

AN ETHNOGRAPHIC AND ARCHAEOLOGICAL STUDY OF CLAY OVENS IN JORDAN

by
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Introduction

Clay ovens are still in use and are one of the most common installations found on archaeological sites. The object of this research was and is to increase the amount of information that such ovens can provide to the archaeological record, particularly in terms of interpretation, and to contribute to the archive of customs and activities that are fast disappearing in contemporary Jordanian society.

Following Olivier Aurenche in his comprehensive study of contemporary and Neolithic building techniques in Syria, Iraq, the Iranian plateau and Anatolia, an oven is defined as "*une construction dans laquelle le combustible ne brûle pas à l'air libre, comme dans le foyer, mais dans un espace partiellement ou presque totalement clos, ou l'air ne pénètre que par un ou plusieurs orifices préalablement ménagés.*"¹

Methodology

Fieldwork was carried out in north-west Jordan during July and August 1983. A total of twenty-three contemporary ovens from the villages of Ashrafiah, Beit Ras, Hartha, Al Mughayir, Tabaqat Fahl and Taiybeh were examined in detail and these are being compared with twenty ovens from the archaeological sites of Deir 'Alla, Tell Irbid, Jerash and Pella although reference is being made to other sites in the Levant (fig. 1). Of the twenty-three contemporary ovens studied, seventeen belonged to the *tabun* type, one to the *tannur* type and five to the *wagdiah/arsah* type. Twelve of the archaeological ovens were *tawabeen*, four were of the *tannur* type and

four were of the *wagdiah* type. These ovens were drawn, photographed and plans of the spatial arrangement of the ovens and their environs were made. The comparison between the ethnographic and archaeological data is still underway and therefore any conclusions are tentative and open to revision.

Typology

In forming a typology of contemporary and archaeological ovens, the main factors considered were form, fabric and context.

Fabric

Clay ovens are now made of special fine mud, tempered by varying amounts of chaff, goat or sheep hair and small pebbles. The variation in quality of fabric does not appear constant in any one period but is constant from site to site, village to village. In present society this can be attributed to fact that only one or two women per village still know how to make the ovens. The ovens are built up in rough coils, smoothed on the interior, baked in the sun and fire-hardened by use.

Form

The chief variable governing the form of ovens is the position of the fire and its method of control. Clay ovens are now used mainly for baking bread; but, before the advent of gas and paraffin stoves, they were used for all types of cookery. However, the following descriptions will largely refer to bread.

The *tabun* (fig. 2) is the type of oven most commonly used today in the villages of northern Jordan and is found with great

¹ Olivier Aurenche, *La Maison Orientale*, Paris, 1981; p. 248.

NORTH-WEST JORDAN

a map showing the sites of ovens studied.

