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The oldest pottery Neolithic of Upper Mesopotamia : New evidence from Tell Seker al-Aheimar, The Khabur, Northeast Syria

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# THE OLDEST POTTERY NEOLITHIC OF UPPER MESOPOTAMIA : NEW EVIDENCE FROM TELL SEKER AL-AHEIMAR, THE KHABUR, NORTHEAST SYRIA

Y. NISHIAKI and M. LE MIÈRE

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**Abstract :** *The oldest Pottery Neolithic of Upper Mesopotamia, including the Khabur basin, has long been believed to be represented by the Proto-Hassuna (Sotto-Umm Dabaghiyah) entity. Recent excavations at Tell Seker al-Aheimar, on the upper Khabur, produced new evidence that questions this view. The excavations revealed that a Pottery Neolithic phase predating the Proto-Hassuna existed on the Khabur, characterized by a distinct set of pottery as well as architecture and lithic technology. The long uninterrupted sequence at Tell Seker al-Aheimar, beginning perhaps from the Middle PPNB and ending with the Proto-Hassuna, shows that this cultural entity, provisionally referred to as "Pre-Proto-Hassuna", was derived from a local facies of East Taurus PPNB and gradually developed into Proto-Hassuna. Radiocarbon dates for this phase indicate the early centuries of the 8th millennium BP, a period prior to that of Proto-Hassuna settlements in both northeast Syria and northern Iraq. These new data highlight the necessity of reconsidering the Neolithic framework of Upper Mesopotamia in general.*

**Résumé :** *La céramique Proto-Hassuna a longtemps été considérée comme la plus ancienne du bassin du Khabur et de l'ensemble de la Haute Mésopotamie (Sotto, Umm Dabaghiyah...). Les données fournies par les fouilles récemment effectuées à Tell Seker al-Aheimar remettent en cause cette vision. Elles démontrent qu'une phase céramique a précédé le Proto-Hassuna, se distinguant de celui-ci par la céramique aussi bien que par l'architecture et la technologie lithique. La séquence longue et continue de Tell Seker al-Aheimar, qui commence peut-être au PPNB Moyen et s'achève au Proto-Hassuna, montre que cette entité culturelle, appelée provisoirement « Pre-Proto-Hassuna », s'est développée à partir d'un faciès local du PPNB du Taurus oriental et a progressivement évolué vers le Proto-Hassuna. Les datations radiocarbone indiquent pour cette phase le début du VIII<sup>e</sup> millénaire BP, une période antérieure à celle des sites Proto-Hassuna aussi bien de Syrie du Nord-Est que d'Iraq du Nord. Dans la mesure où aucun site vraiment comparable au « Pre-Proto-Hassuna » n'est connu en Iraq du Nord, ces nouvelles données soulignent la nécessité de reconsidérer le Néolithique de Haute Mésopotamie dans son ensemble.*

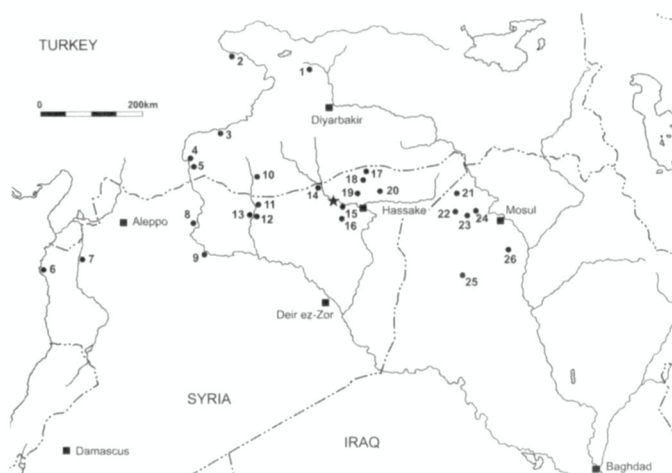
**Key-Words :** *Upper Mesopotamia, East Taurus PPNB, Proto-Hassuna, Mineral-tempered pottery.*

**Mots Clefs :** *Haute Mésopotamie, Taurus oriental, Proto-Hassuna, Céramique à dégraissant minéral.*

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The Khabur basin, northeast Syria, is situated at the western edge of Upper Mesopotamia (fig. 1 : 14). One of the unanswered questions on the Neolithic archaeology of this basin and Upper Mesopotamia in general is when and how pottery came

into use. In other words, the interface between the Pre-Pottery Neolithic and the Pottery Neolithic is unclear. Proto-Hassuna (Sotto-Umm Dabaghiyah) is generally considered to be representative of the oldest Pottery Neolithic in this region. How-



**Fig. 1 :** Map showing the location of Tell Seker al-Aheimar (star) and the other sites mentioned in the text. 1 : Cayönü ; 2 : Cafer Höyük ; 3 : Kumar tepe ; 4 : Mezraa-Teleilat ; 5 : Akarçay ; 6 : Ras Shamra ; 7 : Ain el-Kerkh ; 8 : Halula ; 9 : Abu Hureyra ; 10 : Gürcü tepe ; 11 : Assouad ; 12 : Sabi Abyad I ; 13 : Damishliyah ; 14 : Halaf ; 15 : Feyda ; 16 : Gharrah (Jabal Abdul Aziz) ; 17 : Khaneke ; 18 : Raheke ; 19 : Kashkashok II ; 20 : Khazna II ; 21 : Ginnig ; 22 : Maghzaliyah ; 23 : Sotto ; 24 : Thalathat II ; 25 : Umm Dabaghiyah ; 26 : Hassuna.

ever, its origin and precise chronological position are not well understood since almost all Proto-Hassuna settlements such as Kashkashok II, Sotto and Umm Dabaghiyah, are founded on virgin soil that did not have earlier settlements underneath. Moreover, the rarity of the excavated Pre-Pottery Neolithic sites in this region makes the period immediately prior to the Proto-Hassuna virtually an enigma. Tell Ginnig in northern Iraq is a rare excavated Proto-Hassuna site that was founded on aceramic Neolithic deposits<sup>1</sup> ; however, no architecture was recovered from the aceramic level and its cultural assemblage is not entirely defined. Tell Maghzaliyah, another important site in northern Iraq, has rich late Pre-Pottery Neolithic (PPNB) levels but no Pottery Neolithic was found above these levels. In fact, the excavator expresses the opinion that there should still be a certain chronological gap between the PPNB of Maghzaliyah and the Proto-Hassuna<sup>2</sup>.

Recent excavations at Tell Seker al-Aheimar carried out by a team from the University of Tokyo have, for the first time, provided evidence of a continuous sequence from the PPNB phase to the Proto-Hassuna phase in this cultural province. Interestingly, in addition to PPNB and Proto-Hassuna materi-

als, a new group of pottery pre-dating the Proto-Hassuna was discovered here<sup>3</sup> ; this apparently fills the gap between the PPNB and Proto-Hassuna phases at least in the Khabur basin. Thus, the new information from Tell Seker al-Aheimar should shed light on the beginning or development of not only pottery production but also the Proto-Hassuna entity.

This paper comprises three major parts. First, we provide a summary of the excavations of the site. Second, we present the newly discovered Pottery Neolithic entity with special reference to the ceramic evidence. Third, we address the implications of this discovery for the Neolithic chronology of Upper Mesopotamia.

