15 Analytical Levels and Scopes in Ceramic Archaeometry

So far we have dealt with the study and characterization of ceramic pastes and fabrics and enlarged on how they are associated with certain materials, techniques and sequences used by potters. Thus, it was observed how the composition of the vessels reflects many actions of the people involved in the life cycle of ceramics. However, we have not yet confronted the interpretation of the data obtained from the analysis of the ceramic fabrics regarding the role that technology played in ancient societies.

In this sense, some authors (Djordjevic, 2003; Rice, 1984b; Sigaut, 1994; Tsetlin, 2003b; Van der Leeuw, 1984) have distinguished between different levels for approaching the analysis of material culture. These involve the establishment of previous enquiries, the analysis of materials and the interpretation of data. This distinction is made only for analytical purposes, since all the phases that comprise the research are closely interconnected and, ultimately, the goal of all of them should be to address the organization of ancient societies in relation to the life cycle of ceramics. Each level of analysis, either focusing on the materials, the techniques or the society that produces both of them should operate reciprocally. On the one hand, the contribution of new data regarding a particular society should promote the search for certain characteristics in the materials and techniques used to produce its pottery. On the other, the features of the artefacts, once related to certain actions involving materials and techniques, can provide valuable data to study social aspects.

Following this distinction in the research process, the study of ancient societies through the material culture must begin with a reflective phase in which a number of more or less explicitly enquiries are stated. These theoretical and epistemological starting points are directly involved in the analysis and interpretation of the archaeological record, from determining the sampling criteria, the methods and techniques used as well as the type of data recorded. Once the key concerns of the research are established, another analytical phase takes place involving the study of the features that characterise the materials. This phase provides a broad corpus of data and is absolutely necessary, since, as discussed earlier, archaeology approaches past societies through the study of their material record. In this way it is possible to overcome, the mere speculation that occurs when the interpretation is exclusively generated from theoretical frameworks (Dobres and Hoffman, 1994; Jones, 2004). This phase of the investigation process is essentially descriptive and the researchers analyse and describe shapes, types, fabrics, pastes, chemical and mineralogical features, petrofabrics, textures, etc. Finally, in this stage the study of the differences and similarities existing between the vessels can be also developed, thus allowing the grouping, classification and categorisation of the pottery vessels according to specific characteristics (Mannoni, 2007; Van As, 1984). Once these first two levels of study of the pottery record have been undertaken, the interpretation of the data obtained
through theoretical frameworks takes place in order to explain some phenomena involved in the life cycle of ceramics.

Although these three steps in the research process seem very logical, in practice there is often a gap in the archaeometric studies of ceramics regarding the efforts invested in each of these levels of analysis. Thus, more emphasis is usually given to the analytical, methodological and descriptive phases, while less attention is paid to the theoretical reflection and the interpretation of the data obtained. Despite the widespread use of archaeometry in archaeology, there is often little and poor coordination between the archaeological interpretation and the analysis of artefacts. For instance, there is no justification of the methods and techniques used in relation to specific archaeological concerns (Cordero et al., 2006). Consequently, several studies have recognized and emphasized that the archaeological research should not end with the description and classification of the pottery, but it is necessary to go beyond the materiality. We should not confuse the objective with the method; the success of the analysis does not depend on applying sophisticated methods but on obtaining relevant information in historical and anthropological terms. Anyway, in spite of these serious problems, the use of Archaeometry in ceramic studies may enable the development of new interpretations regarding pottery technology (Jones, 2004; Vidal, 2008a).

In consequence, a key aspect that often remains untreated in most works on prehistoric ceramic fabrics is the representation of people within the whole process of creation, use and deposition of the artefacts. This may be due, as Balfet (1984) noted, to the fact that in prehistoric archaeology the individuals have to be inexorably addressed exclusively through the study of their objects and their disposition in time and space.

However, this constraint does not excuse us for not achieving this goal and does not justify that pottery analysis should end in the complex task of characterising the composition of the artefacts. What is more, we have to do our best to approach the multiple relationships existing between ceramics, potters and consumers in the different contexts of use. Therefore, a final level of analysis focused on social and cultural explanations of the causes and consequences regarding various technological choices and changes occurring throughout the cycle of life of ceramics must be addressed.

The implementation of archaeometric analysis in the study of ceramics does not need to be limited to the production of huge amounts of data associated with descriptive approaches that do not seek to address social interpretations of the materiality. Thus, any pottery analysis that does not provide a better understanding of the role of the artefacts in society has a limited value. This viewpoint involves enquiring about the reasons why people used or produced the pottery vessels in certain ways in the past (Dobres and Hoffman, 1994; Dornan, 2002; Kingery, 1984; Martinón-Torres, 2003; Montero et al., 2007; Pfaffenberger, 1992; Van As, 1984).
Unfortunately, despite the high analytical value of ceramic archaeometry, the study of the social practices related to pottery production is still not considered in many studies (Vidal, 2008a). In this sense, there seems to be a clear disconnection between theory and scientific practice which entails a lack of definition regarding the archaeological concerns and the social enquiries that archeometry has to face with all its analytical potential. This problem could be partially related to the hierarchy, fragmentation and specialisation that characterises current archaeological practice, in which there is often a deep lack of connection between the excavation process and the post-excavation analysis of the materials. The analytical study of the objects found at archaeological sites is considered in most cases as peripheral, thus researchers often have to undertake the analysis and the interpretation of the artefacts with little or no contextual information at all (Jones, 2002).

Therefore, this hierarchy is counterproductive to the archaeological practice since it impedes the proper transference of information obtained in the excavation to the post-excavation stage. This lack of connection prevents the performance of deeper interpretations of the archaeological materials and the sites themselves as well as, ultimately, the development of more holistic and complex viewpoints in the discipline. Moreover, it is becoming more evident that much effort and resources devoted to the application of archaeometric methodologies in archaeology are just a means to create scientific validation. This so-called scientificist approach is embedded in traditional research strategies and materialistic epistemological foundations that have little effect to promote social interpretations of the materials and the visualisation of people in the past (Cordero et al., 2006; Jones, 2002, 2004).

To overcome these weaknesses, a better communication and transference of information between field archaeologists and laboratory researchers should be developed on the one hand. On the other hand, the research should be embedded in a rich theoretical corpus which permits us to properly analyse the pottery and collect data addressing enquiries that are specific to the social sciences. Archaeologists need to be aware of the problems they must address in order to properly approach them. In this sense, regardless of their field of study, scientists must undertake an intense dialogue between the analytical, methodological and theoretical dimensions of their research (Djordjevic, 2003; Pfaffenberger, 1992).