

# NEOLITHIC POTTERY WITH HORIZONTAL APPLIED BANDS FROM TELL EL-KERKH, THE ROUJ BASIN

Takahiro Odaka\*

*Las aplicaciones plásticas horizontales son comúnmente observadas en las superficies externas de los recipientes en forma de cuenco de los conjuntos cerámicos neolíticos del norte de Siria y sureste de Turquía. En este trabajo se aborda la función y transformación de estas aplicaciones en Tell el-Kerkh. Estos cambios parecen asociarse a la creciente diversificación y especialización de la cerámica.*

Cerámica neolítica, Próximo Oriente, Bandas horizontales aplicadas, Elemento de suspensión, Diversificación.

*Horizontal applied bands are commonly observed on the outer surfaces of bowl-shaped vessels in the pottery Neolithic of northern Syria and south-eastern Turkey. This paper discusses the function and transformation of the bands through Tell el-Kerkh assemblages. This change seems to correspond with the increasing diversification and specialization of pottery.*

Neolithic pottery, Near East, Horizontal applied band, Handle system, Diversification.

25

## INTRODUCTION

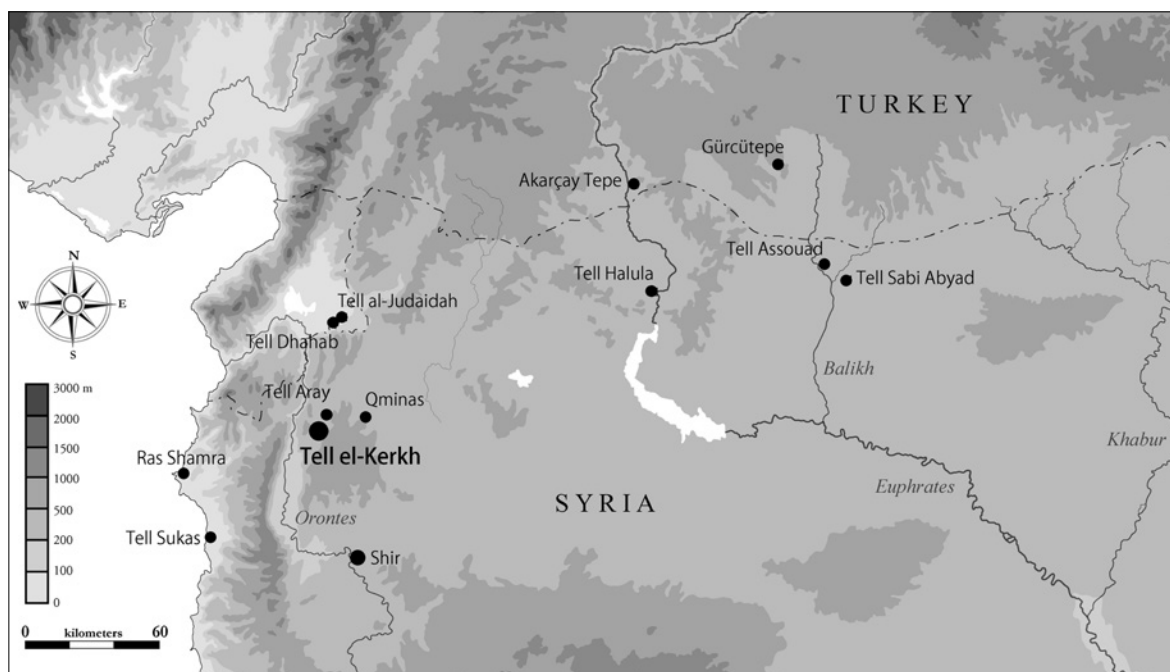
Pottery vessel production seems to have emerged in at least a few regions of the Near East in the first half of 7th millennium BCE, the beginning of the Late Neolithic. Several excavations since the 1990s in northern Syria and south-eastern Turkey have provided especially rich information regarding the development of early pottery. The oldest pottery from sites in this vast region shares several attributes. For example, the fabric includes considerable mineral temper, the vessel shape is limited to small simple bowls measuring around 20 cm in diameter, and, in many cases, dark coloured surfaces are treated with light burnishing. Thus, they can be identified broadly as the same type of pottery, sometimes called “Early Mineral Ware” or “early mineral-tempered pottery” (Nieuwenhuys *et al.* 2010; Le Mière 2013).

However, the succeeding types of pottery start to show local variation. Heavily chaff-tempered light-coloured

wares became major in the pottery assemblages east of the Euphrates, while the so-called Dark-faced Burnished Ware (DFBW) became dominant in western areas, such as the Orontes Valley and the Mediterranean coast (e.g. Miyake 2003, 128-129; Odaka 2013a). When studied in more detail, several local types of pottery can be identified even within each of the two regions (e.g. Le Mière/Picon 1998; Aurenche/ Kozłowski/Le Mière 2004; Odaka 2013b). The rise of such local variation was regarded as a result of diversifications of pottery production in the mid-late 7th millennium BCE.

At the same time, common aspects in ceramics across the regions are also observed during this period. One of them is the frequent occurrence of “*moyen de préhension* (parts for gripping),” such as the horizontal applied bands or handles, on the outer surfaces of bowl-shaped vessels (Le Mière/Picon 1998, 13). This is a significant phenomenon from the Northern Levant to the Balikh Valley (Fig. 1), and seems to be the key to

\* Assistant Professor, University of Tokyo, University Museum. 7 Chome-3-1 Hongo, Bunkyo, Tokyo 113-0033, Japó. odakatak@gmail.com



**Figure 1.** Map of distributions of the horizontal applied band on the Neolithic pottery.

understand how and why pottery vessels were invented and prevailed in these regions.

The first question we need to address is whether the horizontal applied band was truly a “grip” on the vessels. These bands can also be considered as decoration, and, in fact, such interpretation seems to be popular for pottery from other parts of the world. These two views, in fact, are not mutually exclusive.