## TELL SEKER AL-AHEIMAR AND THE EXCAVATION CONTEXT

Tell Seker al-Aheimar is a Neolithic mound on the right bank of the Upper Khabur, approximately 45 km northwest of Hassake in northeast Syria. It covers an area of approximately 300 m by 150 m, and has a height of around 11 m over the surrounding fields. Our attention was first drawn to the mound during a French-Japanese survey carried out in 1991<sup>4</sup>, and it subsequently became the focus of six seasons of excavations from 2000 to 2005<sup>5</sup>. Due to the presence of a modern village and its associated cotton fields, fruit gardens, cemetery and other domestic structures on the mound, the excavated trenches (Sectors A to E) were generally limited to the northern slope facing the Khabur river (fig. 2). All the trenches produced rich Neolithic cultural deposits with a thickness of up to 7 m. In addition, a surface survey, an examination of the stratigraphy of the local wells and a series of core-drillings for geo-archaeological purposes indicated that Neolithic deposits are also present on the southern slope. The Neolithic settlement appears to be distributed quite widely over the mound, probably around 4 ha or even more, which makes Tell Seker al-Aheimar one of the largest known Neolithic sites on the Khabur.

Thus far, an area of approximately 750m<sup>2</sup> has been excavated. Virgin soil has been reached in three trenches (Sectors A, C and E). The combined stratigraphy of the excavation trenches enabled us to define at least five Neolithic phases

1. CAMPBELL and BAIRD, 1990.  
2. BADER, 1989 : 355.

3. NISHIAKI, 2001.  
4. NISHIAKI, 1992, 2000.  
5. NISHIAKI, 2001, 2002, 2003, 2004a.

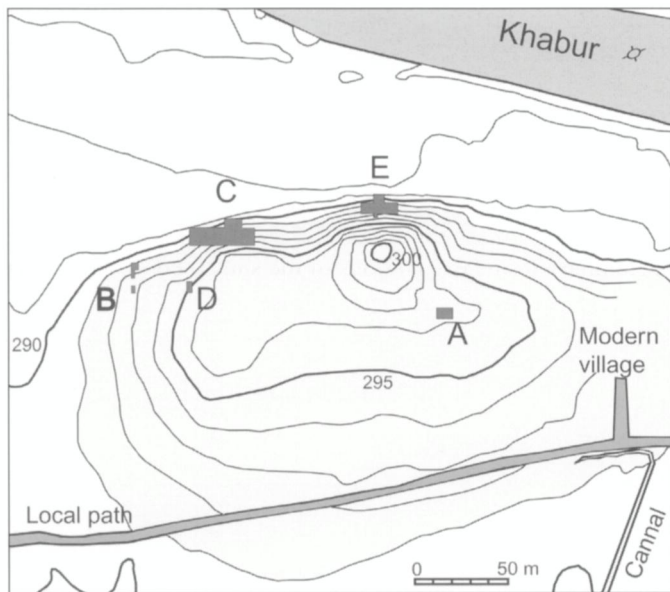


Fig. 2 : Plan and the excavated areas of Tell Seker al-Aheimar.

– three PPNB and two Pottery Neolithic phases, primarily from architectural evidence.

The earliest PPNB phase was exposed in Sectors C and E. Small rectangular buildings on a cobble-paved platform were found<sup>6</sup>. The plans of the buildings consisted of a few parallel rooms, the floors of which were made with packed mud. Also remarkable in this phase were large rectangular pit-ovens with numerous burnt rocks inside. New types of buildings and features appeared in the next PPNB phase, which was exposed in Sector E<sup>7</sup>. Larger, rectangular multi-roomed buildings on stone socles became popular. Stone socles were present in the earliest phase as well, but those in this phase were higher and far more substantial, up to 80 cm wide. Buildings with small rooms, less than 1m on each side, were also present ; these may represent under-floor structures. The common use of gypsum plastering for architecture was yet another important change. Apart from this, pit-ovens with burnt rocks inside were progressively changed to smaller and narrower oval pit-ovens. This was followed by the latest PPNB phase at Seker al-Aheimar, which was marked by the emergence of rectangular buildings with large rooms (approximately 4 to 5 m on each side) and mud-plastered floors. The other architectural remains were quite similar to the previous ones, however : narrow pit-ovens and

small-roomed buildings with gypsum-plastered floors were also present.

The architecture of these phases strikingly resembles that of the PPNB levels of Cayönü<sup>8</sup>, southeast Anatolia. According to the terminology developed at Cayönü, the three aceramic phases of Seker al-Aheimar are comparable to the “Cobble-paved building”, the “Cell-plan building”, and the “Cell-plan/ Large-room transitional building” phases respectively. Thus, although sufficient radiocarbon dates are not yet available, the earliest PPNB phase of Seker al-Aheimar is provisionally dated to the Middle PPNB, and the later ones to the Late PPNB<sup>9</sup>.

The oldest Pottery Neolithic phase was recognised in all the excavation trenches except in Sector D, which is a sounding pit with too small dimensions (3 m x 4 m) to produce sufficient cultural materials. In Sectors A, C and E, this phase appeared directly on top of the PPNB layers without any stratigraphic break. While the building construction methods including those for ovens were fundamentally the same as those during the latest PPNB, the use of stone socles for walls became uncommon and the walls came to be narrower. “Cell-plan” buildings were no longer constructed. The construction of “large-room” buildings may have continued, but only fragmentary walls hinted at their presence. The strong tie with the architectural sequence at Cayönü appears less evident in this phase. On the other hand, noteworthy in this phase were large platform structures made of mud-slabs, often laid as foundations for buildings. In addition, the more frequent method involving floor plastering with gypsum and the more elaborate features such as gypsum-lined benches, niches and water channels characterise the architecture of this phase (figs 4-6). Above the layers containing these architectural remains, cultural assemblages of Proto-Hassuna pottery were recorded in all the five sectors. The *pisé*-walls of the Proto-Hassuna, built directly on the ground, were all very narrow, comprising small rectangular rooms whose floors were not carefully plastered with gypsum.

In this way, the cultural sequence at Tell Seker al-Aheimar consists of well-defined architectural phases that cover much of the previously unknown Neolithic periods on the Khabur. Apart from a few possible surveyed and sounded PPNB sites<sup>10</sup>, the oldest excavated Neolithic sites were the Proto-Hassuna settlements of Tell Kashkashok II<sup>11</sup> and Khazna II<sup>12</sup>. There-

6. NISHIAKI, 2004a.

7. The excavations at Sector C have been carried out in a stepped trench, with unexcavated deposits between the first and the third PPNB phases.

8. ÖZDOĞAN, 1999.