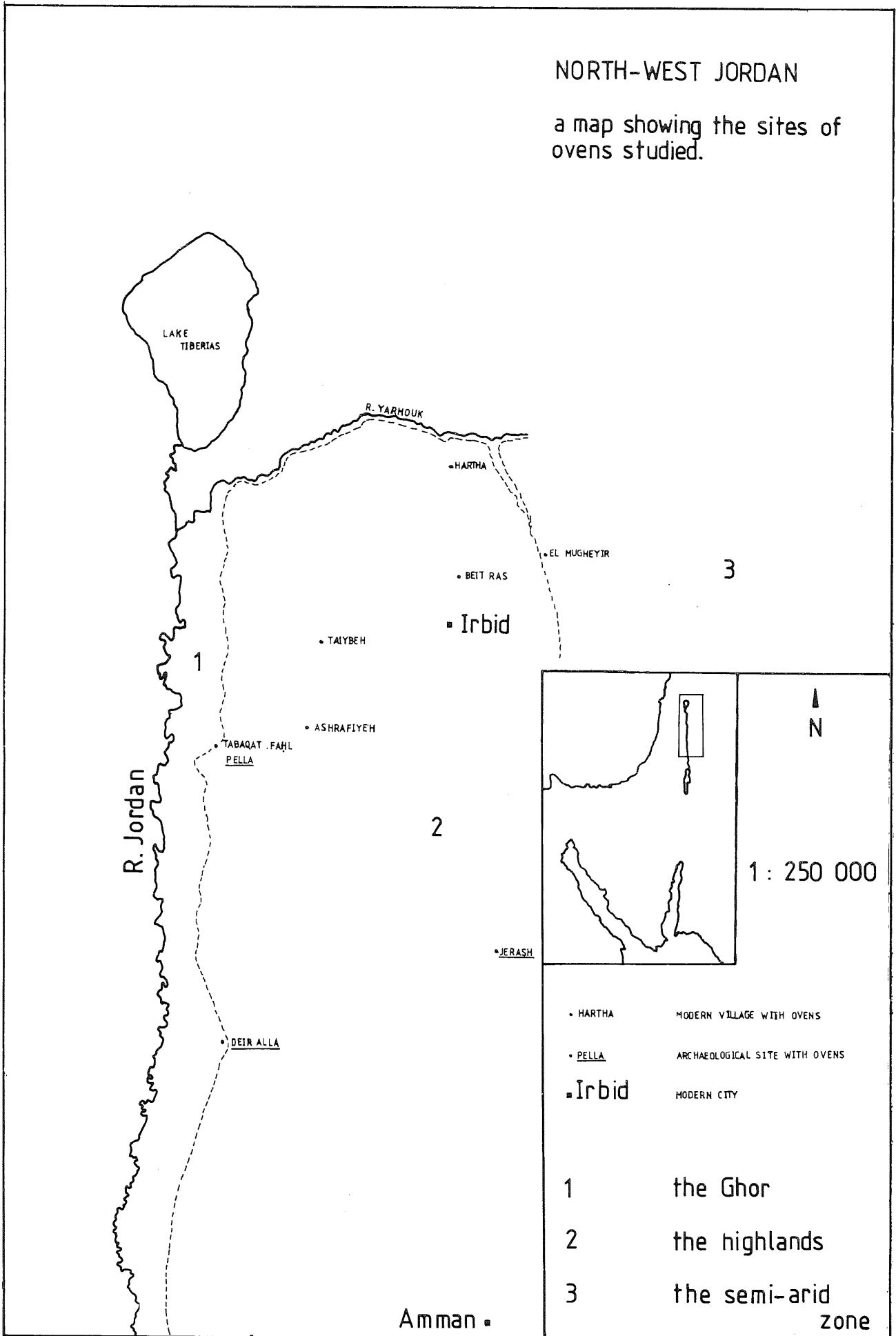


Fig. 1: A map of North-west Jordan showing the location of ovens studied.

regularity on archaeological sites. The earliest example in this area, northern Jordan, is an early Iron Age *tabun* from Pella.² They are dome-shaped, on average 0.80 m. in diameter and 0.30 m. high. The floor of the *tabun* is hard and varies in its composition; varying from those with a base of black wadi pebbles, or pot sherds to those with a smoothed clay base. The form and fabric of the archaeological *tawa-been* do not differ greatly from those found today and therefore it seems likely that the method of use was similar to that of today.

The method of use involves lighting a fast, wood fire in the *sanur* (fig. 2) prior to use and when an adequate temperature is reached, raking out the ashes and slapping the pancakes of bread onto the floor of the *tabun* (Pl. LIV: 3). After use, the *tabun* is covered with a heap of slow-burning, heat-retaining dung. Therefore, on an archaeological site it would be expected to find a large area of fine white dung ash around the *tabun* with a concentration of darker burning and charcoal by the *sanur*. Dung ash can be distinguished archaeologically as it contains fibres whereas wood ash is powdery with lumps of charcoal. In the 10th century B.C. levels at Pella, uncovered by the Australian team during their 1983-4 excavation season, such an arrangement of ash was found. The use of *tawa-been* in antiquity, therefore seems similar to that of today.

The *tannur* (figs. 3, 5) is not in use today in this area of Jordan although large examples can be seen in bakeries where they were in use twenty years ago. They are commonly found on archaeological sites, the earliest example from north-west Jordan being a late Bronze Age (1550 B.C.) *tannur* from Tell Irbid (Pl. LIII: 3)³. Comparative data suggests the following mode of use and manufacture. The oven was free-standing to a height of 1.00 m., in a mud superstructure, often packed with pottery and jar-like in form. The fire

appears to have been built at the base of the oven where there was a small opening to rake out the ashes. Often, the archaeological interpretation is that these ovens were dug down into the ground which would make ash clearing impossible, although there maybe two variants on this type. From the remains of these ovens it seems plausible that the jar-like interior was formed first and that subsequently the superstructure was built up around it, the resulting gap being packed with pot sherds and ash. The bread would have been baked by slapping the pancakes of dough onto the oven walls.

