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**TWO OVENS FROM THE FIRST HALF OF THE 3<sup>RD</sup> MILLENNIUM BC AT TELL ARBID.  
EVIDENCE FOR GRAIN PROCESSING?  
(PLS. 166–172)**

The site of Tell Arbid lies in northeastern Syria, in the Upper Khabour basin, some 45 km south of Kamishliye. Since 1996 archaeological investigations have been carried out here by the Polish archaeological mission of University of Warsaw under the direction of professor P. Bieliński.<sup>1</sup> Since 2003 one of the areas of excavations has been sector W in the southern part of the site, at the foot of the main tell (**Fig. 1**). The most important discoveries from this sector (e.g. the so-called Southern Temple) are dated to the first half of the 3<sup>rd</sup> millennium BC (i.e. the Ninevite 5 period). The settlement at Tell Arbid, clearly of an urban character, reaches its greatest extent then.

It was Dorota Ławecka, who first drew our attention to numerous and various heating and cooking installations, that have been found at Tell Arbid in sector SD, dated mainly to the Late Ninevite 5 period (ŁAWECKA 2009: 562–569).<sup>2</sup> These kinds of installations were also discovered in sector W, in squares 51/56 and 52/57. Particularly interesting are two ovens discovered in locus 12, square 52/57, in two consecutive levels dated to the earlier part of the Ninevite 5 period. They are not only the best preserved installations of this type at the site, but also one of them, oven locus 23<sup>3</sup> is unique in many features.

Locus 12 is located north of the so-called Southern Temple complex (BIELIŃSKI 2010: 550–553). The northern wall of this complex was used as the southern wall of locus 12 (**Fig. 2**). Wall 4, not bonded with the former one, has its foundation situated lower than the floor of locus 12, i.e. it is older. Walls 12 and 19, forming the western boundary of locus 12 are also set upon tops of the earlier walls. Both walls are only one brick wide and could be some kind of low partition wall separating locus 12 from the dump area to its west (BIELIŃSKI 2007: 454). Only part of locus 12 is explored, but we can state, that it was rather large, measuring at least 4×4.2 m (**Figs. 3, 4**). Taking into account its dimensions and the presence of an oven, it was probably an courtyard or open area. The earliest floor of

the locus, reached so far lies at the 383.58–383.65 m a.s.l. It means, that this phase of locus 12 could be contemporary with the later phase in the existence of the temple (BIELIŃSKI 2007: 453).<sup>4</sup> The main installation in locus 12 is oven 23. The oven consists of a roughly circular chamber and two parallel walls forming a corridor leading to it from the north. In the northern part the walls of the corridor are 0.41–0.42 m high, and in the southern part, near the entrance to the chamber, they are 0.47–0.62 m. After the 2010 campaign we know that the walls of this corridor run for a length of at least 1.6 m, but undoubtedly they were longer. Unfortunately the rest of the corridor is concealed under the later deposits. The entrance to the chamber, of irregular semicircular shape, was completely preserved. It is 0.42 m high and 0.46 m wide at the base (**Fig. 5**).

On the floor of the corridor a thin layer of light grey ashes was found, of different colour than the ashes from the fill of the oven chamber. Samples of those ashes were taken, but the analysis is still not completed. It is possible, that it can help us to determine the function of that corridor. We can assume, that probably this way the fuel was provided and the ashes were raked out. Maybe the other reason was to separate the people working with the oven from the hot ashes. The other possibility is, that the corridor served as a firebox, where the fire was lit and the heat filled the chamber. This method was used e.g. in the kiln in Tell Ziyadeh dated to the Ubaid period. However in that case, the corridor used as the firebox was vaulted (AKKERMANS, SCHWARTZ 2003: 170–171). There is no evidence for this at Tell Arbid. Furthermore, the walls of the corridor are neither charred nor burnt. So it seems, that the corridor served only for providing the fuel and raking out the ashes.

The walls of the chamber are 0.2 m thick, made of mud bricks, and in some places are more than 0.82 m high. The bricks (0.2×0.4×0.08 m) were arranged slightly obliquely to each other; fragments of bricks were also used,

<sup>1</sup> Preliminary reports are published in: “Polish Archaeology in the Mediterranean”; now they are available also online, [www.tellarbid.uw.edu.pl/publications](http://www.tellarbid.uw.edu.pl/publications).

<sup>2</sup> On the subject of reconstruction of another type of Ninevite 5 installation from Tell Arbid connected with cooking, see: SMOGORZEWSKA 2010: 142–155.

<sup>3</sup> According to the rules of recording the architectural remains at Tell Arbid, each installation receives its own locus number. To avoid repeating the name ‘locus’, henceforth only the term ‘oven’ with number will be used, i.e. oven 23, oven 15.

<sup>4</sup> There are two main occupational levels in the temple, separated by a level of rubbish c. 1 m thick.

especially in the upper part of the oven walls. The oval chamber is 2.4 m long on the west-east axis and 2.3 m wide on the north-south axis. Each successive course of bricks projected slightly inward, i.e. the walls were leaned inwards. It is clearly visible, because the diameter in the uppermost part is only 1.4–1.48 m. It is possible, that the chamber was once domed, because there are a lot of brick fragments in the fill of the chamber fallen from the upper, destroyed part of the walls. Maybe the dome had a little opening in the centre. From the outside the walls of the chamber were covered with a thin layer of clay. The floor was made of compacted mud mixed with gravel and is up to 0.08–0.1 m thick. The chamber bricks do not have any traces of exposure to flames, but only traces of overheating. The floor is blackened, crumbled and burnt to the depth of 0.03 m.

Outside, a short, rather wide and low wall is adjacent to the chamber in the southern part. The wall reaches to the southern wall of locus 12. In fact it is the rest of the wall from the older phase, repaired with bricks and clay. The function of the wall is difficult to explain, but it is strange, that this construction divided the locus into two parts, which made it significantly more difficult to move inside the locus.

The oven was the only installation in locus 12 in this phase with the exception of poorly preserved remnants of a small installation in the southeastern corner (c. 0.3×0.4 m) (Fig. 6). Only the lowest part of its tiny walls and traces of an imprint of a basket or reed mat in the middle were exposed. It was located in a place, to which the access was very limited. The poor condition of this installation, in contrast to the well preserved oven, leads to the conclusion, that it could be only a temporary construction. Its function remains unclear.

