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The Manufacture of Clay Figurines in Early Neolithic Thessaly

The Case of Prodomos

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Introduction

Discourse on figurines is centered on morphological characteristics; form, posture, gesture, facial features, and decoration are ubiquitous elements that constitute the points of reference for the analysis of miniature representations. Archaeologists seek to infer, sometimes even *read*, the social and cultural meaning of the objects directly from their style and form. Interest is thus exclusively focused on their finished form, and their dynamic production process is a dimension that is consistently neglected. Considered at times to be works of art, and at other times as ideological objects, figurines seem devoid of having any technical dimension. It has been pointed out that figurines cannot be fully studied, nor therefore understood, without considering production techniques. However, archaeologists have concentrated upon iconographics and styles, and only occasionally have they sought to understand the technical experience in its production. It is precisely the interpretation of the figurine as *artefact*, manufactured object that our study is based. In this context, the *chaîne opératoire*, which reveals these social processes by allowing us to identify and decipher the traces left in the matter, proves to be a powerful method of description and interpretation.

Objectives

The current paper aims to investigate the manufacturing technology associated with the miniature representations in Thessaly during the Early Neolithic. Based on the study of 64 clay figurines from the Prodomos (fig.1), it will be focused on the identification of the *chaînes opératoires* involved in the idoloplastic production from the area, in order to trace out the main techniques used and to clarify the physiognomy of idoloplastic production.

Methodology

A multi-disciplinary methodology was adopted that combines:

a. Macroscopic Examination:

The macroscopic analysis of technical features indicative of forming operations claims to obtain a classification of the techniques and methods of shaping, surface treatment and firing.

b. Industrial Radiography:

The reading of the figurines' inner structure enables to obtain some clear answers concerning different sequential operations. Radiographic examination is essentially based on the examination of microstructures (fissures and voids, variations in density and thickness etc.). For the radiographic images of the figurines, a Faxitron 43855D x-ray cabinet was used. Parameters were altered according to the thickness of the samples (kV 40-50, 6-9 min, 3 mA).

c. Experimental study:

The macroscopic study was combined with data collected from a series of experimental tests. These tests were required for comparing the technical traces observed on the archaeological material with those identified in the experimental objects.



Figure 1. Map of Greece. The highlighted area indicates the region of Thessaly with the specific location of Prodomos.

Forming techniques

The examination of the Prodomos material has revealed three different forming techniques: modeling from a lump of clay, the clay-core shaping and the hollow shaping.