The *wagdiah/arsah* is a type of oven frequently found in present day villages, but not often recognized archaeologically (fig. 4). A complete example has however been retrieved from the Iron Age levels at Deir 'Alla (Pl. LIII: 1). The present day examples are about 0.80 m. high and domed. Halfway up this clay superstructure and bonded into the walls, is placed a disc-shaped metal sheet under which the fire is built and on which the bread is baked. Prior to the existence of sheet metal it is likely that some sort of clay plate was used as is now the case in Egypt.⁴ This might also explain the "hot-plates" at Bab edh Dhara', which are pottery discs, about 0.20 m. in diameter.⁵ The advantages of the *wagdiah/arsah* given by the villagers and drawn from observation are: it is portable; the bread baked is larger since one "loaf" covers the whole disc rather than several smaller "loaves" baked on the floor or walls of an oven; less fuel is required for firing the oven since it is not banked overnight with dung.

Context

Figure 6 shows a modern *tabun* house and its position within the courtyard. The stone dwelling house is forty years old and is of typical construction of this region and

² Sydney University Expedition to Pella, 1983/4 excavations.

³ Northern Jordan Project, 1984 excavation at Tell Irbid.

⁴ Fawzeyya & Kamel Rizqallah, *La Preparation du*

pain dans un village du delta Egyptien, Cairo, 1978; p. 8.

⁵ ed. Walter E. Rast & R. Thomas Schaub, *The Southeastern Dead Sea Plain expedition: Interim Report of 1977 Expedition*, ASOR, 46; p. 19.

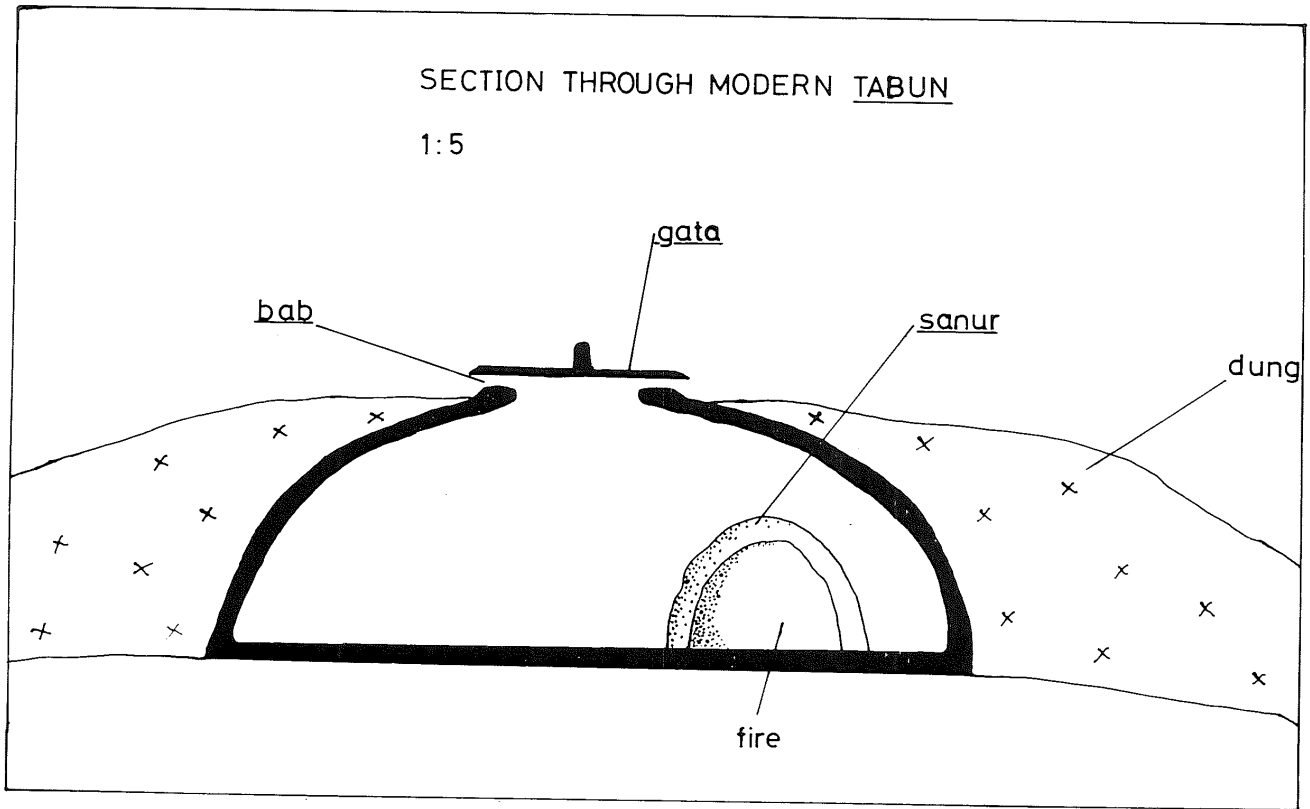


Fig. 2: A section through a modern *tabun*.

