

Sumio Fujii
Kanazawa University
fujii@staff.kanazawa-u.ac.jp

Sumio Fujii

Settlement/Cemetery Complex at Ḥarrat al- Juḥayra 2: An Exotic Middle Chalcolithic Culture in the al-Jafr Basin, Southern Jordan

Introduction

Since the reconnaissance survey in 1995, our research project in the al-Jafr Basin in southern Jordan has consistently addressed the issue of the formation process of nomadic society at the arid margin of the southern Levant. The results of the field research series focusing on this issue were synthesized in “Jafr Chronology” (Fujii 2013), which has enabled us to outline the socio-cultural sequence during the key five millennia spanning from the Pre-Pottery Neolithic (hereafter PPNB) when sheep and goats were first introduced until the Early Bronze Age (EBA) when full-scale nomadic society is supposed to have been established. However, available datasets are still patchy and far from sufficient to trace the long-term sequence rigorously. Among others, the Chalcolithic period is deficient in specific research data, which leads to the vulnerability of our study.

Our recent surveys and excavations at

the Ḥarrat al-Juḥayra sites have drastically changed this situation. The highlight of the investigations is the finding of a Middle Chalcolithic settlement and cemetery complex at Ḥarrat al-Juḥayra 2, which have shed new light on the post-Neolithic cultural landscape in the basin. Since the research outcomes are due to be reported elsewhere in detail (Fujii *et al.* in preparation a, b; forthcoming a, b), this paper reviews the overall picture of the complex and discusses its general characteristics and archaeological implications.

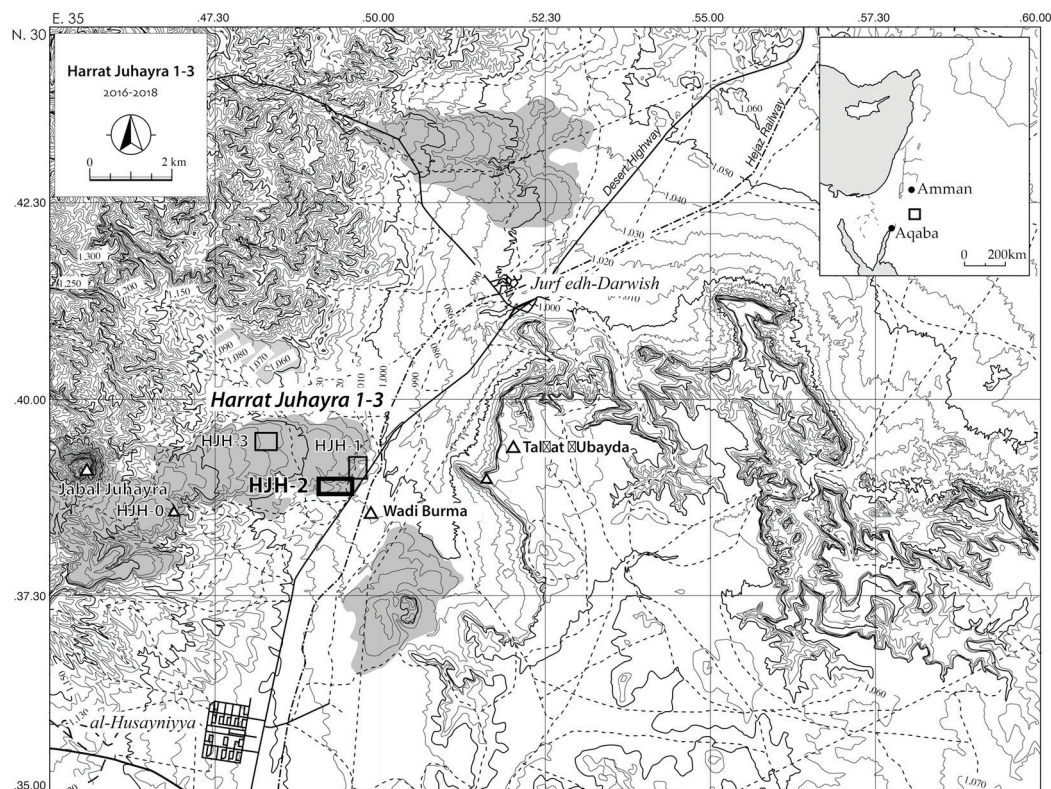
Site and Site-Setting

Ḥarrat al-Juḥayra is a local topographic term referring to a tongue-shaped lava plateau that extends from the eastern foot of Jabal al-Juḥayra to the west bank of Wādī Burma, a southern tributary of Wādī al-Ḥasā (FIG. 1). This small-scale volcanic tableland with a total area of *ca.* 15 km² and a relative height of *ca.* 20–30 m has a few topographic

advantages for human habitation. To begin with, it has an annual average precipitation of *ca.* 100 mm (Jordan National Geographic Center 1984: 114) and forms a transitional eco-zone between the desert to the east and the sown to the west. Second, it is combined with Tal'at 'Ubayda, a limestone table mountain on the opposite bank of Wādī Burma, and as a whole, creates a bottleneck at an important point for local traffic. It is precisely for this reason that the Hijaz Railway and the Desert Highway are forced to run side-by-side immediately beside the site. The bottleneck must have produced the same effect in prehistoric times. In addition, the volcanic plateau serves as a convenient windbreak against the northwesterly predominant wind in this region (Fujii 2014). These advantages explain the reason why modern local nomads preferably pitch

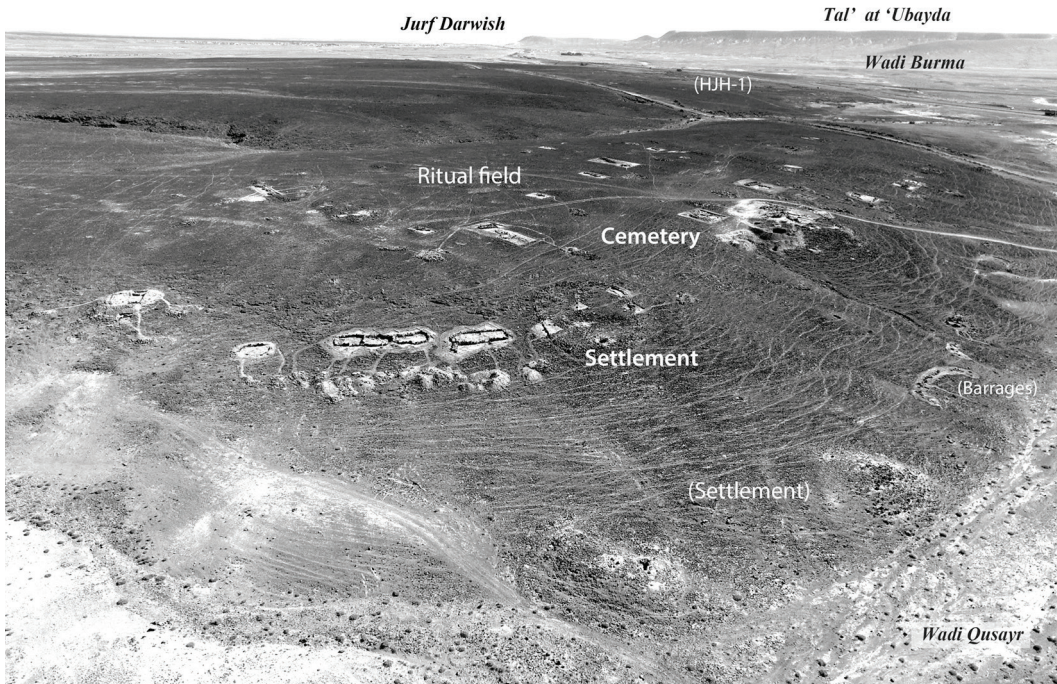
their tents in this area, especially at the southern skirts of the plateau.