Thus, this paper shall discuss the function(s) of the horizontal applied band on Neolithic pottery from the northern Levant through analyses of specimens recovered from Tell el-Kerkh in the Rouj Basin, northwestern Syria.

### **POTTERY ASSEMBLAGES OF THE ROUJ BASIN THROUGH THE LATE NEOLITHIC**

The regional chronology of the Rouj Basin was proposed based on the results from soundings at Tell el-Kerkh 2, Tell Aray, and Tell Abd el-Aziz (Iwasaki/Nishino/Tsuneki 1995). The Late Neolithic corresponds to the El-Rouj 2 period, which is divided into four sub-periods (El-Rouj 2a to 2d). Cultural layers of all four sub-periods were exposed at Tell el-Kerkh, one of the so-called Neolithic mega-sites consisting of three mounds (Tell el-Kerkh 1, Tell el-Kerkh 2, and Tell Ain el-Kerkh).

The sounding at Tell el-Kerkh 2 in 1992 revealed a sequence consisting of El-Rouj 1 (PPNB; Layers 12-7), El-Rouj 2a (Layers 6-5), and El-Rouj 2b (Layers 4-1) pe-

riods (Iwasaki/Tsuneki eds. 2003), and excavations at Tell Ain el-Kerkh in 1997-2002 recovered archaeological remains belonging to El-Rouj 1 (Layers 10-3 in Northwest Area), El-Rouj 2b (Layers 2-1 in Northwest Area), El-Rouj 2c (Phases III-II in Central Area), and El-Rouj 2d (Phase I in Central Area) (Tsuneki *et al.* 1997, 1998, 1999, 2000, 2007). In addition, the East Trench excavated in 2005-2008 provided a sequence consisting of El-Rouj 1 (Layer 9), El-Rouj 2b (Layers 8-7), El-Rouj 2c (Layers 6-4), and El-Rouj 2d (Layers 3-1) (Fig. 2).

As a result of these investigations, El-Rouj 2a-2d pottery assemblages can be briefly summarized as follows (see Odaka 2013a, 205-208 for details).

The earliest assemblage in the El-Rouj 2a period consisted of the so-called Kerkh Ware, a variety of the Early Mineral Ware, along with DFBW, and a small number of Coarse Ware tempered with abundant chaff. In all ware-types of pottery, the vessel shape was apparently limited to simple rounded bowls, and no parts for gripping, neither handles nor horizontal applied bands, were present at all.

In the El-Rouj 2b period, Kerkh Ware drastically declined and eventually disappeared. Since then, DFBW consistently dominated the pottery assemblage through the Late Neolithic and Coarse Ware also gradually increased until the El-Rouj 2c period. The vessel shapes of both ware-types began to diversify in this period; for instance, necked jars first appeared at this time. Also, the horizontal applied band was often observed on bowl-shaped vessels, as well as handles.

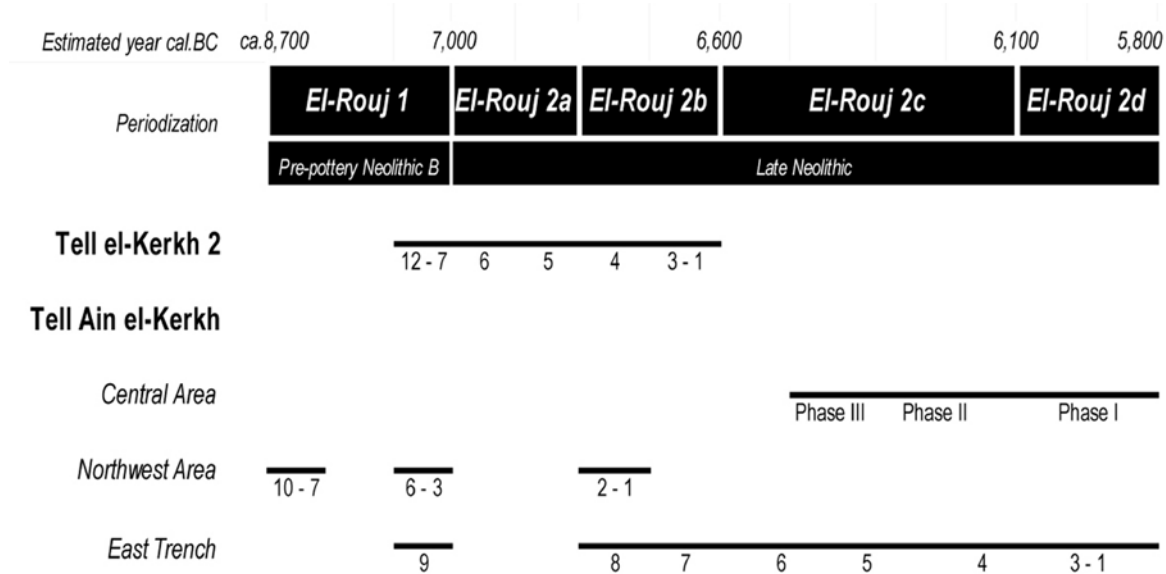


Figure 2. Neolithic chronology of Tell el-Kerkh.

The pottery assemblage in the El-Rouj 2c period included various new ware-types, such as Dark-faced Unburnished Ware (DFBW), Samarra-related Fine Painted Ware, and Orange Fine Ware. Washed Impressed Ware was also observed in this period at the other neighbouring sites in the Rouj Basin (Iwasaki/Nishino/Tsuneki 1995) and the surrounding regions (e.g. Braidwood/Braidwood 1960; Masuda/Shath 1983). Diversification in the vessel shapes increased further and specific vessel shapes became associated with certain ware-types. For instance, most DFBW were small shapes with thin walls, and the horizontal band was applied to only DFBW and Coarse Ware.

These changes were accelerated in the El-Rouj 2d period. In addition, strong influence of Halaf pottery from the east was observed especially in DFBW. Horizontal applied bands were still limited in DFBW and Coarse Ware, although its frequency became very rare (Fig. 3).