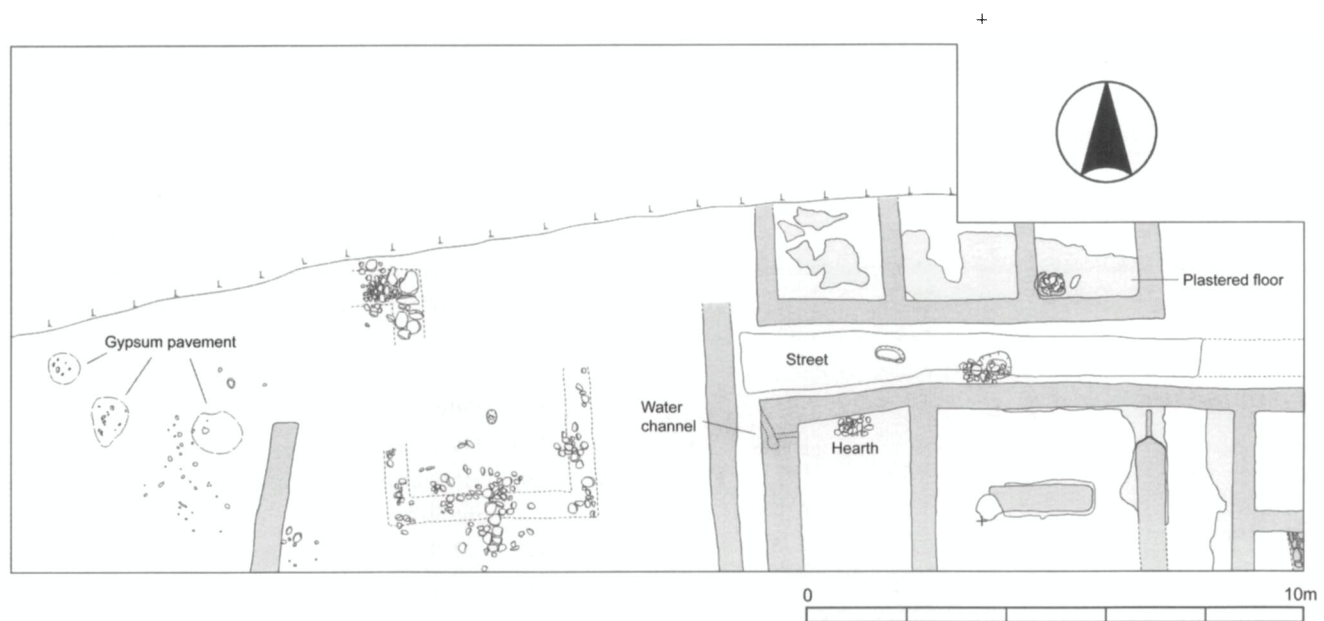
9. The latest PPNB of Seker al-Aheimar may include the Final PPNB or PPNC.

10. BRAIDWOOD, 1958 ; HOLE, 2000 ; NISHIAKI, 2000.

11. MATSUTANI, 1991.

12. MUNCHAEV e MERPERT, 1994.

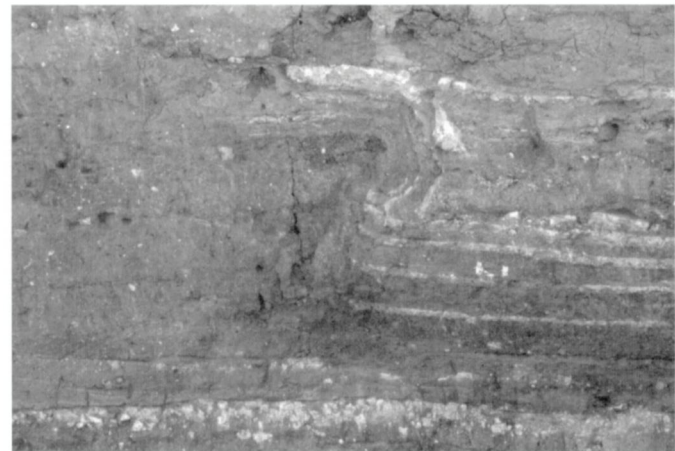




**Fig. 3 :** Part of a Pre-Proto-Hassuna architecture in Sector C, Tell Seker al-Aheimar.



**Fig. 4 :** Pit-oven of the Pre-Proto-Hassuna phase in Sector E, Tell Seker al-Aheimar.



**Fig. 5 :** Section of a bench structure of the Pre-Proto-Hassuna phase in Sector E, Tell Seker al-Aheimar. Repeated floor plastering is evident.

fore, the first four phases that were newly identified at Tell Seker al-Aheimar provide us with important insights into the Neolithic cultural development of this region. Among these, we would like to focus on the oldest Pottery Neolithic phase, tentatively termed as “Pre-Proto-Hassuna”<sup>13</sup>, which is new not only to the Khabur but also to Upper Mesopotamia in general.

13. This admittedly awkward term is used in the present paper simply to indicate that the period concerned predates the Proto-Hassuna. When future studies show that it represents a specific Khabur group within the Proto-Hassuna cultural area, an entity name such as Seker or Sekerian could also be used after the site of Tell Seker al-Aheimar.

## THE OLDEST POTTERY NEOLITHIC OF TELL SEKER AL-AHEIMAR

### MATERIAL CULTURE

The stratigraphy of Tell Seker al-Aheimar indicates the Pre-Proto-Hassuna as being an intermediate phase between the PPNB and the Proto-Hassuna. Very similar to the architecture outlined in the previous section, material remains such



**Fig. 6 :** *Water-channel of the Pre Proto-Hassuna phase in Sector E, Tell Seker al-Aheimar.*

as flaked stone artefacts also indicate this intermediate nature (fig. 7)<sup>14</sup>. An example is the gradual change in the use of obsidian. Obsidian was relatively uncommon in the Middle PPNB phase, occupying only approximately 20 %-30 % of the total lithics, but in the Late PPNB, its proportion rapidly increased to 50 %-70 %. From the Pre-Proto-Hassuna phase, it gradually decreased to approximately 20 %-10 % in the Proto-Hassuna phase. Typologically, from the Pre-Proto-Hassuna onwards, there was a decline in the manufacture of Cayönü tools (fig. 7 : 10), which were the most popular of the obsidian tools during the Late PPNB phases. On the other hand, the manufacture of side-blow blade-flakes (fig. 7 : 11), which appeared during the Late PPNB, increased over the Pre-Proto-Hassuna and became popular during the Proto-Hassuna. Regarding flint technology, blade production, which was comparatively common during the Late PPNB, decreased in popularity from the Pre-Proto-Hassuna to the Proto-Hassuna. During this period, the proportion of blades among flint blanks dropped from approximately 30 % to less than 10 %. In tool typology, the notable changes from the PPNB to the Pre-Proto-Hassuna are the decrease of end-scrapers, the increase of burins and glossed pieces and the more diversified manifestation of arrowhead types. The arrowheads of the Pre-Proto-Hassuna phase include a larger number of Amuq and Nemrik points (fig. 7 : 3) as compared with those in the Late PPNB, when the Byblos points were dominant.

14. NISHIAKI, 2004b, in press.

Further, other types of artefacts belonging to the Pre-Proto-Hassuna, – such as bone tools, gypsum objects, stone ornaments, stone vessels, ground stones, clay figurines, etc. (fig. 8) –, exhibited the characteristics of both the PPNB and the Proto-Hassuna phases. The gypsum objects are particularly noteworthy. Small quantities of white ware (vessels made of gypsum) appeared during the Late PPNB ; this ware became considerably more common during the Pre-Proto-Hassuna and decreased during the Proto-Hassuna. The Pre-Proto-Hassuna is the period with the richest collection of gypsum objects at Seker al-Aheimar. These include not only vessels with a variety of shapes but also possible ritual objects. Of special interest among the latter are the unique objects with several animal jaws embedded in parallel (fig. 8 : 7)<sup>15</sup>. Over ten examples of this curious group of objects were discovered in the Pre-Proto-Hassuna levels of Sectors A, C and E. An almost identical gypsum object is known in the Proto-Hassuna phase at Umm Dabaghiyah<sup>16</sup>, suggesting a link between the Pre-Proto-Hassuna of Seker al-Aheimar and the Proto-Hassuna of Iraq.

While these artefact classifications and the architectural remains display chronological changes over the different phases, the changes appear to represent continuous processes, in which the Pre-Proto-Hassuna connects with the Late PPNB and the Proto-Hassuna. Needless to say, there does exist an element that is specific to the Pre-Proto-Hassuna. This is in the form of a distinct group of pottery, which will be described below in some detail.

