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# NEO-LITHICS 1/05

The Newsletter of Southwest Asian Neolithic Research

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# **Editorial**

It has been 11 years since *Neo-Lithics* first appeared in 1994, and since then 27 (including the current one) issues have been produced. It seems appropriate that in *Neo-Lithics* 1/05 we summarize our past by publishing the Table of Contents of each issue, as well as provide an appendix that includes author, site, and topic indices. The indices give an overview of the broad range of subjects and sites that have been dealt with in our newsletter over more than a decade. Looking back we might be tempted to be satisfied. However, the Appendix provides the occasion to reflect not only on the strengths, but also on the shortcomings or weaknesses of the coverage *Neo-Lithics* has provided in the field of Near Eastern Neolithic research. We note that *Neo-Lithics* has concentrated too

much on the southern Levant, that only certain Neolithic researchers use our pages for publication, and some research nations are ill-represented. The editors would like to take this opportunity to invite once again all colleagues to send us manuscripts and to encourage others to submit contributions that support the goals of *Neo-Lithics*: to communicate new trends in Near Eastern Neolithic research in a timely way, to support young researchers in their projects, to be a forum of exchange of information and points of view about all sorts of Neolithic research agendas and gatherings.

Hans Georg K. Gebel and Gary O. Rollefson

# Les bâtiments communautaires de Tell 'Abr 3 (PPNA, Syrie)

# Thaer Yartah

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Le village de Tell 'Abr est situé sur la rive gauche de l'Euphrate à environ 15 kilomètres de la frontière turque (fig. 1). Le tell était anciennement connu pour avoir livré une occupation de l'époque d'Obeid (Hammada and Yamazaki, 1995). La montée des eaux de l'Euphrate a, durant l'hiver 2000, dégagé des vestiges architecturaux datant du Néolithique acéramique. Une prospection et des fouilles menées en 2001, 2003 et 2004 par une équipe syrienne ont confirmé la présence d'un village datant du PPNA final, similaire à la fin de l'occupation de Jerf el Ahmar ou encore de Mureybet (phase III). Tell 'Abr 3 est

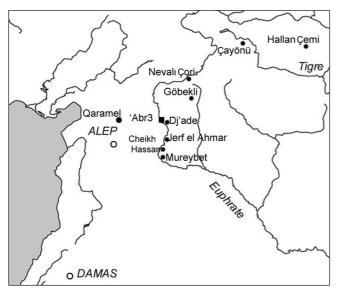


Fig. 1 Carte des sites néolithiques précéramiques cités dans l'étude.

actuellement le site PPNA syrien le plus proche de la Turquie. Cette position en fait un jalon important entre les sites du Moyen Euphrate (Mureybet, Jerf el Ahmar et Cheikh Hassan) et ceux du sud-est de la Turquie (Çayönü et Göbekli).

# La stratigraphie

Neuf niveaux ont pu être reconnus dans l'ensemble des zones de fouilles : cinq niveaux dans le secteur sud et au bord de l'Euphrate et quatre dans le secteur nord. Des maisons individuelles circulaires, semi-enterrées, et des bâtiments communautaires enterrés ont été repérés dans l'ensemble de ces niveaux.

# La phase de transition PPNA/PPNB

L'extrême fin du PPNA est marquée dans cette région du Levant par l'émergence de constructions circulaires très décorées à caractère communautaire et par l'apparition d'un débitage de lames prédéterminées.

De grandes constructions circulaires pluricellulaires évoquant un caractère multifonctionnel (stockage, réunions, rituels) sont connues pour le PPNA de Jerf el Ahmar (Stordeur *et al.* 2001, bâtiments EA-7 et EA-30). Le fait nouveau inauguré par la phase de transition est la nette volonté de disposer d'un espace plus vaste, plus ouvert et propice à la réunion (Stordeur et Abbès 2002) et sans doute à la célébration. Les bâtiments communautaires de cette phase sont ainsi toujours circulaires et enterrés mais de plus grandes dimensions que les bâtiments strictement PPNA. Ils ne sont pas subdivisés en petites cellules et ne montrent pas de zones dédiées au stockage.

L'industrie lithique est également différente des industries strictement PPNA. Aux outillages « classiques » réalisés sur lames bipolaires et unipolaires s'ajoutent des outils réalisés sur des lames prédéterminées. Ces lames définiront quelques siècles plus tard l'ensemble du PPNB (Abbès 2003).

Ces éléments tant architecturaux que lithiques sont issus d'une évolution locale dont les grandes étapes sont connues (notamment à Mureybet; Ibañez et Cauvin, sous presse). L'association de ces éléments a servi à la définition d'une phase de transition PPNA/PPNB au Levant Nord (Stordeur et Abbès 2002), rejoignant finalement ainsi l'hypothèse d'une formation « nordique » du PPNB (Cauvin, 1997).

# Tell 'Abr 3 et la phase de transition

Le site de Tell 'Abr 3 a fourni trois bâtiments pouvant répondre à cette notion de bâtiment communautaire en raison de leurs dimensions, de leurs hautes qualités architecturales, de leur richesse ornementale, enfin des outils et des objets décorés retrouvés à l'intérieur. En outre, le caractère communautaire de ces constructions, la nature des ornementations, les objets retrouvés sous forme de dépôts ou abandonnés suggèrent fortement la pratique de rituels.

# L'occupation de Tell 'Abr 3

Deux types de villages, désignés comme le village « nord » et le village « sud », sont apparus lors de la fouille. Le village nord est le plus récent et est caractérisé par des constructions rondes de plain-pied, bâties en « pierres en cigare » (comme à Jerf el Ahmar et à Mureybet, phases IIIA et IIIB).

Le village sud, le plus proche de l'Euphrate, est caractérisé par de grandes constructions rondes enterrées ou semi-enterrées. Deux types de bâtiments communautaires de ce village appartiennent à la phase de transition PPNA/PPNB. Nous allons les décrire à présent.

# Le bâtiment communautaire spécialisé B2

Un bâtiment communautaire incendié et en partie conservé a été mis à jour (fig. 2), son plan est circulaire. Il est enterré sur environ 1,55 m dans le sol vierge du tell et présente un diamètre de 10 à 12 m. En surface, un muret entourant la fosse était destiné à recevoir le toit. Les parois de la fosse ont été directement enduites de terre et décorées d'empreintes de mains (fig. 2 : 3).

À l'intérieur, une banquette de 55 cm de haut et 1,48 m de profondeur, ceinturait la fosse et laissait libre un

grand espace central. Des dalles de calcaire taillé, poli et décoré par des motifs animaliers, représentant des animaux sauvages (gazelle, panthère, aurochs) accompagnés quelquefois de motifs géométriques, ornaient le pourtour de la banquette (Yartah 2005). Des poteaux de 25-30 cm de diamètre ont été repérés à intervalles réguliers entre les dalles et en avant de celles-ci. Ce dispositif destiné à soutenir un plafond enduit de terre à bâtir a donné une forme alvéolaire à la banquette.

Nous avons découvert sur les dalles sculptées des représentations de panthère (fig. 2 : 1, 2 et 5) sous diverses formes. On retrouve l'animal seul, parfois dans un style quasi abstrait, comme sur une dalle entourée de décors en relief. Dans d'autres cas, on le relève dans des représentations plus figuratives, ciselées sur des dalles. Ainsi, sur la « dalle aux deux panthères » (fig. 2 : 1), l'animal est plus aisément identifiable grâce aux oreilles marquées au sommet de la tête par deux traits et sa silhouette générale. Sur la « dalle aux trois panthères » (fig. 2 : 2), la distinction est claire grâce aux oreilles et aux griffes. Dans tous les cas, le pelage des panthères était figuré. Cette figuration est exécutée soit par des traits courts incisés, soit par des points ronds gravés.

Une gazelle était représentée de façon verticale par rapport au sol du bâtiment, avec des lignes géométriques

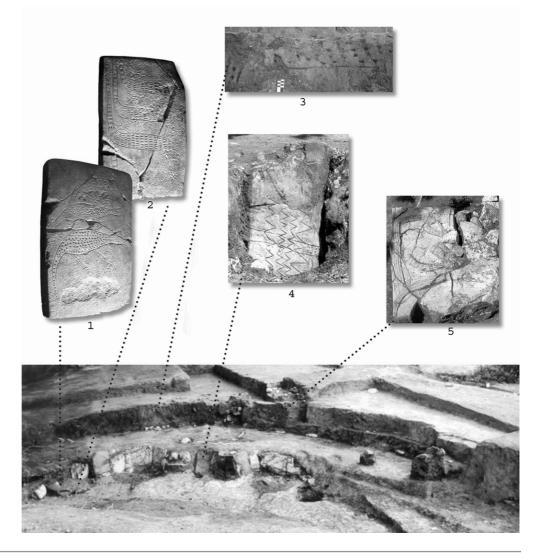


Fig. 2 Position des dalles dans le bâtiment communautaire B2. 1, 2 et 5 : « Dalles aux panthères » ; 4 : « Dalle à la gazelle » (une partie est enfouie dans le sol du bâtiment) ; 3 : Enduit décoré sur la paroi du bâtiment.

en zigzag sur les côtés (fig. 2 : 4). Nous relevons aussi la tête d'un taureau sculpté en haut-relief sur l'une des dalles dont nous n'avons pas déterminé l'emplacement dans le bâtiment. Notons enfin un disque solaire et ses rayons sur une autre dalle (Yartah, 2005 : fig. 14). Aux représentations animales, il faut ajouter des dépôts de bucranes dans la banquette et des chevilles osseuses d'aurochs à la base des piliers. Ce type de dépôt avait été interprété pour d'autres sites comme émanant d'une volonté de protection symbolique (Cauvin 1997). Enfin, un dispositif très particulier d'écoulement de liquide, composé de deux rangées de galets aménagées face à la banquette est à signaler. Ces rangées de galets se terminent par un système de canaux permettant d'évacuer un liquide dont on ignore la nature (Yartah 2005).