Figure 3 shows quantitative data on the change in the pottery assemblage from El-Rouj 2b to 2d. It demonstrates that the percentages of DFBW based on rim sherd counts are generally higher than those based on total weight, and vice versa for the other ware-types, especially for Coarse Ware. This implies that a DFBW sherd is generally lighter and smaller with thinner walls than that of Coarse Ware. Although sherds of Coarse Ware are usually too fragmented to reconstruct the whole shape, it is easy to imagine that most of them were originally parts of large-sized vessels.

### HORIZONTAL APPLIED BANDS IN POTTERY FROM TELL EL-KERKH

Focusing further on the horizontal applied band, its frequencies in each period are shown in figure 4, which is the result of sherd counts of DFBW and Coarse Ware recovered from the East Trench and Square E310 of the Central Area at Tell Ain el-Kerkh. A chronological correspondence between the East Trench and the Central Area was decided based on stratigraphic and typological analyses. The number of rim sherds simply reflects the number of vessels, because no vessel-shapes with more than two mouths have been identified so far. Thus, by dividing the number of sherds with a horizontal applied band by the number of rim sherds, the frequency of vessels with a horizontal applied band among the whole pottery assemblage can be relatively estimated. In this analysis, sherds with both rim parts and horizontal applied bands were counted in both categories.

Immediately after the first appearance, the frequency of the horizontal applied band rapidly increased. The frequency found on Coarse Ware was much higher than on DFBW, and peaked in the late El-Rouj 2b period. In the El-Rouj 2c period, however, it radically decreased. Meanwhile, the frequency of the horizontal applied band on DFBW kept a constant level and ended up higher than that on the Coarse Ware in the late El-Rouj 2c period. Finally, horizontal applied bands almost disappeared by the end of the El-Rouj 2d period, both on DFBW and on Coarse Ware.

Figure 5 shows drawings of potsherds with horizontal applied bands, which were recovered from the East Trench at Tell Ain el-Kerkh. The horizontal applied bands

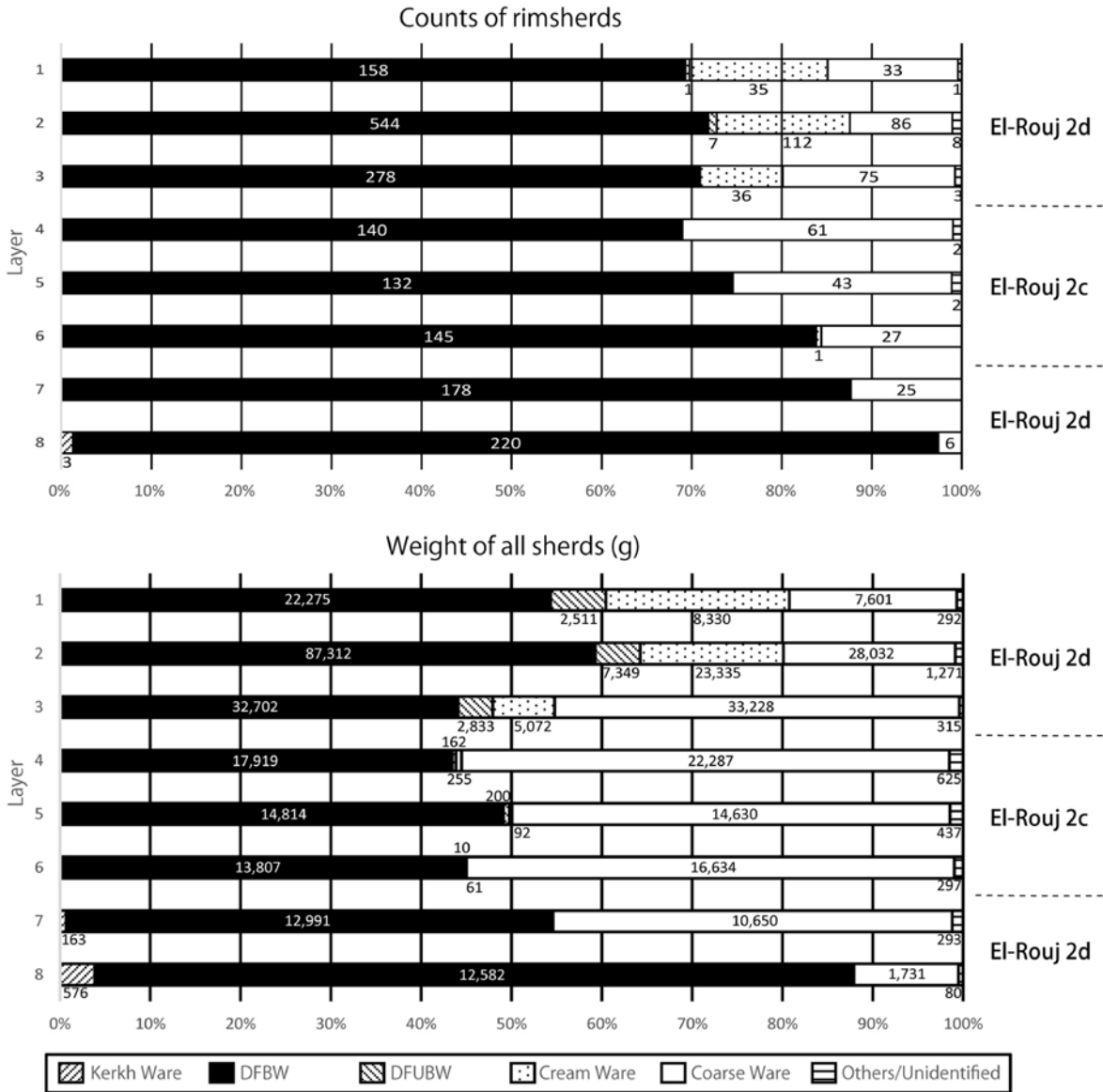


Figure 3. Pottery assemblages per layer, East Trench, Tell Ain-el Kerkh.