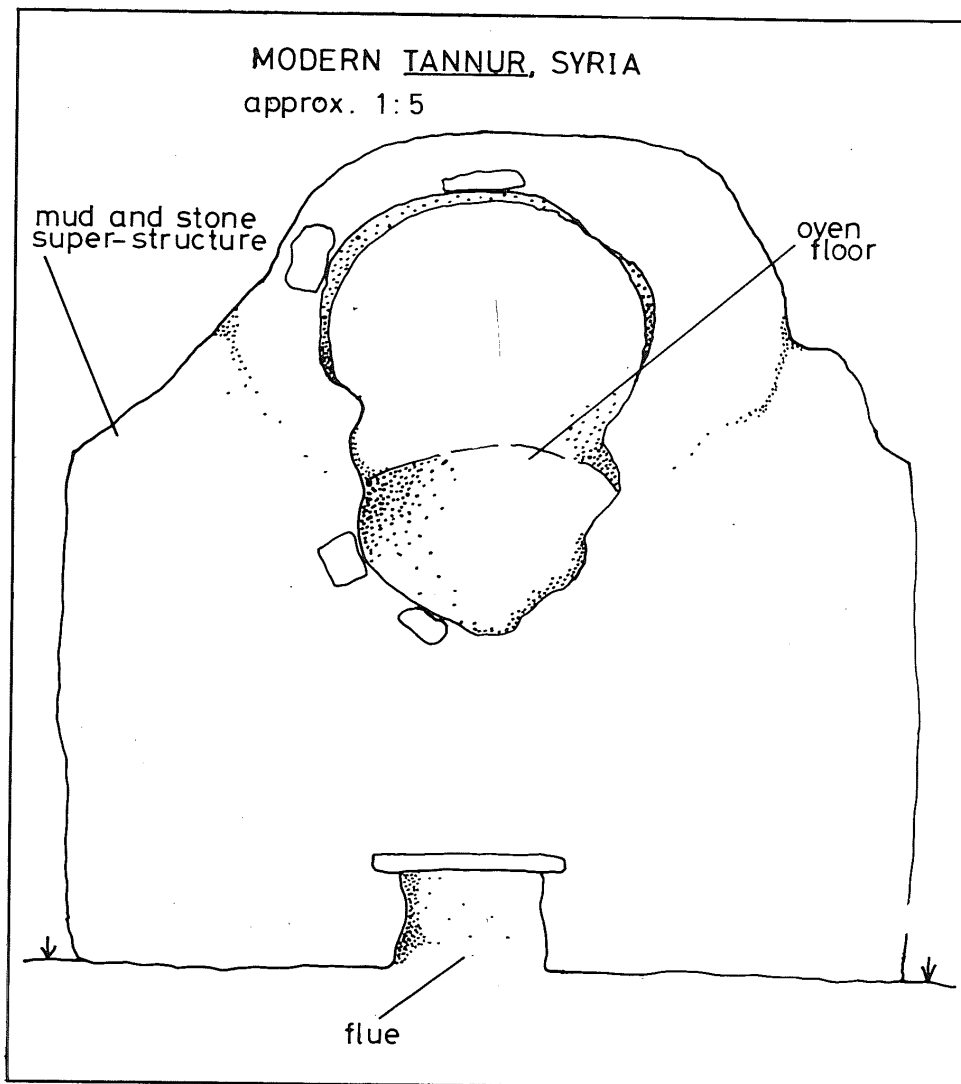


Fig. 3: A modern *tannur*, Syria.