Il importe enfin de signaler la présence d'une plaquette en pierre décorée trouvée à proximité de ce bâtiment. La plaquette représente une silhouette humaine surmontant deux cercles concentriques séparés en leur axe par une droite. On trouve de part et d'autre de cette composition une ligne serpentiforme et des signes corniformes (fig. 7 : 3). Il est tentant d'interpréter les cercles comme étant une représentation du bâtiment communautaire avec sa banquette, les signes corniformes comme étant des bucranes et l'homme comme étant l'élément central de l'ensemble.

L'ensemble de ces éléments distingue ce bâtiment communautaire et lui procure, sans doute, un sens symbolique fort.

# Aperçu sur la fonction du bâtiment communautaire B2

Pour aborder la question de la fonction de ce type de bâtiments, il nous semble utile d'évoquer aussi des constructions légèrement plus tardives.

Ainsi, au PPNB ancien, différents types de bâtiments coexistant sur les mêmes sites ont été trouvés à Çayönü (Özdoğan 1999) et à Nevalı Çori (Hauptmann 1999) en Turquie (Cauvin 1988).

A Çayönü a été découvert une grande construction rectangulaire à l'intérieur de laquelle étaient dressés des piliers verticaux autour d'une pierre plate dont l'analyse de la surface a révélé la présence de traces de sang animal (herbivores) et humain. A Nevalı Çori une zone circulaire (arc de cercle) est entourée de grandes dalles, comme c'est le cas dans le bâtiment funéraire de Çayönü. L'hypothèse d'un lieu de culte a été également évoquée pour ce bâtiment. Ces édifices furent tous bâtis en surface.

Pour revenir à la période contemporaine de Tell 'Abr 3, la construction EA-53 du site de Jerf el Ahmar est assez similaire au bâtiment B2 de notre site. Les dimensions, l'absence de toute structure intérieure, excepté une banquette décorée par des dalles de pierres aux motifs géométriques et des piliers en bois couverts d'enduit de terre orné de formes géométriques ou animales, sont tout

à fait comparables. L'hypothèse d'un lieu de réunion et d'une fonction sociale et peut-être rituelle a été évoquée pour ce bâtiment (Stordeur *et al.* 2001 : 41). Mais aucun aménagement suggérant la pratique d'un culte n'a été identifié, comme c'est le cas à Tell 'Abr 3, à Çayönü et à Nevalı Çoriı (Cauvin 1997).

# Le bâtiment communautaire M1, un rôle spécialisé

Cet autre bâtiment est circulaire, de grandes dimensions (7,90 m de diamètre) et enterré sur 1,10 m de profondeur. Il a également été incendié (fig. 3). Tout comme pour le bâtiment communautaire B2, la paroi de la fosse de M1 est soutenue par des poteaux en bois de 10 à 12 cm de diamètre. D'autres poteaux de diamètre inférieur, d'environ 5 cm, sont plantés au bord de la fosse, en surface. L'ensemble des poteaux est disposé en ceinture autour et dans la fosse. Les poteaux enterrés dans la paroi se prolongent à l'air libre et forment avec les poteaux en surface un muret en terre à bâtir d'environ 60 cm de hauteur. Le tout était enduit de terre à bâtir.

Une structure a été dégagée dans la partie sud de l'espace intérieur du bâtiment (fig. 3 : 1). Il s'agit d'un muret armé de pierres en cigare reposant sur une banquette de forme ovalaire en argile d'une hauteur de 50 cm. L'ensemble évoque une sorte de podium.

Cette curieuse structure a servi de dépôt d'ossements et de bucranes d'aurochs (fig. 4)¹. Certains des ossements trouvés en son sein étaient accompagnés de pointes de flèche et encadrés par des galets. Tous ces éléments étaient recouverts d'une masse d'argile (fig. 5 et 6). D'autres os brûlés étaient directement enveloppés dans de l'argile (fig. 3 : 4) avant d'être, eux aussi, ceinturés par des galets. L'enrobage d'argile évoque la pratique du surmodelage connu pour des crânes humains lors des périodes plus récentes (PPNB moyen et PPNB récent du Levant Sud) avec cependant une restriction. En effet dans le cas du surmodelage, l'argile recrée une plastique autour des crânes, alors que dans le cas présent l'argile évoque davantage une simple gaine.

Du coté est de cette structure, une fosse de 25 cm de profondeur entourée de galets et de pierres calcaires a été également mise à jour (fig. 3 : 1). Son remplissage était composé d'ossements brûlés. Il est possible qu'il y ait eu un lien fonctionnel entre cette fosse et les os recouverts d'argile du « podium ».

Au nord du bâtiment, près d'une paroi, fut découvert un foyer de forme circulaire de 60 cm de diamètre construit à l'aide de pierres en cigare (fig. 3).

A l'est et au nord-ouest, plusieurs banquettes de 50 à 60 cm de largeur étaient disposées contre la paroi de la fosse du bâtiment. Une de ces banquettes située à l'ouest a peut-être constitué la base d'un mur formé de terre à bâtir et de pierres, divisant une partie du bâtiment en deux.

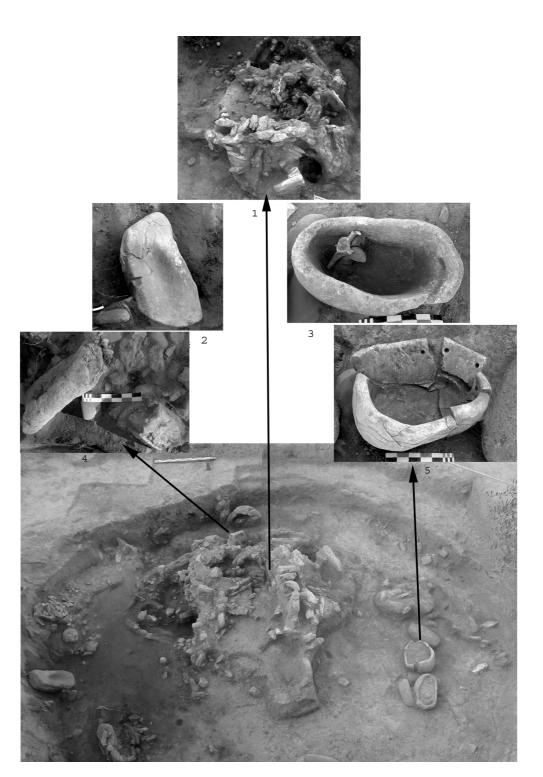


Fig. 3 Le bâtiment communautaire M1.

1: la structure comportant les ossements et les bucranes d'aurochs;

2: meule en basalte;

3, 5: bassins en calcaire;

4: ossements

enrobés d'argile.

Enfin, le plafond était enduit de terre à bâtir. Ecroulé à la suite d'un incendie, il a été retrouvé sous la forme de blocs brûlés à la fois sur le « podium » et sur le sol. Les blocs montraient clairement une surface comportant des empreintes de bois qui correspondent certainement à la charpente.

Des objets ont été retrouvés sur le sol du bâtiment. Cinq grands bassins en calcaire étaient distribués de façon symétrique au bord des parois de la fosse (fig. 3). Deux d'entre eux (fig. 3 : 3 et 5), dont l'un orné de gravures en relief, sont situés à l'ouest (fig. 3 : 5), deux autres à l'est, et le dernier, le plus grand, au sud. Deux meules en basalte complètent l'équipement, l'une à l'est

(fig. 3 : 2) et l'autre à l'ouest. Des cornes de gazelles, deux crânes d'aurochs avec leurs cornes brûlées, des omoplates et divers ossements étaient accolés aux parois et étaient peut-être même enfouis à l'intérieur de cellesci. Des objets décorés — un vase comportant des motifs géométriques (fig. 7 : 1) et un manche (fig. 7 : 2) — étaient aussi présents à l'intérieur de l'édifice.

L'ensemble des éléments architecturaux et notamment le podium, les objets retrouvés et les nombreux ossements parfois enduits d'argile permettent d'envisager l'existence de pratiques rituelles à l'intérieur de ce bâtiment, des rites où l'image du taureau était sans doute omniprésente<sup>2</sup>.



Fig. 4 Ossements encadrés de galets et des bucranes enterrés dans la structure.



Fig. 5 Ossements enrobés d'argile.



Fig. 6 Bucrâne encadré de galets et enrobé d'argile.