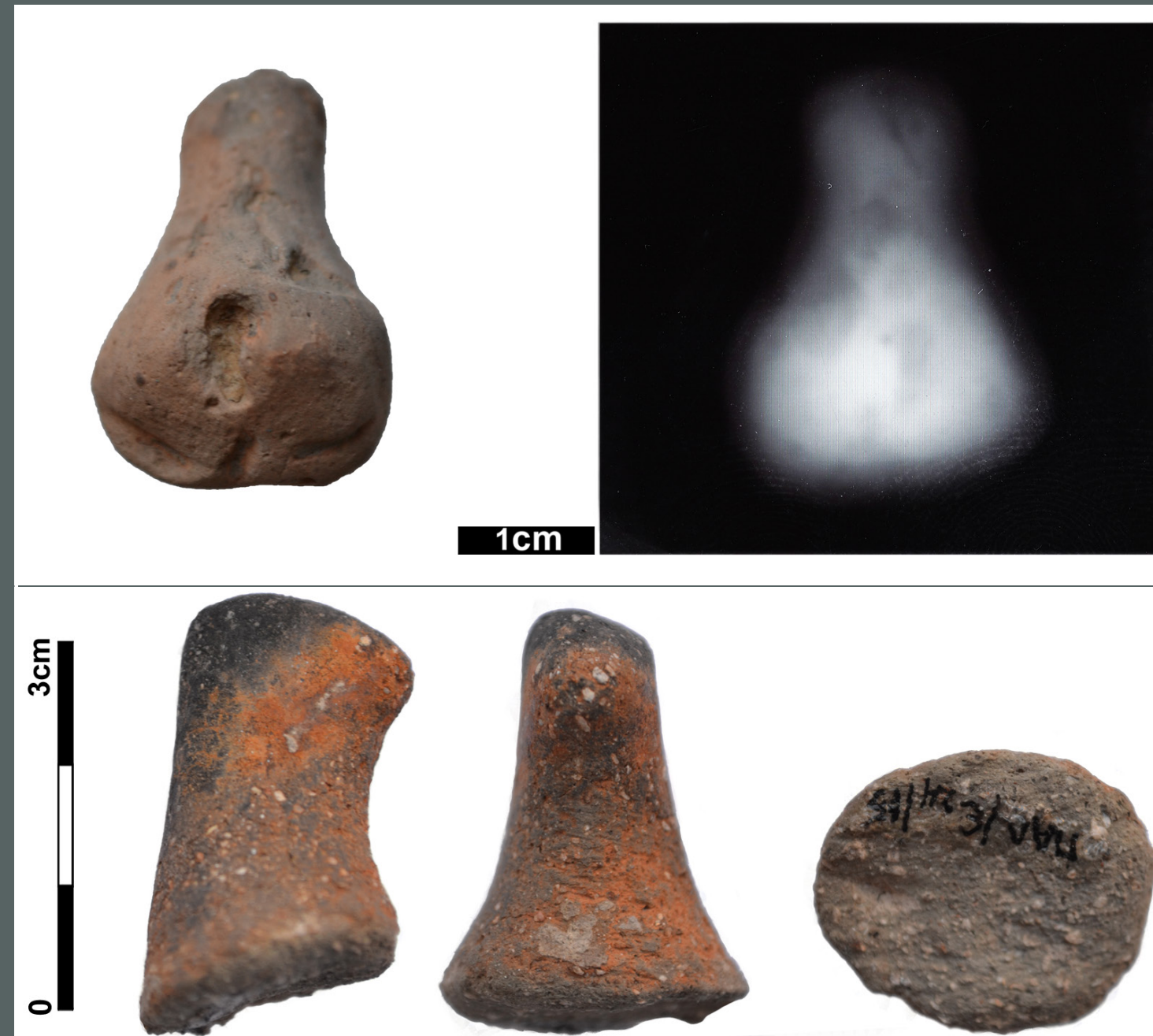


Figure 2. Figurines modeled from a single lump of clay.

Modeling from a lump of clay: this technique involves direct modeling of the figurine from a lump of clay (fig.2). 56 figurines were made using this technique.

Macroscopic Observations

- Solid volume
- Discontinuous relief
- Continuous configuration of clay elements observed in sections.