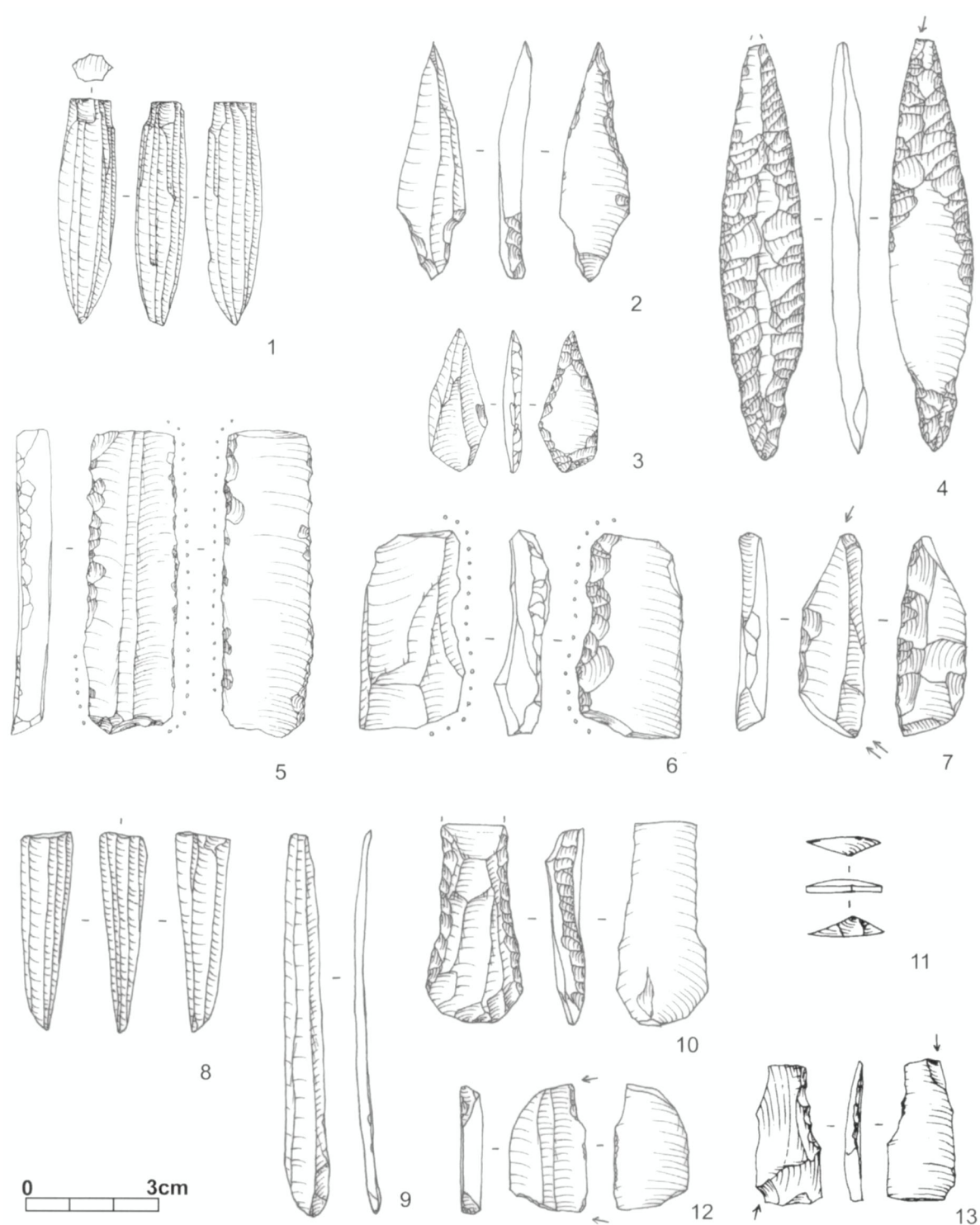
## POTTERY

The best evidence of ceramic at Seker al-Aheimar comes from Sector A. In this sector, the sequence consists of at least 11 occupation levels. The upper levels are from the Proto-Hassuna (Levels 4 to 6)<sup>17</sup> and the lower ones are from the Pre-Proto-Hassuna (Levels 7 to 15, and possibly further levels below). Proto-Hassuna pottery is characterised by light coloured paste, mostly plant tempered (over 80 % or even 90 % of the entire assemblage), closed carinated shapes with concave bodies and plastic or painted decorations. Its assemblage includes light coloured wares, with or without plant tempering (in the last case, the mineral inclusions are small in size),

15. NISHIAKI, 2002.

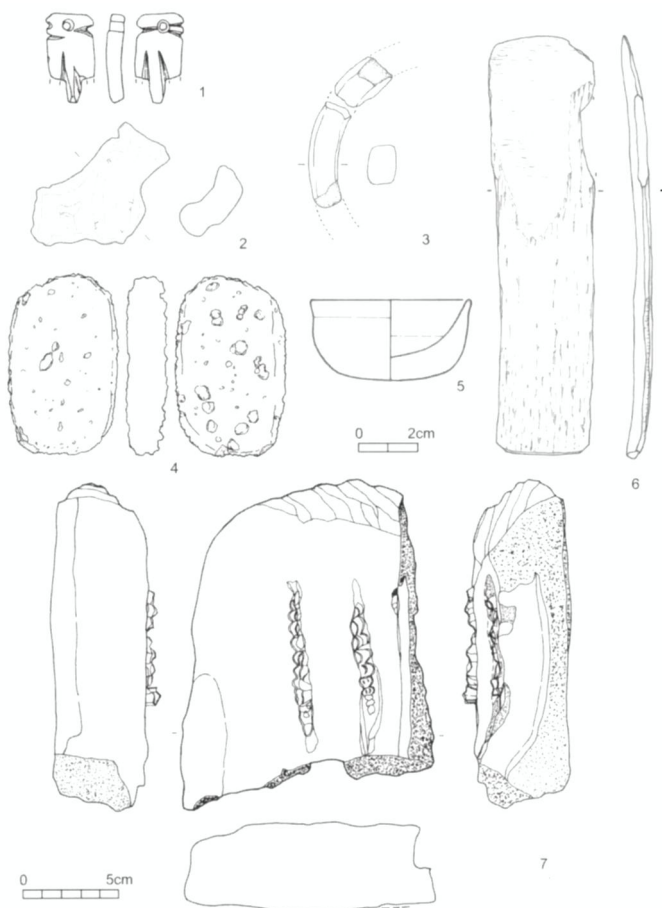
16. Stuart Campbell, pers. comm.

17. Levels 1-3 of Sector A belong to the Chalcolithic period.



**Fig. 7 :** PPNB and Pre Proto-Hassuna flaked stone artefacts from Tell Seker al-Aheimar. 1 : bullet core ; 2 : Byblos point ; 3 : Nemrik point ; 4 : Amuq point ; 5-6 : sickle elements ; 7 : burin ; 8 : bullet core ; 9 : unretouched blade ; 10 : Cayönü tool ; 11 : side-blow blade-flake ; 12 : burin ; 13 : corner-thinned blade, Balikh type. (1-7 : flint ; 8-13 : obsidian ; 1 & 5 : LPPNB ; others : Pre-Proto-Hassuna).