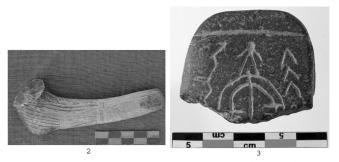


Fig. 7 Objets décorés, 1. 2 : vase en chlorite, manche (?); 3 : plaquette décorée

# Aperçu sur la fonction du bâtiment communautaire M1

Au cours des différentes étapes de la néolithisation du Proche-Orient, le taureau occupe une place importante dans la vie quotidienne et symbolique. Cette importance nous est révélée tant par les représentations (« le visible ») de l'animal que par ses ossements dissimulés dans les bâtiments (« l'invisible »). Autant de signes qui témoignent de pratiques rituelles qui lui étaient associées.

Depuis les premières campagnes de fouilles, il est clair que l'image du taureau est une des composantes importantes du site de Tell 'Abr 3. Il est à notre connaissance le seul site de la région a avoir livré à la fois des bucranes, parfois dissimulés, et des représentations explicites de taureau sur des éléments d'architecture. Il est à noter que si les bucranes sont retrouvés dissimulés aussi bien dans les maisons individuelles que dans les bâtiments communautaires, les représentations sur des éléments architecturaux ne sont présentes quant à elles que dans ces derniers et sont alors destinées à être vues. On peut dire en ce sens que le monde symbolique des habitants du site était au moins divisé en deux catégories. Les éléments destinés à être vus et les éléments dissimulés, notamment à l'intérieur de banquettes, ne sont pas à considérer de la même façon. Le « visible » et « l'invisible » sont tous les deux évoqués dans un même lieu, facettes complémentaires de la pensée symbolique.

Le couple visible/invisible est également une composante des autres sites de l'Euphrate de cette période.

Pour le visible, on peut évoquer Jerf el Ahmar, avec la maison dite « aux bucranes » (Stordeur 2000). Cette construction a révélé quatre bucranes d'aurochs qui semblent avoir été suspendus sur les murs intérieurs de la maison. Cette situation a également été observée dans la maison M3 de Tell 'Abr 3. A Göbekli (Schmidt, 1997-98), le taureau est représenté de façon réaliste et bien apparente sur d'énormes piliers. Enfin, toujours à Jerf el Ahmar, cet animal figure également sur des plaquettes en chlorite.

Pour l'invisible, il convient d'évoquer les omoplates, les crânes et les bucranes enterrés dans le sol ou dans des banquettes comme à Jerf el Ahmar, Mureybet, Tell 'Abr 3, Nevalı Çori et Hallan Çemi (Rosenberg 1999). Ces dépôts peuvent aussi être dissimulés derrière des dalles, comme à Tell 'Abr 3 (bâtiment communautaire B2).

# Conclusion

C'est durant le PPNA que, semble-t-il, les grands bâtiments communautaires prennent naissance. Leurs subdivisions internes et la dimension de leurs cellules laissent envisager un rôle de stockage communautaire. C'est le cas pour le bâtiment 47 de Mureybet et de EA-30 de Jerf el Ahmar. Il est possible que d'autres activités sociales s'y déroulaient, aucune structure, ni décors particuliers ne permettent cependant d'étayer cette hypothèse de célébrations particulières, sauf la présence d'un corps sans tête trouvé sur le sol d'un bâtiment de Jerf el Ahmar. Les éléments de la culture matérielle présentant des décors sont limités à de petits objets (pierre à rainure, plaquettes gravées, figurines, etc.).

A la fin du PPNA, durant la phase dite de « transition », les bâtiments communautaires ne présentent plus de subdivisions internes et ne contiennent apparemment plus d'éléments permettant de rattacher leur fonction à une activité d'ordre économique. Bien au contraire, ils s'enrichissent de décorations et sont parfois dotés de structures laissant supposer la pratique de rites. En un sens, les « activités de la vie quotidienne » et les « activités symboliques » sont dès lors isolées les unes des autres. C'est le cas du bâtiment EA-53 de Jerf el Ahmar et du bâtiment B2 de Tell 'Abr 3. On peut probablement y ajouter aussi l'ensemble architectural aux grands piliers de Göbekli.

Le cas du bâtiment M1 de Tell 'Abr 3, plus récent que le bâtiment B2, pose de nouveaux problèmes et suggère un autre type d'interprétation. Ce bâtiment à podium semble célébrer l'aurochs à la fois par des bucranes et par une pratique inédite pour l'instant au Proche-Orient à cette période, le surmodelage d'ossements de bovidés. Mais, dans le même espace, des objets en apparence plus nettement destinés à la vie quotidienne sont présents :

des bassins, des meules et des outils de silex. Il est possible que ces objets soient liés à des rites propres à ce bâtiment, mais cela reste difficile à affirmer. L'autre hypothèse serait d'envisager qu'un même espace peut être à la fois dédié à des rituels et recevoir aussi des activités d'ordre économique et plus quotidien. Ces deux activités complémentaires existent dans certains contextes, très loin du Proche-Orient. On pense aux *kiva* des indiens pueblos, déjà évoqués pour Jerf el Ahmar, qui pourraient nous aider à nous diriger vers de nouvelles réflexions (Stordeur 2000 ; Stordeur *et al.* 2001).

Remerciements. Je voudrais remercier l'équipe syrienne (H. Arouk, M. Basso, R. Ayoubi, H. Alrachi K. Abu Jiab, E. Houssin), avec qui j'ai eu le plaisir de partager les merveilleuses découvertes faites à Tell 'Abr 3. Je tiens aussi à remercier mes amis de la D.G.A.M., en particulier le Dr. B. Jamous, Directeur Général des Antiquités et des Musées en Syrie, et le Dr. M. Al-Maqdissi, Directeur du Service des Fouilles et des Etudes Archéologiques. Je tiens également à exprimer ma profonde gratitude à mon professeur le Dr. D. Stordeur, et à mes amis F. Abbès et L. Gourichon, pour leur constant soutien.

# **Notes**

- <sup>1</sup> Analyse en cours par Mossab Bassou, fonctionnaire à la D.G.A.M. de Damas.
- <sup>2</sup> Cette image du taureau et de son rôle a été déjà proposée par J. Cauvin, notamment pour le site de Mureybet (Cauvin, 1997).

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# Field Report

# Giv'at Kipod: A Basalt Quarry and a Workshop for the Production of Bifacial Tools in the Manasseh Hills, Israel

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# Introduction

During a survey held in 2004, aimed at locating groundstone extraction and production sites in the Manasseh Hills, a workshop for the production of bifacial tools was found at Giv'at Kipod. Piles of production waste, including many flakes and bifacial roughouts, characterize the site. This paper presents the finds of a trial excavation conducted at Giv'at Kipod in order to evaluate its stratigraphy and components.

# The Site and its Surroundings

Giv'at Kipod is an isolated Miocene basalt hill (250 m a.s.l.) in a landscape dominated by chalk hills. It is situated at the northeastern margins of the Manasseh hills, *ca.* 20 km southeast of the city of Haifa (Fig. 1) (Israel map ref. 16210-22420).

A modern aggregate quarry was operated until the second half of the 20th century on the northeastern flanks of Giv'at Kipod. Past archaeological surveys noted the remains of a fortified structure on the summit (Raban 1999: 60\*), as well as the remains of agriculture plots, dated to the Roman-Byzantine times (Raban 1999: 60\*; Safrai and Linn 1988: 125).

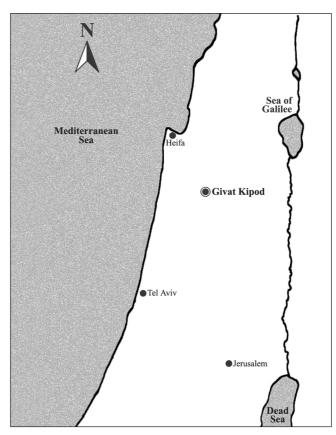


Fig. 1: Map showing the location of Giv'at Kipod.

# The Surface Survey and Excavation

The first step of the Giv'at Kipod project included a small-scale survey of the hill. During this survey we encountered several concentrations of production waste, mostly restricted to a narrow strip *ca.* 5-10 m wide along the southern and western slopes of the hill. However, their exact layout, number, and size still require clarification, for the vegetation covering the hill prevented a thorough mapping of their spatial distribution.

The largest of these piles, situated *ca.* 30 m below the summit, was chosen for preliminary examination. The pile surface is packed with thousands of production waste items, encompassing mainly chunks and flakes with sparse bifacial roughouts (Fig. 2). A few large boulders (30-50 cm in size) were also found on the pile surface, some of which were evidently cores from which large flake were removed. Stone other then basalt is rarely found in the pile vicinity and probably originates from the Roman and Byzantine activities that took place on the summit of the hill.

Prior to the excavation, the pile was set into a grid of one-square-meter units. A single 1m<sup>2</sup> test pit (Pit-1), placed approximately at the centre of the pile, was dug. The excavation was conducted in 10 cm spits, and all the material was sieved through a 2.5 mm mesh.

Only basalt items characterized the upper part of the excavated unit, with almost no soil between them. It is assumed that lightweight and small sized material (soil, small basalt items etc.) originated from a higher elevation and had been washed down hill by natural agents. Soil was encountered at a depth of approximately 60-70 cm below the pile surface, and it was incorporated a reduced amount of basalt items. Below this level, the amount of finds gradually decreased until their almost complete absence at about 90 cm below the surface (the bottom of Pit-1).



Fig. 2: A view on the excavated production locus.