Our investigation in this area started with a general survey in December 2001 (Fujii 2002a). Since then, we have repeated a survey and an intermittent excavation in an effort to understand the occupational history of this key area. The investigated sites include a Late Natufian settlement of Wādī al-Quṣayr 139 (Fujii 2005a: 42–4, but see also Neerly and Delage 2004), a Pre-Pottery Neolithic A (PPNA) encampment of Ḥarrat al-Juḥayra 205 (Fujii *et al.* in press), an Early PPNB settlement of Ḥarrat al-Juḥayra 202 (Fujii *et al.* in press), a Late PPNB rockshelter settlement of Jabal al-Juḥayra (Fujii *et al.* 2018, in press), a Late Neolithic (LN) pseudo-settlement of Ḥarrat al-Juḥayra or rebadged Ḥarrat al-Juḥayra 0 (Fujii 2005b), Late Chalcolithic to EBA

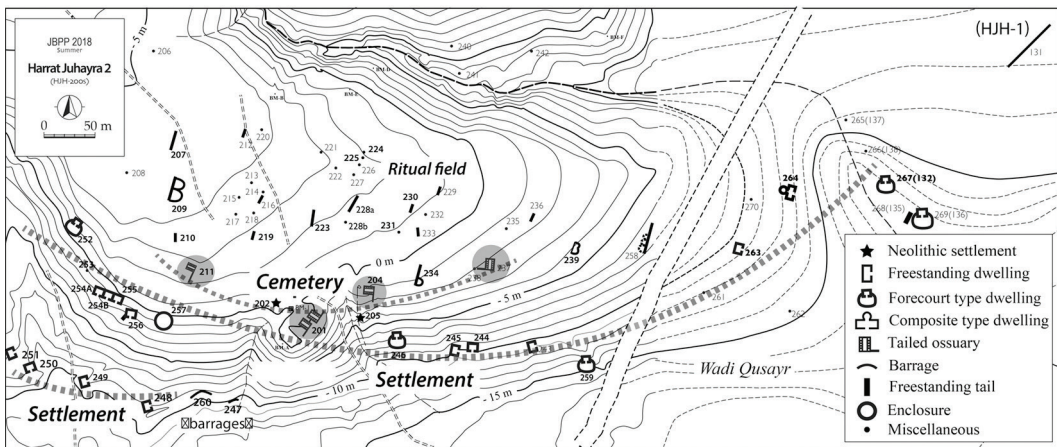


1. HJH 1–3: Site locations.

SETTLEMENT/CEMETERY COMPLEX AT ḤARRAT AL-JUḤAYRA 2



2. HJH-2: Aerial view (looking NE).



3. HJH-2: Structure/feature distribution map.

burial grounds of Wādī Burma and Tal'at 'Ubayda (Fujii 2004, 2005a), and an EBA tabular scraper lost property site of Wādī al-Qusayr 173 (Fujii 2011). The site density of this area is outstanding in the whole

of southern Jordan as well as the al-Jafr Basin, corroborating anew its topographic advantages.

Ḥarrat al-Juḥayra 2, or HJH-2 for short, is among three Chalcolithic sites (*i.e.*, HJH

1–3) registered during the 2002 summer season survey (Fujii and Abe 2008: table 1). The site occupies the southeastern corner of the tongue-shaped plateau, overlooking the narrow drainage basin of Wādī al-Quṣayr, a side stream of Wādī Burma. While the other two contemporary sites are simple open sanctuaries composed only of ritual features, HJH-2 contains a settlement and cemetery complex in addition to an extensive ritual field, and as a whole, forms a huge composite site with a total area of *ca.* 25 ha (FIGS. 2–3). The excavation at this site began in June 2016 and is still in progress. The following review and discussion are based on research outcomes as of September 2018 and are subject to minor revision depending on future investigation.

Settlement

The settlement, the main body of the composite site, consists of two dozen horizontally long dwellings, or broadhouses. They are aligned at intervals either in a single row (in the eastern and central parts) or two rows (at the western edge) along the southern slope of the volcanic plateau, constituting a linear settlement *ca.* 800 m in total length. Understandably, they are constructed with undressed basalt cobbles/boulders that are ubiquitous on the plateau. Although not clay-mortared, they adopt a rubble-core, double-walling technique uncommon to desert fringe sites, and in this sense, they can be said to be rather substantial structures. In terms of typology, they fall into the following four major types.