Radiographic Observations

- Gradual differentiation in the opacity

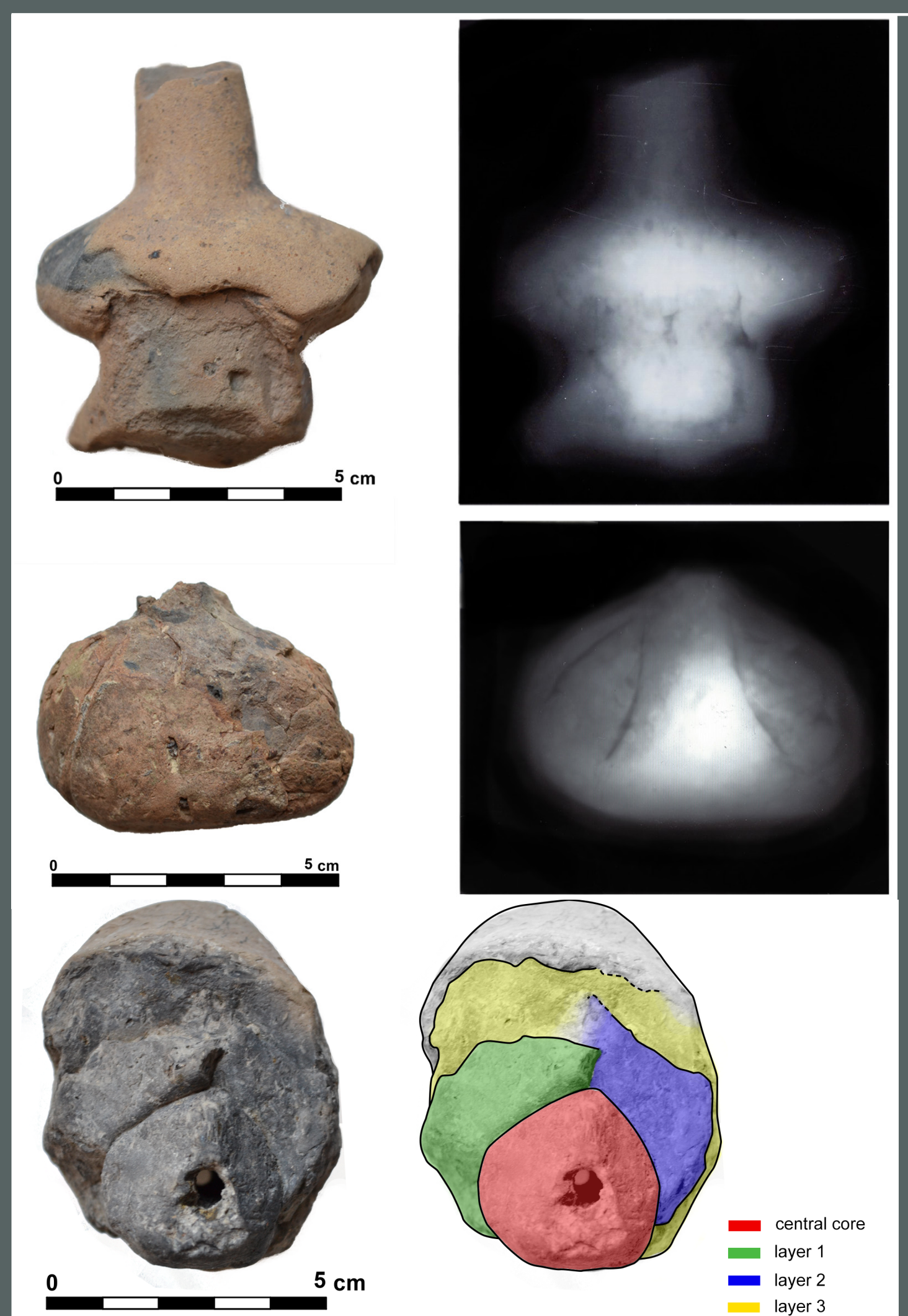


Figure 3. Figurines made by clay-core shaping.

Reconstruction of Chaînes Opératoires

Based on the forming techniques observed, we were able to identify 4 distinct *chaînes opératoires*:

CO1 : 17 examples

This *chaîne opératoire* involves modeling the figurine from a lump of clay. The clays used are either very fine characterized by well sorted inclusions or medium-fine and quite diversified in terms of inclusion sorting. With only one exception, the figurines were carefully wiped. The light surfaces, being the majority, indicate that oxidizing atmospheres were the preferred method of firing. However, three surfaces of blackened color give proof of a possible reducing firing process.

CO2 : 7 examples

This *chaîne opératoire* involves the shaping of a figurine on a clay core. The produced figurines are mainly fabricated out of fine clays very homogenous in terms of grain size, however medium-fine and medium-coarse clays with very well sorted inclusions were also used. A high degree of homogeneity concerning surface treatment can be observed, since all of the figurines are wiped. The light color of the great majority of surfaces comes from oxidizing firing. However, we can also

