

## DEATH ON SCREEN!: SPANS EXPLORER VISITS THE UNDERWORLD

### 1. INTRODUCTION

The final phase of the excavation process is the publication of the activities that have taken place within and around the site, the results produced as a consequence of those activities and the secondary analyses conducted on the excavated material.

Publication is not merely a scientific obligation but primarily it is a moral one (BARKER 1989; GRINSELL, RAHTZ, PRICE-WILLIAMS 1974). A site has been excavated, and hence destroyed; all finds have been removed and dispersed (e.g. to museums, and laboratories) and all evidence has vanished from the ground. The individuals responsible for these activities bear the obligation, as the only witnesses, to present both to the public and the various institutions and relevant bodies (a) what was actually done at the site, (b) what was found (where and in what state) and (c) their interpretation of the function of the site in a local, regional, national or even international context.

### 2. THE NATURE OF ARCHAEOLOGICAL PUBLICATIONS

Prior to discussing the contribution of an automated system in enhancing the scope of a publication and facilitating the dissemination of archaeological information, a few points have to be addressed.

The first point is that an archaeological publication addresses a certain readership. Many vivid debates have taken place in the past, and still continue to do so, in an effort to establish the groups of people who constitute that readership. Ideally three categories of people are addressed:

- (a) Fellow archaeologists, historians and researchers with a general interest in the specific excavation
- (b) Specialists with a need for very particular, detailed and specialised information, and
- (c) The general public, this being laymen with a relatively casual interest in archaeology, non-specialist students and schoolchildren (BARKER 1989).

Most publications manage, to a greater or lesser extent, to oblige the first two categories but they tend to neglect the last (and to some, the most important) category. The use of highly specialised terminology is one element to be blamed for this fact and it is so widespread that even prominent archaeologists themselves raise complaints, longing with nostalgia for the general, descriptive and highly personal style prevalent in reports of the 18th

and 19th centuries (HODDER 1989). The other element is the stark presentation of facts with the absence of any form of personal interpretation with regard to their general importance for, or indication of their contribution to the enhancement of knowledge.

The second point is the form in which archaeological publications are presented. Again, there are three types of publication format, namely

- (a) The preliminary (or interim) reports,
- (b) The actual publication and
- (c) The archive.

### 3. PRELIMINARY (INTERIM) REPORTS

When an excavation extends to more than one season, it is customary (and sometimes required) that interim reports for each such season should be produced and distributed to a variety of people and institutions or published in an established bulletin or periodical. These reports have a multi-purpose function. One objective is to provide information about progress that has been achieved at the site, and to present any problems which may have arisen, with the intention of obtaining valuable feedback from sources external to the excavation (i.e. other scholars). Another role is to convey a general idea of the accomplishments of the season to the volunteers who have worked at the site. This is done partly in appreciation of their efforts, but at the same time the aim is also to attract them, along with potential newcomers, to volunteer for the next season as well (GRINSELL, RAHTZ, PRICE-WILLIAMS 1974). Finally, such reports aim to satisfy the financial contributors by demonstrating the good made of their money, and concurrently to act as a fund raiser for operations in the immediate future.

In order to achieve such a wide scope, preliminary reports should be kept in a concise but informative format, enthusiastic in style and free of any excessively scientific terminology, so that they will convey the message without causing any fatigue to the reader. Another factor in favour of a short interim report is the low cost of its production and publication.

### 4. THE ACTUAL PUBLICATION OF THE SITE

This takes the form of a book, or, in extreme cases, a series of volumes (e.g. Jericho, Thera, Pompeii, etc.). The contents really depend on the editorial decisions of the author(s) of the publication. Libraries contain a number of what could be called "exemplary" publications but also an even greater number of prime examples of how not to publish a site.

Normally, the contents should comprise the following general components:

- (a) *Introduction*: Clearly defining the reasons and aims for which the excavation was conducted.

(b) *History of the Site*: What was known about the site from any possible source such as historic accounts, previous surveys, or information from the local inhabitants.

(c) *The Site and its Environs*: Site location, characteristics, description of its immediate environs, geomorphological and climatological studies, including an account of processes (natural or man-induced) that possibly have affected or continue to affect the site.

(d) *The Excavation*: Descriptions of units (contexts) and finds, the chronological and stratigraphic sequence at the site and, most important, section drawings, context plans, artefact drawings as well as context and artefact photographs.

(e) *Specialist Reports*: These may include palaeoenvironmental studies, such as palaeobotany and palaeozoology, pollen analysis, wood identification studies, metal analysis and so on. With the advances in science supported by the theoretical justification of New Archaeology (BINFORD 1983; CLARKE 1973) one or more specialist reports could be easily produced for every single find category.