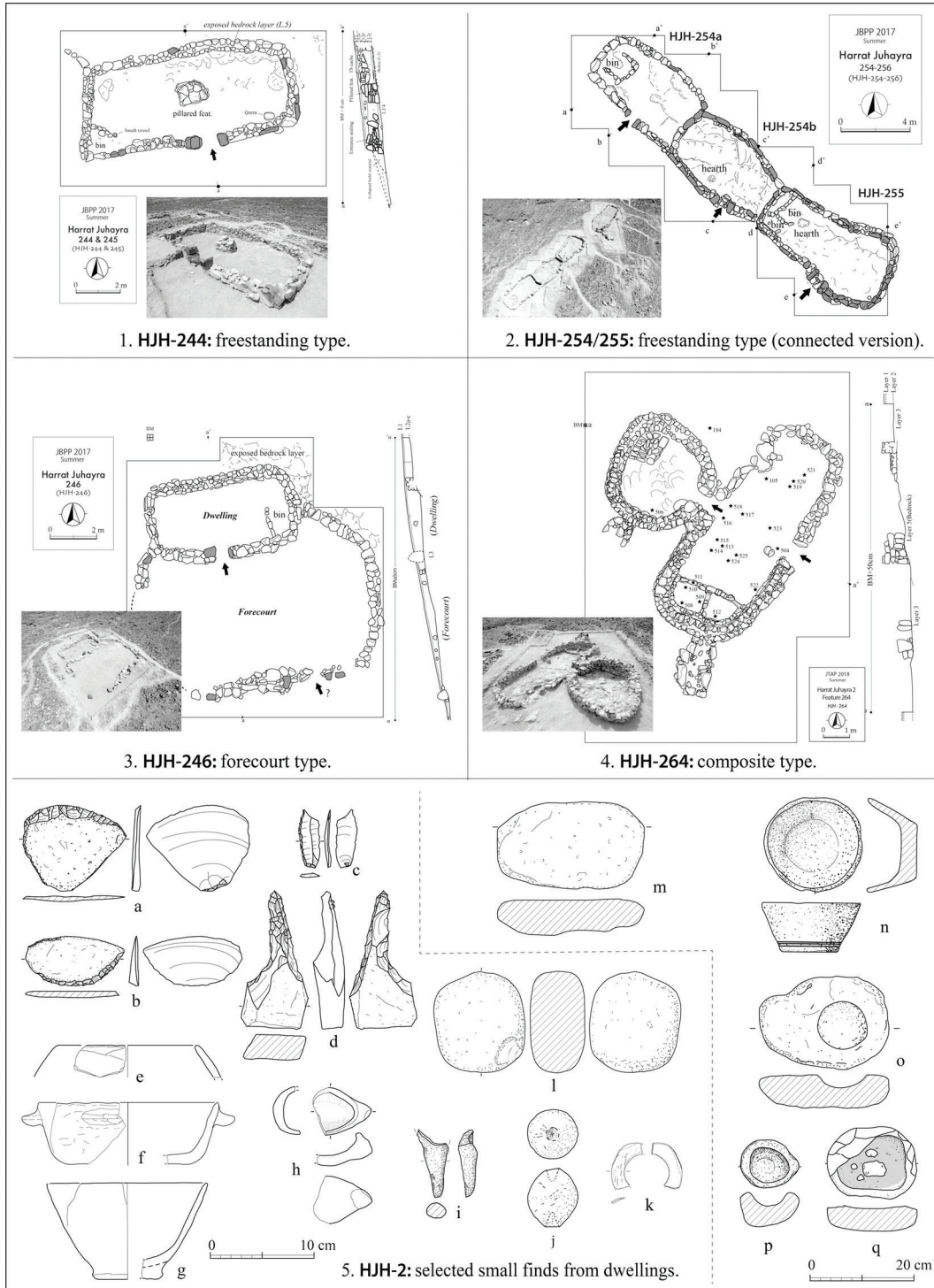
The most common is the freestanding type, which is best exemplified by HJH-244 (*i.e.*, Ḥarrat al-Juḥayra 2, Feature No. 44; the same applies hereafter) located in the middle of the linear settlement (FIG. 4:1). Although slightly skewed in general plan, this structure is a typical broadhouse equipped with a narrow entrance nearly in the middle of the long front wall facing to the south, measuring 9.8 m by 4.7 m in external

size and up to 0.9 m in preserved wall height. The entrance is 0.8 m wide and framed with a pair of upright basalt boulders. As for indoor small features, a slab-lined, quadrant bin *ca.* 1 m² in floor area is incorporated into the southwestern corner of the horizontally long room. In addition, a tower-like stone concentration *ca.* 1.5 m in diameter and *ca.* 1 m high stands on the central floor, which was probably used as a stone pillar or a pillar base for supporting a roof. This type of broadhouse is distributed throughout the settlement, and relevant examples total 12 including HJH-262, -256, -249, and -251. It is a standard architectural style in the Chalcolithic southern Levant (*e.g.*, Porath 1992).

The connected type is literally a connected version of the freestanding-type broadhouse. Structures of this type are rather exceptional and limited to three examples (*i.e.*, HJH-254a, -254b, and -255) near the western edge of the settlement (FIG. 4:2). They are connected in a lateral direction to form an elongated complex, or a chain-building, *ca.* 20 m in total length. Similar complexes are ubiquitous throughout Chalcolithic settlements in the Golan Heights (*e.g.*, Epstein 1998: fig. 7, 112, Site Plan 2; Kafafi 2010).

Next, the forecourt type broadhouse is represented by HJH-246 *ca.* 70 m west of HJH-244 mentioned above (FIG. 4:3). Structures of this type attach a slightly angular forecourt *ca.* 30–50 m² in floor area to a standard broadhouse. Here again, a narrow entrance framed with a pair of upright basalt boulders and a small slab-lined bin are incorporated into the middle of the front wall and the southeastern floor, respectively. Since few artifacts were found there, the attached forecourt probably doubled as a corral for keeping livestock. This type of broadhouse is also rather exceptional, and only one similar example has been confirmed at HJH-252 at the western edge of the settlement. In a broader

SETTLEMENT/CEMETERY COMPLEX AT HARRAT AL-JUHAYRA 2



4. HJH-2: Settlement: Four types of broadhouses and selected small finds.

context, Faza'el in the Upper Jordan Valley has a few parallels (Porath 1985).

The composite type refers to an Ω -shaped complex that connects a standard broadhouse and a trapezoidal structure through a very narrow passageway *ca.* 0.5 m wide and *ca.* 1 m long (FIG. 4:4). This type of structure is so far limited to HJH-264 near the eastern edge of the settlement. The broadhouse functions as a front room and contains a pair of square, slab-lined bins and a few hearths along its southern sidewall and near the northern corner of the floor, respectively. In addition, a tail-like, external feature is attached to its southern sidewall. Meanwhile, the trapezoidal rear room contains a square, slab-lined, slab-paved, and altar-like platform at its rear right corner. Here again, although poorly preserved, a tail-like feature is attached to the southern sidewall. Seeing that traces of everyday life, such as hearths and small finds, are found in the front room, the rear room might possibly have some symbolic implication. The combination of a broadhouse and a (semi-)round symbolic feature can also be seen at contemporary open sanctuaries such as 'Ayn Jadī (Ussishikin 1980: fig. 4) and Tuleilat el-Ghassul (Bourke *et al.* 2000: fig. 6; Bourke 2008: fig. 5.9), suggesting, together with the other types of broadhouses, a close relationship with the Ghassulian cultural sphere.