The fill of the locus 12 consists of ashes, clay lumps with seal impressions, human and animal figurines, and ceramics with almost complete vessels, while the fill of the oven chamber yielded only fragments of the bricks from the upper part of the chamber walls, ashes and potsherds. Oven 23 ceased to be used in the course of time. Probably the floor was so burnt, that it could not be used any longer. Nearly on the same spot a new oven 15, was built. The preserved tops of the walls of oven 23 were separated from the foundation level of oven 15 by a 0.2–0.25 m ashy layer with fragment of bricks. Those bricks probably came from the walls of oven 23. More importantly, locus 12 became a part of a bigger architectural complex. The residential complex consists of the courtyard and the rooms on its three sides (BIELIŃSKI 2010: 548–550, fig. 11 – locus 12, which is not

marked on the plan, was adjacent to locus 2 from south-east). Locus 12 was the southernmost room of the east wing of this complex. In this phase locus 12 became smaller – it measured only 3×3.14 m. It is noteworthy, that it used the wall from the earlier phase (W 4). In spite of those changes the function of the room was the same, because the oven 15 was the only installation here. Locus 12 in this phase could be roofed, but the presence of such a big installation connected somehow with fire, makes it questionable.

The oven was built on the plan of an irregular circle measuring c. 2.25×2.5 m and had a kind of foundation made of one layer of mud bricks (Fig. 7). The walls of the chamber were also made of bricks (0.28×0.22×0.08 m). A short wall projecting from the northern wall of the chamber connected it with the wall W5. It cannot be excluded that there was once another, parallel wall, creating some kind of a corridor, just like in the case of oven 23, but that it was destroyed later, when the wall W5 was reinforced with the bench (see: below), that partly damaged external circumference of the oven. Another possibility is, that this wall is a kind of short radial wall projecting from outer walls of hearths, like in the case of the big hearth from square 51/56 with two such walls. If there was no corridor and entrance or side opening from the north, we must assume, that the oven was loaded and cleared from the top. Even if there really was an original opening, it could not be in use in the later subphase, when the bench was built. The oven had to be loaded and cleared from the top anyway. On the inner faces of the walls there is no evidence of the fire. The floor in the chamber was about 0.1–0.11 m thick, made of clay mixed with gravel, and was burnt to the depth of about 0.04 m. There are no traces of a substantial floor in this phase of the room. The character of the fill of the room, compared to the situation from the preceding level, has changed. There were only brick fragments, potsherds and some ashes, but no sealings. As in the earlier phase, there was no evidence determining the function of the oven.

In the next subphase locus 12 was rebuilt (Fig. 8). To the northern wall W 5 the bench or a kind of supporting wall was added, which partly covered the northern wall of the oven. To the eastern wall W 4 first the wall W 3 was added, and later another reinforcement of one row of bricks, cutting the eastern part of the oven chamber, but not its floor. We can suppose that those constructions were built to protect walls W 5 and W4 from the heat. Probably at the same time benches or small walls were built against the walls W 1A and W 12.<sup>5</sup> All those additional constructions made the room significantly smaller (2.36 m×1.9–2.16 m).

<sup>5</sup> The foundation levels of all these constructions (384.79–384.82 m a.s.l.) are very similar to the level of the floor in the

chamber of oven 15 (384.76–384.81 m a.s.l.). This means that these constructions should be contemporaneous with the oven 15.

Oven 15 should still have been in use in this subphase because the walls still existed and there was no other installation in the room. Moreover, it occupied the larger part of the room and actually there was no space for any activity not connected with the oven (Figs. 9, 10). We can not exclude, that the benches were used by the people working with the oven. The easiest access to the top of the oven would be from the bench alongside the wall W3, or from the bench alongside W 5.

The latest phase of locus 12 is also interesting (Fig. 11). The room was still a part of the architectural complex, within older walls W5, W3, W12, W 1, measuring c. 2.6×3.08 m. The only possible location of the entrance is in the corner of the walls W1 and W12, like in the earlier phase. To the wall W3, the so-called grill (locus 6), was adjacent, an installation, which consisted of three bricks standing on their ends. The construction was 1.06 m long. In the southern part of the installation a floor or tamped surface was preserved. Very significant is the lack of well preserved floor in locus 12, like in the earlier phase. Maybe it is due to the serious damage of the locus surface. In the northeastern corner there was a pit, and in the southwestern part a pit grave was found. Although locus 12 was still a part of the architectural complex mentioned above, its function probably has changed. We do not know whether ovens 23 and 15 were no longer needed, or whether the activity connected with them was moved to another place.

Installations similar to those described above, were found at Tell Arbid, as previously mentioned, also in sector SD. D. Ławecka notices a sequence of six such installations in the explored rooms, dated from the Late Ninevite to ED III period (Ławecka 2009: 568). In locus 5, squares 35–36/65, an oval installation was found (c. 2.2×1.86 m) (Ławecka 2009: 567, fig. 12). Its walls were preserved only to the height of about 0.25 m. Just like oven 15 from sector W, this oven occupied the larger part of the room, there were benches against the walls and maybe an entrance to the chamber on the northern side. Unlike locus 12 in this room there were two smaller ovens close to the big oven. In the neighbouring room two installations of the same kind, one above the other, were found. The older one, partially unearthed, has walls preserved only to 0.11 m (Ławecka 2009: fig. 12). Close to the oven a *tannur* was also erected. According to D. Ławecka, after the oven was destroyed, a new one was built in the same place (Ławecka 2009: 568–569).<sup>6</sup> This is in contrast to sector W, where a much better preserved installation, oven 23, was replaced by a new

one. Only half of this later oven is preserved, hidden partly under the benches. Both ovens, like in case of oven 15, occupy the larger part of the room. In locus 4, located to the south of those two rooms, there was a heavily destroyed installation, partly hidden under the later wall. It occupied the larger part of the room, and a bench was adjacent to one of its sides. There was also a *tannur* next to it. The dimensions of the oven could be estimated at 2.1 m on the north-south axis, and over 1.7 m on the west-east axis. In sector SD three oval ovens “with *tannur* next to them... inside a room or by a wall in the corner of a courtyard” were also found, in the southern part of square 36/66. Another two are probably in square 35/64 and square 36/64 (Ławecka 2009: 567, note 2). Ławecka mentions, that there is no slag or post-production waste in the immediate vicinity, and concludes that the ovens were probably intended for roasting or drying grain (Ławecka 2009: 569).

Summing up, the ovens from sector SD are similar in many features to the ovens from sector W: they are of the same dimensions, also construction of the floors and walls is the same. The floors are in most cases heavily burnt. The example from sector W confirms also the assumption of D. Ławecka, that these ovens were domed (Ławecka 2009: 567). The installations usually occupy the larger part of the rooms, and there are often benches next to them. The main difference is the occurrence of the other installations, *tannurs* and small ovens, related to the ovens from sector SD.