(f) *Synthesis*: For many, this is the most important part of publication of an excavation (BARKER 1989; HODDER 1989; JACOBS, KLEEFELD 1991). In this section, besides offering direct conclusions on the immediate history and function of the excavated site, the author should face the challenge of placing the site in a wider geographical and chronological context. Inferences on social, economic, political and religious structures should be made, based on the evidence, and then discussed in a regional or, if possible, even wider context, thus contributing to the overall task of reconstructing the past.

(g) *Inventory of Finds*: Often exceedingly lengthy lists of material recovered from the site. Ideally, all should be listed but many tend to be selective when it comes to the publication.

## 5. THE ARCHIVE

This is Pandora's box for all those not directly associated with the excavation. It contains all the excavation material, published or unpublished, along with all comments and initial interpretations made during the course of the dig. When placed at the disposal of the public (as should be the case) it constitutes a primitive form of publication (BARKER 1989).

The third, and final, point regarding archaeological publications is that they should be completed within a certain time period. Preliminary reports should be published as quickly as possible but at the same time they should fulfil the purpose previously outlined. The optimum time for the main publication to come forward is approximately one year from the completion of the excavation (BARKER 1989) but that is far from the norm. In some Scandinavian countries the rules state that if a publication has not been completed within five years, then all material from the excavation (including the

archive) becomes public property (GRINSELL, RAHTZ, PRICE-WILLIAMS 1974). Cyprus, with which we are concerned in this instance, has imposed the rule that if an excavation has not been published, or at least there is no proof that the publication has substantially progressed, no further permit will be issued to the person(s) concerned for any form of archaeological activity on the island. Rapid publication therefore, is to the benefit of all parties involved.

## 6. ELECTRONIC PUBLICATION AS A MEANS OF RAPID DATA DISSEMINATION

The evolution of archaeological techniques of excavation, recording and analysis of data has led to an influx of information becoming available for publication. In addition, intensive land development has put pressure on governments, institutions and consequently, archaeologists to increase the range, scale and intensity of their operations. As a result, the number of rescue excavations has also been on the increase, producing even more data to be handled and eventually published (CARVER 1985). The situation of having too much material to include in a publication has worsened by steeply rising publication costs. These make large reports uneconomical as well as hard to compile, since the time limits are very restricted and contributors have a tendency to contribute towards excavation expenses, but to become much less generous when it comes to financing an archaeological publication (TILLEY 1989).

But the size and price of a publication is only one aspect to be considered. The other is to satisfy the readership. Generally speaking, there are two ways of presenting the excavated material from a site in print, (a) by period and (b) by category.

In the first case, the excavated material is described and discussed as a whole and placed in the context of the period to which it belongs. We can have, for example, a presentation of tools, architecture, figurines and so on, of the Bronze Age. The same applies for all possible other chronological periods present in the site.

The second method is to select a specific category of finds, for example ceramics, and describe their characteristics and evolution throughout the chronological sequence identified.

It is evident that some of the readers of the report will wish to avail themselves of the first approach, others of the second. But in a publication one can follow only one of these methods. Consequently, some readers will be displeased with the selected approach (PAPAILIOPOULOS 1989).

Having cleared the situation that the publication of a synthesis is always required, we arrive at the conclusion that the dispute surrounding archaeological publications is confined to the dissemination of the information contained in the archive. Our proposal is that this can be effectively achieved through the use of electronic, or rather digital, means.

The notion of an archaeological databank is not new. Ever since the

1970's and 80's a number of such databanks have been compiled at regional level especially in the United States and Britain (see, for example, GAINES 1981). With the increase in the number of databanks appearing legislative action was taken in order to protect the data stored in digital form. Hence, for the majority of countries, data stored on hard disk constitutes, according to copyright law, a form of publication (WILCOCK 1981), databases are considered as literary works, while generated programmes may fall under the auspices of laws protecting films and videotapes (TALAB 1986). Computer scanned photographs and digitized maps and plans are protected by laws applying to works of art (VITORIA 1986).

Having acquired the technology backed up by appropriate legislative action it was not long that the first propositions for the creation of central archaeological databanks and international public domain archaeological networks were put forward (e.g. JACOBS, KLEEFELD 1991). The proliferation of national and international data communication networks, such as the Internet, instigated the generation of a number of such publications who have already appeared on the world wide web (WWW).

The Souskiou-Vathyrkakas Project, with which we are involved and will be described further on, has decided to take advantage of the technological innovations available and has undertaken the effort to test the effectiveness of such techniques, at least to some extent.