The settlement also includes two small barrages (HJH-247 and -260) and a few miscellaneous structures (*e.g.*, HJH-253). What attracted our attention were the barrages, which were equally constructed across a shallow gully that flows down a gentle slope in the western half of the site (see FIG. 6:1). It is most unlikely, however, that they were used as normal storage dams. This is because, first, they are not only small in size (*ca.* 7–22 m long and *ca.* 0.5 m in maximum wall height) but also have gaps throughout the walls, and second, because they makes a slight curve toward the upper stream, not in

a downward direction. These observations strongly suggest that they were gravity-type water-spraying barrages for conducting the gully stream to sloping cultivated lands on both its banks. Although no ^{14}C dates are available, they share the same stratigraphy with neighboring broadhouses, suggesting that they were combined with the settlement to form a well-organized agricultural infrastructure.

Small finds are homogenous in content at the broadhouses, and no remarkable rank differentiation within the settlement has been attested. The flint assemblages equally center on small, horizontally long tabular scrapers, also called fan-scrapers (FIG. 4:5a–b), and robust drills made on cortical flakes (FIG. 4:5d), and occasionally include sickle blades with silica sheen (FIG. 4:5c) and flint hammer-stones. Meanwhile, the pottery assemblages are dominated by cooking pots, casseroles, and shallow bowls (FIG. 4:5e–f). Of interest is the existence of a base fragment probably of a cornet (FIG. 4:5i), a V-shaped bowl (FIG. 4:5g), and a spoon-shaped miniature vessel with a knob handle (FIG. 4:5h), all of which have parallel examples in the Ghassulian pottery repertoire (*e.g.*, Adachi and Fujii in this volume; Amiran 1969: 22–3; Garfinkel 1999: 153–296; Bourke 2008: 131–4; Rowan and Golden 2009: 33–7). The third most common category is basalt/scoria products, which include a V-shaped bowl decorated with two incised lines near the base (FIG. 4:5n), a spoon-shaped vessel with a knob handle (FIG. 4:5p), a rectangular pallet with rounded corners (FIG. 4:5q), and standard grinding implements (FIG. 4:5l–m). The former two are stone versions of similar pottery types, and again, highlight a close relationship with the Ghassulian cultural sphere. In addition, limestone mace-heads were also commonly found (FIG. 4:5j), but adornments were limited to a few shell bracelets only (FIG. 4:5k). No prestige goods, such as copper products, were

included.

Although faunal and floral remains have yet to be analyzed, the absence of hunting weapons and the predominance of fan-scrapers demonstrate that hunting was entirely replaced by livestock herding. Likewise, the frequency of grinding implements and sickle blades, coupled with the existence of the water-spraying barrages, indicates that the villagers were engaged in cereal cultivation as well. Both perspectives would explain the reason why the stable settlement life, uncommon in the arid margin, was established at HJH-2. Noteworthy in this respect is the ubiquity of fan-scrapers, which probably suggests that sheep/goat shearing became popular. Furthermore, although no churns have so far been attested at HJH-2, the close contact with the Ghassulian culture implies the possibility that milk processing was also introduced. Assuming that the subsistence strategy at the HJH-2 settlement put emphasis on the production of such secondary products, its sudden appearance could be said to usher in the era of full-scale livestock farming in the al-Jafr Basin.

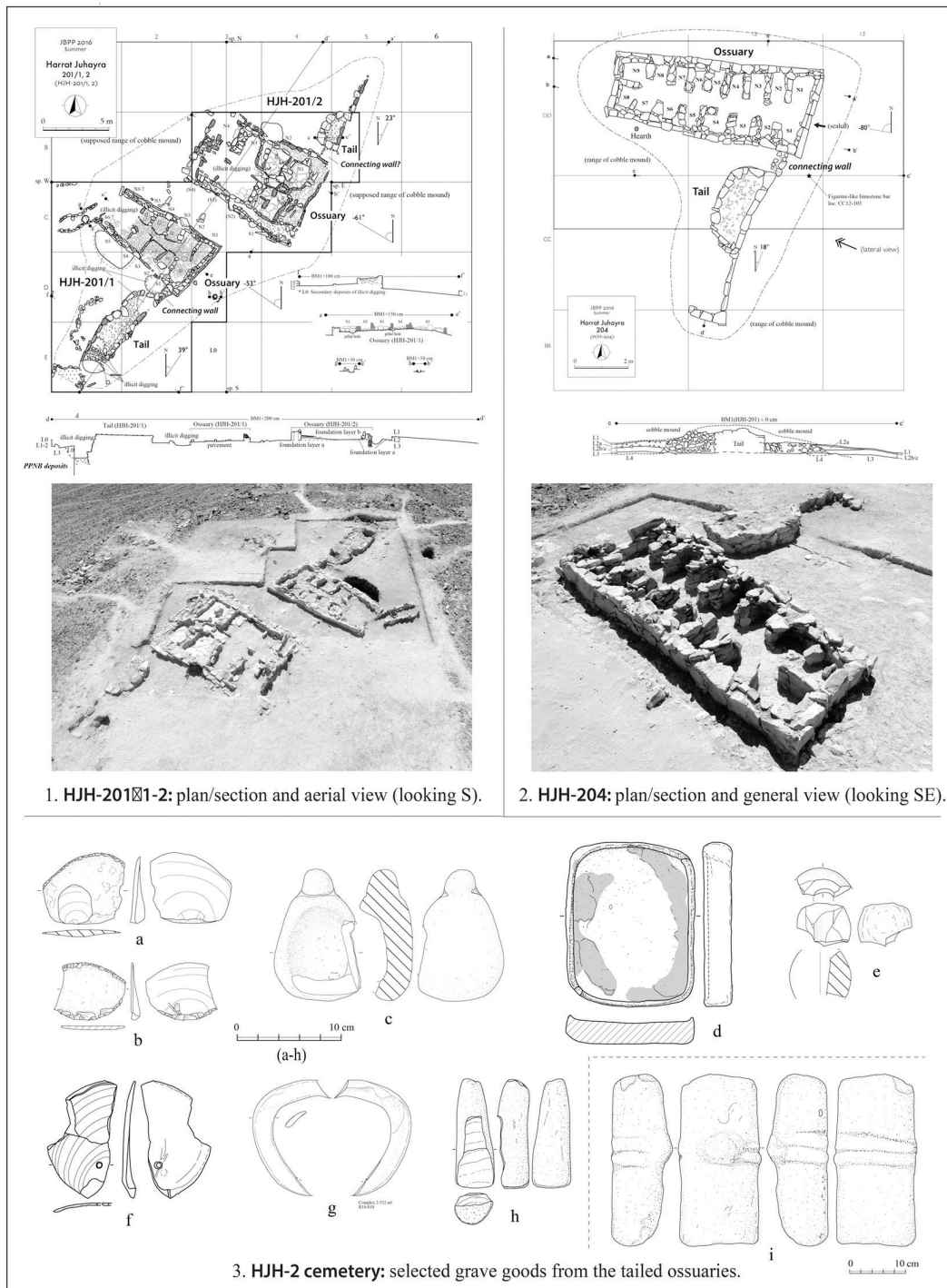
Cemetery

Some sixty stone-built structures/features are dotted on the flat hilltop behind the settlement, forming an extensive burial/ritual field *ca.* 15 ha in total area. However, what constitutes the cemetery in the strict sense of the word is limited to five tailed ossuaries (*i.e.*, ossuaries with a tail-like attachment feature) that are aligned at intervals along the southern edge of the hilltop. The others are devoid of interments and grave goods and, therefore, can be regarded as mere ritual features. We excavated four of the five registered examples and confirmed that they constitute an intermittent cemetery *ca.* 300 m in total length.