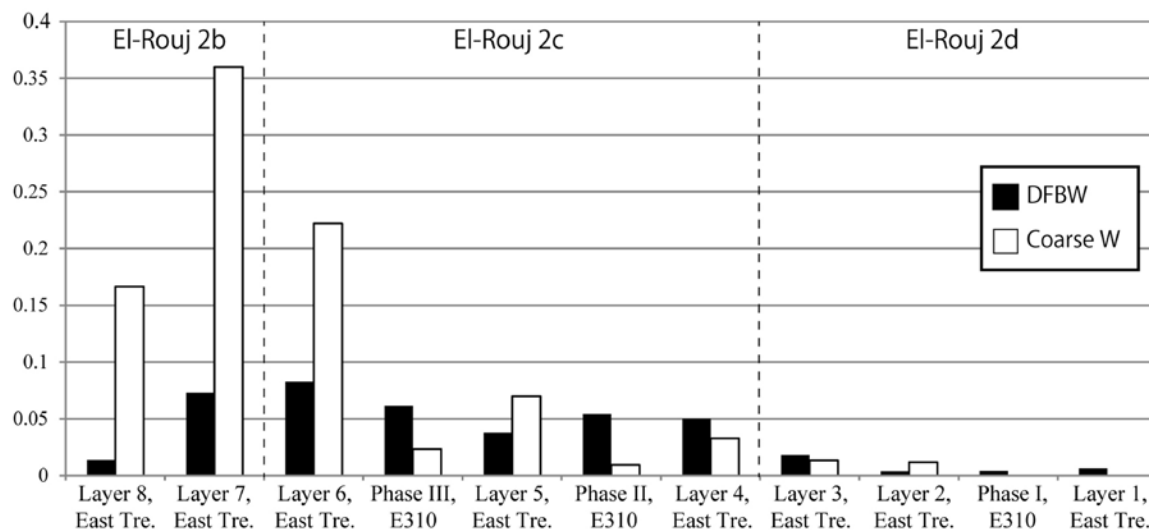
on Coarse Ware were often accompanied by additional decorative elements, such as a broadening of a section of the band and a disc-shaped appliqué (Fig. 5: 17-20). The profiles, however, are generally trapezoid with ca. 1 cm thickness, which seems reasonable to be gripped with a finger. While, a specimen in the middle El-Rouj 2c (Layer 5) is thinner than the previous ones (Fig. 5: 15), and the following layers in the East Trench no longer provided examples of horizontal applied bands in a meaningful condition to be drawn.

Compared to the horizontal applied bands on Coarse Ware, most horizontal applied bands on DFBW were formed into very thin and flat shapes (Fig. 5: 1, 3-7, 10, 11). An example recovered from the Central Area is shown in Fig. 5: 14. The band is very hard to identify in

this photograph, and seems to not have functioned as a grip nor as decoration. Nevertheless, a gradual change can also be observed in the horizontal applied band on DFBW. In the El-Rouj 2b and the early El-Rouj 2c (Layers 8-6), the profiles often show a triangular shape with ca. 2 cm thickness or trapezoidal with ca. 1 cm thickness, which seems easy to be gripped (Fig. 5: 8, 9, 12, 13), although flat-shaped bands dominate in the middle to late El-Rouj 2c.

To summarize, horizontal applied bands were usually thick in profile, enabling a practical function as a grip, when the frequency was generally high from the El-Rouj 2b to the early El-Rouj 2c periods. Although the frequency was higher on Coarse Ware than on DFBW through these periods, in the following periods horizon-

		Layer 8, East Tre.	Layer 7, East Tre.	Layer 6, East Tre.	Phase III, E310	Layer 5, East Tre.	Phase II, E310	Layer 4, East Tre.	Layer 3, East Tre.	Layer 2, East Tre.	Phase I, E310	Layer 1, East Tre.	Total
DFBW	N of the bands	3	13	12	75	5	31	7	5	2	2	1	156
	N of rims	220	178	145	1,222	132	573	140	278	544	509	158	4,099
Coarse W	N of the bands	1	9	6	7	3	1	2	1	1	0	0	31
	N of rims	6	25	27	301	43	108	61	75	86	96	33	861



**Figure 4.** Frequencies of the horizontal applied bands, estimated by dividing the number of sherds with the band by the number of rim sherds, per layer or phase, East Trench and E310, Tell Ain el-Kerkh.