## 7. THE SOUSKIOU-VATHYRKAKAS SITE

The site of Souskiou-Vathyrkakas lies at approximately 2 km northeast of the village of Kouklia-Palaepaphos in the southwestern part of Cyprus, some 14 km from the town of Paphos itself (Fig. 1). The site comprises a unique cemetery complex of the Middle Chalcolithic period (3500-2800 B.C.) which was first identified by the British Kouklia Expedition in 1951 after the excavation of some of its tombs.

The discovery of more tombs in the vicinity led to the identification of three major areas, Cemetery 1 and Cemetery 2 on the actual plateau, and Cemetery 3 on the *Laona* locality approximately 700m northeast of Cemeteries 1 and 2.

It was the extensive plundering activity on the site that led the Cyprus Department of Antiquities in 1972 to conduct a more systematic investigation on Cemetery 1 excavating five tombs and revealing a magnificent repository of Chalcolithic artefacts. Despite the fact that the site comprises the only cemetery of its period further investigations did not take place for about 20 years. Excavation was resumed again in 1991 by a joint expedition between the Cyprus Department of Antiquities and the Lemba Archaeological Project (Univ. of Edinburgh). The discovery of more intact tombs led to the further systematic investigation of Cemetery 1 in 1994, 1995 and 1996 (forthcom-

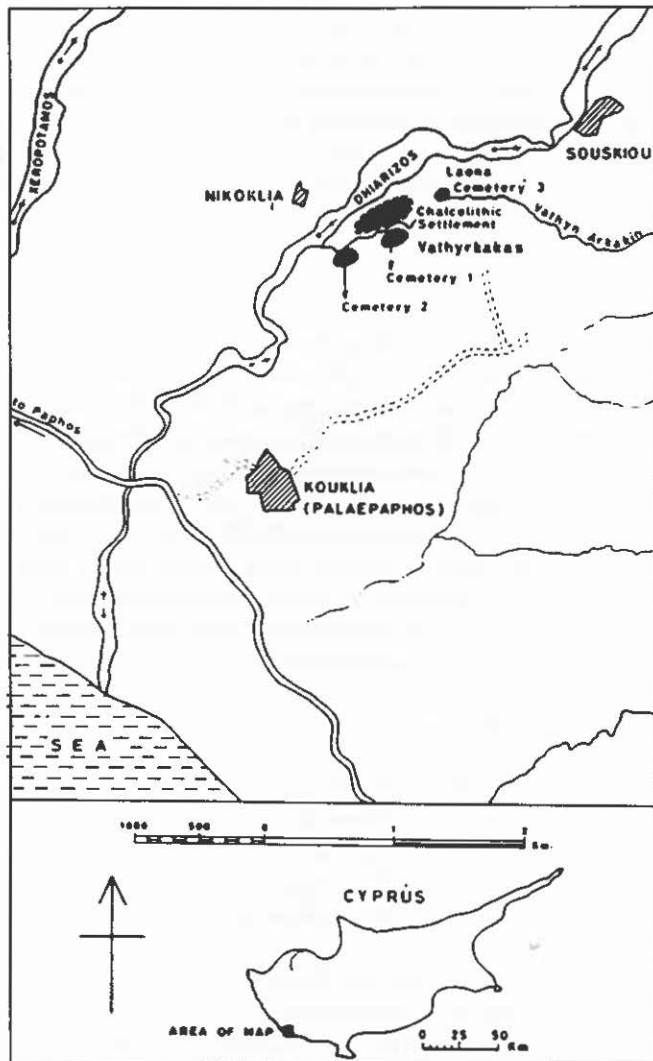


Fig. 1 – The Souskiou-Vathyrakakas Area (reprinted from CHRISTOU 1989).

ing season) by the Cyprus Department of Antiquities.

The results from the investigation of the site have only appeared sporadically in interim reports (e.g. MAIER 1973, 193-4; 1974, 41-3) or briefly published in Conference papers (CHRISTOU 1989, 82-94; BAXEVANI 1996 forthcoming). The final publication of the site is forthcoming.

In view of the size and the importance of the site and its unique character for the prehistory of Cyprus the continuation of the excavations was

deemed necessary in order to shed more light to some unknown aspects of the Cypriot Chalcolithic period. The publication of the results, therefore, comprises a priority for the Souskiou-*Vathyrkakas* Project and a demand on behalf of all prehistorians working on Cypriot and Near Eastern material.

#### 8. THE SOUSKIOU-VATHYRKAKAS DATA COLLECTION SYSTEM

Since 1984, the basic principles of mortuary variability have been established and ever since have been generally adopted by burial archaeologists (see O'SHEA 1984). On the basis of these principles the Souskiou-*Vathyrkakas* project devised the set of variables appropriate for the examination of prehistoric Near Eastern cemeteries.