In other Tell Arbid sectors containing remnants of the Ninevite 5 date numerous fire and heating places were found, for example a round heating place (over 1 m in diameter) in square 32/65 (Bielinski 2007: 470, fig. 21), a rectangular fireplace from square 30/41 in sector D (Bielinski 2007: 458, figs. 8, 9), hearths from the so-called North-Western House, also in sector D (Bielinski 2010: fig. 3) or a rectangular hearth from the Southern Temple (Bielinski 2010: 551). Until now however, no installation that could be compared with the ovens from sectors W and SD, has been found.

The only type of installation, which shows similarities with ovens 15 and 23, is a group of the big circular hearths explored in sectors D (square 30/41, see: Bielinski 2004: 348, fig. 12) and W (square 51/56, see: Bielinski 2010: fig. 11). Those hearths or fire places have similar diameters, the same construction of the floors and walls made of bricks and were located either on the courtyards or inside the rooms. However, their side walls were rather low compared to the walls of the ovens. The fact that there were

<sup>6</sup> However, in the preliminary report those three installations were described as oval hearths (Bielinski 2009: 354–355).

both ovens and big hearths at the same time, leads us to the assumption that there were other reasons (connected with their function) for building those ovens. They had an advantage over the hearths, because of their ability of gaining and keeping high temperature, but their construction was more complex.

It is very hard to find any parallels for Tell Arbid installations on other sites of Ninevite 5 period. This is partly due to the fact that descriptions of this kind of installations are usually not very detailed and it is very hard to compare them. The other reason is that these kinds of installations are described in different terms. P. Pfälzner in his monograph about the households of the 3<sup>rd</sup> millennium BC in northern Mesopotamia distinguished three categories of heating and cooking installations. Besides the bread ovens (*tannurs*) there are also hearths and so-called *Kochstellen* (cooking ovens or cooking places).<sup>7</sup> Installations from Tell Arbid are neither hearths, nor *Kochstellen* according to Pfälzner's definition (PFÄLZNER 2001: 149 – *Herd*, 153–154 – *Kochstelle*). This means that their function is most probably different from those attributed to the two categories mentioned above. In the case of the sites in the Khabour area, analogies are questionable. At Tell Leilan a big oven was found, about 1 m in diameter, dated to period IIIa (stratum 39). It is located north of wall H, on the exterior surface. In the later phase of stratum 39, the oven was “built into a platform to its west” (MAYO, WEISS 2003: 26–27, fig. 4, feature 1). The Tell Leilan oven is smaller than ovens from Tell Arbid, but building the oven into the platform resembles how oven 15 was built into the benches. Tell Abu Hafur ovens, clearly distinguished by excavators from the *tannurs* and fireplaces, are different than examples from Tell Arbid in many details (KOLIŃSKI, ŁAWECKA 1992: 198; KOLIŃSKI 2000: 35–36). They were made partly of bricks, and partly of clay. Ovens 5 and 6<sup>8</sup> were constructed on a kind of socle; their lower parts were square and made of mudbrick, whilst the upper parts were round and made of clay. Similarities also exist in the location of the ovens in the corners of the rooms or in the corners formed by the walls and buttresses and also that the walls of the rooms were used as the walls of the ovens.

There are many examples of the ovens in Tell al-Raq'a'i in level 3 i 4. In level 3 “ovens are abundantly distributed” in structures around the Rounded Building, for example in room 10 (CURVERS, SCHWARTZ 1990: 10). Clay ovens were also found in the two-room houses (CURVERS,

SCHWARTZ 1992: 403), for example in the building with rooms 1–2 (one oven in room 2, see: CURVERS, SCHWARTZ 1990: fig. 8). There are also ovens in the one-room buildings, for example two ovens in room 56, one in the southwestern corner, with the mudbrick bench adjacent to it, and the another one in the northeastern corner (CURVERS, SCHWARTZ 1992: 403), in room 71, in area of no. 60 (two ovens side by side) and area 43. The ovens are also mentioned in the description of rooms 32 and 33. Unfortunately there is no more detailed description of those ovens in available reports. In fact many of them could be simply *tannurs*<sup>9</sup>. Among the installations from level 3 the most significant is the complex in area 75–79, the so-called “industrial” zone. Besides the brick platforms and drains there are also ovens in areas 75 and 77. The latter was built in the separate room or enclosure and consisted of “central hexagonal mudbrick core ringed by a round outer mudbrick wall” (CURVERS, SCHWARTZ 1992: 404). The oven in area 4 is very interesting. It is a large circular oven made of bricks, and close to it there is a platform. The oven occupied the larger part of the room, and the western wall of this room is adjacent to the wall of silo no. 5. The explorers believe that the oven and the platform may have been functionally connected to the silo (CURVERS, SCHWARTZ 1990: 11, fig. 8). According to this very small plan it can be assumed, that the room is c. 2×2.7 m, and the oven's diameter is more than 1 m.

Ovens are also mentioned in the description of the Rounded Building, but unfortunately without any details (CURVERS, SCHWARTZ 1990: 11–12, see also: fig. 8 – two ovens near the interior face of the outer wall of the Rounded Building).

In the Rounded Building from the older level 4, in room 18 the sequence of ovens was found; and there were silos in adjacent rooms 19 and 20 (CURVERS, SCHWARTZ 1992: 406). As we can see on the plan, the oven is also in the open space 17 of that building (CURVERS, SCHWARTZ 1992: fig. 10). The explorers connect the ovens and mudbrick platforms from the Rounded Building of phase 4 with the silos. This could be evidence of a large-scale processing of the stored grain (CURVERS, SCHWARTZ 1992: 416). According to Curvers and Schwartz, the ovens and the platforms could be regarded as *loci* for parching and drying of grains. Cooking pots found in fill of the Rounded Building should be connected with boiling and preparation of processed cereal foods such as bulgur (CURVERS,

<sup>7</sup> PFÄLZNER 2001: 149 – *als Kochstellen werden solche Feuerstellen definiert, die eine Gefäßunterhaltung besitzen.*

<sup>8</sup> Pfälzner includes ovens 5 and 6 from Tell Abu Hafur to the category of *tannurs* (PFÄLZNER 2001: 149).

<sup>9</sup> See: SCHWARTZ 2000: 167. Installations connected with two-room house 15/16 are described as “baked clay *tannurs* ovens”. The same concerns ovens from area 63/64/65.



SCHWARTZ 1992: 416–417). Because of its similarity to the ovens from the Rounded Building the oven from area 4, located near silo 5, can also be probably connected with the same activity.