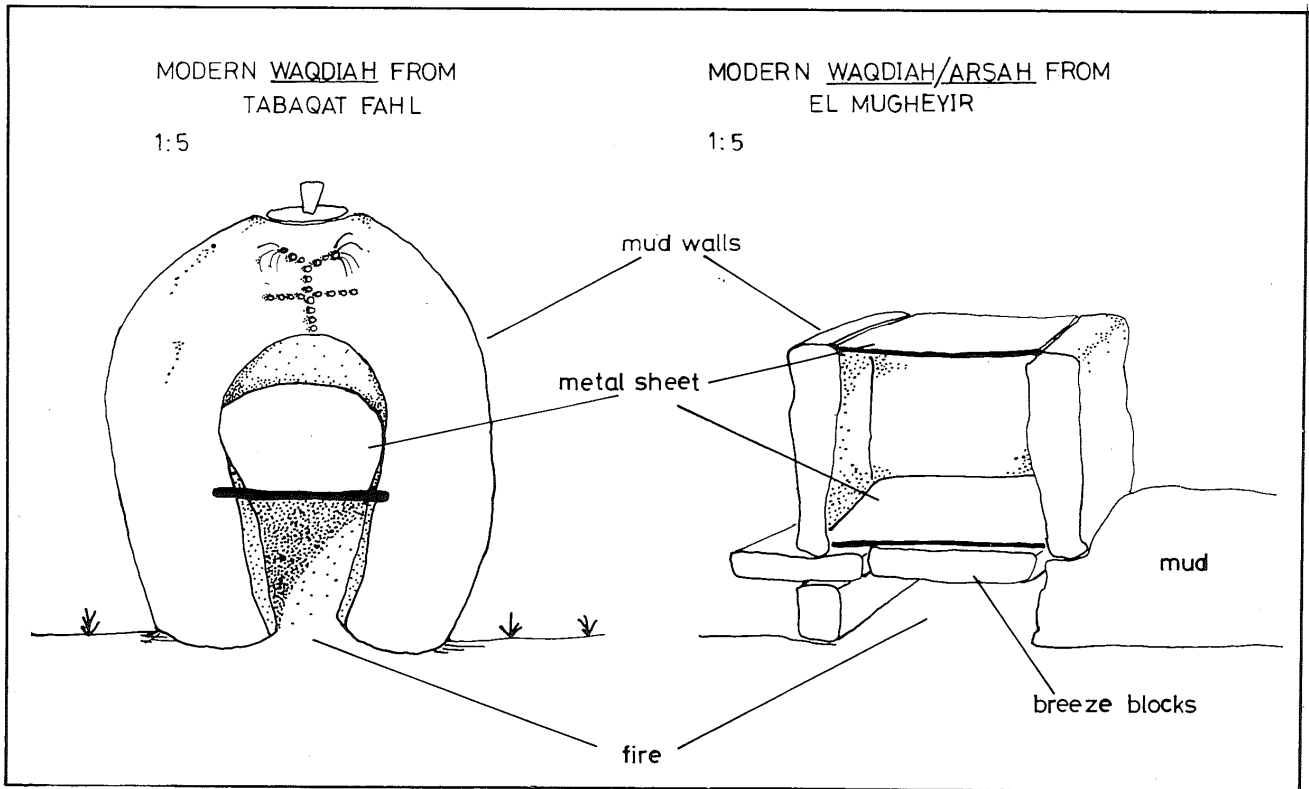


Fig. 4: A modern *wagdiah* and a modern *arsah*.