These variables formed the basis on which the registration forms used during excavation (see Figs. 2 and 3) and a relational database model (see Fig. 4) were constructed in order to incorporate the information derived from the investigation of Cypriot prehistoric cemeteries, including the present site.

Once the initial step for solving data registration problems had been made, the project proceeded in examining the format in which the collected data could be disseminated to the public, that ranging from the general fellow academia down to schoolchildren and tourists. This search has led us to test the configuration presented in this paper.

#### 9. SPANS EXPLORER AND THE PRESENTATION OF BURIAL DATA

In our efforts to identify the appropriate software through which we could best attempt to publish at least part of the excavation material we came across a fairly new product called SPANS Explorer.

SPANS Explorer is an off-the-shelf semi-GIS package offering a full suite of multimedia facilities that could serve the purpose. However, what really intrigued our curiosity was its relatively low price coupled with the user friendly environment it offered and the low hardware requirements it presented.

The package is launched through the well known MS-Windows environment and it takes full advantage of it. Thus, the colours, fonts and the image formats that Explorer uses are exactly the same that Windows offer. Not only that, but facilities already existing in the windows environment can be incorporated and manipulated through Explorer. In this way, one can display a video (with sound), a slideshow even use his/her favourite word processor. Any application, provided it is loaded on MS-Windows can be launched through Explorer's user interfacing menu.

The Explorer environment itself consists of three interlinked windows surrounded by launchbuttons. One window is dedicated to map display, the other holds descriptive information in a spreadsheet format and the third is dedicated to the display of statistical charts. All three windows are interlinked.

**GRAVE SHEET**

1. UNIT	REFERENCE	PERIOD	TYPE	STATUS	TOTNUMBER
2. BURNUM -----			TYPRUR -----		
POSITION -----			AGE -----		
FACING -----			SEX -----		
ALIGNMENT -----			PATROL -----		
3. NOCAPS -----			SHAFTLENG -----		
STLENG -----			SHAFTWIDT -----		
STWIDT -----			SHAFTDEPT -----		
4. FILL COMPOSITION ash plaster sand silt clay white black brown grey yellow red crumb cloddy blocky prismatic fine medium coarse loose friable compact sticky soft charcoal shell bones roots stone cobble pebble gravel grit					
5. SFNOS -----					
6. SAMPLE NOS -----					
7. PLANS -----					
8. SECTIONS -----					
9. PHOTOS BW -----					
COL -----					
10. LEVELS TOP ----- BOTTOM ----- TOPSKULL -----					
OTHER -----					

Fig. 2 – Grave Data Collection Sheet.

SF Number ..... Context .....

CLASS ..... TYPE ..... MATERIAL .....

**DIMENSIONS**

L	W	TH	DIAM	BASAL
1	2	3	4	5

**DESCRIPTION**

PHOTO NO ..... DRAWING NO .....

DATE .....

Fig. 3 – Small Finds Registration Sheet.

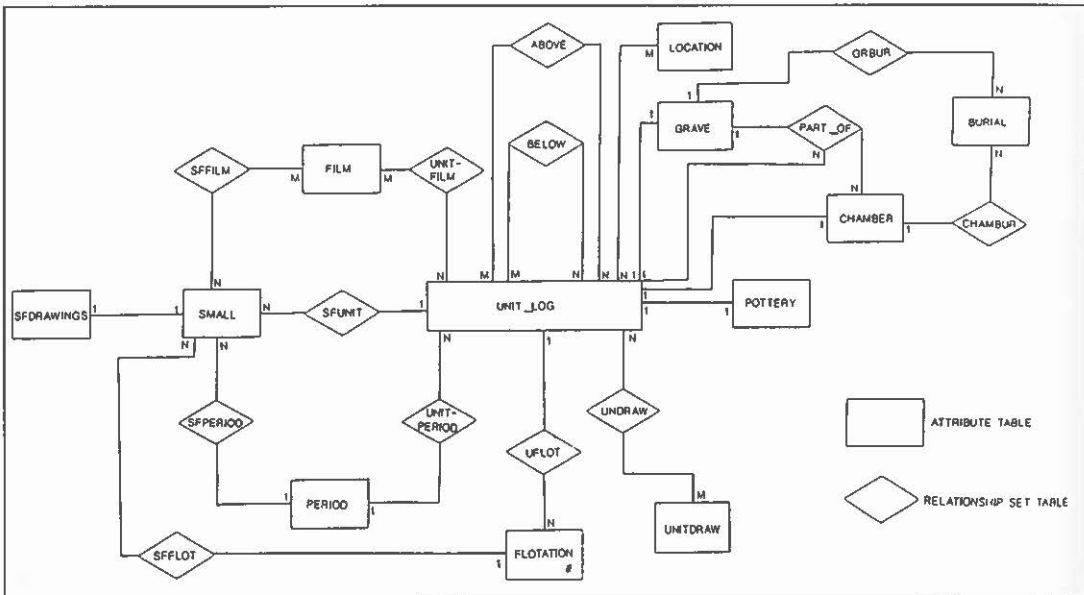


Fig. 4 – The Souskiou-Vathyrakas Database Structure.