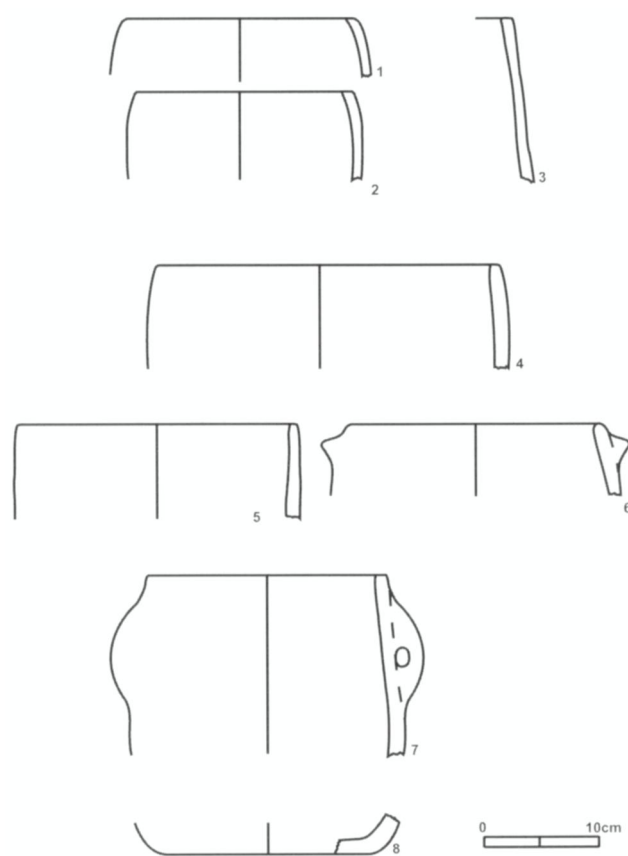
**Fig. 8 :** Pre-Proto-Hassuna objects from Tell Seker al-Aheimar. 1 : stone bead ; 2 : clay figurine ; 3 : stone bracelet ; 4 : basalt handstone ; 5 : marble bowl ; 6 : bone spatula ; 7 : gypsum object.

Grey-Black Ware and also some imported Dark-Faced Bur-nished Ware<sup>18</sup>. In contrast to the primarily plant tempered Proto-Hassuna pottery, Pre-Proto-Hassuna pottery is exclusively mineral tempered, unknown to date in the Khabur valley. The following two wares can be recognised in the material that is available thus far (figs 9 and 10)<sup>19</sup>.

The first type of ware is rather dark in colour, with a dark grey or black surface and paste. The paste mainly contains white-coloured inclusions, which, at first, were suspected to be calcite. However, a series of thin-sections of sherds of this ware revealed that the white inclusions were not calcite but mainly volcanic. In many examples these inclusions were a

volcanic mineral containing carbonates called carbonatite, and occasionally, limestone<sup>20</sup>. One of the main characteristics of this ware was its variability in type, size and quantity of inclusions. Earlier in this paper, this has been referred to as mineral tempered ware but whether these inclusions were naturally present in the clay or intentionally added to it remains to be determined. We will provisionally refer to this ware as “Early Dark Ware”. The surfaces of this ware are always bur-nished, often strongly. This ware is characterised by very simple shapes (fig. 9 : 1-3), mainly closed and holemouth, sometimes vertical but never open, with convex bodies and large flat bottoms ; the rims are often very regular with a flat top. It is never decorated.

The colour of the second mineral tempered ware ranges from dark beige to dark brown ; the reddish-brown colour was



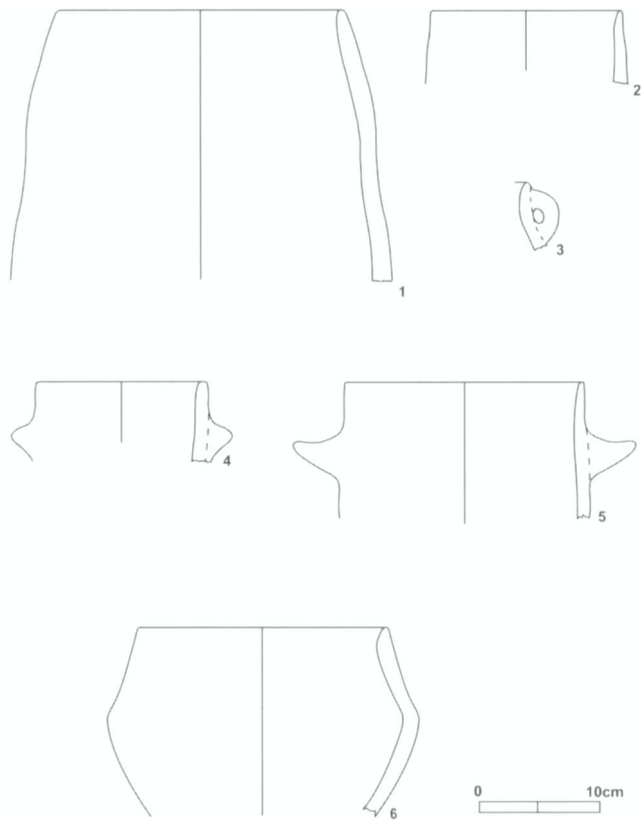
**Fig. 9 :** Pre-Proto-Hassuna pottery from Tell Seker al-Aheimar. 1-3 : Early Dark Ware ; 4-8 : Basalt Tempered Ware.

18. For the definition of these wares, see LE MIÈRE, 2001 : 180-181.

19. The material available thus far is limited ; therefore, all indications should be considered with caution.

20. We wish to thank Maurice Picon and Gisela Thierin for these preliminary indications. Further mineralogical and chemical studies will complete these data.





**Fig. 10** : Pre-Proto-Hassuna pottery from Tell Seker al-Aheimar. 1-6 : plant and basalt tempered pottery.

a common occurrence. The paste also contains volcanic inclusions – in this case, clearly basalt – often very abundant and very large. In the event of plentiful basalt inclusions, particularly when of a large size, the pottery is extremely heavy. Provisionally, we propose to refer to this new type of pottery as “Basalt Tempered Ware”. Although the study of this material is still in progress, it appears probable that, at least in several examples, basalt was added to the clay. This ware was also always burnished, often strongly. The shapes (fig. 9 : 4-6) are very similar to those from the “Early Dark Ware”; however, some lugs and a few concave bodies, seemingly not yet present in the earliest levels, appeared somewhat later. Painted decorations, very rarely occurring on this type of ware, also appeared at a later level ; however, they are not present in the levels containing only mineral tempered pottery.

The earliest pottery of Seker al-Aheimar was mineral tempered but plant tempering came into use shortly after that. Initially, this pottery was commonly associated with mineral (basalt) tempering. Plant temper was not very abundant and

was very large in size. This plant and basalt tempered pottery was almost always burnished, and strongly so. Its shapes (fig. 10), still very comparable to those of the mineral tempered wares, became more elaborate, exhibiting some carinations, and the lugs were more numerous and varied. In a manner similar to Basalt-Tempered Ware, it is sometimes painted later on.

Gradually, plant tempering was used without basalt, and the occurrence of rare and/or very large plant tempering decreased. It must be emphasised that the successive replacement of wares occurred in a very progressive manner. Early Dark Ware completely disappeared from Level 8, where Basalt Tempered Ware was already rare (< 3%); it was replaced by plant and basalt tempered pottery. This type became quite rare in Level 6 and disappeared in Level 5. Plant tempered pottery developed simultaneously ; a type of fine pottery with small mineral inclusions appeared from Level 8 onwards. Further, Grey-Black Ware (see above) as well as painted decoration is present in a significant quantity from Level 6 onwards. Accordingly, from this level on, pottery assemblages were of the Proto-Hassuna type. The Proto-Hassuna sequence, which displays some evolution, is still under study and will be reported elsewhere.