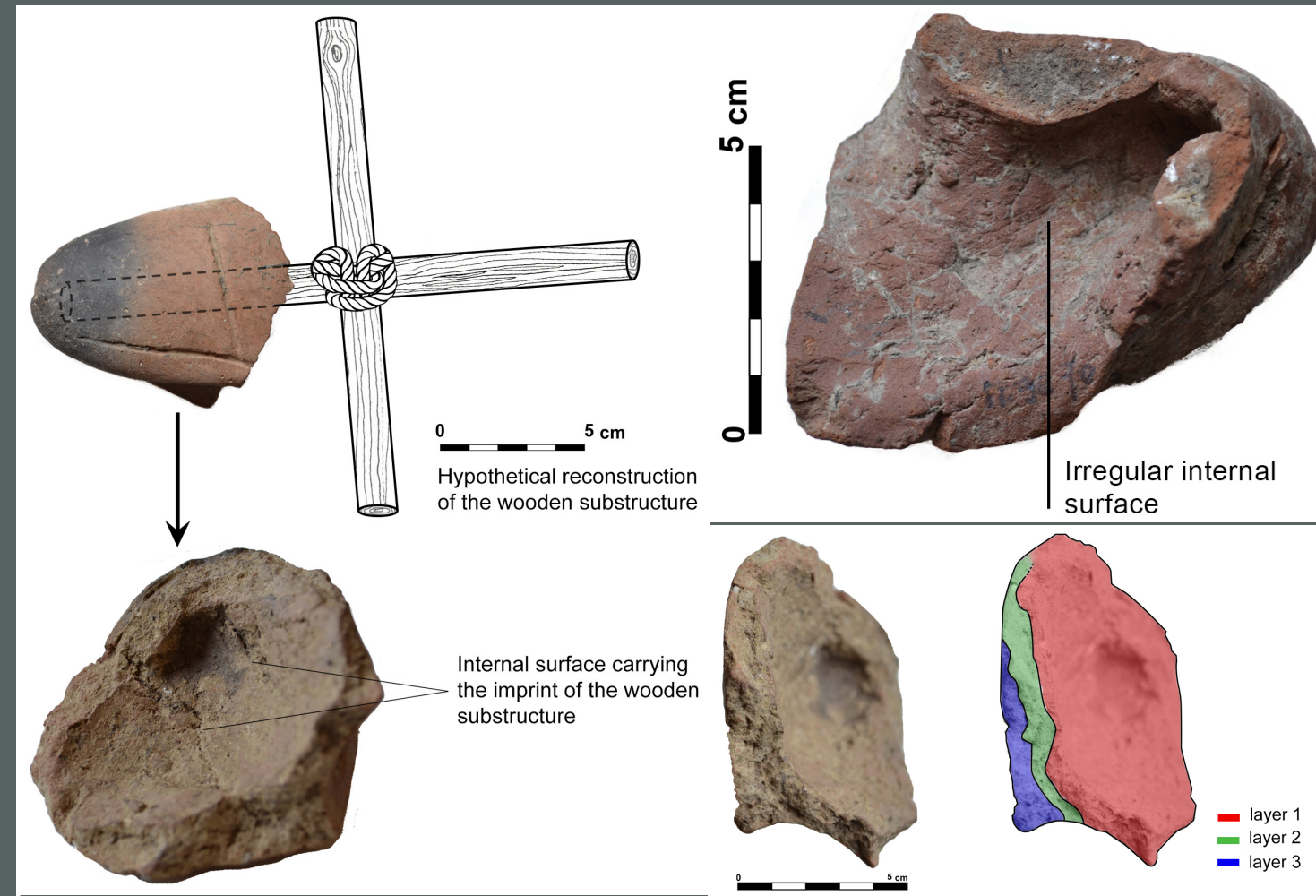


Figure 5. Fragments of figurines made by hollow shaping.

Hollow shaping: This technique involves a kind of support made of decomposable material (wood, bundles of grass, etc.), or its modeling by hand in a method similar to that of handmade pottery, such as pinching. We were able to distinguish only two pieces produced using this technique, which seems to be very rare. Both belong to figurines of large size (fig.5).

Macroscopic Observations

- Hollow volume
- Modeling on wood core: Internal surface carrying the negative imprint of the substructure.
- Modeling by hand: Irregular internal surface
- Discontinuous configuration of clay elements observed in sections.