#### The Finds

The basalt of Giv'at Kipod is of high quality (fine-grained and compact), and its knapping could have been easily controlled. Nearly 10,000 basalt items found in Pit-1 are currently being examined (Rosenberg *et al.* n.d.). It should be noted that most of the basalt items (*ca.* 70%) are chunks, whose total weight is approximately 700 kg. About 10% of the materials found are chips, while the reminder includes primary elements, flakes, blades, core trimming elements, cores, retouched items, and bifacial roughouts.

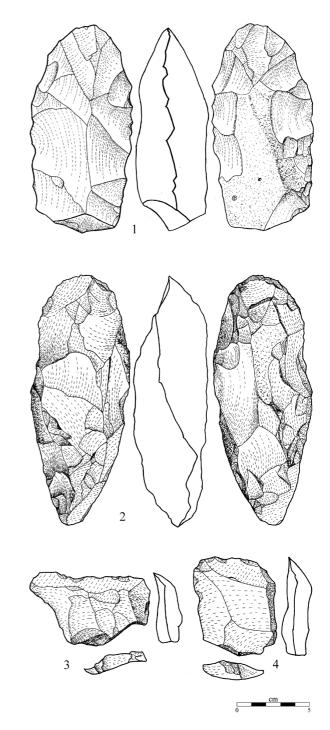


Fig. 3: Selected items from Giv'at Kipod: 1-2: bifacial roughouts; 3-4: flakes with a shaped base.

In our category of primary elements we included items bearing a bulb of percussion and a dorsal face that was covered by at least 30% of a natural surface. It is of note, though, that in many cases distinguishing a natural surface from a weathered surface was almost impossible.

The flakes bear a bulb of percussion and some have a modified butt (Fig. 3: 3-4). Relatively flat flakes were found as well. These items, although much cruder, have many of the attributes that characterize thinning flakes that are typical waste of bifacial reduction, such as a curved profile, a modified butt, and a dorsal face that is covered by multi-directional scars of previous flake removal (Andrefsky 1998: 118).

Among the finds several retouched items were noted. Although it seems that many of them were shaped on the bifacial reduction waste, it is possible that a different reduction sequence for the production of simple blanks was also practiced.

The bifacial roughouts (Fig. 3: 1-2) represent a small portion (less than 1%) of the finds. Nonetheless, the fact that nearly ninety roughouts where found in a volume of less than one cubic meter indicates the high scale of bifacial tool production at the site. It should be noted that these roughouts are rejects, and that the number of items that followed through the reduction sequence and consequently taken elsewhere is hard to estimate.

The retrieved bifacial roughouts represent different stages in the reduction sequence. The fact that these items were discarded before their final shape was achieved prevents us from elaborating on their intended form. Nonetheless, it is evident from the roughouts that were discarded in a relatively advanced state that the primary goals of production at Giv'at Kipod were axes.

Apart from basalt items only sparse finds were found. These encompass six fragments of cherty flint, twenty pieces of limestone fragments (mostly small chunks), and a few intrusive items from the Roman-Byzantine periods. The latter were mainly found on top of the soil level, overlaying the compact matrix, and they probably penetrated through the gaps between the basalt artefacts.

# Discussion

The importance of Giv'at Kipod is that it is the only known quarry and production site for basalt bifacial tools in the Southern Levant. Our preliminary survey and test excavation revealed that the piles that spread across the southern, eastern and western slopes of Giv'at Kipod are of a considerable scale.

The finds indicate that the production of bifacial tools was dominant at the site, and in general we can attribute the different basalt items to different stages of the reduction sequence. Basalt chunks, which constitute a large portion of the assemblage, are presumed to be the outcome of the early production stages. These stages include both reducing the initial blank and the initial shaping of

the roughout. The relatively large flakes are probably also the outcome of these early production stages, while the smaller flakes and thinning flakes should be attributed to the advanced stages of production. The final shaping and finishing of the bifacial tools seem not to have been conducted at Giv'at Kipod and must have been done elsewhere, perhaps at the habitation sites or near them, as seen at other bifacial workshops and in the ethnographic record (*e.g.* Pétrequin and Pétrequin 1993).

Since our ca. 1m<sup>2</sup> probe yielded nearly 90 bifacial roughouts, it would not be an exaggeration to suggest that hundreds and maybe thousands of bifacial basalt tools were manufactured in Giv'at Kipod and taken to various other sites. In light of this, the relatively small number of basalt bifacial tools found in excavated sites in the Southern Levant is most puzzling. One should also bear in mind the possibility that various other artefacts were produced at Giv'at Kipod.

Determining the site's chrono-cultural context is difficult at this juncture, since no diagnostic items were found. In addition, to date no quarry and/or production site for the manufacture of such bifacial tools is known south of Anatolia. In fact, even in Turkey examples are rare and located in Thrace (Erdogu 2000; Ozbaek 2000).

Bifacial tools made of fine-grained basalt were found in various sites from the PPNA to the Chalcolithic, usually in small numbers. Among these are the PPNA sites of Jericho (Dorrell 1983: 508-10; Fig. 221: 16, 19), Netiv Hagdud (Gopher 1997: 163), Gilgal (Rosenberg and Gopher n.d.) and Gesher (Garfinkel 1987/8); the PPNB sites of Munhata (Gopher and Orrelle 1995: Fig. 36: 3-4, 6) and Beidha (Kirkbride 1966: 35, Fig. 10: 1-8); the Pottery Neolithic sites of Hazorea (Anati et al. 1973: Pl. 20), Tel Ali (Prausnitz 1970: 91-94, Fig. 31, Fig. 33: 1), Jericho (Dorrell 1983: 547), Munhata (Gopher and Orrelle 1995: Fig. 36: 5) and Hagoshrim (Rosenberg, pers. obs.), and the Chalcolithic sites of Gilat (Alon 1977). One should note that while in some cases the items were finished by intensive polish and thus lost their resemblance to the roughouts, in other cases the scars of the bifacial reduction are still visible (e.g. Anati et al. 1973: Pl. 20; Prausnitz 1970: 91-94, Fig. 31, Fig. 33: 1). Nevertheless, for now, we cannot point to any specific period, and the possibility that the activity at the site was conducted over several periods should not be ruled out.

Further investigation at the site could shed light on a wide range of topics such as the spatial organization of extracting and producing basalt bifacial tools and the nature of the reduction sequence itself. Another route of future investigation will include a study of basalt bifacial tools from various sites in order to reconstruct possible distribution patterns of these items.

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# Contribution

# Walking with Herdsmen: In Search of the Material Evidence for the Diffusion of Agriculture from the Levant to Egypt

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# Introduction

The diffusion of wheat/barley farming from the Levant to Egypt has long been a neglected subject both in Levantine archaeology and Egyptian archaeology because of the paucity of relevant archaeological data in Sinai and Lower Egypt, though there has been a discussion as to how the diffusion of farming to Egypt occurred and why this diffusion was very late in date. Although it has been recognised that domesticated goats had arrived on

the Red Sea coast of Egypt around 5,800 cal. B.C. (Close 2002), they were not accompanied by wheat/barley farming. The earliest wheat/barley farming culture in Egypt was found in the Fayum around 5,200 cal. B.C., and it was accompanied by sheep/goat herding from the beginning. Therefore, it seems obvious that a package of domesticated plants and animals diffused to the Fayum from the southern Levant. However, very little material evidence for contact has been found between the southern Levant and the Fayum, and thus the diffusion process

Tab. 1 Chronological table.

	Lower Egypt	Negev & Sinai	Southern Levant
5,000 cal.B.C.	Fayumian (Fayum Neolithic)	Shunera, Kvish Harif	Ghassulian  Qatifian
6,000 cal.B.C.	<hiatus></hiatus>	Nahal Issaron, Beer Ada, Qadesh Barnea	Lodian (Jericho IX)  Yarmukian (Pottery/ Late Neolithic)
7,000 cal.B.C.	(Fayum Epipalaeolithic) <hiatus></hiatus>	Qadesh Barnea, Nahal Issaron, Ujrat el-Mehed, Wadi Jibba	FPPNB (PPNC) LPPNB
8,000 cal.B.C.		Nahal Reuel, Wadi Tbeik	MPPNB

remains unclear. This paper will discuss contacts between the Fayum and the southern Levant, while examining the distribution of several types of lithic artefacts which could be associated with Levantine immigrants.

# Material Evidence for Contact Between the Fayum and the Southern Levant in the 7th and 6th Millennia cal. B.C.

Previous research in the Fayum has revealed that there was a hiatus of human habitation between the Epipalaeolithic (ca. 7,100-6,000 cal. B.C.) and the Neolithic (ca. 5,200-4,500 cal. B.C.) periods (Table 1). Domesticated wheat/barley and goat/sheep seem to appear suddenly in the Fayum at the beginning of the Neolithic period. Since it has been impossible to demonstrate a gradual change in subsistence and material culture, the Fayum Neolithic culture is often supposed to have derived from outside the Fayum.

