



**HAL**  
open science

## Unravelling the function of Aegean fireboxe. An integrated archaeological, experimental and archaeometric study.

Bastien Rueff, Maria-Eleni Konstantinou, Georgia Kordatzaki, Maria Roupou

### ► To cite this version:

Bastien Rueff, Maria-Eleni Konstantinou, Georgia Kordatzaki, Maria Roupou. Unravelling the function of Aegean fireboxe. An integrated archaeological, experimental and archaeometric study.. Half a Century of Archaeological Science in Greece: Past, Present, & Future. Celebrating 50 Years, The Marc and Ismene Fitch Laboratory for Archaeological Science, Nov 2024, Athènes, Greece. hal-04846353

**HAL Id: hal-04846353**

**<https://hal.science/hal-04846353v1>**

Submitted on 18 Dec 2024

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

# UNRAVELLING THE FUNCTION OF AEGEAN FIREBOXES

## AN INTEGRATED ARCHAEOLOGICAL, EXPERIMENTAL AND ARCHAEOMETRIC STUDY

Bastien Rueff  
French School at Athens  
bastien.rueff@efa.gr

Maria-Eleni Konstantinou  
Foundation for Research and  
Technology / University of  
Crete  
mkmkbffe@hotmail.com

Georgia Kordatzaki  
Ionian University /  
Jasper Handmade Ceramics  
gkordat@gmail.com



Maria Roumpou  
Foundation for Research and  
Technology / Harokopio  
University of Athens  
mroumpou@gmail.com



### Fireboxes and the Aegean palatial civilizations

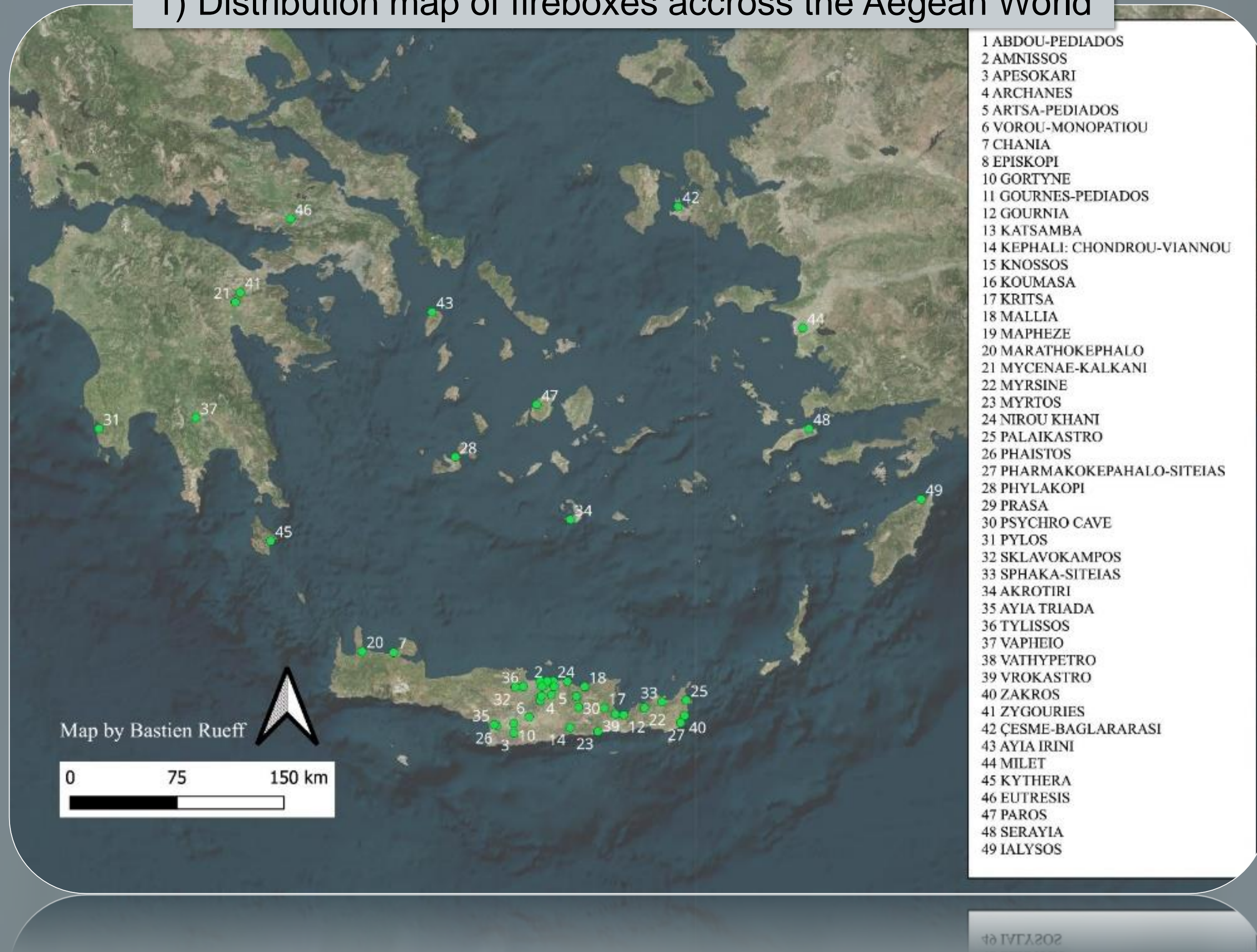
Fireboxes are clay vessels found throughout the Southeast Aegean (1), dating to the 3rd-2nd millennia BC. They have a spherical body with multiple downward perforations, surrounded by a cup (2). Four types have been identified: some lack a foot, while others have a tripod, flange, or cylindrical foot (3).