The tailed ossuaries have a L-shaped plan that connects a large trapezoidal

structure and a d- or q-shaped, tail-like feature at a right angle, measuring *ca.* 12–15 m wide and *ca.* 8–10 m deep (FIG. 5:1–2). As with the broadhouses, a rubble-core, dry-walling technique uncommon to desert fringe sites is applied to their construction. The excavations recovered a substantial amount of human skeletal remains and grave goods, which corroborates that they were used as mortuary facilities.

The trapezoidal structures, the key components of the L-shaped complexes, measure *ca.* 3–6.5 m wide, *ca.* 5–9 m deep, and up to *ca.* 0.8 m in preserved wall height. The excavation at an undisturbed example (*i.e.*, HJH-204) indicates that they were constructed as low-walled, unroofed structures from the beginning, and together with the attachment features, entirely covered with a low cobble mound at the final stage. Every example incorporates a narrow entrance into the middle of the gable-side wall facing to the east or the southeast, namely, the base of a trapezoidal plan. The layout of indoor space is also homogeneous in every example, and 8–17 small, square to rectangular burial chambers are almost symmetrically arranged on both sides of a narrow corridor stretching from the entrance. These chambers yielded a substantial amount of human skeletal remains, but grave goods were unexpectedly scarce, being limited to fan-scrapers (FIG. 5:3a–b), a scoria spoon (FIG. 5:3c), a basalt rectangular pallet (FIG. 5:3d), limestone mace-heads (FIG. 5:5e), shell pendants/bracelets (FIG. 5:3f–g), and a basalt pestle (FIG. 5:5h). In addition, a limestone figurine *ca.* 30 cm high was found immediately beside the trapezoidal structure of HJH-204, under the cobble mound (FIG. 5:5i). This unique artifact is decorated with a headband-like bas relief and a small, nose-like protrusion, both of which are reminiscent of a basalt torso from Qulbān Beni-Murra, a Late Chalcolithic open sanctuary recently investigated near



1. HJH-201/1-2: plan/section and aerial view (looking S).

2. HJH-204: plan/section and general view (looking SE).

3. HJH-2 cemetery: selected grave goods from the tailed ossuaries.

5. HJH-2: Cemetery: Tailed ossuaries and selected grave goods.



1. HJH-260/247: barrages (looking N).



2. HJH-210: single-unit tail (looking NW).



3. HJH-230: double-unit tail (looking NW).



3. HJH-207: multi-unit tail (looking NW).

6. HJH-2: Barrages and Freestanding Tails.

the border with Saudi Arabia (Gebel 2016: fig. 21). In view of the overall similarity of small finds and the synchronism of the ^{14}C dates mentioned below, it is indisputable that the cemetery belonged to the adjacent settlement. Incidentally, some of the human bones bear osteological evidence for kneeling facets (Sakaue *et al.* 2017), which demonstrates anew that cereal cultivation was among the major subsistence activities at the settlement.

The d/q-shaped tail-like features, or the d/q tails for short, have a length of ca. 6–16 m, depending on the number of incorporated units. They are attached to one edge of the base of the trapezoidal ossuary, facing, as with the entrance, to the east or the southeast. In terms of typology, they are composed of a straight front wall built with

upright basalt boulders and a curvilinear rear wall constructed with horizontally piled smaller stones, and the semi-circular space sandwiched between the two is infilled with basalt/scoria rubble and silty sands. Neither human skeletal remains nor grave goods are included in the space.

Incidentally, research evidence suggests that the d/q tail was gradually separated from the main body of the ossuary complex and changed into the freestanding tail, the main components of the ritual field behind the cemetery (FIG. 6:2–4; Fujii *et al.* in preparation b). It is needless to say that no interments are included in these symbolic features. The change in site from the settlement/cemetery complex to the simple ritual field centering on the freestanding tails probably mirrors the shift in lifestyle from

sedentary farming to pastoral nomadism.

Discussion

The above review has reaffirmed that the composite site of HJH-2 includes a full-fledged settlement/cemetery complex quite unusual as a desert fringe site. The question is its date, origin, subsistence, and social structure. The following discussion deals with these basic issues, and on this basis, approaches a few more comprehensive issues, such as the cultural sequence of the Jafr Chalcolithic and its archaeological implications in local and broader contexts.

Date, Origin, Subsistence, and Social Structure

Nearly two dozen ^{14}C dates from various loci of the settlement/cemetery complex equally converge on a relatively narrow time range around *ca.* 4300–4100 cal BC (Fujii *et al.* in preparation a: table 1), suggesting that it was a short-lived architectural entity that operated for only a few centuries during the Middle Chalcolithic (c.f. Lovell 2001; Anfinset *et al.* 2011: table 8.1). As noted above, the contents of small finds accord well with this radiometric dating.

Where, then, did it originate? A key to approaching this issue is the fact that the complex appeared at the northwestern corner of the basin suddenly and as a completed form from the beginning. No contemporary settlements, to say nothing of its proto-type, have so far been attested in the basin. Both facts strongly suggest that the complex was an exotic cultural entity derived from the west. What existed in the west at this time were the Ghassulian in the Upper Jordan Valley and the Timnian on the Negev Highlands, but there is little doubt that the stable settlement life at HJH-2 derived from the former. Thus, it is conceivable that the eastward expansion or infiltration of the Early to Middle Ghassulian culture or the yet-to-be-specified Ghassulian-related Chalcolithic culture in the Lower Jordan Valley led

to the appearance of the HJH-2 complex. The unique architectural landscape and small finds can be understood in this context. The only enigma is the origin of the tailed ossuary, another landmark of the complex, which needs further study.