While there is little doubt that these domesticates came to the Fayum from the southern Levant, this is not the case with the material culture. As for pottery, Fayum Neolithic pottery is completely different from contemporary Levantine pottery in terms of shape, surface treatment, and decoration. There had been a long tradition of pottery making in the Western Desert of Egypt since the 9th Millennium cal. B.C., and Fayum Neolithic pottery seems to have originated from this North African tradition. As for stone tools, although several types of Fayum Neolithic projectile points are similar to Levantine PPNB Byblos points and Amuq points, similar types of projectile points have been found in the Western Desert of Egypt in earlier periods as well. Thus, it is not easy to determine the origin of these artefacts. In contrast, bifacially-retouched, concave-based projectile points, which are particular to Egyptian Neolithic culture, have never been found in the

Levant. Therefore, previous scholars have concluded that Levantine influence on Fayum Neolithic material culture was very little, even though a package of Levantine domesticates was attested in the Fayum. It has been believed that the Fayum Neolithic material culture developed autonomously somewhere in the Nile Valley or the Egyptian Western Desert and that the indigenous people of Egypt would have been willing to adopt foreign domesticates for some reason.

However, if it is unlikely that Levantine farmer-herders directly colonised the Fayum while bringing their domesticates with them, the question is how Levantine domesticates could come to the Fayum. Although I have been doubtful about the absence of Levantine influence on Fayum material culture, I could not clear up my doubt as long as I depended on limited information. The bestknown publication about the prehistoric archaeology of the Fayum is Caton-Thompson's report entitled *The* Desert Fayum (Caton-Thompson and Gardner 1934), and most scholars have relied on this report as the most authentic information. But the author did not publish all available data in her report. Another problem is that she was a late visitor to the Fayum, and antiquarians had already collected a large number of prehistoric stone tools. Although part of such amateur collections was published a long time ago (Currelly 1913; Seton-Karr 1904), they have scarcely drawn the attention of serious scholars, despite the existence of peculiar types of stone tools which were not thoroughly reported by Caton-

Re-reading such old publications as well as my own research on unpublished Fayum lithic artefacts, which were collected by early antiquarians and Caton-Thompson and currently housed in several museums in Britain, revealed that a considerable number of presumably Late Neolithic tiny points of the southern Levant and the

Negev (Haparsa, Nizzanim and Herzliya points, after Bar-Yosef 1981; Gopher 1994) did exist in the Fayum (Figs. 1-2). Since most of them were collected randomly on the desert surface, it is difficult to date them precisely. One possibility is that these points came to the Fayum as early as the end of the Fayum Epipalaeolithic period (ca. 6,000 cal. B.C.), which is almost contemporary with the Late Neolithic period of the southern Levant and the Negev. Another possibility is that they came to the Fayum in the Neolithic period (after 5,200 cal B.C.).

The first possibility can be excluded because these tiny points have not been attested in the Epipalaeolithic site of Helwan, which is located on the east bank of the Nile to the northeast of the Fayum and thus closer to Sinai (Fig. 3). Therefore, it is highly probable that these points are dated to the Fayum Neolithic period, and they can probably be interpreted as evidence for the arrival of people from somewhere in the southern Levant, Negev or Sinai, or evidence for a socioeconomic connection between these regions in the form of the sharing or exchange of hunting weapons. This is an important discovery, because without this material evidence, it is always necessary to take account of the possibility that Levantine domesticates had actually come to somewhere in Egypt at a very early date, but they were deeply buried and did not appear in the archaeological record until the Fayum Neolithic period. Given this material evidence, the diffusion of Levantine domesticates to the Fayum should be reconsidered in relation to the arrival of these artefacts.

# The Beginning of the Dispersal of Farming in the Southern Levant

Before discussing further the context of the diffusion of Levantine domesticates into Egypt, it is important to look at the beginning of the dispersal of farming in the marginal areas of the fertile Levantine Corridor or outside the Levantine Corridor (Fig. 3). The spread of farming had already occurred in the arid areas of the Jordanian Plateau no later than the Middle PPNB period, and it seems that a farming way of life in the arid areas was enhanced by the adoption of goat herding, and that the farming-herding way of life in the arid areas was further enhanced by the introduction of sheep in the Late PPNB period (Byrd 1992: 54 ff; Garrard *et al.* 1996: 218 ff).

While similar adaptations seem to have occurred in the southernmost part of the Levantine Corridor as evidenced by the Middle PPNB site at Beidha and the Late PPNB site at Basta in southern Jordan, most of the contemporary or slightly later sites in the Negev and Sinai, such as Nahal Reuel, Nahal Issaron, Wadi Tbeik and Ujrat el-Mehed (Fig. 3) suggest that hunting of wild animals and collecting of wild plants were still the dominant subsistence activities in these areas (Bar-Yosef 1984; Dayan et al. 1986; Goring-Morris 1993; Goring-Morris and



Fig. 1 Late Neolithic points in Caton-Thompson collection. From left to right: UC.3262, UC.3407, UC.3398, UC.3412. Petrie Museum of Egyptian Archeology, University College London.



Fig. 2 Late Neolithic points in Seton-Karr collection. From left to right: no.1904.24.19, no.1904.24.18, no.1904.24.14, no.1904.24.13, no.1904.24.17, no.1904.24.12, no.1904.24.15, no.1904.24.11, no.1904.24.16. Pitt Rivers Museum, University of Oxford.

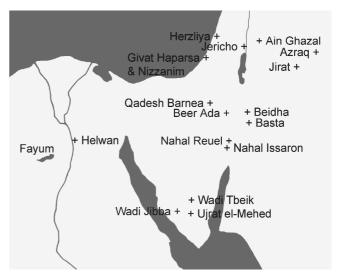


Fig. 3 Sites mentioned in the text.

Gopher 1983; Ronen *et al.* 2001; Tchernov and Bar-Yosef 1982). For this reason, it has been argued that the Negev and Sinai were the autonomous territories of mobile hunter-gatherers (Rosen 2002), even though they may have had contact with farmer-herders in more fertile areas of the southern Levant and may have possibly obtained domesticates in exchange for other resources (Bar-Yosef 2001; Hassan 2002). This argument seems to be supported by the fact that Late PPNB people in southern Sinai were morphologically unique and different from contemporaneous Levantine and North African people (Hershkovitz *et al.* 1994). Therefore, it seems unlikely that southern Levantine farmer-herders infiltrated into southern Sinai while establishing new settlements in the Late PPNB period, eventually moving on into Egypt.

Even though direct colonisation of the Sinai by southern Levantine people is unlikely, one question is why farming did not diffuse across the Negev and Sinai into Egypt in the Middle PPNB period. As mentioned above, farming did diffuse outside the fertile areas onto the arid Jordanian Plateau in the same period. In other words, the question is why the diffusion of farming to Egypt had to wait until the Late Neolithic period. Thus it is necessary to consider what prevented the spread of farming from the southern Levant to Egypt in the Middle PPNB period.

Physical distance between the southern Levant and Egypt may be one reason why the diffusion of farming had been prevented and retarded. However, it has been argued that the distance between the two regions could have been easily traversed in a matter of days (Kuijt and Goring-Morris 2002: 428), though the mountainous terrain of Sinai could be a considerable geographic barrier. Indeed, the diffusion of Levantine PPNB-like lithic artefacts to the site of Helwan in Lower Egypt has been suggested (Schmidt 1996). Therefore, it may be concluded that the distance of approximately 500 km between the southern Levant and Lower Egypt was not a serious problem for the diffusion of farming.

Climatic conditions in the Negev and Sinai may be another reason why the diffusion of farming to Egypt had been interrupted. It has been argued that the advent of the Early-Holocene climatic optimum and the following northward shift of the polar front caused desiccations in the southern Levant in the Middle to Late PPNB periods. This may have in turn resulted in the decrease of rainfall in the Negev and Sinai, and made rain-fed farming impossible. This seems to be a reasonable explanation. But if climatic conditions in the Negev and Sinai were actually the major reason why the diffusion of farming to Egypt had been interrupted, the question is whether a subsequent climatic amelioration in the Negev and Sinai is the reason why the diffusion of farming to Egypt became possible. Since such dramatic improvement of the climate has not been demonstrated in the Negev and Sinai in the 7th and 6th Millennia cal. B.C. (Tchernov 1998; *cf.* Rossignol-Strick 2002), the reason must be looked for in changes in human adaptation to these climatic conditions.

# The Beginning of Sheep Herding in the Southern Levant

The domestication of goats seems to have been attempted elsewhere in Southwest Asia, and Beidha is supposed to be the southernmost of such places. But the domestication of sheep was evidently achieved at a relatively later date in the northern Levant, and then domesticated sheep were introduced into the southern Levant no earlier than the Late PPNB period (Garrard et al. 1996; Horwitz et al. 2000). One dramatic change in subsistence activities in the Negev and Sinai is the possible introduction of goat/sheep herding around the PPNC period, though the transition from the Late PPNB to Late Neolithic and Chalcolithic periods in the Negev and Sinai is not well known because of the paucity of archaeological data (Goring-Morris 1993; Rosen 2002). The initial introduction of goat/sheep herding into the Negev and Sinai has not yet been demonstrated by faunal remains, but merely suggested by changes in the lithic assemblage and the appearance of stone structures which look like animal pens (Goring-Morris 1993: 77 ff).