Fireboxes are common in Eastern Crete and sites like Ayia Irini on Kea (1, 4), mainly in settlements, but also occasionally in tombs (5). Their production is linked to the rise of palatial civilizations in the 2nd millennium BC, peaking during the Neopalatial period (1700-1450 BC), when the Minoans exerted their influence across the Aegean.

### Goals and methodology of the project

The function of fireboxes remains debated, despite efforts to reconstruct their role in daily life (6). This project investigates fireboxes' function, using a threefold approach that comprises archaeological and experimental study, as well as residue analysis. It is hypothesized that fireboxes were used to make unguents, potentially revealing a poorly documented craft activity in the archaeological record.

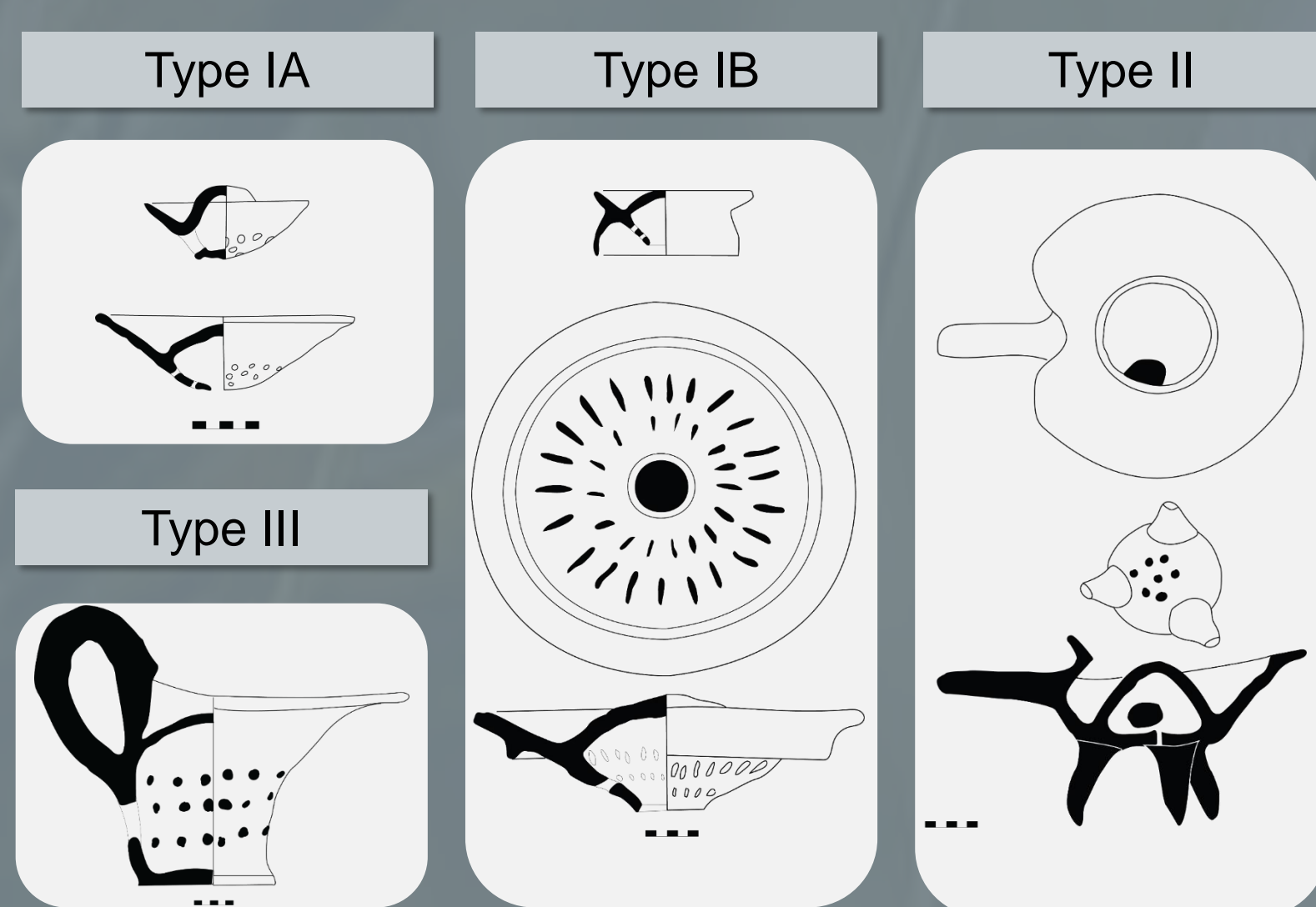
### 1) Distribution map of fireboxes across the Aegean World