This means that information can be selected either as a feature on the map window, or as an attribute in the spreadsheet window. In either case, the selected piece of information is marked on both windows simultaneously. Any changes in either the spreadsheet or the map are automatically updated in the other.

The spreadsheet is similarly linked with the chart window which can be active or hidden. Any change in the spreadsheet is immediately reflected in the chart. Chart information can also be used as point data on the map. For example, if one chooses to construct pie charts reflecting the content in small finds of several excavation units, the resulting pies can be automatically placed over the units depicted on the map.

In the heart, Explorer is a GIS package. The experienced user is able to choose from over a hundred different geographic projections or create a few customized ones (providing one knows what he does!). After that, the constructed maps will be fully georeferenced. The inexperienced users can choose the "no projection" option and will obtain exactly the same visual results but will not be able to georeference their maps.

Graphical data entry can be achieved in three ways. One is to make use of a digitizing tablet and the digitizing software incorporated in the package. The digitizing software will also create full topological links and is also capable of running several tests to identify errors, missing topological links and check data integrity. The second way of entering data is to import scanned (raster images) and use them as such (facilities for georeferencing raster images are also offered) or use them as a backdrop and employ on screen digitizing methods to transform them into vectorized data. The third way of entering graphical data is by importing maps already created on other systems (i.e GIS, CAD or CAM). Explorer offers raster and vector translators which can import and export data in the majority of formats available today in the market.

Alphanumeric, or descriptive, data can be imported or exported in either ASCII, D-Base or Lotus 1-2-3 formats. The vast majority of databases and statistical packages available can interchange data in any of those formats which are regarded as market standards. It is true that the lack of a fully relational database incorporated into SPANS Explorer is considered a drawback but if one considers the low cost of purchasing the system the extra effort required for maintaining such a database outside Explorer is worth the inconvenience.

The following figures constitute a simplified attempt to illustrate the description provided above and at the same time provide an example of the use we have made of the system.

Fig. 5 is a general plan of the *Souskiou-Vathyrkakas* excavation as it stood in 1991 using grayscale shading only. Note the user interface environment offered by the system with the application launchbuttons on the left hand side and the pull-down menus on top. Only the map window is activated in this instance.