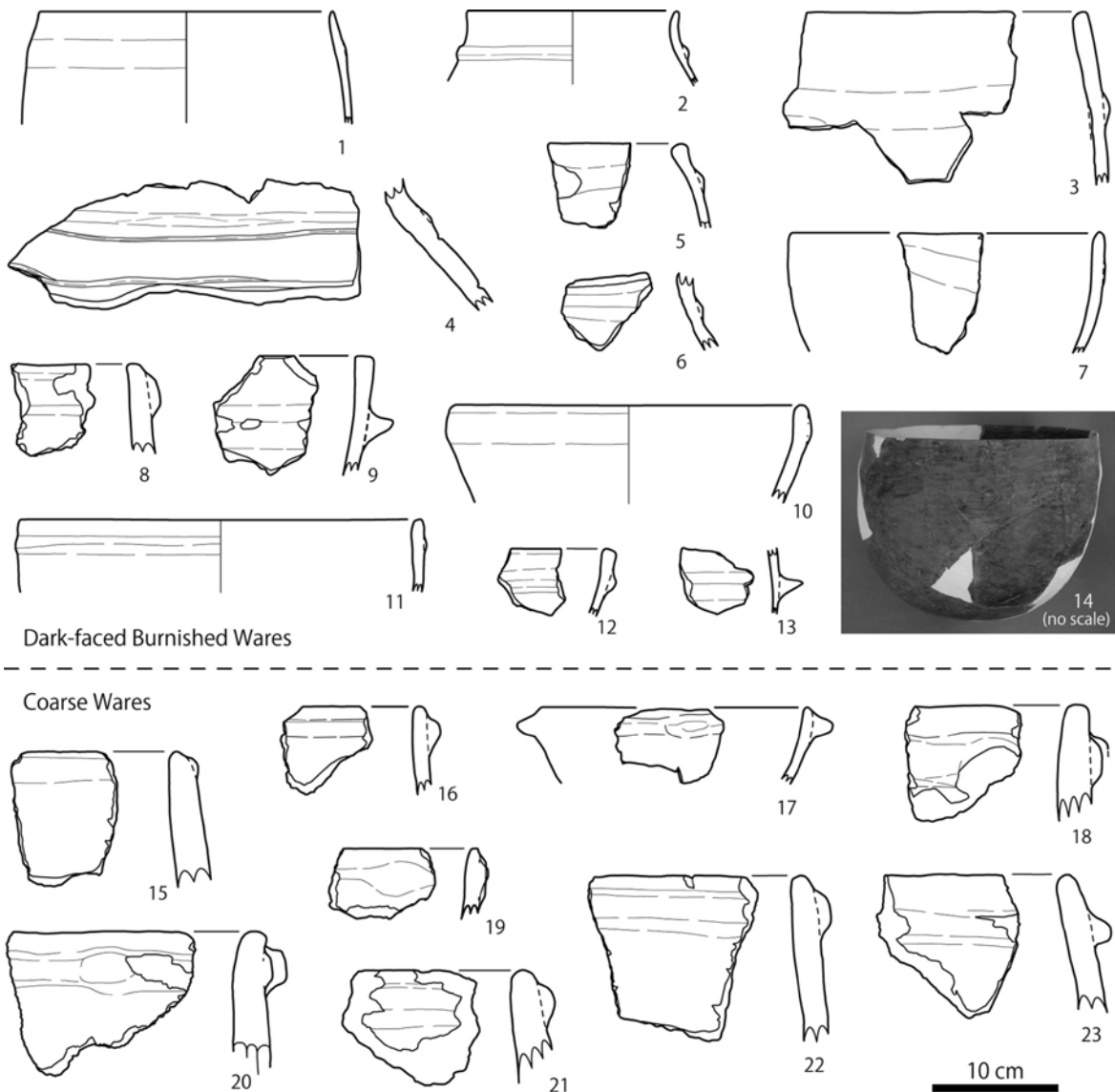
tal applied bands on Coarse Ware rapidly decline until they are found even less frequently than on DFBW. Even on DFBW the shape of the horizontal applied band became thinner in profile, which does not support any functions. Finally, horizontal applied bands decreased both on Coarse Ware and on DFBW, until it almost disappeared by the end of the El-Rouj 2d period.

## INTERPRETATIONS

In the earliest pottery assemblage of the El-Rouj 2a period, no form of grip that would reinforce portability of the vessels is found. However, it is noteworthy that the vessel shapes were limited to small bowls. Such shapes are quite popular among pottery vessels even now, and are generally used for serving, cooking, transportation, etc., rather than for storage in a fixed place. Moreover, small bowls usually functioned on the premises of its portability. In fact, one of the principal elements of Early Mineral Ware would be portability, as it is the decisive difference between the oldest pottery vessels and the clay bins which already existed in the Pre-Pottery Neolithic. In this way, the vessel shape of El-Rouj 2a pottery, at least of Kerkh Ware, was limited to small-sized simple bowls, which were very easy to grip, therefore, portability was naturally assured without any additional specific parts for gripping.

However, pottery began to be diversified in the following period. As large-sized vessels appeared, it became necessary to reinforce their portability, since portability was a principal element for pottery vessels, at least in the early phases. Therefore, in the El-Rouj 2b period, the horizontal applied bands first appeared and were especially noticeable in Coarse Ware. The relation between the number of rim sherds and total weight suggests that Coarse Wares were generally thick walled, large sized vessels. In addition, the ratio of Coarse Ware in the whole pottery assemblage and the frequency of horizontal applied bands on Coarse Ware simultaneously increased. These facts imply that the horizontal applied band was intended to be attached to large-sized vessels, a new variety of vessel shapes that appeared in this period. Furthermore, the horizontal applied band needed to be of a reasonable shape to function as a grip to reinforce the portability of a large-sized, heavy, Coarse Ware vessel. As for DFBW, on the other hand, the frequency of the horizontal applied band was relatively low, and very thin bands, which seemed useless for use as a grip, were sometimes observed. Smaller, lighter DFBW vessels were easily carried, as in the case of El-Rouj 2a pottery. Therefore, the horizontal applied band was not significant in providing a practical function as a grip on such small and lighter DFBW.

Subsequently, although Coarse Ware still seemed large and heavy, its portability seems to have been ignored



**Figure 5.** Pottery with horizontal applied bands, Tell Ain el-Kerkh. 1-4. Layer 4; 5, 6, 15. Layer 5; 7-9, 16-18. Layer 6; 10-12, 19-23. Layer 7; 13. Layer 8 (East Trench); 14. El-Rouj 2c period (Central Area).

in the El-Rouj 2c period. The frequency of horizontal applied bands rapidly declined in Coarse Ware, and most horizontal applied bands in DFBW were no longer used for gripping. It appears that the further diversification in vessel shapes led to the emergence of specialized pottery for specific purposes. The vessel shape, including the weight and the size, was dictated by the use, and, of course, clear distinctions between portable wares and fixed wares were adequately recognized. On one hand, most Coarse Wares were meant to be used as fixed vessels, and, on the other hand, DFBW were portable vessels to be made in sufficiently small sizes and light weights. Thus, in both cases, grips for practical uses, including horizontal applied bands, were no longer necessary.