### 2) Top view of a firebox

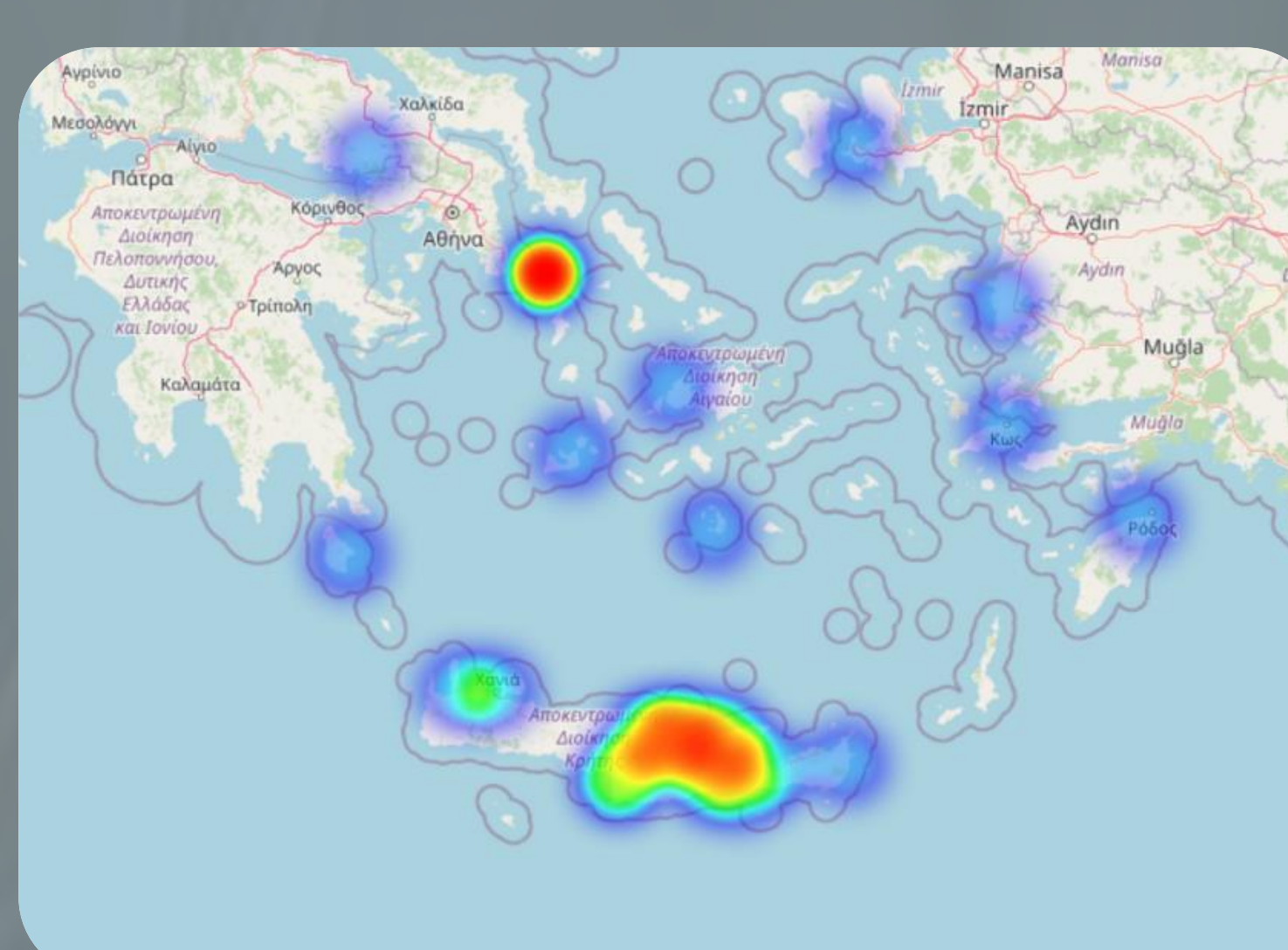


### 3) The three main types of fireboxes

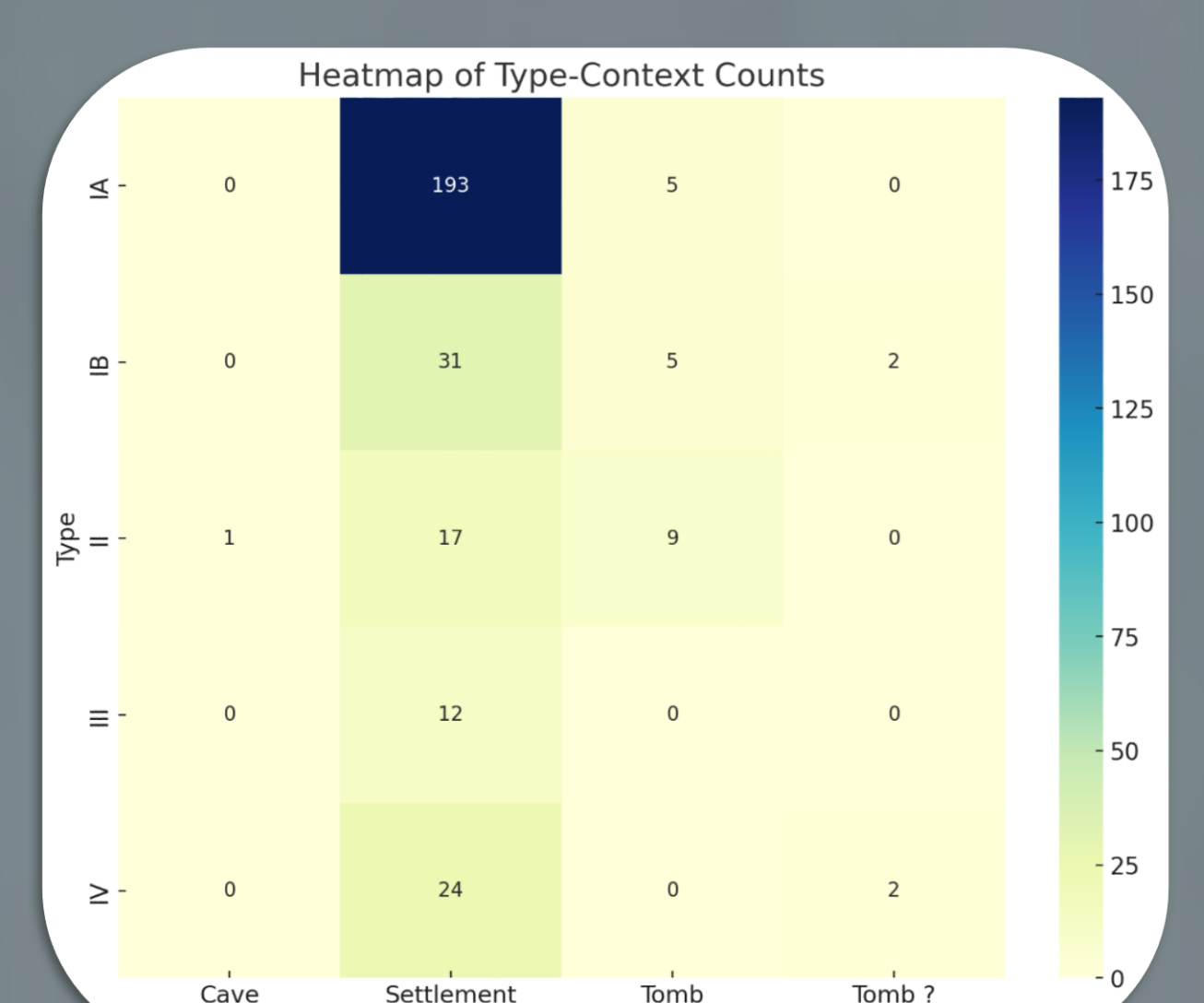


Drawings by Hara Georgiou (1974, 1980)

### 4) Heatmap of the findspots of fireboxes



### 5) Contexts of the finds



### 6) Hypothesis on function and functioning according to several scholars

**FOOD PREPARATION**

Dawkins 1902-03

Mosso 1907

**INCENSE BURNER**

Hazzidakis 1921

Chapouthier 1941

**UNGUENT MAKER**

Georgiou 1974, 1980

LID?

### Discussion

Experiments and organic residue analysis may clarify the function of fireboxes. Preliminary results suggest these vessels were used for unguent production, though further research is needed. If confirmed, this hypothesis would uncover an activity previously unknown before the Late Bronze Age II-III Linear B tablets, shedding light on the raw materials, techniques, and craft spaces tied to an important activity in daily life, likely for cosmetics and medicine.

### Bibliography

- Dawkins, R. 1902. Excavations at Palaikastro II. ABSA: 274-387.