In summation, the Pre-Proto-Hassuna phase of Seker al-Aheimar begins with mineral tempered pottery. Plant tempering appeared at a later stage and was initially used together with mineral tempering. Subsequently, plant tempered pottery developed to be, by far, the main group of pottery, and it was assembled with a small group of fine pottery that contained no plant inclusions and some other specific wares ; these were very limited in quantity. Thus, the early mineral tempered wares were progressively replaced by a Proto-Hassuna assemblage at this site.

## DATING

At this point, it appears appropriate to refer to the sites surveyed by a Yale University team<sup>21</sup> in the neighbouring region, which could also testify to the occupations during this time period. Tell Feyda, situated on the Khabur – approximately 20 km downstream from Seker al-Aheimar – was once reported as a PPNB site ; nevertheless, the possibility had remained that its small sounding failed to recover sherds<sup>22</sup>. Indeed, an

21. HOLE, 2001.

22. *Ibid.* : 68.

on-going re-examination of the surface material has revealed the presence of sherds that possibly predate the Proto-Hassuna phase<sup>23</sup>. The reported radiocarbon dates of Tell Feyda, or 7 710 +/- 85 BP and 7 945 +/- 85 BP<sup>24</sup>, also place this site in the range of the Pre-Proto-Hassuna phase of Seker al-Aheimar. Further, some mineral tempered sherds collected on the Jabal Abdul Aziz, which is also under study, may turn out to be the Pre-Proto-Hassuna<sup>25</sup> as well. Accordingly, Pre-Proto-Hassuna settlements, such as Seker al-Aheimar, could have formed a cultural horizon on the Upper Khabur during the early centuries of the 8<sup>th</sup> millennium BP (the 7<sup>th</sup> millennium cal. BC).

## DISCUSSION

The above lines of evidence show that there exists a new Pottery Neolithic phase predating the Proto-Hassuna in the Khabur basin. In order to place this new phase in an appropriate context, we shall examine its relationship with the Late PPNB and the Proto-Hassuna phase from a regional perspective.

The PPNB of Seker al-Aheimar shows affinities with the PPNB tradition distributed in the East Taurus highlands and their foothills. As mentioned earlier, its architectural tradition is shared with Cayönü, and perhaps also with Cafer Höyük<sup>26</sup> in southeast Anatolia and Tell Maghzaliyah<sup>27</sup> in northern Iraq. To the contrary, it was markedly different from the architecture in the lowlands towards the west, where rectangular mud-brick architecture built on the ground was common, as identified at Halula and Abu Hureyra. The popularity of obsidian and the manufacture of Cayönü tools during the Late PPNB also indicate similarities with the East Taurus group. At the same time, it should be noted that a unique aspect also exists in the material culture of Tell Seker al-Aheimar. It is the virtual absence of bipolar core technology for flint and obsidian reduction. Albeit not always abundantly, bipolar technology - a *fossil directeur* of the PPNB to the west - was known at settlements in East Taurus, as exemplified at Cayönü<sup>28</sup> and Cafer Höyük<sup>29</sup>. On the other hand, to date,

there has been no evidence of its local use at Tell Seker al-Aheimar<sup>30</sup>. When blades produced from bipolar cores were found, these were identified as imported. The local blade production was almost exclusively here using single-platform cores, either by percussion or by pressure debitage (fig. 7 : 1, 5). This suggests an affiliation with the east, Tell Maghzaliyah<sup>31</sup> and further afield. As such, the PPNB of Seker al-Aheimar appears to represent a local facies of Upper Mesopotamia, which is most likely to have been a member of the non-Levantine, East Taurus group. It was this entity that began to use Pre-Proto-Hassuna pottery at its latest stage.

On comparing the Pre-Proto-Hassuna pottery with the early pottery from other regions, it is preferable to look to the west including the Syrian lowlands, since no comparable materials have been reported from the north and the east. In previous studies, one of us defined three different stages for the first development of pottery production in the Near East<sup>32</sup>. Thus far, the first stage has hinted at only a few sites (e.g. Ras Shamra and Ain el-Kerkh) that correspond to initial attempts at making pottery. This stage is represented by a technically primitive ware, which soon disappeared. The second stage occurs at a larger number of sites, particularly in certain areas of the Syrian Jazirah, namely the Euphrates valley (Kumar tepe) and the Balikh valley (Tell Assouad, Tell Damishliyah and Gürcü Tepe among others). The pottery there was still very simple, with a maximum of two different wares, a strong pre-eminence of plant tempering – often of a very large size –, very simple shapes and very rare decoration. The third stage is identified by a spreading out of the technique. At this stage, pottery was found at all sites except in the Syrian Desert and the southern Levant, where the pottery technique appeared a few hundred years later. The pottery at this stage displays more variation in terms of wares, shapes and decoration, and introduction of regional diversification. Proto-Hassuna pottery, commonly found in the Khabur basin, belongs to this stage.

The Pre-Proto-Hassuna pottery from Tell Seker al-Aheimar exhibits certain elements (few ware variations, simple shapes, and an absence of decoration) that are reminiscent of the second stage pottery from the Euphrates and Balikh valleys. Yet, one important element was unknown from the latter until recently ; it is the presence, at the beginning of the sequence, of pottery that was exclusively mineral tempered.

23. Frank Hole, pers. comm.

24. HOLE, 2001 : 68.

25. HOLE, 2004.

26. CAUVIN *et al.*, 1999.

27. BADER, 1989 ; BICAKCI, 1998.

28. CANEVA *et al.*, 1998.

29. CAUVIN *et al.*, 1999.

30. NISHIAKI, 2004b, in press.

31. BADER, 1989 : 58.

32. LE MIÈRE and PICON, 1998, 2003.

However, during the time that investigations on Tell Seker al-Aheimar were commenced, Akarçay Tepe on the Euphrates of Turkey provided a new pottery sequence in the oldest levels with pottery that was exclusively mineral tempered. The temper used in this case was crushed calcite there<sup>33</sup>. It was also revealed that plant tempering, often rather rare and of very large size, appeared progressively in the same manner as it did in Tell Seker al-Aheimar, first associated with mineral tempering, and after some time it was used exclusively and became the main temper. Gradually, Pre-Halaf assemblages, characteristic of North Syria-Cilicia at the third stage of development of pottery<sup>34</sup>, then settled. Early mineral tempered pottery has also been found at Mezraa-Teleilat, a few kilometres north of Akarçay<sup>35</sup>. Further, most recent investigations at Tell Sabi Abyad in the Balikh valley also produced new evidence to suggest the same sequence, or at least part of it, in the Balikh valley<sup>36</sup>.

Consequently, the oldest Pottery Neolithic of the Euphrates and possibly the Balikh valleys also includes a new phase that is characterised by the exclusivity of mineral tempered pottery<sup>37</sup>. Whether this new phase represents a new stage in the development of pottery or only an early phase in the second stage is not yet clear : while the exclusive mineral tempering sets this pottery group apart from most of the second-stage materials, the similarity of shapes is pleading for an early phase within the same stage. An important element in this discussion is the very progressive evolution of pottery in the sequences that we are already aware of.