Fig. 6 depicts the same user environment with three windows activated,

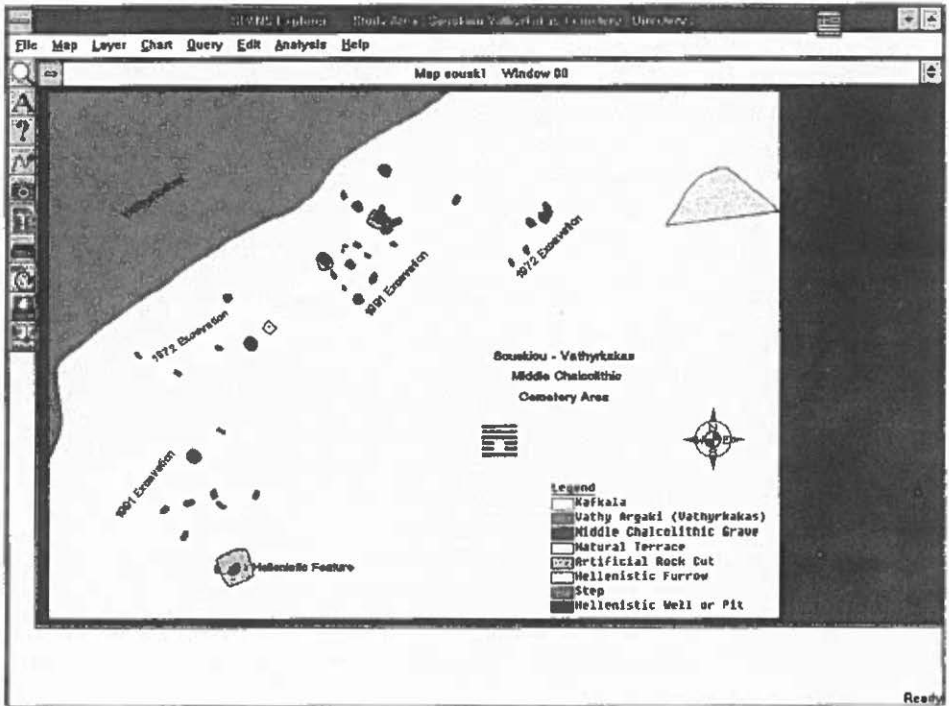


Fig. 5

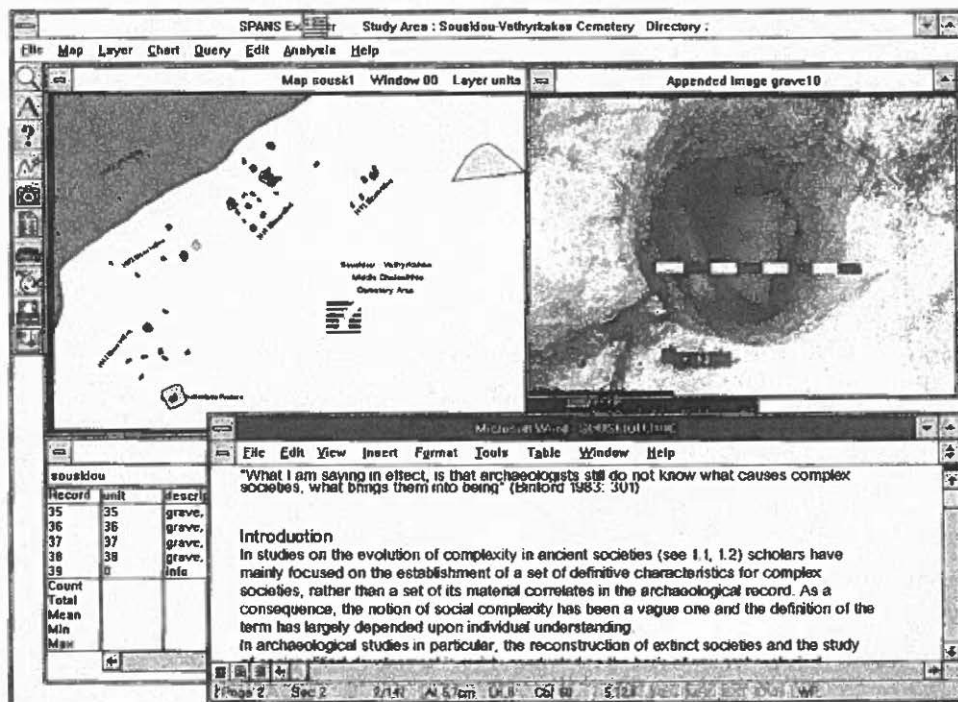
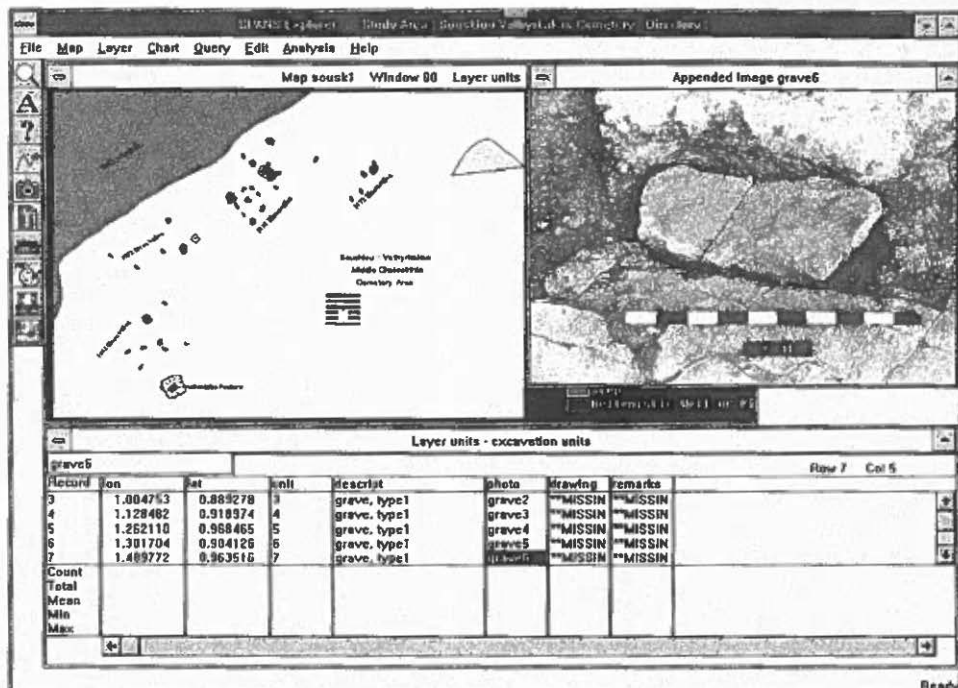
namely the map window, the spreadsheet window and the appended image window.