To the east of the Ninevite 5 culture region, in the Eski Mosul area, three constructions described as circular kilns were unearthed during the excavations at Tell Karrana 3. One of them is a kiln from level 2 (SCHÖN 1993: 34–35), two others were found in level 3b-a, and were interpreted as “probably intended for pottery firing” (WILHELM, ZACCAGNINI 1993: 23). Kiln AF 125 was found in level 3b, and AF 36 in level 3b-a. Unfortunately only the installation from level 2 is described in details enough to ascertain its function as a pottery kiln. A short wall running on the west-east axis divided the interior of the kiln into two chambers. There are visible traces of fire on the bricks of the kiln’s walls, and on the chambers’ walls as well. Remnants of slag were found inside. An arched entrance, c. 0.55 m high, led to the kiln from the east (SCHÖN 1993: 34). Ovens from Tell Arbid are not similar at all to this kiln or to the pottery kiln from Tell Hazna (CETLIN 2004: 404–424, esp. 404–408). According to the description of two other installations, their outer diameter was 1.8 m (AF 36) to c. 2.5 m (AF 125). AF 125 was made of two rows of bricks, the outer one of bigger, and the inner of smaller ones. The walls are preserved to 0.4 m. From the western side there was a short wall adjacent to the kiln. The chamber was filled with soil, ashes and many brick fragments. AF 36 is badly preserved, the circle of the kiln is marked only by one layer of bricks. Inside it there was a lot of ash, bricks and one vessel. Two short walls located to the north of the kiln (one of them is adjacent to the walls of AF 36) were probably built to support it. Due to the lack of details, like those in the description of the kiln from level 2, we can not confirm that the ovens from levels 3b-a are actually the pottery kilns. Those installations have a lot in common with the ovens from Tell Arbid: dimensions, character of the fill and the lack of slag. More important is that kilns from Tell Karrana 3, levels 3b-a, were located on the open area, near the area with constructions considered as granaries, even if there was no direct connection between them (WILHELM, ZACCAGNINI 1993: 23–24, pl. V).<sup>10</sup> The arched entrance to the chamber of kiln 2 from Tell Karrana 3 resembles an entrance of oven 23 from sector W. Fireplaces and a kiln are also mentioned in the report from Tell Mohammed Arab, but without details (ROAF 2003: 318, kiln from level E).

As was mentioned above, the ovens from sector SD can be connected with food production (ŁAWECKA 2009: 569). The lack of slag and the existence of the *tannurs* and small ovens next to the bigger ovens can support this hypothesis. Both ovens from sector W have similar dimensions and construction of the walls and floors to the ovens from sector SD. Oven 15 is also, like the ovens from SD, located in a small room, with benches against the walls. What is different is the construction of the corridor and entrance of oven 23, and the lack of other installations which could make the interpretation of their function easier. It is especially striking in the case of oven 23, because locus 12 is in this phase relatively large and empty. This lack could also mean that there is no necessary functional connection between the bigger ovens with *tannurs* and the smaller ovens – a possible connection between those types of installations and the ovens was suggested by D. Ławecka (ŁAWECKA 2009: 567). In other words the ovens from sectors SD and W could have different functions. Locus 12 was cleaned after the oven fell into disuse, and the tools, if there were any, were probably removed. The lack of grain on the floors leads to the assumption that during the processing the grain was in some kind of containers which were put on the floor of the oven. A lot of free space, for example in the southwestern corner can suggest, that there was a place for storing perishable goods (e.g. grain in sacks). Two clay lumps with seal impressions in Piedmont style were found in the southwestern part of locus 12, in the ashes on its earliest floor. They are probably not from the later fill, but can be connected with the usage of the locus. Those imprints are different from the others found in the locus, because they are flat and brittle. They may have secured baskets or similar containers with grain.

The room located directly southwest of locus 12, can be significant when interpreting the function of oven 23. This rectangular room, with inner dimensions c. 4 × 1.8 m, is adjacent to the Southern Temple from the east (loc. 8, see: BIELIŃSKI 2010: fig. 15). It is interpreted as a granary, because the room floor is on a much lower level than the temple floor, and because there is no doorway, and the only access to it was probably from the top, as was often the case in granaries (Bieliński 2010: 553). Unfortunately the exploration of this room is still not finished, so now it is impossible to estimate its capacity, and we can not prove that there were for example any grains on the floor. This kind of granaries was found at Tell Arbid also in sector D (BIELIŃSKI 2004: 345–347).

<sup>10</sup> Architectural changes in level 3b (new walls, blocked doors) significantly limited the possibility of communication between the open space with kilns in the west and the area with granaries

in the east. Excavators conclude, that there was “a sharp divide between the south-western and the north-eastern sectors of the Karrana settlement” in level 3b (WILHELM, ZACCAGNINI 1993: 24).

From the ethnoarchaeological observations in Turkey we can see, that parching was a method of grain preparation that eased dehusking. Hillman says, that parching in ovens loaded from the front is still in use in Turkey, and probably was also common in Europe during the Roman period. From the experiments we know that the temperature required for this process is 200°C (HILLMAN 1984: 129). This function (parching) was attributed to Tell al-Raqā'i ovens, where we can see a strong connection between such installations and nearby silos. The same connection can be seen, as mentioned above, in the case of the ovens from level 3b-a in Tell Karrana 3. A similar case can be observed in the older oven, if not of both of them, in sector W.

A plausible hypothesis is that the ovens in sector W were used for parching the grain, and that they were connected with the nearby temple. Unearthing the northern part of locus 12 and result of archaeobotanical analysis will help to refute or to corroborate this assumption, and help us to learn more about the activities in this place.

It is beyond the scope of this paper to examine the usage of installations like ovens from sector W through

time, but it is interesting that in Tell Arbid in later periods of the settlement, no such installations can be found. We don't know if it was due to the changes of the grain preparation methods or to the changes in the economic strategy of this site or more generally, of the Khabour region. We can not exclude that the changing of the methods of grain preparing can be connected with barley, which became a major crop in this region in 3<sup>rd</sup> millennium BC. The archaeobotanical records show this trend most clearly in the southern part of Khabour basin (MCCORRISTON, WEISBERG 2002: 485–498, particularly 491–492), but evidence from other sites seems to corroborate this hypothesis (LEBEDEVA 2004: 425–440, particularly 426–427). In the case of barley, other techniques of grain processing than parching could be used (HILLMAN 1985: 19–22; MCCORRISTON, WEISBERG 2002: 494).

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## DWA PIECE Z PIERWSZEJ POŁOWY III TYS. P.N.E. Z TELL ARBID. INSTALACJE DO PRAŻENIA ZIARNA?