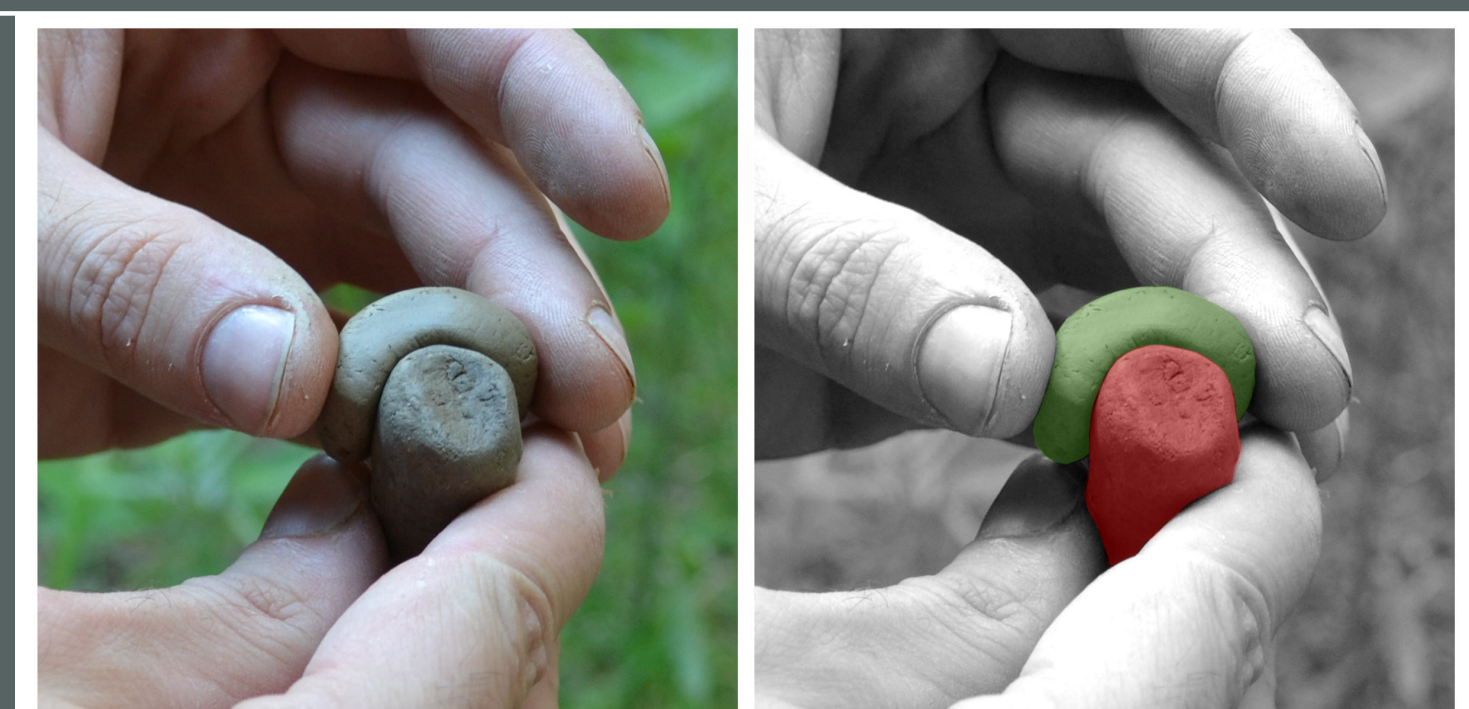


Figure 4. Experimental reproduction of clay-core shaping technique.

Clay-core shaping: consists in shaping the desired form of a figurine by using prefabricated clay elements as a substructure. 46 pieces of the Prodomos figurines were formed using this technique (fig. 3 & 4).

Macroscopic Observations

- Solid volume
- Discontinuous relief
- Discontinuous configuration of clay elements observed in sections.

Radiographic Observations

- Fissures
- Pronounced differentiation in the opacity

observe a figurine with a blackened surface and a second one with a heterogeneously colored surface.