Fig. 7 demonstrates the appearance of the text (or word-processing) window as well. Note that in this instance the word processor activated is MS-Word V6.0 which is residing in the underlying MS-Windows environment and is activated by pressing the sixth launchbutton from top on the left side of the picture. There is no limit to the size of text that one can load or edit. In the example we have used the text is 147 pages long as one can notice being written on the bottom of the text window.

Figs. 8, 9 and 10<sup>1</sup> are ground plans of three graves that have been excavated in order to demonstrate the ability of the system to accommodate archaeological information both at general and detailed scales.

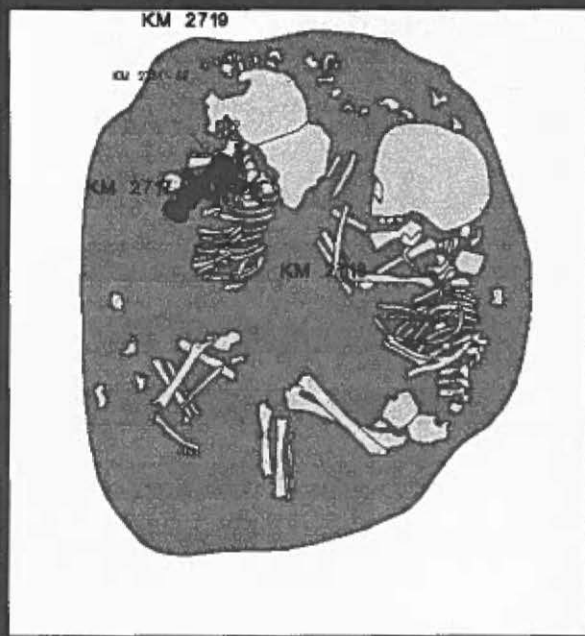
In Tav. XLI, a-b we have used two of the previous examples but this time we have used colour to enhance the detail included in the plans.

<sup>1</sup> All information, graphic or descriptive, appearing on Figs. 1-10 and Tav. XLI, a-b is used for demonstration purposes only and should not be considered as valid archaeological record. The plans appearing on Figs 8, 9, 10 and Tav. XLI, b are distorted reproductions of plans from the neighbouring site of Kissonerga (PELTENBURG *et al.* forthcoming).



Figs. 6-7

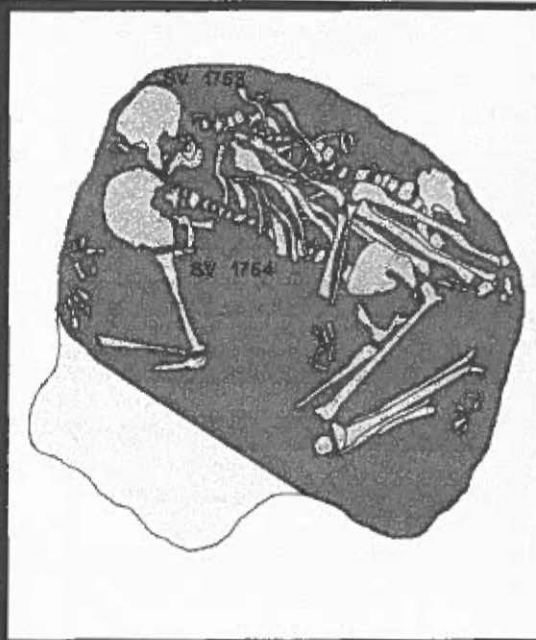
SOUSKIOU - VATHYRKAKAS  
GRAVE 20 - CHILD BURIALS