Na stanowisku Tell Arbid położonym w północno-wschodniej Syrii, w górnym basenie rzeki Chabur, od roku 1996 pracują polscy archeolodzy z UW pod kierownictwem prof. P. Bielińskiego. W czasie prac w sektorze W, w południowej części stanowiska (kwadraty 51/56 i 52/57), w locusie 12 odkryto dwa piece, najlepiej zachowane spośród tego rodzaju instalacji na całym stanowisku. Datowane są one, podobnie jak większość warstw z tego obszaru (m.in. tzw. świątynia południowa), na I poł. III tys. p.n.e., na okres kultury Niniwa 5, kiedy osadnictwo na Tell Arbid osiągnęło swój największy zasięg.

Starsza z dwóch instalacji (piec 23) posiada wiele cech unikalnych. Zbudowano ją z cegieł mułowych na dziedzińcu lub otwartej przestrzeni, na planie dużego okręgu o średnicy ponad 2 m. Komora miała kształt kopuły z niewielkim otworem wejściowym, a wiodł do niego korytarz obramowany dwoma niskimi murkami. Młodszy piec – 15, podobnej wielkości i zbudowany w podobnej technice, ale bez korytarza i bocznego wejścia, wzniesiono prawie w tym samym miejscu. Zmianie uległ natomiast charakter otoczenia – pomieszczenie z piecem stanowiło w tej fazie część większego kompleksu architektonicznego składającego się z dziedzińca otoczonego z trzech stron ciągami pomieszczeń. W funkcjonowaniu pomieszczenia z piecem 15 można wyróżnić późniejszą fazę, kiedy pomieszczenie zmniejszono, dobudowując do wszystkich wewnętrznych ścian ławy lub wzmocnienia. Nie tylko ograniczały one znacznie możliwość poruszania się wewnątrz, ale też częściowo

przecięły ścianki pieca. W kolejnej fazie istnienia kompleksu miejsce pieca zajęła inna instalacja, tzw. grill. Tę wyraźną zmianę można interpretować albo w ten sposób, że piec i związana z nim działalność zostały przeniesione w inne miejsce, albo też należy przyjąć, że piec nie był już potrzebny, bo ustał powód, dla którego został zbudowany.

Najbliższe analogie dla pieców z locusie 12 stanowią dużo gorzej zachowane piece z sektora SD z Tell Arbid. Analogie z innych stanowisk kultury Niniwa 5 (Tell Leilan, Tell al-Raqa'i, Tell Abu Hafur, Tell Karrana 3) są dużo mniej pewne. W świetle obecnego stanu badań piece z Tell Arbid wydają się być konstrukcjami wyjątkowymi.

Podjęta próba interpretacji celu, któremu służyły piece z sektora W, jest utrudniona właśnie z powodu ich wyjątkowego charakteru oraz przede wszystkim z powodu braku związanych z nimi jakichkolwiek śladów, np. odpadów poprodukcyjnych, narzędzi czy towarzyszących im innych konstrukcji. Natomiast na podstawie analogii etno-archeologicznych z terenu Turcji można jednak wysunąć hipotezę, że piece z sektora W służyły do prażenia ziarna, w celu łatwiejszego pozbycia się plew.

Brak podobnych konstrukcji z późniejszych okresów istnienia stanowiska może świadczyć o zmianie metod obróbki ziarna, co mogło mieć związek z zaobserwowanym w badaniach archeobotanicznych wzrostem znaczenia jęczmienia wśród zbóż uprawianych w rejonie Chaburu w III tys. p.n.e.



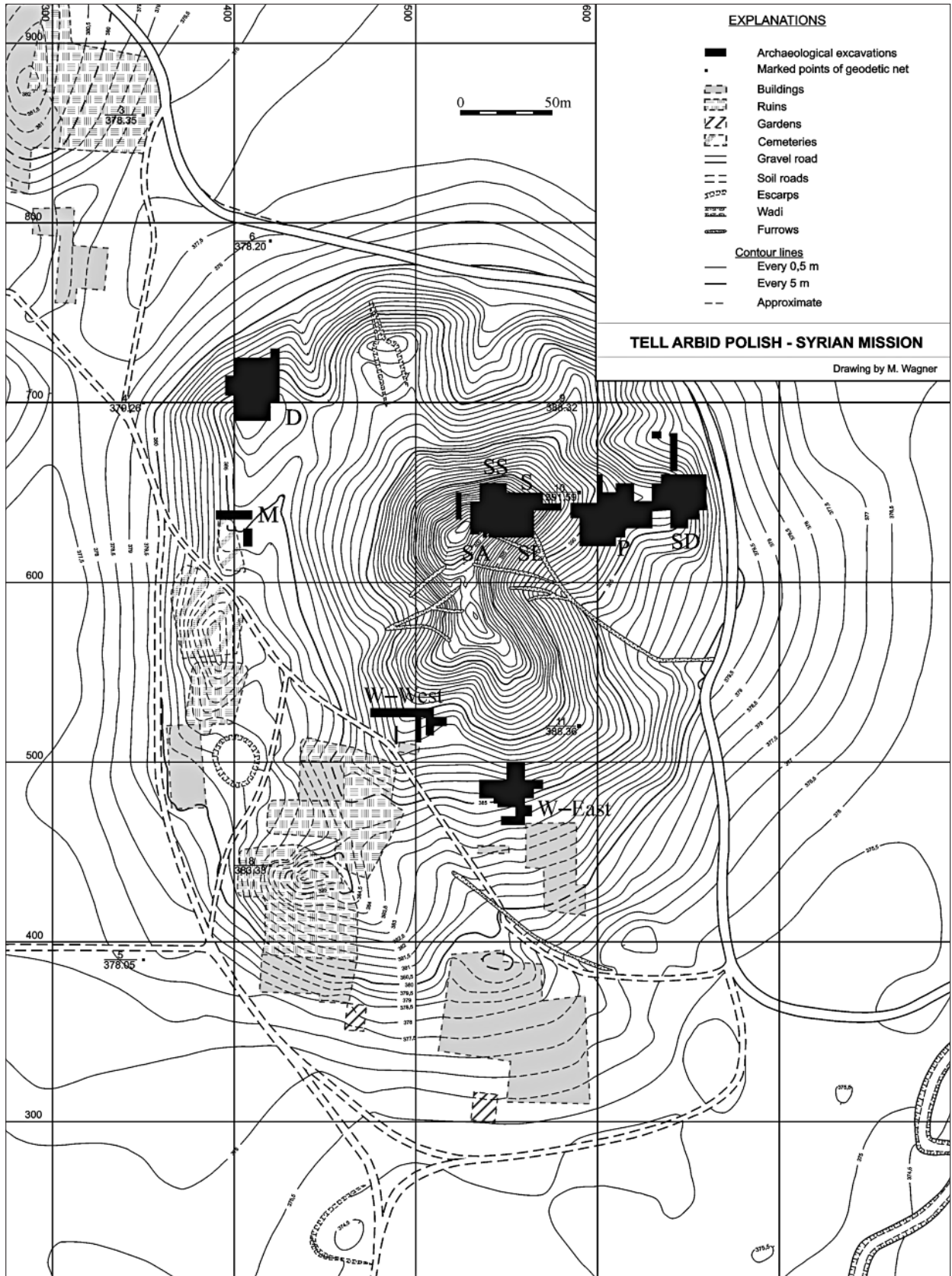


Fig. 1. Contour map of the main tell at Tell Arbid showing the location of excavated area (Drawing M. Wagner, based on plan by D. Pręgowski, updating M. Momot).