In contrast, a farming-herding way of life is well attested in the Mediterranean coastal plain of the southern Levant after the Yarmukian period (Gopher and Gophna 1993), and it is exactly in this region that Late Neolithic Haparsa, Nizzanim and Herzliya points developed. These Late Neolithic points have been found in some sites in the Negev as well, like Qadesh Barnea and Nahal Issaron (Gopher 1994; Gopher et al. 1994), and one is tempted to suppose that these sites were hunter-herders' seasonal camps. It is not clear whether these people in the Negev were special task groups coming from sedentary farming settlements in the Mediterranean coastal plain or autonomous mobile groups foraging around the Negev and Sinai with regular or occasional contact with farmers. But no matter what their identity, it is assumed that these people played a significant role in the diffusion of a package of Levantine domesticates into Egypt.

As exemplified by the emergence of a farming-herding way of life on the Jordanian Plateau after the Late PPNB period, farming in arid areas had to be complemented by hunting and goat/sheep herding as a buffer against the risks of bad harvests. The reason why farming did not diffuse to Egypt across the Negev and Sinai in the Middle PPNB period may simply be because domesticated goat and sheep were not yet available and thus intensive exploitation of arid regions with the aid of farming alone was a risky business. Consequently, extensive hunting based on seasonal movement remained the most successful subsistence in the Negev and Sinai until the Late Neolithic period.

Introduction of goat/sheep herding in the southern Levant in the Late Neolithic period could have changed this situation and made more intensive exploitation of the Negev and Sinai possible. It is in this context that the diffusion of domesticated wheat/barley and goat/sheep occurred. Therefore, the role of goat/sheep herders, who carried with them a limited amount of grain, as the agents of the diffusion of farming to Egypt, should be considered (Hassan 2002: 61).

# Conclusion

Let us go back to the significance of the discovery of Levantine Late Neolithic small points in the Fayum. This discovery may support the assumptions that farming could not have diffused into Egypt earlier than the Late Neolithic period, and that Late Neolithic people in the southern Levant and the Negev played a significant role in the diffusion of a package of Levantine domesticates into Egypt. Although there are still questions concerning the means of contact between different groups of people (Bar-Yosef 2001), the rapidity of the movement of the people (Hassan 2002), and the appearance of Late Neolithic small points (Baird 2001), retracing the footsteps of herdsmen in the Negev and Sinai will give us further clues to know the diffusion process in more detail.

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Contribution

# Stone Tools from 'Ayn Jammam, near Ras en-Naqb, Southern Jordan

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# Introduction

The spring at 'Ayn Jammam is easily recognizable as one drives north on the highway from 'Aqaba to Ma'an, for the vegetation around it stands out in stark contrast to the steep, arid hillside around it. It is not surprising, then, that archaeologists have been aware of the site for some time (e.g. Glueck 1935; Jobling 1983, cited in Waheeb and Fino 1997), but it was not until the mid-1980s that H.G.K. Gebel (n.d.) was able to determine the significance of the settlement. The site consists of two components: one is a large structure with artifacts that indicate a Late Roman-Early Byzantine occupation (Waheeb 1996: 344-345); the second component is Neolithic, including LPPNB and Pottery Neolithic occupations (Gebel n.d.: 2). Claims of a PPNC occupation (Waheeb and Fino: 215) have not been verified by lithics analysis (see below). Two radiocarbon samples yielded dates of  $8,520 \pm 190$  uncalbp  $(9,551 \pm 253 \text{ calBP};$ Weninger et al. n.d.) and  $8,030 \pm 120$  uncalbp ( $8,899 \pm$ 186 calBP) (Bisheh et al. 1993: 122).

Highway construction plans threatened to damage the

site severely, so the Cultural Resource Management department of the Department of Antiquities undertook two seasons of rescue excavations in 1995 and 1996, but only brief reports have appeared on the excavation (Waheeb 1996; Fino 1996; Waheeb and Fino 1997). Results of the analysis of chipped and groundstone tools from the LPPNB layers are presented below in order to provide a profile of the lithics inventory from the site.

# **Chipped Stone**

Table 1 provides an overview of the chipped stone materials from the rescue excavations. The low counts of flakes, microflakes (flakes whose maximum dimension does not exceed 2 cm), and debris indicate some selective retrieval of chipped stone artifacts, with a (subconscious?) focus on laminar pieces; cores are also suspiciously few in number (*cf.* Rollefson *et al.* 1992: Table 2). The relatively large number of non-naviform blades suggests a strong *ad hoc* behavior pattern for much of the tool production, although specialists in naviform blade production (*cf.* Quintero and Wilke 1995) provid-

Tab. 1 Debitage classes in the chipped stone artifacts from 'Ayn Jammam.

	PPN				PN	
Debitage class	n	%	%'	n	%	%'
Ordinary blades	1,057	14.3	15.2	109	16.9	17.3
Naviform blade	3,452	46.7	49.6	262	40.6	41.6
Unknown blade	98	1.3	1.4	11	1.7	2.7
Bladelet	928	12.6	13.3	123	19.0	19.5
Flake	1,089	14.7	15.6	96	14.9	15.2
CTE	121	1.6	1.7	7	1.1	1.1
Burin spall	184	2.5	2.6	15	2.3	2.4
Core	35	0.5	0.5	3	0.5	0.5
Microflake	197	2.7		7	1.1	
Debris	228	3.1		13	2.0	
Total	7,389	100.0	99.9	646	100.0	100.0

ed the blanks for the large majority of projectile points and for most of the knives. It is also possible that some of the PPN collection is from the Pottery Neolithic period (see below). Table 2, which describes the core types in the collection, does not reflect the character of the debitage in Table 1, and once again it is likely that core retrieval may have suffered some bias. Flint overwhelmingly dominates the chipped stone material (more than 98.5%), although there are also 75 blades and flakes of orthoquartzite; a handful of limestone flakes might be associated with dressing wall stones.

Tool classes are presented in Table 3, and it is clear that projectile points, drills and borers, knives, and burins account for the most frequent formal tools. For tools and cores, 97.5% of the raw material was flint, of which 8% was of the Huweijir-type glossy flint (*cf.* Quintero 1996) and 85% was fine quality; medium and coarse flint made up 7% of the tools. Orthoquartzite was used for 17 tools, including 8 projectile points; no cores of orthoquartizte were found.

Projectile points were sorted according to the typology developed by Mortensen (1970), and the results are tabulated in Table 4. Amuq and Byblos points dominate overwhelmingly. There is a variant of the Amuq type that appears to be distinctive of the LPPNB in the southern part of Jordan. The maximum width of this point variant is ahead of the middle of the tool, and the tang is usually quite sharp (Fig. 1; *cf.* Nissen *et al.* 1991: Fig. 4-27). At 'Ayn Jammam they accounted for 25% of a sample of 140 points and might be referred to as "'Ayn Jammam points". Mean length for complete projectile points was 45.3 mm, mean width 12.8 mm, and mean thickness 3.86 mm.

Drills and borers were numerous, accounting for almost 40% of the formed tools. The mean length of drills was 30.0 mm, mean width 6.7 mm, and mean thickness 2.8 mm. As was the case at al-Basît (Rollefson 2001: 5), drills were made on bladelets almost twice as often as on all the other blanks combined (Table 5); unlike al-Basît, no bladelet cores were retrieved from the excavations.

Macroscopic examination indicates that most of the drills reflect rotary use-wear by a clear rounding of the tip, probably as a result of friction against hard materials such as stone or shell for making beads (Table 6). Nevertheless, 38% show no such damage, possibly because they were used on softer material or used in a different manner than rotary movement. Rotary motion was visible on only about a fourth of the borers. Table 7 reveals the sorting of the drills and borers according to the symmetry of the bit. Symmetrical borers and drills have bits that originate from the center of blanks, while asymmetrical tools have the bit closer to one edge of the piece than the other edge. "Straight" bits are inline with the long axis of the blank, while canted bits diverge at an angle to the long axis (Fig. 2). Clearly, the canted and asymmetrical tools are handheld, although straight drills and borers could have been used with a bow drill (cf. Rollefson and Parker 2002: 22-23). There is good evidence that the drills and borers were not homogeneously distributed across the excavation area, indicating some localization of drilling activities; little more can be said in this regard due to some problems with proveniencing (see below).

Knives were the third most prominent tool class in the 'Ayn Jammam collections. Unifacially retouched knives were the most numerous (71 of the 99 knives), and there

Tab. 2 Core types from the PPN samples from 'Ayn Jammam 1995-1996.