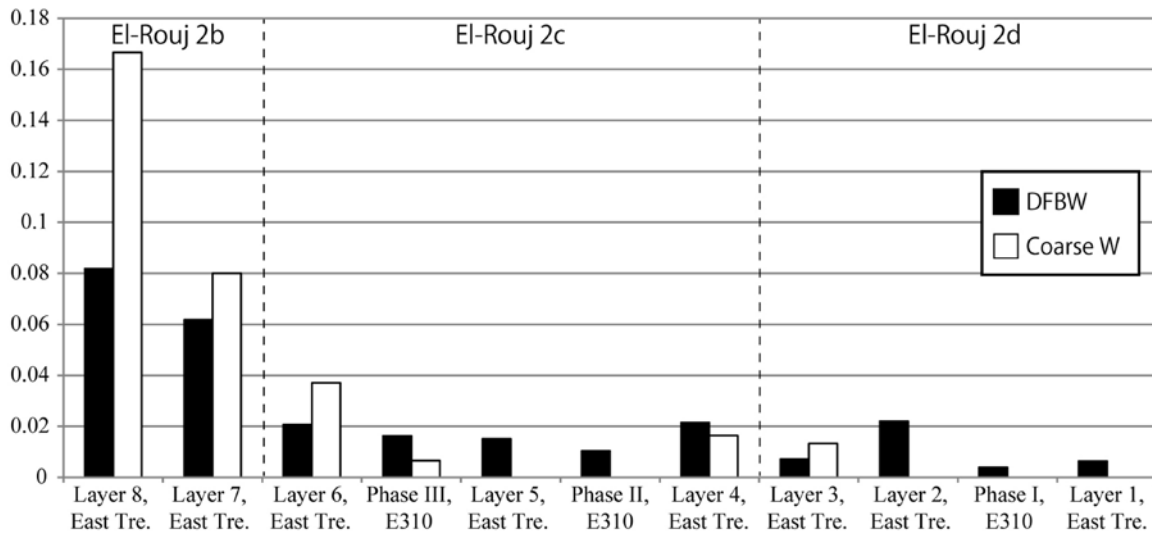
This trend continued to the El-Rouj 2d period. Finally, the horizontal applied band virtually disappeared.

### CO-RELATION WITH HANDLES

Such interpretations support the idea that the original function of the horizontal applied band was as a grip to reinforce the portability of a vessel. However, for specific kinds of Late Neolithic pottery, handles may be more easily recognized as grips, rather than the horizontal applied bands. If horizontal applied bands were surely grips, then the handles should also demonstrate similar changes through the Late Neolithic.

Similarly to the case of the horizontal applied band,

		Layer 8, East Tre.	Layer 7, East Tre.	Layer 6, East Tre.	Phase III, E310	Layer 5, East Tre.	Phase II, E310	Layer 4, East Tre.	Layer 3, East Tre.	Layer 2, East Tre.	Phase I, E310	Layer 1, East Tre.	Total
DFBW	N of handles	18	11	3	20	2	6	3	2	12	2	1	80
	N of rims	220	178	145	1,222	132	573	140	278	544	509	158	4,099
Coarse W	N of handles	1	2	1	2	0	0	1	1	0	0	0	8
	N of rims	6	25	27	301	43	108	61	75	86	96	33	861



**Figure 6.** Frequencies of handles, estimated by dividing the number of the handle sherds with a handle by the number of rim sherds, per layer or phase, East Trench and E310, Tell Ain el-Kerkh.

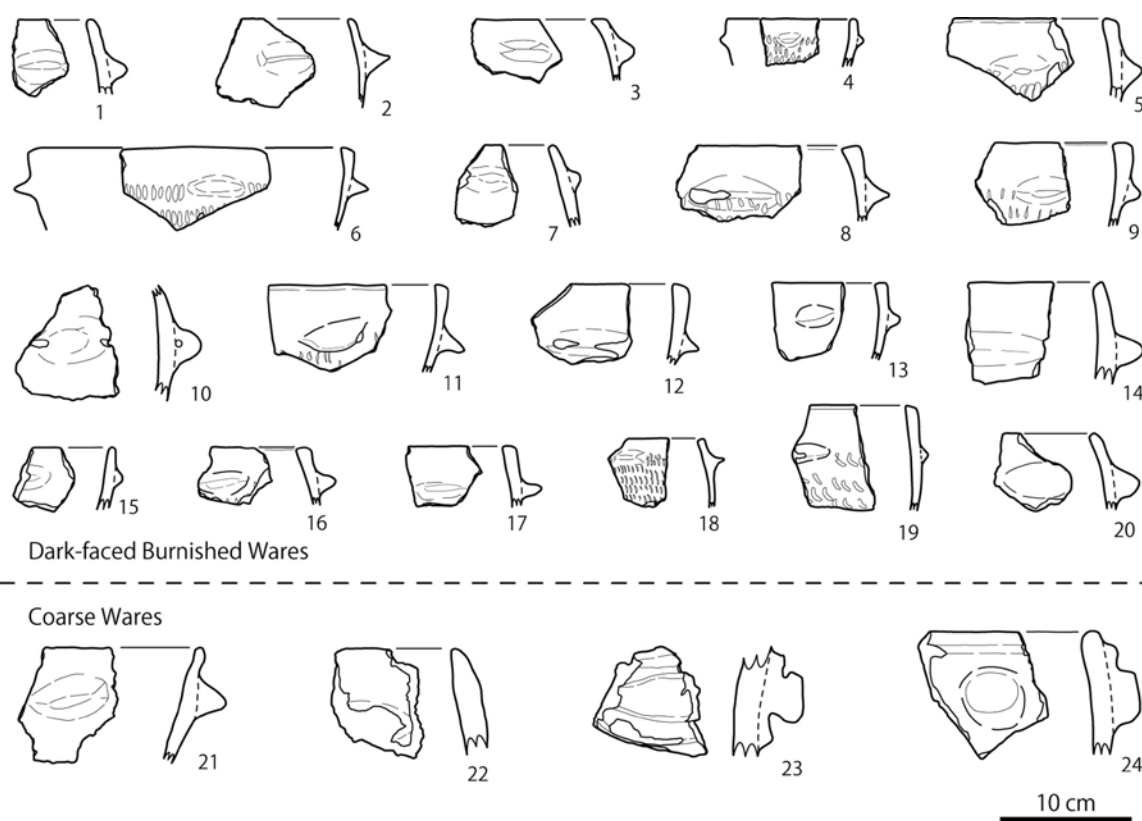
the frequency of handles in each period was estimated based on the counts of rim sherds and handle sherds from Tell Ain el-Kerkh (Fig. 6). Handles first appeared in the El-Rouj 2b period as well (Fig. 7). In both the DFBW and Coarse Ware, the frequency abruptly peaked in the early El-Rouj 2b, although much more notably in the Coarse Ware. Afterwards, as both frequencies rapidly declined, the differences became smaller and finally handles on Coarse Ware became rare in the middle El-Rouj 2c period. Meanwhile, handles on DFBW survived until the El-Rouj 2d period, but the frequency was quite low. In addition, the dominant form of handles turned from ear-shaped lugs to pierced lugs which would question its effective use as a grip (Fig. 8). Because of the very narrow hole through which the string would pass, it is difficult to understand whether this string was to be used as a handle or to hang.