Ryc. 1. Mapa warstwicowa Tell Arbid z zaznaczeniem miejsc objętych wykopalskami.

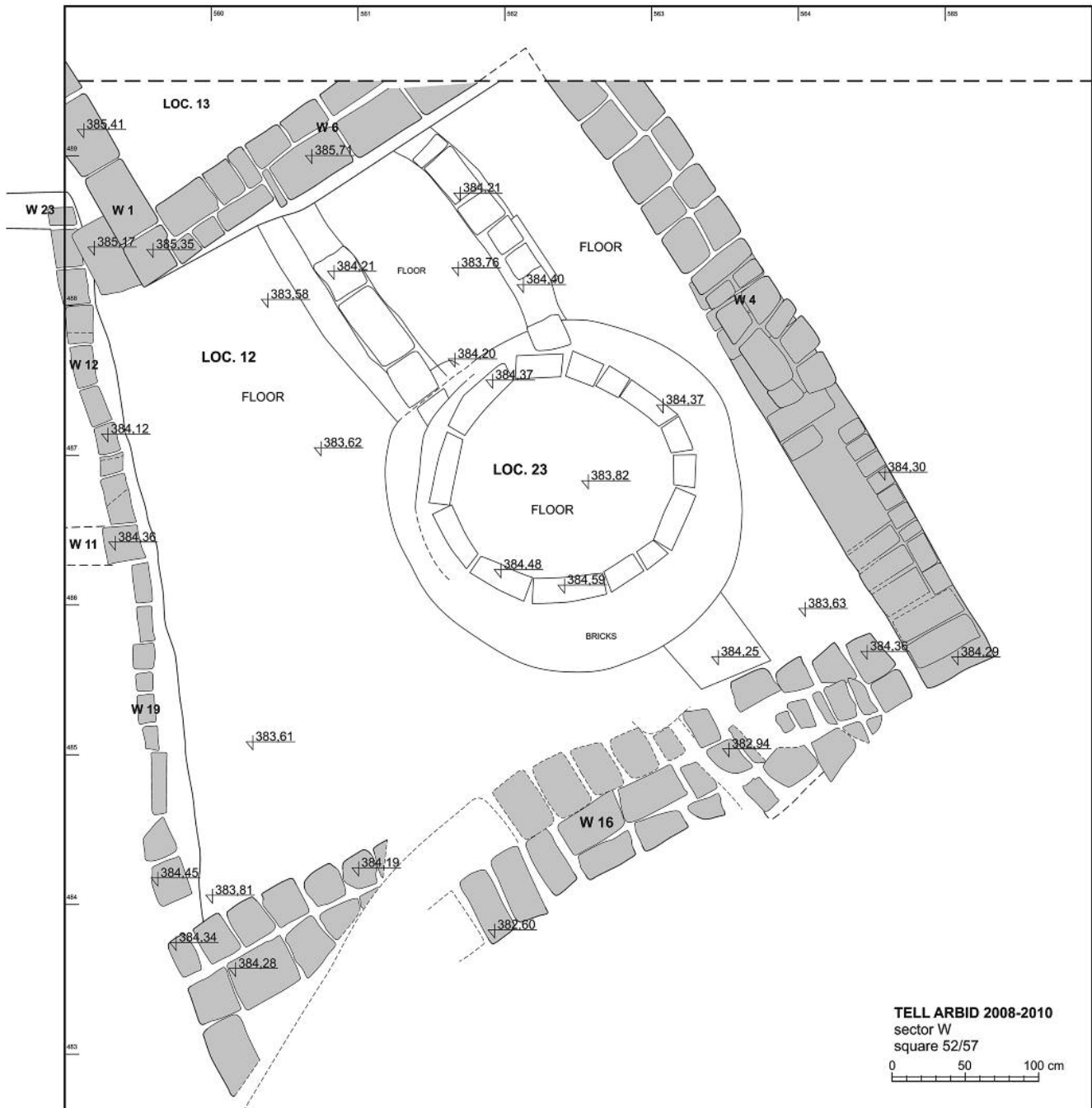


Fig. 2. Plan of locus 12 with the oven 23 (Drawing C. Baka, A.M. Kotarba, D. Szeląg, digitizing M. Wagner).

Ryc. 2. Plan locusu 12 z piecem 23.



PLATE 168



Fig. 3. Locus 12 with the oven 23, after the 2008 campaign, view from the north (Photo Ł. Wojnarowicz).

Ryc. 3. Locus 12 z piecem 23, stan po sezonie wykopaliskowym z roku 2008, widok od północy.



Fig. 4. Locus 12 with the oven 23, the 2010 campaign, view from the northwest (Photo C. Baka).

Ryc. 4. Locus 12 z piecem 23, sezon wykopaliskowy 2010, widok od północnego zachodu.