Туре	n	%	%'
Flake core	4	25.0	26.7
Normal blade core	5	31.3	33.3
Naviform blade core	2	12.5	13.3
Core on a flake	1	6.3	6.7
Bidirectional, non- Naviform blade core	3	18.8	20.0
Unclassifiable	1	6.3	
Total	16	100.0	100.0

		PPN			PN	
Class	n	%	%'	n	%	%'
Projectile point	201	22.5	24.2	7	18.9	23.3
Sickle	1	0.1	0.1	-	-	-
Burin	76	8.5	9.2	4	10.8	13.3
Truncation	2	0.2	0.2	-	-	-
Endscraper	6	0.7	0.7	1	2.7	3.3
Racloir	9	1.0	1.1	1	2.7	3.3
Notch	15	1.7	1.8	2	5.4	6.7
Denticulate	27	3.0	3.3	3	8.1	10.0
Awl	2	0.2	0.2	-	-	-
Borer	43	4.8	5.2	1	2.7	3.3
Drill	294	33.0	35.4	1	2.7	3.3
Axe/Adze	16	1.8	1.9	2	5.4	6.7
Pick	7	0.8	0.8	-	-	-
Chopper	2	0.2	0.2	-	-	-
Knife	92	10.3	11.1	7	18.9	23.3
Backed blade	3	0.3	0.4	-	-	-
Tanged blade	15	1.7	1.8	-	-	-
Endscraper						
opposite burin	1	0.1	0.1	-	-	-
Truncated						
faceted blade	3	0.3	0.4	-	-	-
Truncated						
faceted flake	1	0.1	0.1	-	-	-
Retouched bladelet	2	0.2	0.2	-	-	-
Backed bladelet	1	0.1	0.1	-	-	-
Backed and						
retouched bladelet	1	0.1	0.1	-	-	-
Other	10	1.1	1.3	1	2.7	3.3
Retouched flake	5	0.6		1	2.7	
Retouched blade	28	3.1		2	5.4	
Utilized piece	18	2.0		3	8.1	
Unclassifiable	11	1.2		1	2.7	
Total	892	100.0	100.0	37	100.0	100.0

Tab. 3 Tool classes from the 1995 and 1996 excavations at 'Ayn Jammam.

were four bifacially retouched knives and 24 tanged knives (Fig. 3). Two of the knives were made with transverse parallel flaking. Edges were rounded from use in 94% of the cases.

There is little reason to comment on the rest of the formed tools, although among the "other" category, there are some pieces of interest. The "other" tools include a large circular scraper, a massive scraper, a core scraper, a double endscraper and double racloir, a large denticulate + scraper, two ochre-stained blades, four "wheels" of unknown use (Fig. 4), and a "bowlet" similar to examples from Basta, Ba'ja (Gebel 1999: 12-13), and el-Hemmeh (Makarewicz and Goodale 2004: 8-9). The bowlet is shaped on the sides by demi-Quina retouch and is much thinner than the pieces from the other three sites. There is a beveled rim all around the piece at least partially polished, possibly from use, although the rim is

not completely flat (Fig. 5). The concavity is smooth and relatively shallow (6 mm deep at the center). There are small pitted areas, and there are other places on the concavity that have been damaged with hammering; all of the pitted areas are infused with red ochre, as are the "steps" of the demi-Quina retouch on the edges.

# Groundstone

The groundstone inventory presented in Table 8 is not entirely representative, for there were many large querns and mortars left at the site of 'Ayn Jammam, and they had no provenience data associated with them. Of the 10 querns in the collection, 3 bore evidence of red ocher on the surfaces, as did three of the 14 mortars. More than 25% (9 of 32) of the pestles had red ocher on them, but only 36 of the handstones (11%) did. Handstones clearly served

Tab. 4 Projectile point types in the 'Ayn Jammam collection, following Mortensen 1970.

		PPN	Р	N	
Туре	n	%	%'	n	%
A3	1	0.5	0.5	-	-
A5	2	1.0	1.1	-	-
A6	10	5.0	5.4	-	-
A7	1	1.0	0.5	1	14.3
A9	5	2.5	2.7	-	-
A10	1	0.5	0.5	1	14.3
A11	45	22.4	24.2	3	42.9
A12	42	20.9	22.6	2	28.6
A13	60	29.9	32.3	-	-
A14	10	5.0	5.4	-	-
A15	2	1.0	1.1	-	-
A16	6	3.0	3.2	-	-
A20	1	0.5	0.5	-	-
Unclassi- fiable	9	4.5		-	
Missing information	6	3.0		_	
Total	201	100.0	100.0	7	100.0

Tab. 5 Correlation of borers/drills with debitage blank.

	Во	Borer		ill
Blank	n	%	n	%
Ordinary blade	9	20.4	38	12.9
Naviform blade	17	38.6	29	9.8
Unknown blade	1	2.3	6	2.0
Bladelet	14	31.8	190	64.4
Flake	1	2.3	2	0.7
Burin spall	0	0.0	22	7.5
Microflake	0	0.0	1	0.3
Debris	1	2.3	0	0.0
Unclassifiable	1	2.3	7	2.4
Total	44	100.0	295	100.0

Tab. 6 Tip characteristics of borers/drills.

	Во	rer	Drill		
Tip Character	n	%	n	%	
No rounding	7	36.8	83	33.7	
Rounded use-wear	5	26.3	135	54.9	
Very sharp	0	0.0	11	4.5	
Indeterminate	7	36.8	17	6.9	
No information	(25)		(49)		
Total	44	100.0	295	100.0	

Tab. 7 Aspects of tip symmetry of borer/drills.

	Во	rer	Drill		
Symmetry aspect	n	%	n	%	
Symmetrical canted	3	23.1	66	24.4	
Symmetrical straight	6	46.2	106	39.3	
Asymmetrical canted	3	23.1	70	25.9	
Asymmetrical straight	1	7.7	28	10.4	
Unknown	(24)		(25)		
Total	13	100.0	270	100.0	

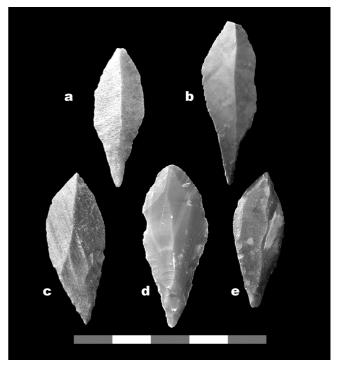


Fig. 1 A selection of five "'Ayn Jammam points".

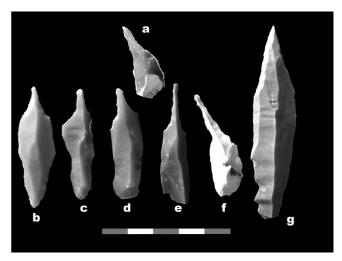


Fig. 2 Six drills and a borer from 'Ayn Jammam. a, d, and f are symmetrical canted drills; b and e are straight symmetrical drills, c is an asymmetrical straight drill; and g is a borer.



Fig. 3 Tanged knife from 'Ayn Jammam.

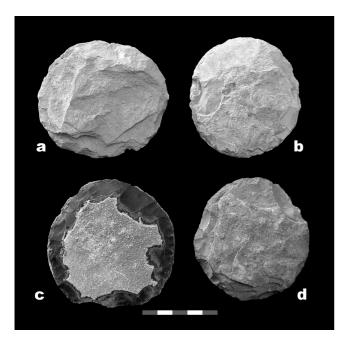


Fig. 4 Four "wheels" of unknown use. a is made of limestone, b-d are made of varying qualities of flint.

more than just grinding plant foods: where the evidence could be ascertained, more than 75% had evidence of moderate to heavy battering on the ends of the tools.

"Other" groundstone tools included three handstones that became pounders, three massive weights, 1 large "handle"-shaped stone that was probably a weight, one sandstone sphere, 1 ochred sandstone slab, 1 handstone converted to an axe, 22 pieces of a large (400 mm) sandstone vessel, two possible basin mortars, one unfinished mortar/quern, one pebble polisher/pestle, one disc-shaped unfinished palette, and one small ochred mortar fragment.

# Other Tools and Small Finds

Only three bone tools were present in the collection (a needle, an awl, and a spatula). It is probable that more bone tools might be found in the faunal collection. A

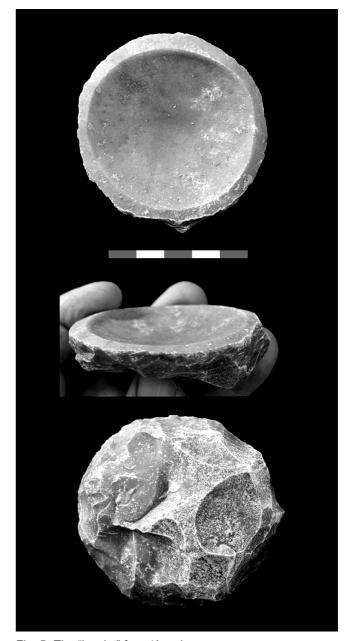


Fig. 5 The "bowlet" from 'Ayn Jammam.

total of 32 translucent quartzite pebbles ranging from 34 to 113 mm in maximum dimension were recovered. All but nine of the pebbles bore red ochre, 14 were highly polished, and 22 of them had evidence of battering. It is possible that the pebbles were used for polishing plaster floors

There were four pieces of worked mother-of-pearl (including one pendant and one bead), seven cowrie shells (two worked, two complete, and three fragments), two possible *Nerita* sp. shells, three Conidae shells (one very large, possibly *Conus textile*) and six other fragments of shells. Despite the large number of drills, the mother-of-pearl disc bead is the only bead in the collection.

Excavation also produced 60 fragments of stone rings (or "bracelets", "bangles") made of sandstone of differing colors, including gray, yellow, red, purple, and pink (sometimes combinations of these colors). Diameters to

Tab. 8 Tool classes from the 1995 and 1996 excavations at 'Ayn Jammam.