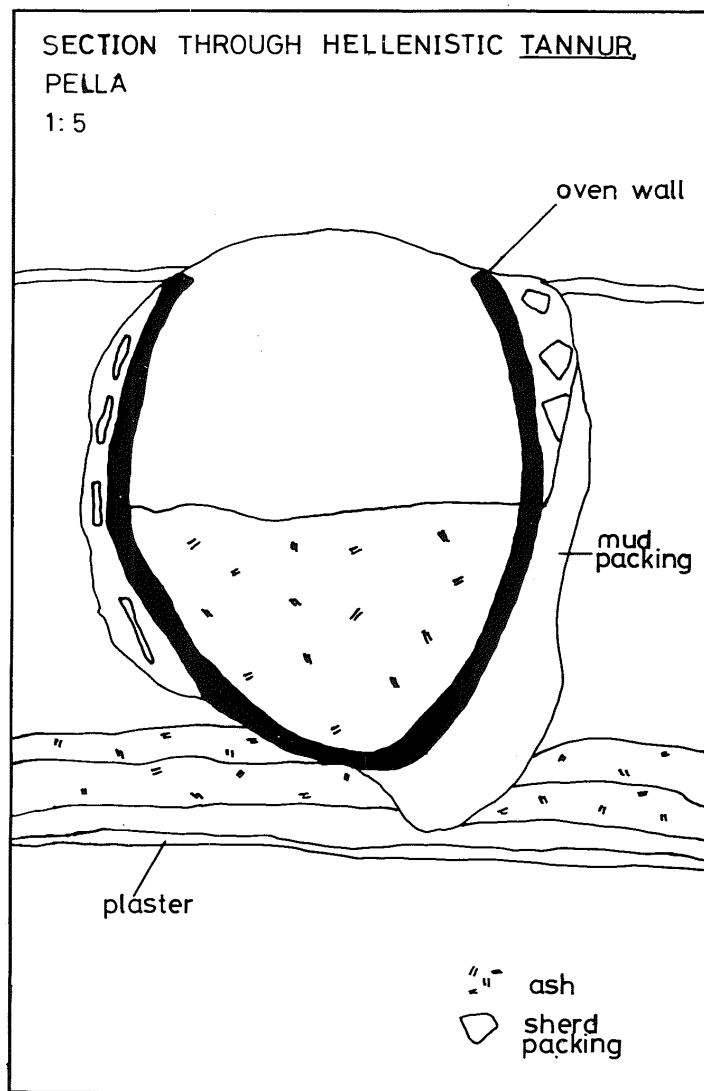


Fig. 5: A section through a Hellenistic *tannur*, Pella.

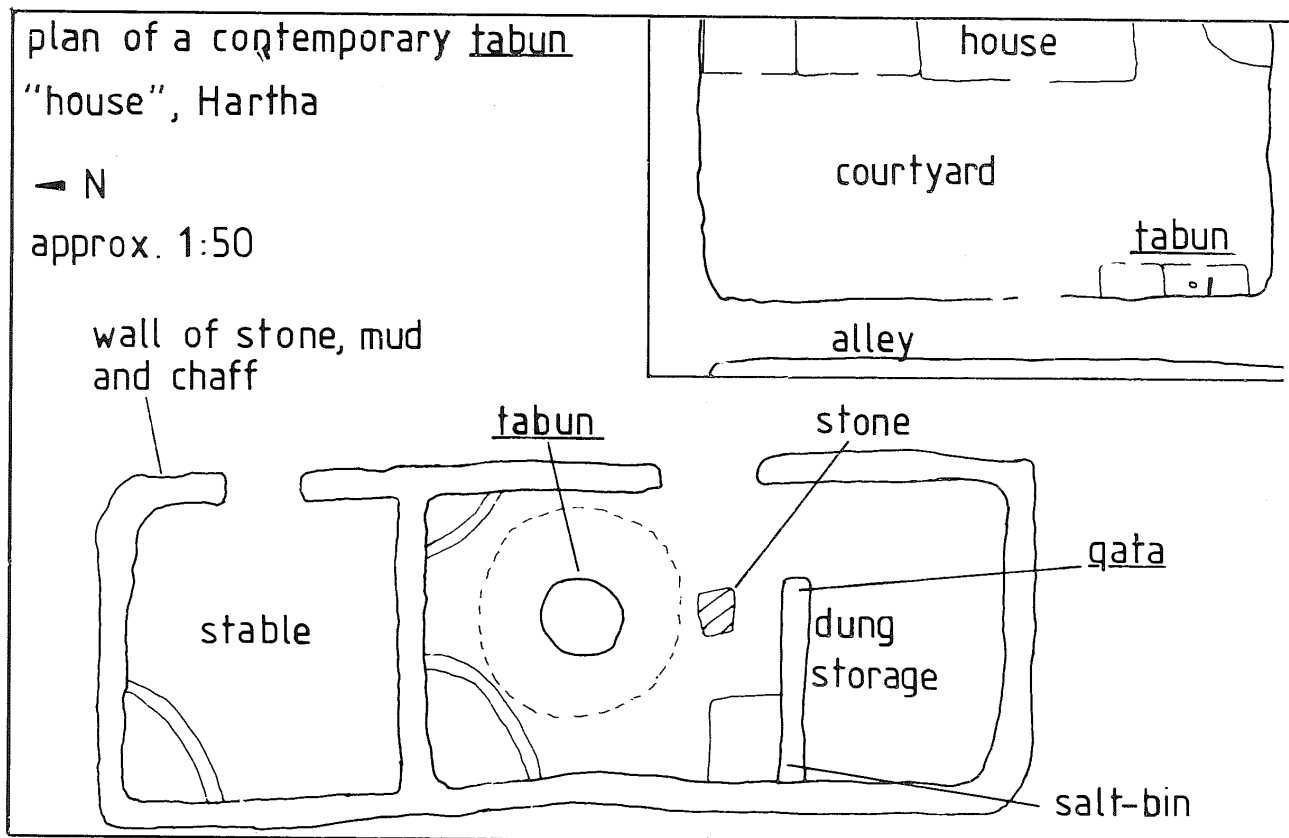


Fig. 6: A plan of a modern *tabun* house and courtyard, Hartha.

period. The twenty year old *tabun* house is built of stone and mud and is next-door to the stable. The *tabun* house shows several built-in internal features:

1. The salt-bin (Pl. LIV: 2)

This bin is made of chaff, mud and water. It has a small hole at the bottom from which the salt was taken, and an opening at the top through which the salt was originally poured. Often stores which require dry surroundings are kept in such *tabun* houses and frequently there is a bench along one side of the wall upon which to store material.