- Legend
- Surrounding Area
  - Grave
  - Human Bone
  - Artifact



SOUSKIOU - VATHYRKAKAS  
TOMB 17 - FAMILY GRAVE



- Area Legend
- Surrounding Area
  - Human Bone
  - Grave
  - Staff and Ledge



Figs. 8-9

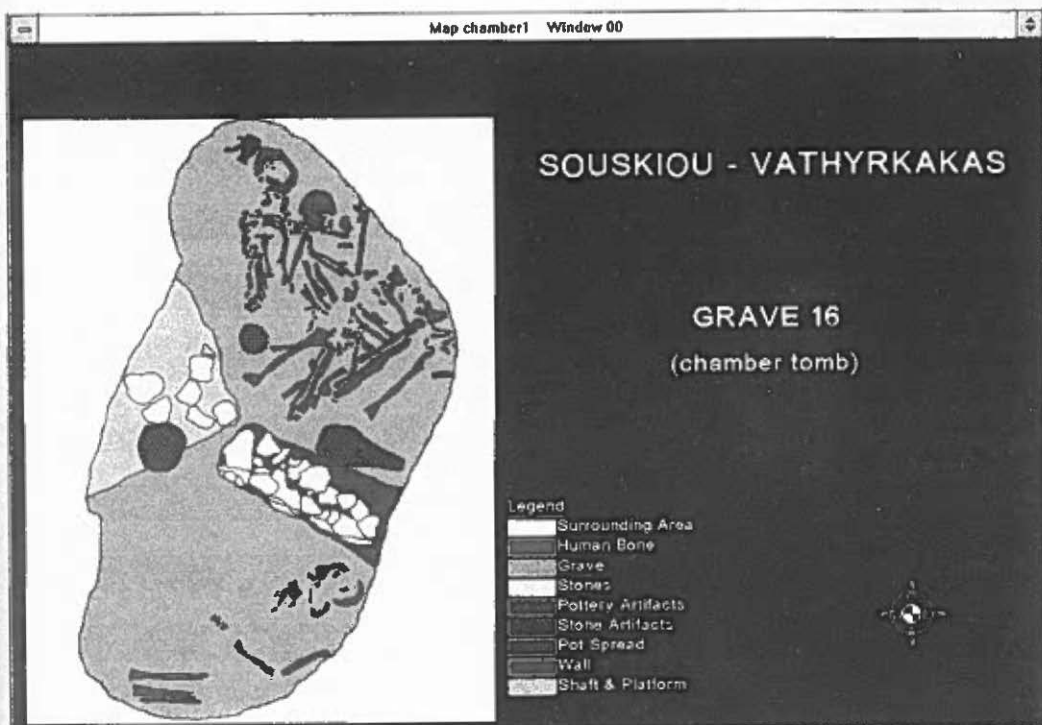


Fig. 10

## 10. CONCLUSION

This paper has not been written to serve as an advertisement to a particular piece of software. It merely aims to stress the potential that arises through the use of a variety of similar off-the-shelf products that are available in the market and could help to achieve a more effective and less costly publication of archaeological data. Such systems are cheap to purchase, easy to learn and operate, generous in the facilities that they offer, low on hardware demands and, most important, offer more possibilities on how to take advantage of the data that any other publication method could.

In short, a system like the one described above could be put to service in many ways. Its primary role, indeed, is to accommodate information deriving from archaeological work and to conduct analyses with the aim to facilitate the arrival at useful conclusions.

A second option is to use it as a publication tool. Maps, charts, images, videos, texts, spreadsheets and databases can be interlinked and the results transmitted to other programmes, thus producing a meaningful and publishable result. Using standard formats data can be disseminated through a large vari-

ety of magnetic media such as diskettes, or tapes. The use of market standard formats will ensure that the potential recipients will not be faced with data compatibility problems. Thus, information exported from one system could be manipulated by a similar one or easily transported onto a different system. From that point onwards, data can be further manipulated and analyzed. In this way, the information comprising a publication becomes "alive". What is published is not merely endless lists of artifacts, nice pictures or "filtered" and "beautified" information but actually "raw" data ready for further exploitation.

Going one step further, all data deriving through the use of a system such as Explorer could be placed in a common repository residing on a public access network such as the Internet. As already has been stated, copyright laws provide adequate protection with regard to the "ownership of information". Thus, even on Internet, one could provide free, restricted or conditional access to the published information and even make use of the facility called "access by subscription".

Finally, systems like SPANS Explorer constitute ideal presentation and teaching platforms. Providing the software is loaded onto a multimedia hardware configuration of adequate standards, one can build themes through the use of video and slideshow facilities that in turn can be presented to audiences at both conferences and classrooms.

We sincerely hope that this paper has achieved in showing an alternative way to confront archaeological publications. Although it suggests radical changes to the traditional ways of both transmitting and receiving archaeological data it is our strong belief that even the sceptics when faced with the ever increasing amount of archaeological information and rising publication costs will soon have to look for alternatives. The technology exists; it is up to us whether we want to put it to use or leave it in eternal hibernation.

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## ABSTRACT

Over the years, the subject of archaeological publications, with regard to their style, format, content, and size, has been extensively debated. Nevertheless, all debates have axiomatically accepted that when talking about archaeological publications this automatically implies that we practically speak about the production of a book. Recent advances in Information Technology, supported by copyright legislative amendments, however, have forced us to reconsider this axiom; it is possible nowadays to replace the book, as we all knew it, with electronic presentation platforms and computer Cds. The computer hardware and software market now offers a variety of fairly sophisticated and relatively cheap off-the-shelf products that can be considered as both adequate and reliable publication platforms. Such a product is SPANS Explorer which is presented in this paper as an illustrative example.