Next, the subsistence strategy of the complex is clear, and ample evidence suggests that, even though for just a short period, a well-balanced mixed economy centering on cereal cultivation and livestock herding sustained the stable settlement life at HJH-2. However, this is nothing but a basic framework, and the details must await future faunal/floral analysis.

A key in discussing the last issue (*i.e.*, the social structure of the complex) is the homogeneity of the architectural landscape. As described above, the two dozen broadhouses share a similar scale and plan. Aside from the rare attachment of a forecourt and a trapezoidal rear room, there is no remarkable hierarchy among them. Likewise, the excavated small finds are quite homogenous throughout the whole settlement, and no prestige goods, such as copper products, are included at any broadhouse (another potential prestige good could be the maceheads, but they are equally made of ubiquitous material such as limestone and basalt, and at the same time, occur evenly throughout the settlement). The homogeneity in the settlement also applies to the cemetery. The four excavated tailed ossuaries share similar size and plan, and no special treatment is added to any interment. Grave goods are also homogeneous, and there is no rank differentiation among buried dead bodies. These observations strongly suggest that the settlement/cemetery complex at HJH-2 formed an egalitarian society before a chiefdom system.

Cultural Sequence of the Jafr Chalcolithic

The findings of the HJH-2 settlement/cemetery complex have shed new light

on the Chalcolithic cultural landscape in the al-Jafr Basin, which has traditionally been poorly understood due to the lack of basic information about it. It is our new proposal that the Jafr Chalcolithic falls into the following three phases on the basis of the research outcomes from the HJH-2 complex.

The first phase, or the Early Chalcolithic in the basin (*ca.* 4600–4300 cal BC), is a stage immediately before the appearance of the HJH-2 complex, and its existence can be perceived through the pseudo-wall burial cairns at Qā‘ Abu Tulayha, an isolated sanctuary in the northwestern part of the basin (Fujii 2002b). Thus, this phase can be defined as a period when small-scale, high-mobility population groups following the PPNB pastoral transhumants and the LN initial nomads were sparsely dotted across the basin (Fujii 2013).

Research evidence from this site suggests that in the dry heartland of the basin, the nomadic society represented by the pseudo-wall burial cairn continued further into the Middle Chalcolithic (*ca.* 4300–4000 cal BC). This is when the HJH-2 complex suddenly appeared at its northwestern corner. To date, no clear evidence for friction between the two groups has been attested. It would follow that the Jafr Middle Chalcolithic witnessed the establishment of a dimorphic society where the farming community and the traditional nomads coexisted peacefully and kept their own territories, although it can also be argued that the isolation of the farming community and the low population density in the basin made this possible.

Meanwhile, the Late Chalcolithic (*ca.* 4000–3700/3600 cal BC) is marked by the collapse of the dimorphic society and the subsequent return to nomadic society. As noted above, the settlement/cemetery complex at HJH-2 did not last long and soon changed into the simple ritual field centering on the freestanding tails. This




fact probably means that the exotic farming culture swiftly acculturated under the arid environment and was absorbed into the traditional nomadic society. In fact, in contrast to the tailed ossuaries seen only at the HJH-2 Middle Chalcolithic cemetery, the freestanding tail was widespread in the basin and beyond, suggesting that the short-lived dimorphic society had collapsed and the nomadic society was reassembled during the Late Chalcolithic (Fujii *et al.* in preparation b). However, it was not a simple return to the traditional lifestyle, because there is a possibility that the expansion of the Late Chalcolithic culture was associated with the secondary products, such as wool and milk, supposedly introduced through the HJH-2 complex. In this sense, the Jafr Late Chalcolithic potentially ushers in a new era of dryland adaptation. The existence of a variety of water-use facilities at Qulbān Bani-Murra also highlights the rise of advanced nomadism in this phase (Gebel 2016).

To summarize, it is tentatively concluded that the Jafr Chalcolithic started with the traditional nomadic society inherited from the preceding pastoral transhumants or nomads, witnessed the infiltration and swift acculturation of the exotic farming community, and eventually shifted to the advanced pastoral nomadism likely based on the production of secondary products. This advanced nomadism is thought to have paved the way to the full-fledged nomadic society in the EBA.

Archaeological Implications of the Jafr Chalcolithic

The HJH-2 settlement/cemetery complex has a few significant archaeological implications. To begin with, in a local context, it fills an information gap left in the Jafr Chronology and contributes to its refinement (TABLE 1). The updated chronology suggests that the pastoral nomadization in the al-Jafr Basin began

Table 1. Updated Jafr chronology (as of December 2019).

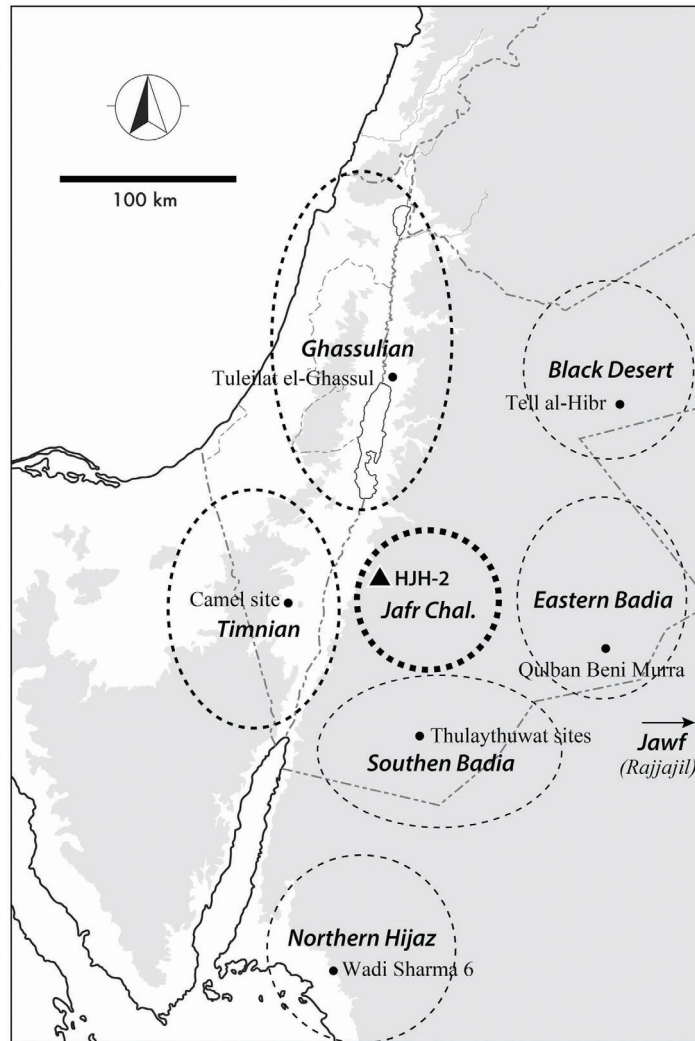
	Settlement/Encampment	Barrage/Cistern	Cemetery/Sanctuary
Late Natufian	Wadi Qusayr 139		
PPNA	Harrat Juhayra 205		
(Early)	Harrat Juhayra 202		
(Middle)	WAT*: Complex 00-III? ———	WAT: Barrages 1-3, Str. M	
PPNB	Wadi Ghuwayr 17 ———	Wadi Ghuwayr 17: St. 101	
		Wadi Ghuwayr 106 Wadi Nadiya 1: Barrages 1-2	
(Late)	Jabal Juhayra: Layer 3 ———	J. Juhayra: Barrage & cisterns ———	(J. Juhayra: slab-lined features)
	WAT: Complex IV?-IX ———	WAT: Barrages 1-3 Wadi Nadiya 2: Barrages 1-3	
(PPNC/FPPNB)	Hashm ‘Arfa ——— ? ———	Eastern Jafr cistern-type barrages	HJH*-0 QAT*: NE Complex Jabal Juhayra: Layer 2 ‘Awja 1-2, 4-5
LN	Jabal Juhayra: Layer 2		
4600 (Early)			QAT: SW Complex
4300 Chalcolithic (Middle)	HJH-2: settlement 	HJH-2: 247-260? 	HJH-2: cemetery HJH 1-3: ritual field 
4000 (Late)			‘Awja 3 Wadi Burma
3800			
EBA			Tal’ at ‘Ubayda Wadi Ghuwayr 1-3