The link between these new wares and the first stage of the pottery development of other regions is still unclear. On the basis of evidence from Tell Seker al-Aheimar, one can suggest an equivalent incipient nature in the Pre-Proto-Hassuna pottery production. First, Late PPNB levels exist at Tell Seker al-Aheimar, immediately preceding the levels where pottery appears. Second, pottery in these levels is scarce to the point that when their excavation was enlarged sherds were revealed at levels that were first believed to be aceramic<sup>38</sup>. Further, and

more importantly, the pastes of the Early Dark Ware have an extremely large variability in the type, size and quantity of mineral inclusions. This could imply trials in pottery making, as does the early disappearing of this ware followed by the disappearance of Basalt Tempered Ware, which was possibly discarded for technical unsuitability (the weight and breakability of Basalt Tempered Ware, for example).

These observations could place the Pre-Proto-Hassuna at a very early stage of pottery production in the Khabur basin. Meanwhile, whether the first pottery was locally made is debatable : in Seker al-Aheimar, carbonatite, used as temper for some of the earliest pottery, is an extremely rare mineral and further geological investigations are necessary to determine if it is available in the Khabur basin. It is even possible that the technique was imported, if not the pottery itself. At Akarçay Tepe, where an almost similar pottery sequence is known to have existed, chemical analyses demonstrated that its earliest mineral tempered ware was probably imported<sup>39</sup>, indicating the preceding development of the pottery technique in some yet unknown region.

Another important issue is the relationship of the Pre-Proto-Hassuna with the Proto-Hassuna, notably in northern Iraq. The possible evolution of pottery over this period at Tell Seker al-Aheimar raises a new question on the temporal position of Proto-Hassuna sites in Upper Mesopotamia. In northern Iraq, Proto-Hassuna appears as the oldest entity at all the known Pottery Neolithic settlements such as Hassuna, Umm Dabaghiyah, Tell Sotto and Telul eth-Thalathat<sup>40</sup>. Its pottery is quite comparable to the Proto-Hassuna pottery of the Khabur<sup>41</sup> ; however, here it is not the oldest type of pottery.

It would be useful to examine the radiocarbon dates from the relevant Proto-Hassuna sites. The radiocarbon dates previously reported for Tell Kashkashok II<sup>42</sup> on the Khabur are too diverse to be considered reliable. The dates for Iraqi sites from old excavations at Telul eth-Thalathat II<sup>43</sup> and Sotto<sup>44</sup>, also require verification. Meanwhile, a series of charcoal samples from Kashkashok II and Thalathat II kept at the University Museum of the University of Tokyo was subjected to reanalysis in 2004 ; this resulted in the production of the dates listed in table 2 (fig. 11). These new dates from Kashkashok

33. Joseph-Miquel Faura and Yutaka Miyake, pers. comm. ; ARIMURA *et al.*, 2000.

34. LE MIÈRE and PICON, 1998.

35. KARUL *et al.*, 2003, 2004.

36. Peter M.M.G. Akkermans, pers. comm.

37. This does not necessarily mean that these areas share the same cultural entity in this stage. For instance, the architecture and other artifact remains such as figurines associated with mineral-tempered pottery at Mezraa-Teleilat, the Upper Euphrates, are strikingly different from those of Seker al-Aheimar (KARUL *et al.*, 2003, 2004 ; ÖZDOĞAN, 2003).

38. NISHIAKI, 2001.

39. LE MIÈRE and PICON, 2003 : 185. The earliest pottery of Mezraa-Teleilat has also been interpreted as imported (KARUL *et al.*, 2003).

40. LE MIÈRE and PICON, 1998.

41. LE MIÈRE, 2000.

42. MATSUTANI, 1991.

43. FUKAI and MATSUTANI, 1981.

44. BADER, 1989 : 313-314.



**Table 1** : Radiocarbon dates for the Late PPNB and Pre-Proto-Hassuna levels of Tell Seker al-Aheimar.

Sample	Period	Date	Lab. No.	Code	Notes	
#1	Level 9, Sector A	Pre Proto-Hassuna	7750+/-80	TKa-12714	SEK01-A-93	Charcoal ; Room-fill in A
#2	Level 9, Sector A	Pre Proto-Hassuna	7800+/-100	TKa-12333	SEK01-A-100	Charcoal ; Room-fill in A
#3	Level 10, Sector A	Pre Proto-Hassuna	7820+/-80	TKa-12715	SEK01-A-105	Charcoal ; Room-fill in A
#4	Level 10, Sector A	Pre Proto-Hassuna	7880+/-110	TKa-12332	SEK01-A-108	Charcoal ; Room-fill in A
#5	Level 3, Sector C	Pre Proto-Hassuna	7780+/-110	TKa-12331	SEK00-C5-34	Charcoal ; Reddish brown loam in C5
#6	Level 3, Sector C	Pre Proto-Hassuna	7820+/-100	TKa-12465	SEK01-C3-4	Charcoal ; Oven in C3
#7	Level 3, Sector C	Pre Proto-Hassuna	7900+/-120	TKa-12717	SEK01-C1-11	Charcoal ; Reddish brown loam in C1
#8	Level 3, Sector C	Pre Proto-Hassuna	7900+/-160	TKa-12330	SEK01-C7-51	Charcoal ; Building debris in C7
#9	Level 4, Sector C	Pre Proto-Hassuna	7830+/-90	TKa-12466	SEK01-C10-23	Charcoal ; Reddish brown loam in C10
#10	Level 4, Sector E	Pre Proto-Hassuna	7890+/-200	TKa-12329	SEK01-E4-4	Charcoal ; Building debris in E4
#11	Level 8, Sector C	Late PPNB	8065+/-45	MTC-04347	SEK03-C13-72	Charcoal ; Building debris in C13
#12	Level 5, Sector E	Pre Proto-Hassuna	7540+/-45	MTC-04349	SEK03-E10-17	Charcoal ; Burnt soil in E10

**Table 2** : New radiocarbon dates for the Proto-Hassuna levels of Tell Kashkashok II and Telul eth-Thalathat II.

Sample	Period	Date	Lab. No.	Code	Notes	
<b>Kashkashok II</b>						
#1	Layer 3	Proto-Hassuna	7360+/-80	TKa-12719	88KK2-01	Charcoal ; Gypsum bin in Sq. E6
#2	Layer 3	Proto-Hassuna	7480+/-100	TKa-12720	88KK2-02	Charred grain ; Ash pit in Sq. E8
#3	Layer 3	Proto-Hassuna	7470+/-90	TKa-12721	88KK2-03	Charred grain ; Ash pit in Sq. E8
#4	Layer 3	Proto-Hassuna	7460+/-110	TKa-12722	88KK2-04	Charcoal ; Gypsum bin in Sq. E8
<b>Thalathat II*</b>						
#5	Level 15/16	Proto-Hassuna	7600+/-60	TKa-13420	5ThII-SS68	Charcoal ; Hearth in Sq. NVIII
#6	Level 15/16	Proto-Hassuna	7620+/-50	TKa-13421	5ThII-SS81	Charcoal ; Ash layer in Sq. OVIII
#7	Level 15/16	Proto-Hassuna	7520+/-60	TKa-13418	5ThII-SS53	Charcoal ; Ash layer in Sq. NIX
#8	Level 15/16	Proto-Hassuna	7450+/-60	TKa-13422	5ThII-SS84	Charcoal ; Kiln pit (KP210) in Sq. MIX
#9	Level 15/16	Proto-Hassuna	7470+/-60	TKa-13419	5ThII-SS61	Charcoal ; Pit (P202) in Sq. MIX

\* Two levels are amalgamed here, because the stratigraphic division in the original report (FUKAI and MATSUTANI, 1976) is no longer supported (MATSUTANI and NISHIAKI, 1998).