- Chapouthier, F. 1941. La vaisselle commune et la vie de tous les jours à l'époque minoenne. Revue des Études Anciennes 43: 1-15.
- Georgiou, H. 1974. Aromatics in Antiquity and in Minoan Crete: A Review and Assessment. Kretika Chronika: 441-56.
- Georgiou, H.S. 1980. Minoan Fireboxes: a study of form and function. Studi Miceini ed Egeo-Anatoli: 123-87.
- Hazzidakis, J. 1921. Tylissos a l'époque minoenne: étude de préhistoire crétoise. (ed.)L.T.P. Franchet. Paris: P. Geuthner.

### Acknowledgements

The authors wish to extend special thanks to ARPAMED and the École française d'Athènes for funding this research, as well as to the Ephorates of Antiquities of Heraklion and Lassithi, and to Jan Driessen, Charlotte Langohr, Diamantis Panayiotopoulos, Jean-Claude Poursat, Maia Pomadère, and Vasif Şahoğlu for granting authorization to study the material.



### Experiments: objectives and methods

The function of fireboxes has been associated with food preparation, incense burning, and unguent production (6). These hypotheses have been tested through experiments.

### Vessels manufacturing

28 replicas of fireboxes and one stand were crafted to test vessel function. Some surfaces were smoothed, while others were left untreated (7). Additional experimental pots of various sizes and fabrics were made to study forming techniques and to determine if the type of the pottery paste affects the efficiency of the vessels.

### Experiments: fireboxes' use

Preliminary results confirm the hypothesis of unguent production. Unguents were made using scented ingredients known in the Bronze Age, such as olive oil, frankincense, beeswax, and safflower (8).

### 8) Unguent made with a firebox



### Organic residue analysis

Organic residue analysis will be conducted to identify resins and fatty substances preserved in ancient fireboxes. We are currently in the process of creating a reference dataset using a variety of modern raw material (resins (9), oils and aromatic plants) that will enable reliable characterization of residues recovered and will allow insights into the exploitation of varied natural resources.

### 9) Species and provenance of the resins analyzed in the reference collection