WAT*: Wadi Abu Tulayha; QAT*: Qa’ Abu Tulayha; HJH*: Harrat Juhayra
 ——— : Settlement/barrage/cemetery complex.

with the Middle to Late PPNB outpost complexes (such as Wādī Abū Ṭulayḥa, Wādī Ghuwayr 17, and Jabal al-Juḥayra), through the LN encampments (attested at Khashm ‘Arfa and Jabal al-Juḥayra Layer 2), shifted to the advanced nomadism (triggered by the appearance and acculturation of the Middle Chalcolithic settlement/cemetery complex at HJH-2), and eventually crystallized in the EBA full-fledged nomadic society (represented by

large-scale cairn fields of Tal’at ‘Ubayda and Wādī Ghuwayr 1–3). What is important here is that the HJH-2 complex potentially made the turning point in the long-term sequence in the sense that it introduced technological innovation to the traditional nomadic society. This perspective is expected to provide fresh insight into the formation process of nomadic society in southern Jordan.

In a broader context, the HJH-2 com-



7. Middle to Late Chalcolithic cultural entities in and around the southern Levant.

plex bridges the Ghassulian and the Timnian to the west and the Jordanian Badia Chalcolithic entities to the east, and by so doing, contributes to a better understanding of the post-Neolithic cultural landscape throughout the southern Levant (FIG. 7). It is highly suggestive that a Middle Chalcolithic dimorphic society existed to the east of the boundary zone between the Ghassulian and the Timnian. This new perspective, coupled with the old and new

research outcomes from the Jordanian Badia (e.g., Abu-Azizeh 2013; Abu-Azizeh *et al.* 2014; Betts 2013; Müller-Neuhof 2013; Gebel 2016; Müller-Neuhof and Abu-Azizeh 2016) and northern Hijaz (Fujii 2018, in press), requires a fundamental paradigm shift from the dichotomy between the sedentary Ghassulian and the nomadic Timnian to a pluralistic model incorporating the Jafr dimorphic Chalcolithic and beyond.

Concluding Remarks

The excavations at the HJH-2 settlement/cemetery complex have highlighted the sudden appearance of an exotic Middle Chalcolithic culture at the northwestern corner of the al-Jafr Basin and its rapid acculturation in a new environment. Of significance is the challenging perspective that the acculturation to the traditional nomadic society led to the spread of the advanced nomadism based on the production of secondary products. This new perspective potentially provides valuable insights into the formation process of full-scale nomadic society in southern Jordan, but there still remain many questions to be discussed, including the precise origin of the unique complex itself and the details of the secondary products. We would like to address these questions through future investigation.

Acknowledgements

This paper is a revised version of our oral presentation at the 14th International Conference on History and Archaeology of Jordan held in Florence during 21–25 January 2019. First of all, we would like to thank the organizing committee headed by Prof. and Dr. Munther Dahash Jamhawi, then director general of the Department of Antiquities of Jordan, for its careful preparations and genuine hospitality. Our thanks go as well to all the participants, whose comments and questions were very useful for making our points clearer. It should also be added that our research project at HJH-2 was financially supported by the Japan Society for the Promotion of Science (the Grant-in-Aid for Scientific Research [S], Nos. 25220402 and 19H05592).

Bibliography

- Abu-Azizeh, W. 2013. "Prospections et fouilles archéologiques dans la région d'al-Thulaythuwat: Modalités d'occupations et analyse structurale des campements de pasteurs nomades du Chalcolithique/Bronze Ancien dans une zone de périphérie désertique du sud Jordanien." *Syria* 90:13–48.
- Abu-Azizeh, W., M. Tarawneh, F. Abudanah, and A. Al-Salameen. 2014. "Variability within Consistency: Cairns and Funerary Practices of the Late Neolithic/Early Chalcolithic in the al-Thulaythuwat area, Southern Jordan." *Levant* 46:161–85.
- Amiran, R. 1969. *The Ancient Pottery of the Holy Land: From its Beginnings in the Neolithic Period to the End of the Iron Age*. Jerusalem: Massada Press.
- Anfinset, N., H. Taha, M. al-Zawahra, and J. Yasine. 2011. "Societies in Transition: Contextualizing Tell el-Mafjar, Jericho." In *Culture, Chronology and the Chalcolithic: Theory and Transition*, edited by J.L. Lovell and Y.M. Rowan, 97–113. Oxford: Oxbow Books.
- Betts, A.V.G., D. Cropper, L. Martin, and C. McCartney. 2013. *The Late Prehistory of the Badia: Excavations and Surveys in Eastern Jordan*. Vol. 2. Oxford: Oxbow Books.
- Bourke, S.J. 2008. "The Chalcolithic Period." In *Jordan: An Archaeological Reader*, edited by R.B. Adams, 109–60. London: Equinox.
- Bourke, S., P. Seaton, R. Sparks, J. Lovell, L. Mairs, and J. Meadows. 2000. "A Second and Third Season of Renewed Excavation by the University of Sydney at Tulaylāt al-Ghassūl (1995–1997)." *ADAJ* 44:37–89.
- Epstein, C. 1998. *The Chalcolithic of the Golan*. Jerusalem: Israel Antiquities Authority.
- Fujii, S. 2002a. "A Brief Note on the 2001–2002 Winter Season Survey of the al-Jafr Basin in Southern Jordan." *ADAJ* 46:41–9.
- . 2002b. "Qā' Abū Ṭulayḥa West, 2001: An Interim Report of the Fifth Season." *ADAJ* 46:19–37.