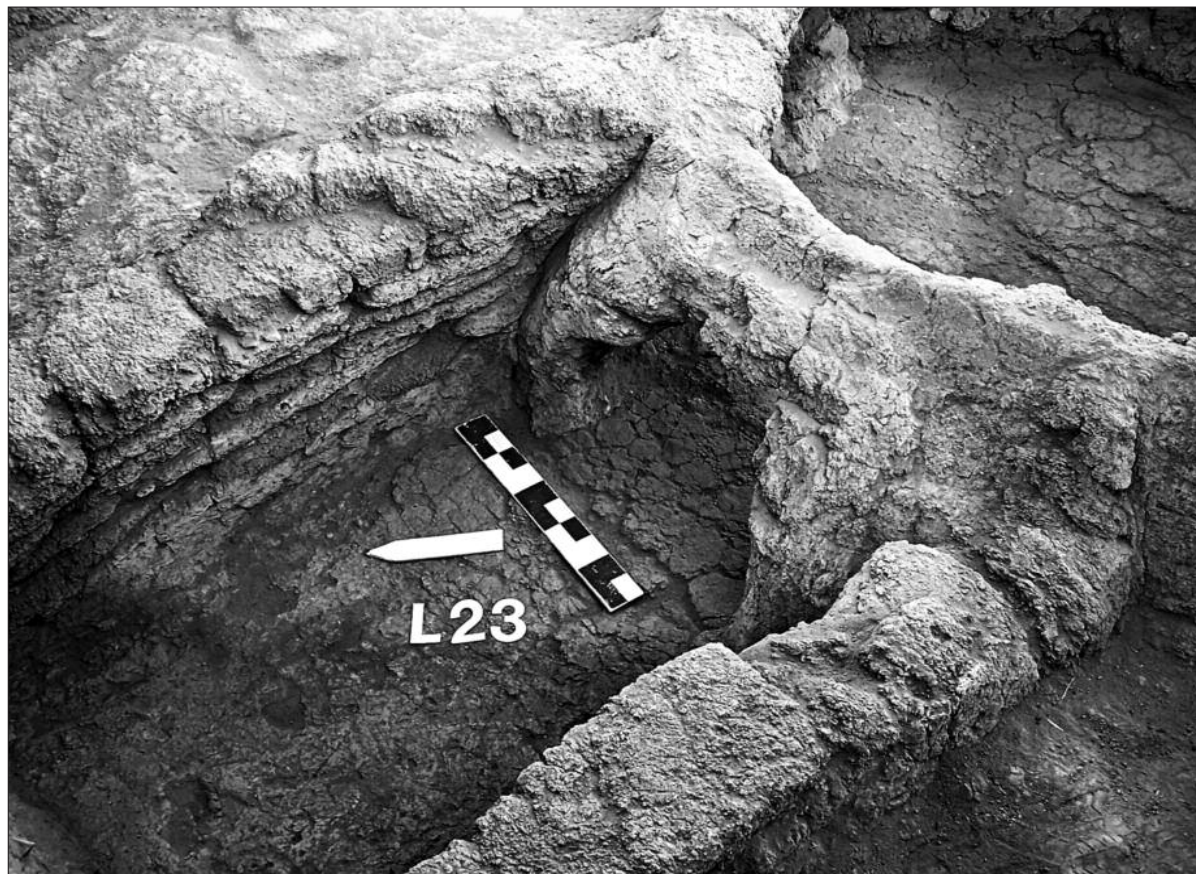


Fig. 5. Oven 23 – entrance to the chamber (Photo Ł. Wojnarowicz).

Ryc. 5. Piec 23 – otwór wejściowy do komory pieca.



Fig. 6. Installation in southeastern corner of locus 12 (Photo C. Baka).

Ryc. 6. Konstrukcja w narożniku południowo-wschodnim locusu 12.



PLATE 170

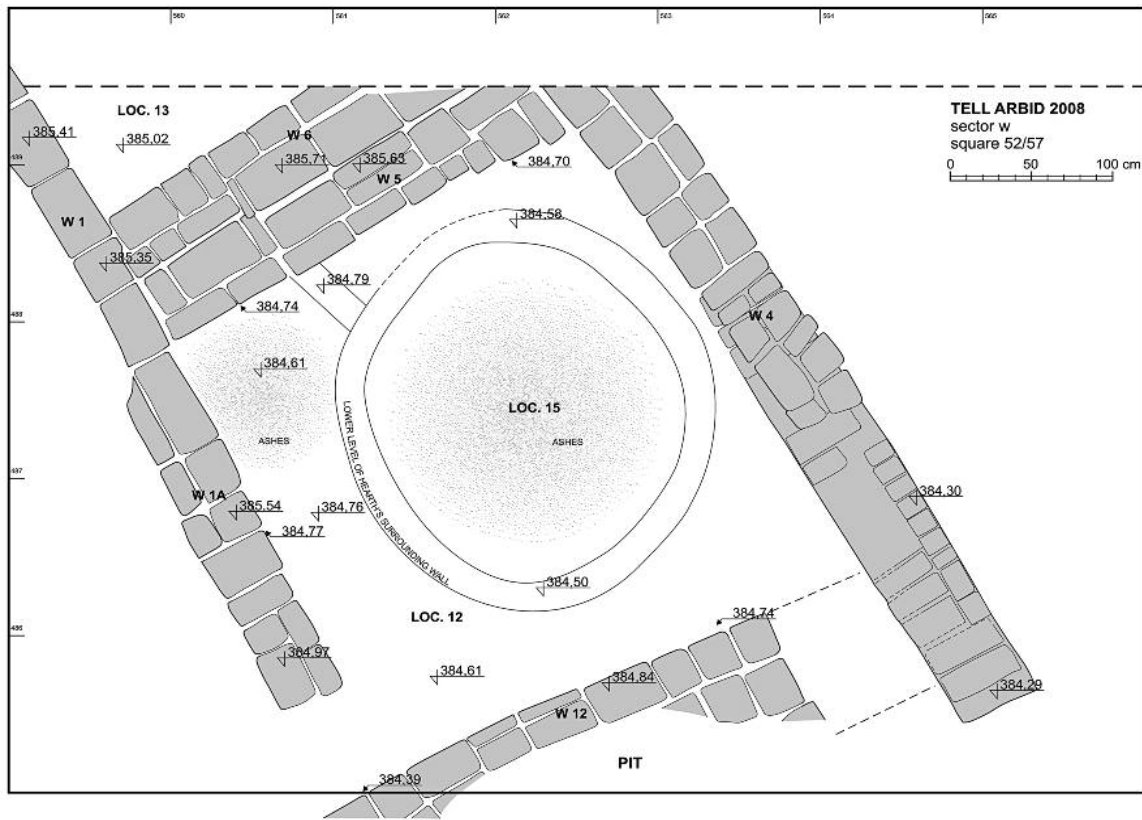


Fig. 7. Plan of locus 12 with foundation of the oven 15 (Drawing A.M. Kotarba, digitizing M. Wagner).  
Ryc. 7. Plan locusu 12 z fundamentami pieca 15.