2. The qateh (*qat'e*)

The *qateh* is a dividing wall, usually 1.50 m. high, retaining the fuel store. It can be made of mud and stone, breeze blocks or stone. If there is not such a feature, the fuel is stored in a heap outside the *tabun* house. Such internal features may explain the bewildering number of seemingly vague mud and stone features that are often encoun-

tered in association with ovens on archaeological sites.

The roofing material of these houses again varies from stone-vaults, mud and iron girders to wooden beams packed with reeds. In all cases the charring and smoke-blackening and the amount of ash produced by the oven is enough to suggest that the traces of one such house is the result of fire destruction rather than mere use.

The archaeological *tawabeen* found at Jerash seem to have been within some kind of structure; and, examination of the Iron Age levels at Pella suggest that this was also the case (fig. 7).⁶ The excavations at Pella also showed that two types of oven, *tabun* and *tannur*, were often found in association with each other. The possibility that they had different functions and were used in tandem with each other should be considered. In Egypt a study of bread-making in the Egyptian delta showed that a bread oven of the *wagdiah/arsah* type and a cooking oven of the *tannur* type for heating water, etc., were located together in the oven house.⁷

⁶ ed. Basil Hennessy, Anthony McNicoll, Robert H. Smith, *Pella in Jordan*, Canberra, 1982; p. 61.

⁷ Fawzeyya & Kamal Rizqallah, *La Preparation du pain dans un village du delta Égyptien*, Cairo, 1978; p. 6.

Consideration of the wider distribution of ovens, i.e. whether communal or individual, is hampered slightly by the small area exposed in archaeological excavations and the increasing use of town bakeries today. Evidence from the excavations in northern Jordan does not point to the existence of communal ovens and although one oven is used by up to seven households today, its size does not differ. Large communal ovens are reported from elsewhere, e.g. Palestine,⁸ so this may be a regional variation or represent a distinction in the type of occupation, e.g. town/village.

The oven house itself has a varying life. Many of the ovens are housed in old Ottoman dwellings while the most recent are housed in concrete breeze-block constructions. The oven itself is in use for three-fifteen years and replaced on the same site. Information such as this is valuable for the archaeologist since it gives some idea of the time period which a single oven and its environs represent in the archaeological sequence, given that the fabric varies little.

As Figure 6 shows, in contemporary courtyard arrangements the stables are very often located next to the oven house. Fuel, and particularly dung, is a major variable governing the use of ovens, especially *tawabeen*, because of its necessity in the firing process. It has been frequently pointed out that in areas where firewood is scarce, dung is valued as an alternative.⁹ Lack of available dung to serve as fuel because of the decreasing habit of stabling animals is the most frequently given reason in northern Jordan for the demise of *tawabeen*. The relationship between the practice of stabling animals and the use of clay ovens is an interesting one and possible to pursue archaeologically.

Wood produces a fast, hot flame suitable for heating the oven. Dung gives out a smouldering, long-lasting heat reaching temperatures of 600 C.¹⁰ The various types of fuel therefore, seem to be

selected for their various heat-giving properties. The way in which this knowledge was used in early pottery firing and kilns is being investigated. At present, in northern Jordan, the evidence for the use of cooking ovens rather than hearths is later than the use of kiln-fired pottery.

Conclusions

One of the major advantages of looking at a particular aspect of material culture over a long period of time, including the present, is that the fluctuations in form, function and regional variation can be detected. The archaeological study has, as yet, not been great enough to permit more than a few such conclusions. Some conclusions are:

1. The almost invariable housing of all types of ovens in the present, nineteen out of twenty-three studied, suggests that either the climate has grown considerably worse, or that the interpretations of ovens being open in courtyard could be reconsidered.
2. The remarkable similarity of ovens in the present to those throughout antiquity indicates a continuity of population and its traditions in spite of changing empires and rulers.
3. The relative time scale that a sequence of ovens represent in the archaeological record can be invaluable for a study of coarse, domestic pottery.