Although the number of specimens is quite limited, handles demonstrate roughly similar changes with those of horizontal applied bands. This fact, therefore, is affirmative for the hypothesis that horizontal applied bands were originally invented to function as a grip.

## COMPARISON WITH UPPER MESOPOTAMIAN SITES

As well as Tell el-Kerkh, many mid-7th millennium sites yielded early pottery with grips. Some of them are located on the Middle Euphrates and the Balikh, although they clearly show the regional difference in the whole pottery assemblage from the Northern Levantine sites, including Tell el-Kerkh.

As for pottery with grips at these sites, unfortunately, very little quantitative data is available, although an exception is Tell Sabi Abyad I on the Balikh; 48 handles and only 1 horizontal applied band were identified among 488 diagnostic potsherds selected from 2440 recovered sherds (Le Mière/Nieuwenhuyse 1996, table 3. 12). However, the first appearance of the horizontal applied band seems later than that of handles in these regions, as well as at Tell el-Kerkh. Horizontal applied bands on Early Mineral Ware have not been found so far, while the succeeding chaff-tempered, light-coloured ware often has a band, as we can observe in Phase 2 of Tell Halula and in the early Balikh II period of Tell Assouad (Faura/Le Mière 1999, figs. 3-4; Cauvin 1972). In addition, as pottery diversified and specialized vessel shapes appeared, horizontal applied bands clearly declined. For instance, it completely disappeared in Phase 3 of Tell Halula



**Figure 7.** Pottery with handles, East Trench, Tell Ain el-Kerkh. 1. Layer 2; 2. Layer 3; 3. Layer 4; 4, 5. Layer 6; 6-10, 21-23. Layer 7; 11-20, 24, Layer 8.

32

(Faura/Le Mière 1999; Faura 2013). Thus, changes on the horizontal applied bands in the Middle Euphrates and the Balikh coincided with those observed at Tell el-Kerkh in the Northern Levant. This suggests that the function(s) and the meaning(s) of the horizontal applied band in this period were identical in both regions, which covered a very vast area.

On the other hand, pottery with handles in the Middle Euphrates and the Balikh seems problematic for such interpretations. In this region, handles were applied even to Early Mineral Wares, which were formed into light-weight small size vessels, simple bowls like Kerkh Ware (e.g. Faura/Le Mière 1999, fig. 3; Arimura *et al.* 2000, 241). Why did they need parts for gripping although they were sufficiently portable? In any case, quantitative analysis of Early Mineral Wares is mostly impossible due to the limited number of the available specimens so far.

## ENDING REMARKS

Concluding remarks derived from the analyses and the discussion here can be summarized as follows.

Horizontal applied bands were not observed in the oldest

pottery in northern Syria and south-eastern Turkey, the simple bowl-shaped vessels of Early Mineral Ware. They appeared in the following period when pottery began to be diversified. The horizontal applied band had a practical function as a grip, which offered portability to newly-made large vessels. The high frequency of occurrence of the horizontal applied band in this period reflects the importance of portability in the early pottery. As diversifications of pottery proceeded further in the succeeding period, however, various vessel shapes for specific purposes were invented. Portable vessels were usually formed into small shapes with thin walls to be reasonable for the purpose, so parts for gripping turned relatively meaningless. As a result, horizontal applied bands became extremely rare and lost the original functions as a grip: most of them seem too thin to be gripped.

Changes in handles were similar to those of horizontal applied bands through the Late Neolithic, because they both originally functioned as a grip. However, as for the correlation between horizontal applied bands and handles, a problem to be interpreted still remains: the oldest handles were applied to Early Mineral Ware in the Middle Euphrates and the Balikh, although no handles



	Layer 8, East Tre.	Layer 7, East Tre.	Layer 6, East Tre.	Phase III, E310	Layer 5, East Tre.	Phase II, E310	Layer 4, East Tre.	Layer 3, East Tre.	Layer 2, East Tre.	Phase I, E310	Layer 1, East Tre.	Total
pierced lug		2		13	1	3	2	1	8	2	1	33
unpierced lug				1		1						2
loop				3	1				2			6
ear-shape	18	6	3	3		2	1	1	2			36
unidentified		3										3

**Figure 8.** Forms of the handles on Dark-faced Burnished Wares per layer or phase, East Trench and E310, Tell Ain el-Kerkh.

were observed in the oldest pottery assemblage at Tell el-Kerkh. In addition, the background of the importance of portability for early pottery should also be further discussed in future.

## ACKNOWLEDGEMENTS

I would like to express gratitude to Prof. Akira Tsuneki and Mr. Jamal Hydar, directors of excavations at Tell el-Kerkh. This paper is revised and translated from a published article written in Japanese (Odarka 2015), and the study was financially supported by Grants-in-Aid for Scientific Research (KAKENHI) of Japan Society for the Promotion of Science (No. 24101004).

## BIBLIOGRAPHY

ARIMURA, M. *et al.* 2000, A New Neolithic Settlement in the Urfa Region: Akarçay Tepe, 1999, *Anatolia Antiqua* 8, 227-255.