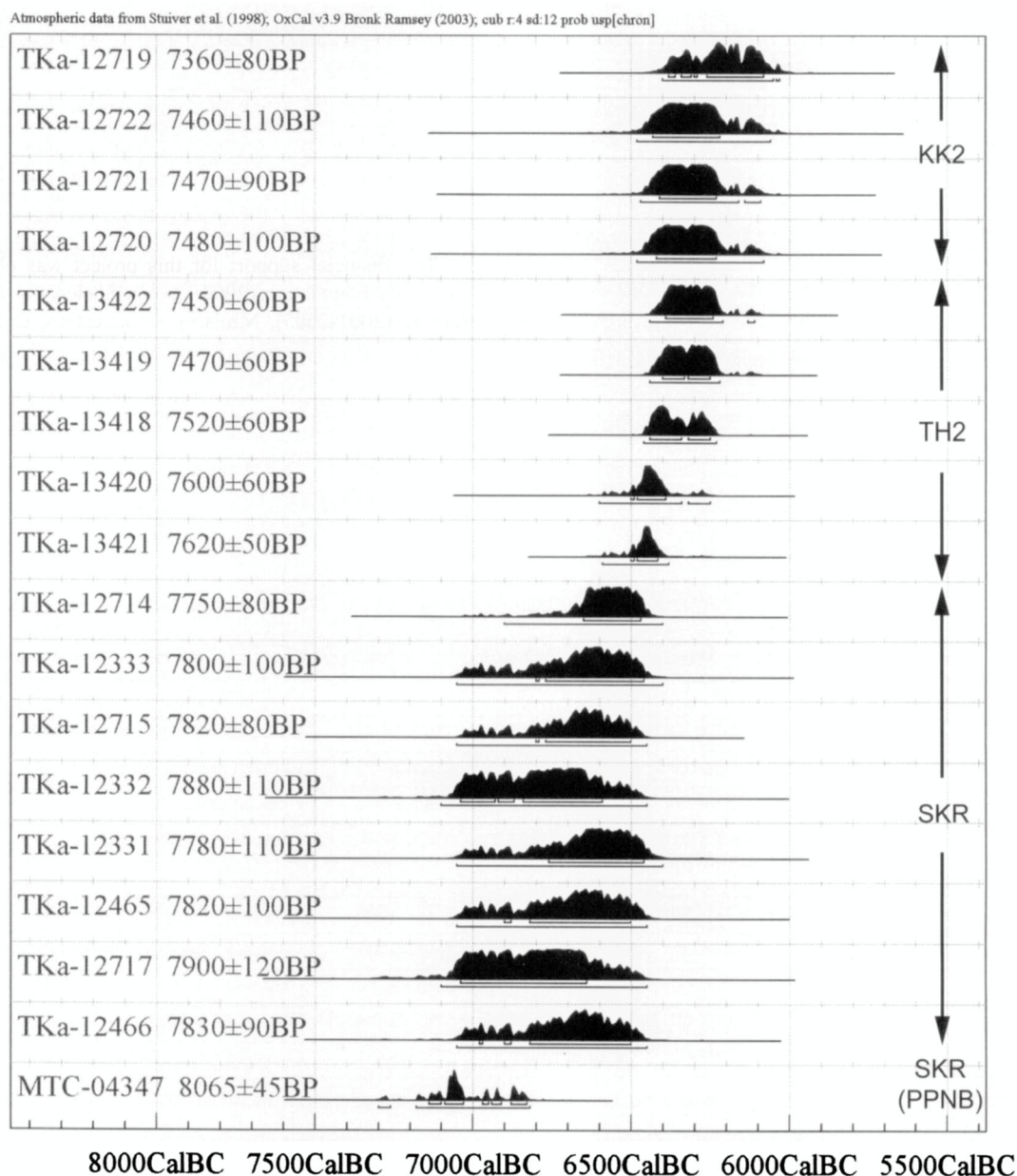
clearly point to the mid-8<sup>th</sup> millennium BP (the second/third quarter of the 7<sup>th</sup> millennium cal. BC). The dates for Thalathat II are also concentrated around the same period. Interestingly, one of the dates from Seker al-Aheimar, evidently too recent for its stratigraphy (#12 in table 1), is completely within the range of dates from Kashkashok II and Thalathat II. It may indicate a date for the Proto-Hassuna at Seker al-Aheimar, whose sample might have been intrusive in an earlier layer due to slope erosion or root action.

In either case, the dates indicate that these Proto-Hassuna assemblages are not as old as previously believed. Despite the

absence of secure dates, recent overviews of the Neolithic chronology of Upper Mesopotamia<sup>45</sup> regard the beginning of the Proto-Hassuna phase to be approximately 8 000 BP, when the PPNB ended in much of the Syrian Jazirah. If the new dates, although admittedly still limited, are sufficiently reliable, what were in Upper Mesopotamia during the early centuries of the 8<sup>th</sup> millennium BP ? This time period is evidently filled with the Pre-Proto-Hassuna entity on the Khabur, but

45. Cf. MATTHEWS, 2000 ; ANATASIO *et al.*, 2004.





**Fig. 11** : Calibrated radiocarbon dates for Tell Seker al-Aheimar (SKR), Tell Kashkashok II, (KK2) and Telul eth-Thalathat II (TH2).

the situation in northern Iraq is uncertain. The possibility exists that the PPNB persisted as the final PPNB<sup>46</sup>. If this is not the case, then the Pre-Proto-Hassuna or the much older Proto-Hassuna settlements may have remained undiscovered in Iraq. We can recall that at least one sherd had been recov-

ered in a reportedly PPNB level of Maghzaliyah<sup>47</sup>. Bearing in mind this and the fact that sherds are very rare in the Pre-Proto-Hassuna levels of Seker al-Aheimar, such a situation as in the Khabur basin may not have been completely unlikely to be the case in northern Iraq as well. Unfortunately, however,

46. MAZULOWSKI, 1997 : 175-176.

47. BADER, 1989 : 105.

this question cannot be explored further with the existing evidence.

## CONCLUSION

Due to the lack of stratified sites, the Neolithic period of the Upper Khabur has always been discussed either from the viewpoint of excavations of a few short-period sites, surveys, or from the data accumulated from the neighbouring regions. The exposure of the long sequence at Tell Seker al-Aheimar has considerably improved our current knowledge on the cultural developments of the Neolithic Khabur. First, it attests to continuous occupations from the PPNB to the Pottery Neolithic. Second, it shows that the emergence of pottery production on the Khabur was in tandem with that in other regions of the Syrian Jazirah, almost during the same period. The oldest Pottery Neolithic revealed was not Proto-Hassuna but what this paper refers to as "Pre-Proto-Hassuna". Third, the sequence indicates that the oldest pottery industry of the Khabur was gradually transformed into Proto-Hassuna over the initial centuries of the 8<sup>th</sup> millennium BP (7<sup>th</sup> millennium cal. BC).

The unique evidence discovered at Tell Seker al-Aheimar as well as the radiocarbon dates reported here underscore the necessity of reconsidering the Pottery Neolithic framework of the region. The Pottery Neolithic phases dealt with in fact correspond to an important period marked by a range of major cultural changes in Upper Mesopotamia. The most remarkable of these is the change in the settlement pattern during the Proto-Hassuna, which marks the onset of the extensive exploitation of this large fertile plain. A solid temporal framework is indispensable in order to provide an adequate explanation regarding the backgrounds of this and other significant changes in this period. Although we do not know the extent to which the above picture is applicable to the Iraqi plain, the sequence at Tell Seker al-Aheimar provides us with such a basis for the Khabur, which can be used for further analyses of the archaeological records.

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