Clay cooking ovens are as much of a material culture remain as ceramics or flint tools and their potential for adding to the information about past cultures is as great. In addition, this study seeks to show that understanding of a material object in the past can be increased by examination of a similar object in the present.

Acknowledgements

Thanks are given to Dr. Adnan Hadi-di, Director of the Department of Anti-

⁸ ed. Karen Seger, *Portrait of a Palestinian Village*, London, 1981; p. 107.

⁹ Ilse Kohler, *Domestikation des Kamels*, Hannov-

er, 1981, p. 61.

¹⁰ Henry Hodges, *Artifacts*, London, 1964; pp. 166-9.

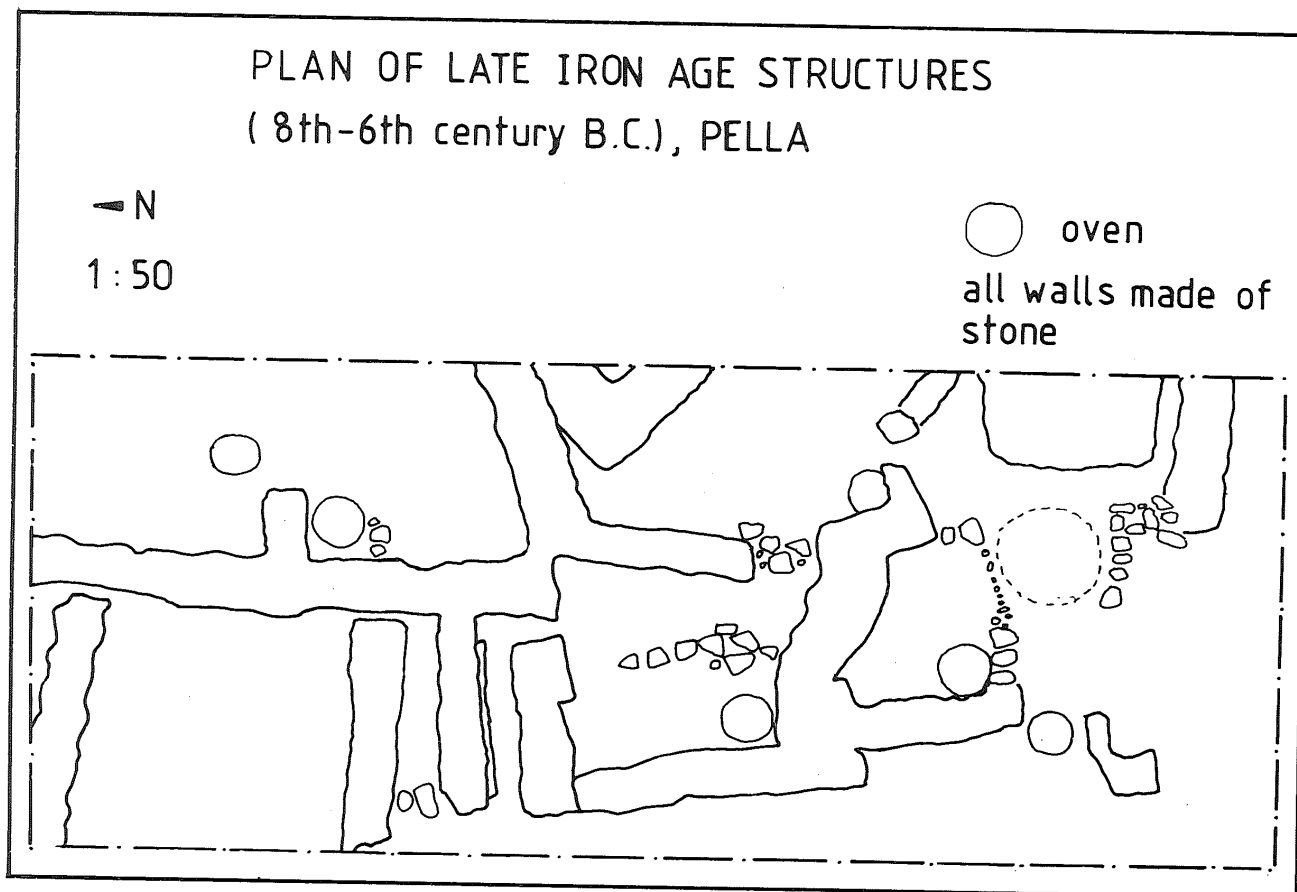


Fig. 7: A plan of the Iron Age distribution of ovens, Area VIII, Pella.

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