- . 2004. “Harra al-Burma K-lines and Wadi Burma Kite-Site: Preliminary Report of the 2003 Spring Season of the Jafr Basin Prehistoric Project, Phase 2.” *ADAJ* 48:285–304.
- . 2005a. “Wadi Burma North, Tal‘at ‘Ubyda, and Wadi al-Qusayr: A Preliminary Report of the Jafr Basin Prehistoric Project, 2004.” *ADAJ* 49:17–55.
- . 2005b. “Harrat al-Juhayra Pseudo-Settlement: A Preliminary Report of the Jafr Basin Prehistoric Project, 2004.” *ADAJ* 49:57–70.
- . 2011. “‘Lost Property’ at Wadi Qusayr 173: Evidence for the Transportation of Tabular Scrapers in the Jafr Basin, Southern Jordan.” *Levant* 43:1–14.
- . 2013. “Chronology of the Jafr Prehistory and Protohistory: A Key to the Process of Pastoral Nomadization in the Southern Levant.” *Syria* 90:49–125.
- . 2014. “Make-Believe Playhouses at Wadi Burma East: A Cognitive Approach to the Neolithic Unilinear Settlement in the Jafr Basin, southern Jordan.” In *Settlement, Survey and Stone. Essays on Near Eastern Prehistory in Honour of Gary Rollefson*, edited by B. Finlayson and C. Makarewicz, 101–16. Berlin: Ex oriente.
- . 2018. “Bridging the Enclosure and the Tower Tomb: New Insights from the Wādī al-Sharmah Sites, North-west Arabia.” *Proceedings of the Seminar for Arabian Studies* 48:83–98.
- . In press. “Transition in Settlement Form at the Wadi Sharma Sites and its Correlation with Pastoral Nomadization in NW Arabia.” In *Mobility in Arabia*, edited by M. Luciani. Vienna: Austrian Academy of Sciences Press.
- Fujii, S., and M. Abe. 2008. “PPNB Frontier in Southern Jordan: A Preliminary Report on the Archaeological Surveys and Soundings in the Jafr Basin, 1995–2005.” *al-Rafidan* 29:63–94.
- Fujii, S., T. Adachi, and K. Nagaya. 2018. “Jabal Juhayra, 2014–2015: Excavations of the Post-PPNB Layer.” *ADAJ* 59:193–215.
- . In press. “Jabal Juhayra 2015–2016: Excavations of the Layer 3 (Pre-Pottery Neolithic B) Settlement.” *ADAJ* 60.
- . Forthcoming (a). “Ḥarrat al-Juḥayra 205 and 202: Excavations at a PPNA Encampment and an Early PPNB Settlement in the Jafr Basin, Southern Jordan.” *ADAJ* 61.
- . In preparation (a). “Harrat Juhayra 2: Excavations at a Chalcolithic Settlement in the Jafr Basin, Southern Jordan.” *ADAJ* 61.
- . In preparation (b). “Harrat Juhayra 1–3: Excavations at Chalcolithic Open Sanctuaries in the Jafr Basin, Southern Jordan.” *ADAJ* 62.
- Fujii, S., T. Adachi, K. Sakaue, K. Nagaya, and T. Gakuhari. Forthcoming (b). “Harrat Juhayra 2: Excavations of Chalcolithic Tailed Ossuaries in the Jafr Basin, Southern Jordan.” *ADAJ* 61.
- Garfinkel, Y. 1999. *Neolithic and Chalcolithic Pottery of the Southern Levant*. Qedem 39. Jerusalem: The Hebrew University of Jerusalem.
- Gebel, H.G.K. 2016. “The Socio-Hydraulic Formations of Oasis Life in NW Arabia: The 5th Millennium BCE Shepherd Environs of Rajajil, Rasif and Qulban Beni Murra.” In *The Archaeology of North Arabia: Oases and Landscapes*, edited by M. Luciani, 79–113. Vienna: Austrian Academy of Sciences Press.
- Jordan National Geographic Center. 1984. *National Atlas of Jordan*. Vol. I, *Climate and Agroclimatology*. Amman: Jordan National Geographic Center.
- Kafafi, Z. 2010. “The Chalcolithic Period in the Golan Heights: A Regional or Local Culture.” *Paléorient* 36:141–57.
- Lovell, J.L. 2001. *The Late Neolithic and Chalcolithic Periods in the Southern Levant: New Data from the Site Teileat*

- Ghassul, Jordan*. Oxford: Oxbow Books.
- Müller-Neuhof, M. 2013. "Chalcolithic/ Early Bronze Age Flint Mined in the Northern Badia." *Syria* 90:177–88.
- Müller-Neuhof, M., and W. Abu-Azizeh. 2016. "Milestones for a Tentative Chronological Framework for the Late Prehistoric Colonization of the Basalt Desert (North-Eastern Jordan)." *Levant* 48:220–35.
- Neerly, P., and C. Delage. 2004. "The Late Epipalaeolithic Settlement in the Wadi Juhayra, West-Central Jordan." In *The Last Hunter-Gatherers in the Near East*, edited by D. Delage, 39–54. Oxford: John & Erica Hedges.
- Porath, Y. 1985. "A Chalcolithic Building at Fasa'el." *Atiqot* 17:1–19.
- . 1992. "Domestic Architecture of the Chalcolithic Period." In *The Architecture of Ancient Israel: From the Prehistoric to the Persian Periods*, edited by A. Kempinski and R. Reich, 40–48. Jerusalem: Israel Exploration Society.
- Rowan, Y.M., and J. Golden. 2009. "The Chalcolithic Period of the Southern Levant: A Synthetic Review." *Journal of World Prehistory* 22:1–92.
- Sakaue, K., S. Fujii, and T. Gakuhari. 2017. "Human Skeletal Remains from Harrat Juhayra 204, a Chalcolithic Ossuary in the al-Jafr Basin, Southern Jordan." Paper read at the 71th Conference of the Anthropological Society of Nippon, 3–5 November, Tokyo.
- Ussishikin, D. 1980. "The Ghassulian Shrine at En-Gedi." *Tel Aviv* 7:1–44.