly formulates during an excavation (“we have found more conical cups on this floor than on that other one...”), can be matched on an ongoing basis against numerically reliable subsets of the universe under consideration.

(4) Finally, the resulting presentation of the data allows for a whole new type of *access to the stratigraphic record*. We have seen that “globality” is possible in a digital environment not only because it is economically feasible to muster practically unlimited data bases, but also, and especially, because all of its levels are concomitantly transparent and accessible. And this entails two important consequences for our topic. The first is that the transparency of the global record has an immediate *impact on the excavator’s strategy*. The overall

season's strategy and its day-to-day modifications are essentially based on the excavator's understanding of depositional processes and functional patterns (we remove bricks because we assume that they are part of a brickfall resulting from collapse). Such interpretations are as well informed as the amount and quality of emplacement data on which the inference was based. In practice, such an overview of the data is often intuitive and selective. But, with an effective use of the global record, the overview is equally global.

Besides serving the excavator, the digital global record provides a whole new opportunity for other archaeologists, allowing them to come as close as possible to the basic scientific ideal of *repeating an experiment* – not because through reverse motion we can put back in place what has been excavated, but because we have available all the observations that have been consciously made along the progressive stages of the excavation. The structured grammatical recording that underlies the system allows, realistically, to access the full universe of the initial observations of emplacement facts. Without such a record, repeating the experiment is impossible not only in the sense of re-excavating what has been excavated – it is doubly impossible because we cannot even re-examine the full set of the initial observations.

The Urkesh browser edition

A concrete embodiment of these principles and applications will be found in the browser edition of the Urkesh Royal Palace. It is to be published online at the address urkesh.org, where there are also instructions for obtaining digital versions on fixed media and correlative paper editions. While some important components of the system are not yet fully implemented, it does present the “global” record of individual excavation units in a way that differs substantially from standard archaeological publications, in keeping with the principles stated above. The record is so intrinsically dynamic that it is impossible to supply here graphic illustrations of how the system works. Even screenshots of an interactive session would be quite inadequate. So I must leave such exemplification for a hands-on utilization of the browser edition itself.

A “browser edition” is, in and of itself, independent of the way in which it is made available, whether online through the Internet or offline through fixed media such as compact disks or DVDs. The main difference between the two ways of accessing data is that online one can draw on an unlimited data base, with the most recent updates incorporated and with active links to other websites, while offline one can more easily have high resolution versions of graphics and one is not dependent on occasional servers' downtime. But what really matters is the conceptual dimension rather than the logistic ramifications.

Such an edition provides the most effective configuration within which the digital global record can be presented. It is produced automatically through a program that reads all the various types of input and converts them into an integrated network of files (in HTML format). Textual, numeric and graphic data are all available according to a logic that is quite transparent – both in terms of the archaeological categories and of the computer procedures to be used. Specific inquiry paths lead the reader through the emplacement data sorted in the way in which the excavator understands depositional history and functional organization. Ever greater levels of detail are accessed through what may be described as concentric circles that go from the broadest interpretive level (e.g., the palace) to the minutest of supporting facts (e.g., the seemingly incongruous placement of a bread oven directly on top of the stone pavement of the formal courtyard). Since every single constituent of the archaeological universe (from a wall to a sherd lot) is hyperlinked (all links being created automatically by the initial program), the reader becomes involved almost unwittingly in an untrammelled dialog with the evidence. The term “interactive,” so often used and abused, seems quite appropriate in this context: the correlation between data and interpretation is so smooth and natural that a constant give and take between the two develops as one confronts them.

One quickly comes to realize that one cannot properly “read” a browser edition. At first this may appear as a negative comment. And the term “user,” which has somewhat ominously replaced the term “reader,” comes across with a connotation that seems quite negative for a scholar: it evokes the superficiality to which I have referred in connection with the concepts of browsing and surfing. But if properly calibrated, the inherent qualities of a browser edition emerge in the full light of the new perceptual range to which I have referred earlier. A positive way to look at it is to consider the value of the word “reflection”: in its etymological sense, it evokes the notion of bending or bouncing back. The interactive relationship that is made possible by a browser edition is *a novel form of reflection*: we react to data by bouncing back and forth between multiple and alternative views, conditioned as they are by newly emerging attributes, different linkages, complementary ways of clustering. What puts this on a level wholly beyond superficiality is the quality that is associated with the traditional meaning of reflection as controlled awareness. We do not bounce aimlessly (we do not “browse”). Rather, we bounce following trajectories that suggest new meanings because of the connections that they suggest.

The concept of interactivity as reflection evinces a connection with that most powerful of research tools – *distributional analysis*. In spite of their sheer quantity, the emplacement facts and typological data are easily susceptible to being newly ordered according to fresh perceptions of their clustering possibilities. As

a result, new distributional patterns may easily emerge that are intuited macroscopically and can then easily be verified in more minute detail. Thus far from creating a chasm between intuition and quantification, a browser edition encourages a whole new, and very productive blending of the two.

It is along these lines that we should look in order to answer the question posed at the beginning as to the impact of the digital world as a truly new construct. Interactivity in the sense of a *dynamic reflection* is by nature not linear. The intrinsically sequential nature of the argument that we have considered earlier is not necessarily operative when we are reflecting on a browser edition. (It is certainly not excluded either: the interpretive inquiry paths provided in the Urkesh global record are an example of that.) And so we acknowledged that we cannot read a browser edition from cover to cover. We do not gain a visual perception of the whole within which the individual parts are seen to fit. Instead, a dynamic reflection evokes a new perception of the relationship between the whole and the parts. It is the perception of a multi-register web (the whole) in which every individual node (the link) is known to fit.

A browser edition emerges as a scholarly publication wholly *sui generis*. It is indeed “born digital” and cannot be duplicated on paper. For this reason it is important that it be accorded special attention and consideration. As I have indicated, this article is meant to serve as a theoretical justification for such an edition, and one reason why this effort seems important to me is to underscore the importance of a digital approach to archaeological publishing that goes beyond mere convenience. That particular benefit resulting from the use of the computer is easily conceded. But ultimately, I believe, it will only be the new intellectual vistas, the new perceptual ranges, the new confrontation with the data, the new analytical attitudes that will assure an independent place for digital publication. Thus, beyond explaining the rationale for our specific example of an archaeological browser edition (the royal palace of Urkesh), I hope that my considerations might serve as a step along a way of a fuller appreciation of archaeological digital publishing. Herein lies an answer to the question posed earlier about “la progressive maîtrise du milieu,” a concept so skillfully expounded by Margueron in connection with our Mesopotamian forebears.

I have suggested concrete ways in which one can truly say that a hyperlink is substantively different from a footnote or a cross-reference. A reflection on the Urkesh browser edition will also answer the question as to the difference between a virtual reality model and a static architectural rendering. The former is dynamic and allows unlimited alternatives with regard to visual angles or reconstruction of missing portions. As a result, notions of circulation, of spatial perception, of voids and volumes, of light (and inferentially air), can take shape in physically perceivable representations that bear out, dramatically at times, the full architectural impact of a building extant only as a fossil. One of the joys in reading Margueron’s work has always been the feeling of architectural congruence that he is able to draw from such fossils. We owe that to his incomparable vision. We are fortunate that the computer can help the rest of us to more easily follow in his footsteps.

Subartu XVII

Les espaces syro-mésopotamiens

Dimensions de l'expérience humaine au Proche-Orient ancien



Subartu

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