Chapter VI
From Observation to Interpretation

Cynthia Jaulneau
Archaeologist, France

5.1 χχχΗ οργανολογία της ηλεκτρονικής μουσικής

Η τέχνη της μουσικής είναι άρρηκτα συδεδεμένη με την κουλτούρα που διαμορφώνει κάθε πολιτισμός. Η πολιτισμική εξέλιξη κάθε κοιν

INTRODUCTION

From the excavation to the data analysis and interpretation…which method should be used to manage, extract, analyze and interpret data? Where, when and how do archaeologists use computers? What part do they play in the interpretation of archaeological problems?

This chapter underlines the necessity of establishing a carefully thought-out method to answer precise questions. We will also use this opportunity to discuss the possibilities and difficulties generated by the use of computers to record and process data from archaeological excavations. Which reflections lead the archaeologist to use a particular tool? The amount of data-processing software for the treatment of various types of information (word processing, spreadcards, CAD, data bases, GIS, etc.) is continuously growing and developing. While it is obvious that the use of certain software facilitates the analysis of archaeological data (up to the point where it becomes essential to the archaeologist), is it also necessary to constantly adapt archaeological data processing methods to the use of new software?

For example, the last 15 years have seen an increase in research projects involving the use of geographical information systems (GIS) software. This type of software is employed to answer questions about the concept of **space**. It is frequently used today in studies broadly concerned with **spatial analysis** (at all scales: regional, microregional and intrasite). Indeed, GIS is "a set of procedures used to store and process information with geographical reference," or "a powerful set of tools to input, preserve, extract, transmit and display

spatial data describing the real world." Although this tool has indeed made it possible to answer questions which combine spatial information (geography, environment, geology, sedimentology,, etc.) and archaeological data, unfortunately it is not always used with the necessary preliminary reflection. Thus, motivation for the study is not the resolution of a specific archaeological problem, but simply the desire of the researcher to use GIS. This is why it seemed interesting to us to examine the necessity of using GIS software through the example of a recent intrasite spatial study. It is above all the archaeologist's approach and thinking that are highlighted, whatever the method. We want to show that it is the reflection and the reasoning of the researcher which should determine the interpretation of a site and not the use of software. The reflection is founded on observation of the field data and finds, as well as use of reliable recording systems.

The spatial analysis of a settlement is the study of "spatial distributions of material remains […]. The methods of spatial analysis highlight spatial patterns" (Djindjian, 1997). This spatial analysis of architectural remains is undertaken with data from the site of Kovačevo (southwest Bulgaria). Campaigns of excavation and study have been carried out here since 1986 under a convention signed by the French Ministry of Foreign Affairs, the French *Centre National de la Recherche Scientifique*, the Bulgarian Academy of Science and the Bulgarian Ministry of Culture. The project is directed by Jean-Paul Demoule and Marion Lichardus-Itten on the French side and by Vasil Nikolov, Lilijana Perničeva, Malgoržata Grębska-Kulova and Ilija Kulov on the Bulgarian side. Kovačevo is a settlement site intensely occupied during the early Neolithic period. Remains also indicate occupation during the middle Neolithic and the early Bronze age. One of the interests of this settlement, the earliest Bulgarian Neolithic site, lies in its geographical situation: located in the Struma valley, it is one of the rare communication points between the Aegean Sea and the interior of the Balkans (Lichardus-Itten, Demoule, Perniceva, Grebska-Kulova, & Kulov, 2002). The site has improved our understanding of the neolithisation of the Balkan Peninsula. No sites of this period are known within a radius of 100 to 200 kilometres, not even in northern Greece (Eastern Macedonia and Thrace) (Demoule & Lichardus-Itten, 1994). The site covers a surface area of 6 to 7 hectares. The systematic and extensive excavation (1,5 hectares) uncovered a 2,5 metre stratigraphy. A flat site rather than a tell, it provides data of exceptional quality and quantity, whether finds (almost 39 tons of finds have been recorded, including ceramics, lithics, animal bone, daub) or features (888 plans and section drawings at 1/20° scale, approximately 4000 photographs, nearly 3500 identified features, approximately 160 metres of recorded profiles…). All these characteristics led us to undertake a spatial analysis of the architectural remains to understand village organization. This was initially approached along strict spatial and functional lines before dealing with chronology (the periods and the settlement phases). This analysis is based especially on the raw field data (plans, recording of the finds and features) but also on certain aspects such as the distribution of ceramics (through refitting). The ultimate aim is to be able to understand the organization of features (buildings and annexes). While a geographical information system was initially envisaged, we will explain how and why it was eventually decided not to use it in this study. The undertaking of this work is, however, not possible without various other kinds of software (data bases, spreadcards, computer-assisted drawing, etc.). The creation of a data base combining all the available information (the excavation records and the specialist studies) became necessary and the most frequently used software for this study is a data base programme (FileMaker Pro). Fortunately, the excavation methods and techniques used since the first campaign, with all data systematically recorded on computer, made the creation of the data base relatively easy.