CO3 : 39 examples

Based on a combination of the modeling from a lump of clay and the clay-core shaping, this is the best represented *chaîne opératoire* from Prodomos. The figurines from this *chaîne* are made from clays that, despite their variability, possess a certain degree of uniformity in terms of technological choices. Fine clays characterized by a well to very well sorted inclusions, as well as medium-fine clays somewhat more diversified in terms of inclusion sorting were used in the fabrication of almost the entirety of these figurines. Medium-coarse clays were much more rarely chosen. Wiped surfaces are predominant, whereas burnished ones were less numerous. A clear preference for oxidizing firing can be observed. However, one surface with a blackened color and two others of varied coloration are also represented.

CO4 : 2 examples

This *chaîne opératoire* involves hollow shaping. The two examples of this *chaîne* are created with medium-fine clays characterized by poorly sorted inclusions and present carefully burnished surfaces. Their surfaces, however, show proof of an oxidizing firing under a less controlled atmosphere.

Characteristics of Idoloplastic Production in EN Thessaly

Technological analysis of the Prodomos figurines shed light on certain aspects of the physiognomy of idoloplastic production of EN Thessaly. The four identified *chaînes opératoires* reveal a high malleability in production from a technical viewpoint.

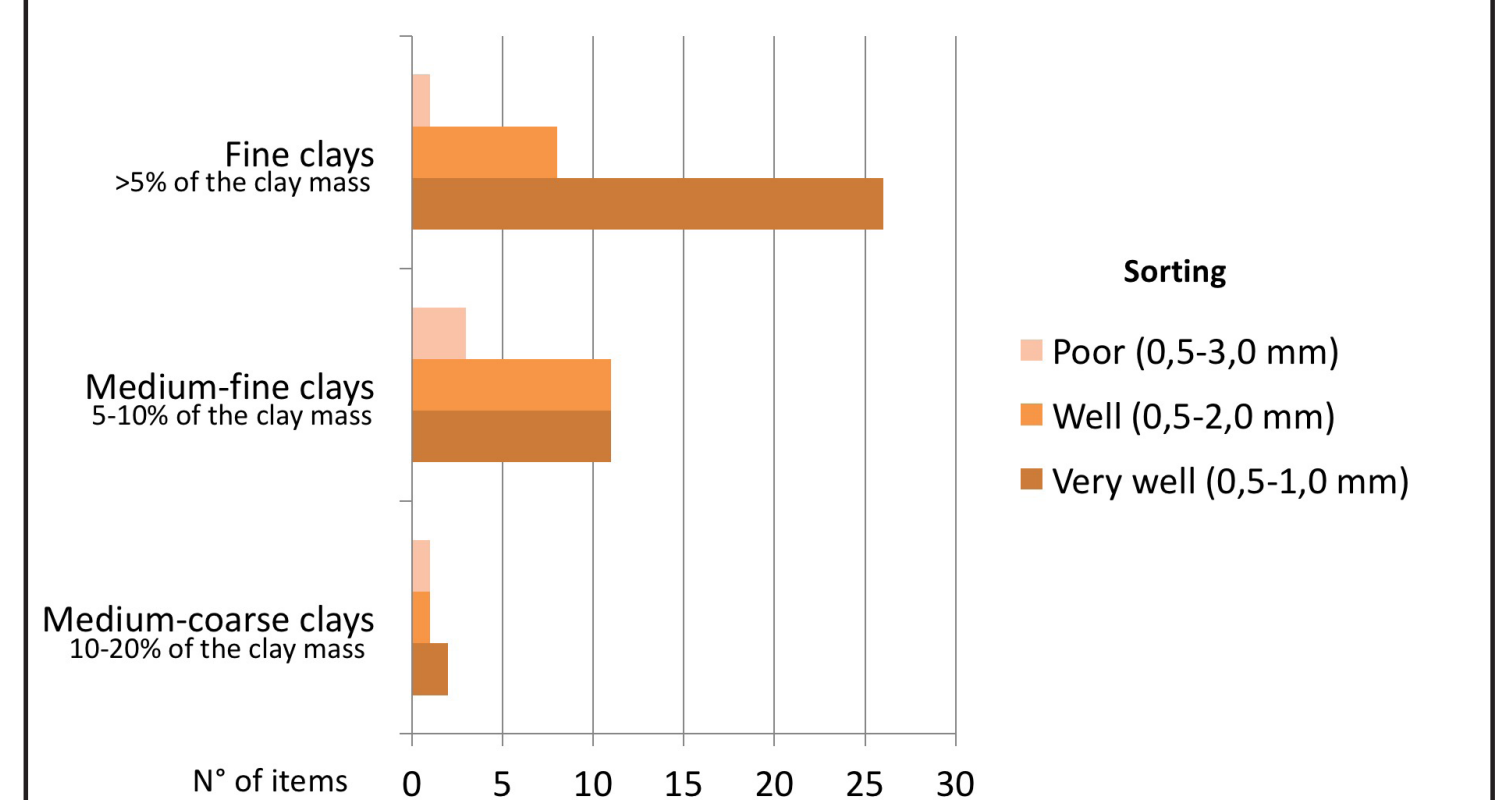


Figure 6. Distribution of fabrics