AURENCHÉ, O., KOZŁOWSKI, S. K., LE MIÈRE, M. 2004, La notion de frontière dans proto néolithique et le néolithique du Proche-Orient, in Aurenché, O., Le Mière, M., Sanlaville, P. (eds.), *From the River to the Sea: The Palaeolithic and the Neolithic on the Euphrates and in the Northern Levant. Studies in Honour of Lorraine Copeland*, BAR International Series 1263, Oxford, Archaeopress, 355-366.

BRAIDWOOD, R.J., BRAIDWOOD, L.S. (eds.) 1960, *Excavations in the Plain of Antioch I: The Earlier Assemblages Phases A-J*, The University of Chicago Oriental Institute Publications 61, Chicago, The University of Chicago Press.

CAUVIN, J. 1972, Sondage à Tell Assouad (Djezireh, Syrie), *Les annales archéologique Arabes Syriennes* 22, 85-103.

FAURA, J.M. 2013, Las primeras cerámicas neolíticas de Tell Halula, in Molist, M. (ed.), *Tell Halula: un poblado de los primeros agricultores en el valle del Éufrates, Siria*, Tomo II, Ministerio de Educación, Cultura y Deporte, 8-58.

FAURA, J.M., LE MIÈRE, M. 1999, La céramique

néolithique du haut Euphrate Syrien, in del Olmo Lete, G., Montero Fenollós, J.-L. (eds.), *Archaeology of the Upper Syrian Euphrates, the Tishrin Dam Area*, Barcelona, Institut del Pròxim Orient Antic, Universitat de Barcelona, 281-298.

IWASAKI, T., NISHINO, H., TSUNEKI, A. 1995, The Prehistory of the Rouj Basin, Northwest Syria. A Preliminary Report, *Anatolica* 21, 143-187.

IWASAKI, T., TSUNEKI, A. (eds.) 2003, *Archaeology of the Rouj Basin: A Regional Study of the Transition from Village to City in Northwest Syria*, Vol. I, Al-Shark 2, Tsukuba, Department of Archaeology, University of Tsukuba.

LE MIÈRE, M. 2013, Uniformity and Diversity of Pottery in the Jezirah and the Northern Levant during the Early Pottery Neolithic, in Nieuwenhuyse, O. P. *et al.* (eds.), *Interpreting the Late Neolithic of Upper Mesopotamia, Papers on Archaeology of the Leiden Museum of Antiquities* 9, Turnhout, Brepols, 323-330.

LE MIÈRE, M., NIEUWENHUYSE, O. 1996, The Prehistoric Pottery, in Akkermans, P.M.M.G. (ed.), *Tell Sabi Abyad: The Late Neolithic Settlement. Report on the Excavations of the University of Amsterdam (1988) and the National Museum of Antiquities Leiden (1991-1993) in Syria*, 2 vols., Istanbul, Nederlands Historisch-Archaeologisch Instituut te Istanbul, 119-284.

LE MIÈRE, M., PICON, M. 1998, Les débuts de la céramique au Proche-Orient, *Paléorient* 24(2), 5-26.

MASUDA, S., SHA'ATH, S. 1983, Qminas, the Neolithic Site near Tell Deinit, Idlib (Preliminary Report), *Les annales archéologiques Arabes Syriennes* 33, 199-231.

MIYAKE, Y. 2003, Pottery, in Iwasaki, T., Tsuneki, A. (eds.), *Archaeology of the Rouj Basin: A Regional Study of the Transition from Village to City in Northwest Syria*, Vol. I, Al-Shark 2, Tsukuba, Department of Archaeology, University of Tsukuba, 119-141.

NIEUWENHUYSE, O.P., AKKERMANS, P.M.M.G., VAN DER PLICHT J. 2010, Not So Coarse, nor Always Plain: The Earliest Pottery of Syria, *Antiquity* 84, 71-85.

ODAKA, T. 2013a, Neolithic Pottery in the Northern Levant and Its Relations to the East, in Nishiaki, Y., Kashima, K., Verhoeven, M. (eds.), *Neolithic Archaeology*

*in the Khabur Valley, Upper Mesopotamia and Beyond*, Studies in Early Near Eastern Production, Subsistence, and Environment 15, Berlin, *ex oriente*, 205-217.

ODAKA, T. 2013b, Dark-faced Burnished Ware and Fine versus Coarse Distinction in the Early Pottery Assemblage of Northern Levant, in Nieuwenhuys, O. P. *et al.* (eds.), *Interpreting the Late Neolithic of Upper Mesopotamia*, Papers on Archaeology of the Leiden Museum of Antiquities 9, Turnhout, Brepols, 296-303.

ODAKA, T. 2015, Early Pottery with Horizontal Applied Bands from Tell el-Kerkh, the Northern Levant, *Bulletin of the Society for Near Eastern Studies in Japan* 58(1), 1-14. (in Japanese)

TSUNEKI, A. *et al.* 1997, First Preliminary Report of the

Excavations at Tell el-Kerkh (1997), Northwestern Syria, *Bulletin of the Ancient Orient Museum* 18, 1-40.

TSUNEKI, A. *et al.* 1998, Second Preliminary Report of the Excavations at Tell el-Kerkh (1998), Northwestern Syria, *Bulletin of the Ancient Orient Museum* 19, 1-40.

TSUNEKI, A. *et al.* 1999, Third Preliminary Report of the Excavations at Tell el-Kerkh (1999), Northwestern Syria, *Bulletin of the Ancient Orient Museum* 20, 1-36.

TSUNEKI, A. *et al.* 2000, Fourth Preliminary Report of the Excavations at Tell el-Kerkh (2000), Northwestern Syria, *Bulletin of the Ancient Orient Museum* 21, 1-30.

TSUNEKI, A. *et al.* 2007, *A Decade of Excavations at Tell el-Kerkh, 1997-2006*, Tsukuba, Department of Archaeology, University of Tsukuba.