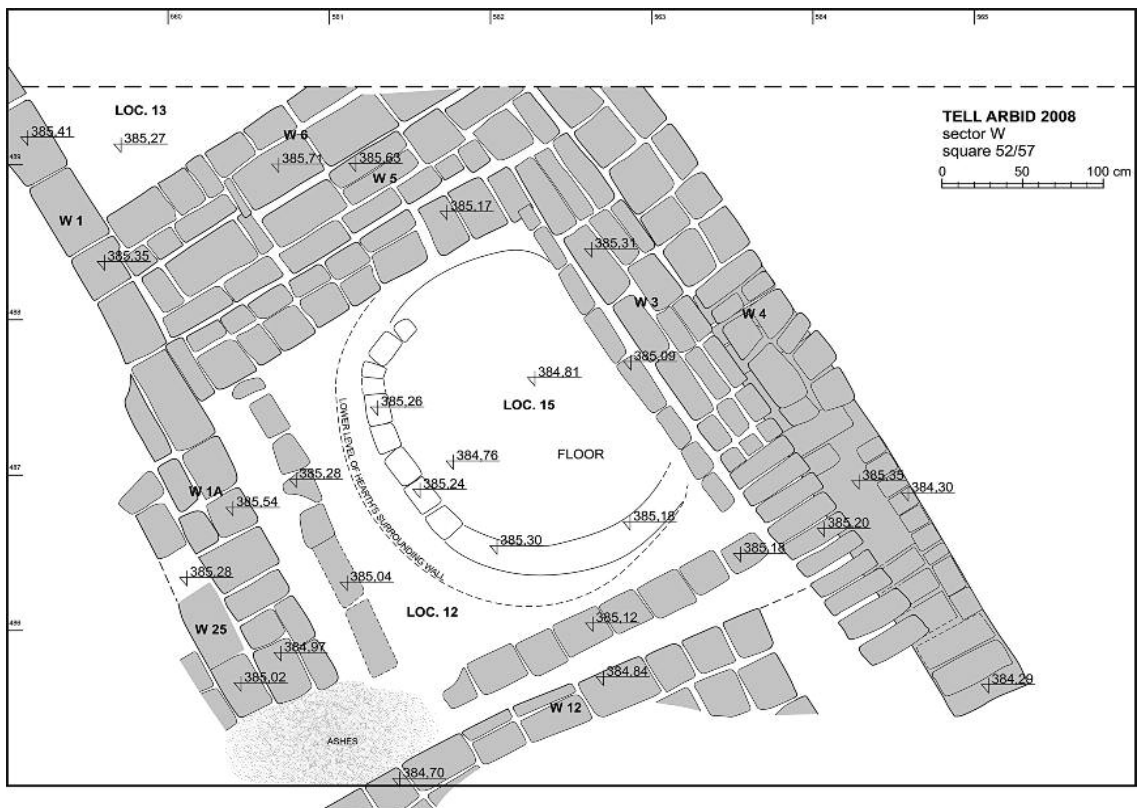


Fig. 8. Plan of locus 12 with the oven 15, after rebuilding (Drawing A.M. Kotarba, digitizing M. Wagner).  
Ryc. 8. Plan locusu 12 z piecem 15, stan po przebudowie.





Fig. 9. Oven 15 – fallen bricks from the upper part of the walls (Photo Ł. Wojnarowicz).

Ryc. 9. Piec 15 – widok na zawalisko cegieł z górnych części ścianek pieca.

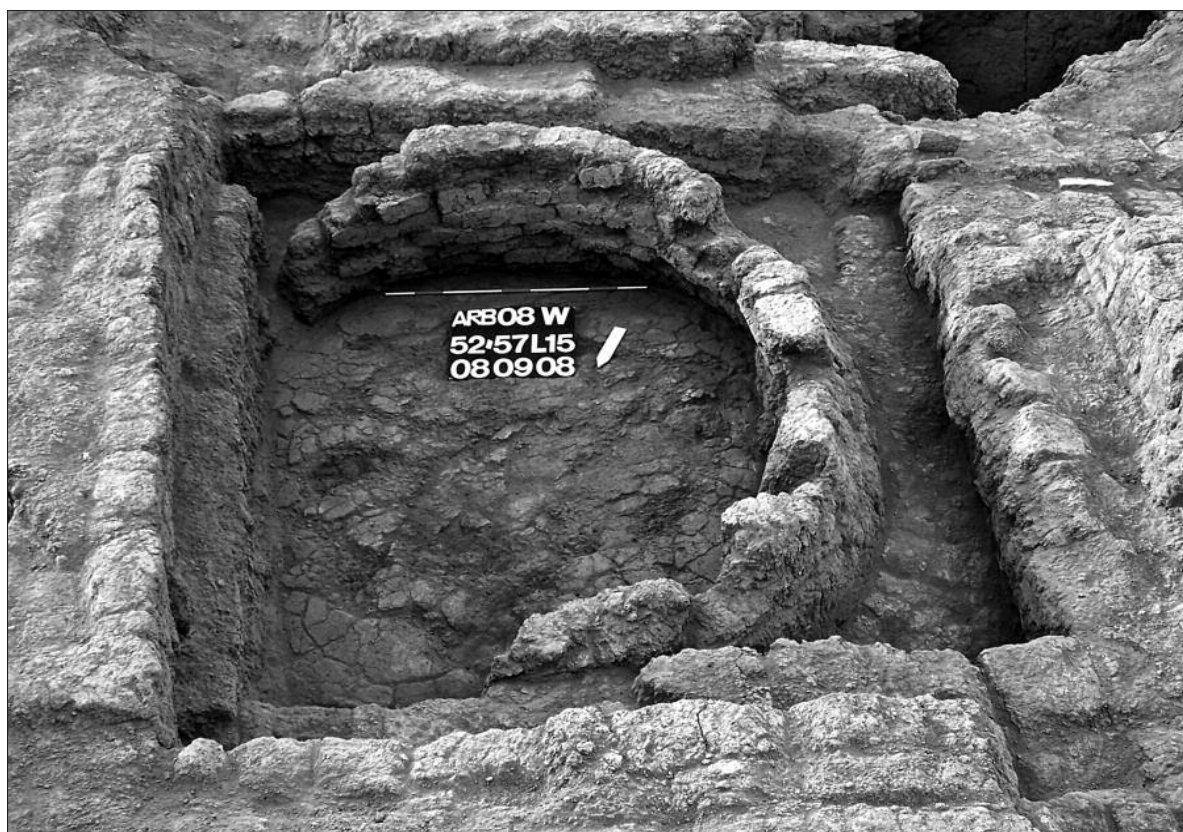


Fig. 10. Locus 12 with oven 15, view from the northeast (Photo Ł. Wojnarowicz).

Ryc. 10. Locus 12 z piecem 15, widok od północnego wschodu.



PLATE 172



Fig. 11. Locus 12 with the so-called grill installation, view from the west (Photo A.M. Kotarba).

Fig. 11. Locus 12 z tzw. grillem, widok od zachodu.