The example of Prodomos indicates that several different ways of making figurines can be simultaneously employed by the producers, thus exposing a non-standardized production process, one that is rich and greatly diversified. This richness is governed, however, by more or less rigid rules, seeming to give it a certain coherence. Certain norms (more or less pronounced) and guidelines that dictate production are brought to light.



Figure 7. Examples of wiped (left) and burnished (right) figurines.

We conclusively notice a clear preference for fine and medium-fine clays and a limited use of medium-coarse clays. During this period, homogeneous and very homogeneous clays in terms of grain size, represent 90% of the clays used, without, however, the more or less poorly sorted clays being completely unknown (fig.6).



Figure 8. Examples of figurine fired at an oxidizing (left) and at a reducing (right) atmosphere.

There is an obvious trend to treat the surfaces of the figurines. The producer aimed in one way or another to create a well-treated surface, without irregularities or uneven reliefs, pleasing to the eye and to the touch (fig.7 & 9). The firing of figurines is mainly characterized by a stable oxidizing firing, a fact proven by the predominance of figurines with a light surface (fig.8 & 9).

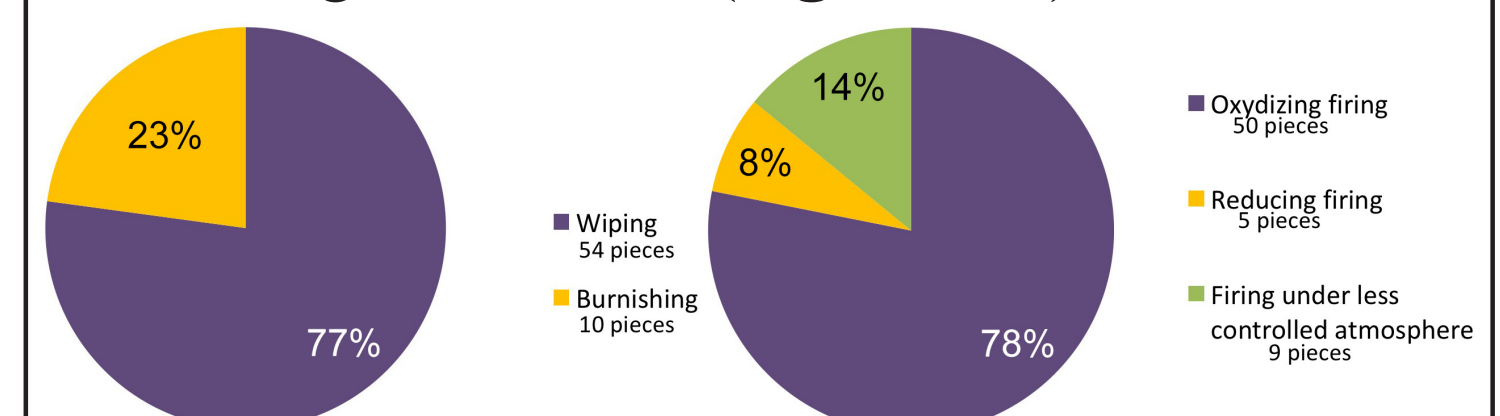


Figure 9. Distribution of surface treatment (left) and distribution of firing techniques (right).

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