Raw material types: FI = flint, Ba = basalt, LS = limestone, SS = sandstone, QZ = quartzite, In = indeterminate

	Raw Material							
Class	FI	Ва	LS	SS	QZ	In	total	%
Querns	-	-	-	2	8	-	10	1.9
Mortars	-	-	6	2	6	-	14	2.6
Handstones	1	1	-	89	240	-	331	61.5
Pestles	-	1	-	8	22	1	32	5.9
Pounders	82	-	3	7	8	1	101	18.8
Polishing pebbles	4	-	-	2	5	1	12	2.2
Small slab abrader	-	-	_	1	-	-	1	0.2
axes/celts	-	-	1	1	1	-	3	0.6
Chisels	-	-	-	-	2	-	2	0.4
Loomweights	-	1	-	1	-	-	5	0.9
Palette	-	-	-	1	-	-	1	0.2
Stone vessels	-	-	9	-	-	-	9	1.7
Other	-	-	2	8	7	-	17	3.2
Total	87	3	24	122	299	3	538	100.0

the outer edge ranged from 20 mm to 130 mm, and thickness ranged from 2-8 mm. Many appear to have been broken during production, for there are striations present that are associated with the shaping process (*cf.* Gebel and Bienert 1997: 252-257). This also indicates that the production of the rings was a local industry.

One poor clay animal figurine was found, as well as five "stalk" figurines that may represent humans, similar to those from es-Sifiya (*cf.* Mahasneh and Bienert 2000: Figs. 8-9).

# **Discussion**

The stone tools and other finds from Ayn Jammam are in accordance to the patterns seen at other LPPNB sites in southern Jordan. But unfortunately, little more can be said about the artifact collection. When I received the collections and excavation records from the Department of Antiquities, it was clear that there were several inadequacies. First, it is apparent that much of the artifact collection has disappeared. No 'Ayn Jammam pottery has been found in the Department of Antiquities storerooms, and the number of *ca.* 8,000 artifacts (Table 1) is far too low for an excavation that sampled between 400-450 m<sup>2</sup> to a depth of more than two meters in many cases.

Second, many of the records had disappeared, and there was very little documentation of daily work, locus descriptions, and only one incomplete top plan of a single building (although as many as ten buildings had been exposed; *cf.* Fino 1996: Fig. 1-b). Of the 29 reportedly excavated 5 x 5m squares, there are no reports for 15 of them. Of the 14 squares for which there are summary reports, four (and possibly five) contained Pottery Neolithic

occupations in at least some of the sequence of layers. Because there was no indication of which layers were attributable to the Pottery Neolithic in the other squares, it is likely that some explanation of the relatively high percentages of ordinary blades in Table 1 is a result of mixing of PN with LPPNB artifacts. (And it is therefore impossible to distinguish if there actually was a PPNC presence). On the other hand, for the collections that had labels indicating the presence of pottery, naviform blade percentages were very high, bladelets were relatively more numerous than the LPPNB quantity, and flakes remained suspiciously low compared to any Pottery Neolithic assemblage I am aware of.

Another casualty of the poor documentation is a confusion that arises when comparing the site plan and the labels associated with the bags of artifacts. According to Fino (1996: Fig. 1-a), excavation trenches in Area A consisted of only four 5 x 5 m squares, yet the labels refer to seven squares; Area B should have 11 squares, but there are only nine; Area C should have only four excavation squares, but there are five. As a consequence, it is not clear if the site plan is wrong, or the labels are wrong, or both.

The numerous drills are not homogeneously patterned in their distribution across the site, but it is not possible to associate the location of high densities with rooms or features with any confidence, especially when that location ostensibly wasn't even sampled. The same is true for projectile points and knives.

Nevertheless, there remains some useful information in the 'Ayn Jammam collections, particularly among the projectile points, drills, and knives. The architecture is well preserved, and it shares the complexity seen at Basta and es-Sifiya (but not at Ba'ja; *cf.* Gebel and Hermansen 2004: 16-17). Furthermore, the highway was realigned so that construction did not damage the site, and there are still nearly eight hectares for future research.

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# A PPNA Bifacial Assemblage from Tel Bareqet, Central Israel

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# Introduction

Tel Bareqet is a large Early Bronze II and Hellenistic site situated on a raised hill at the western margins of the Judea Mountains, just east of the city of Shoham and 5 km east of the Ben-Gurion International Airport (Fig. 1). During the summer of 2004, two large-scale salvage excavations took place at the site anticipating the construction of a new industrial area<sup>1</sup>. The excavations concentrated at uncovering the EBII and Hellenistic occupations of the tel. During the excavations and the study of the EBII chipped lithic material<sup>2</sup>, a large group of bifacial tools was noted, typical of the Pre-Pottery Neolithic-A (PPNA), found in all excavation areas. The bifacial assemblage encompasses mainly axes and axe fragments, though a few chisels and a single Beit Ta'amir knife were also found. This paper presents initial results of the analysis of the PPNA assemblage of Tel Bareget and discusses a few related aspects.

# The Site and Its Surroundings

Tel Bareqet is an elevated hill (115 m asl), situated in the hilly region of the western margins of the Judea Mountains, overlooking the Lod basin and the Mediterranean costal plain to the west. The site is situated on the summit of one of the highest peaks in the region, surrounded by moderate hills and gullies. The hill is a Turonian limestone-dolostone, attributed to the Bina, Derorim, Shivta, and Nezer formations, and the southeastern flanks of this hill also exhibit chalk and chert of Coniacian-Campanian age. The landscape is covered today with typical low vegetation and shrubs as well as sparse oak trees.

The site was surveyed in the past and was mainly attributed to the Early Bronze Age, though remains of other entities were also noted (Gophna and Beit-Aria 1997: 39\*, mainly site #65). Anticipating the construction of a new section of the nearby industrial area, two large salvage excavations took place on the Tel during the summer of 2004, aimed at exposing large areas of the Early Bronze and Hellenistic settlement. In the course of the excavations and the analysis of the lithic material, a large group of bifacial tools and a few rejuvenation debitage items were noted. These came mainly from the fills of the northeastern area of the tel, though they were also found in other areas as well.

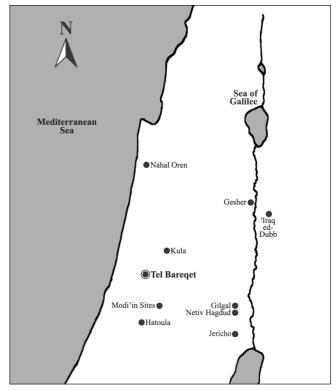


Fig. 1 Map showing the location of Tel Bareget.

The prehistoric finds encompass mainly small axes and chisels attributed to the PPNA, including tranchet axes bearing transversal edge blows and a single Beit Ta'amir knife. A fragment of a polished adze and a single arrowhead fragment were also noted; possibly they belong to a later prehistoric activity at the Tel. In addition, a large quantity of the cores, blades and debitage found in both clean and mixed loci seem to have Neolithic affinities, though their clear chronological attribution could not be discerned.

# The Bifacial Assemblage

A total of 58 bifacial tools was retrieved from the various loci and fills. The assemblage encompasses axes (n=10), chisels (n=9) and unclassified bifacial tool fragments (n=39). Seven transverse spalls and a single Beit Ta'amir knife were also retrieved. The bifacial tools are shaped on thick blades or on elongated, thin nodules or chunks, with only 1-2 items shaped on thick flakes. Many of the blanks are unidentifiable because the bifacial flaking conceals the original item.

Raw Material Axes

The raw material selected for the production of the bifacial tools was usually of high quality dark to light brown flint, though flint of lesser quality is also present. The high quality flint homogeneity varied, and flint with cherty inclusions was noted as well. Many of the items have white, sometimes translucent patina, usually covering the ridges of the tools' faces. Raw materials used for the production of both axes and chisels seem to have similar characteristics. Most available raw material found at the eastern slopes of the tel is seemingly different from that selected for the production of the bifacial tools, though raw material with similar characteristics was also noted near the site.

# **Technology**

All items studied were shaped by bifacial flaking, usually covering the entire circumference of the tool. A transversal blow (tranchet) aimed at shaping or rejuvenating the active adage was noted in eight items, always on one face (Figs. 2: 1, 5; 3: 2). These include axes (n=3), chisels (n=2) and unclassified fragments (n=3). It should be noted that additional axes, chisels and unclassified fragments were probably reshaped using the tranchet blow, yet the modification and reshaping of the active edges prevent a clear determination. Other active edges were fashioned (or reshaped) by bifacial flaking only, or are too damaged to discern.

# **Typology**

Axes and chisels are almost equally represented in the studied assemblage (Table 1). The rest are mainly unidentified bifacial tool fragments (but see below). Notably, while some of the items are meticulously made with finesymmetry and flaking of the extremities, some seem to be cruder or exhausted due to use.

Tab. 1 Distribution of tools and spalls.

Туре	n
Axes	10
Chisels	9
Bifacial fragments	39
Tranchet spalls	7
Beit Ta'amir knife	1
Others	
Adze	1
Arrowhead	1

Axes are mostly triangular to trapezoidal in shape (Fig. 2: 1-3, 5), though oval and coarser axes are present as well (Fig. 2: 4, 6). The active edge is usually wider then the base, and it is convex or straight in shape. Some of the active edges are fractured or damaged. The base is convex, angular, straight or damaged. Long sections are convex-convex (lenticular) or more rarely quasi-plano-convex. Most axes have a convex-convex cross section. The complete axes are 40-69 mm long, 22-32 mm wide, and 12-27 mm thick. The weight of the axes range between 35 to 80 g. Axe active edges are 2-6 mm thick and are 15-23 mm wide. Bases are 2-12 mm thick and are 5-25 mm wide.

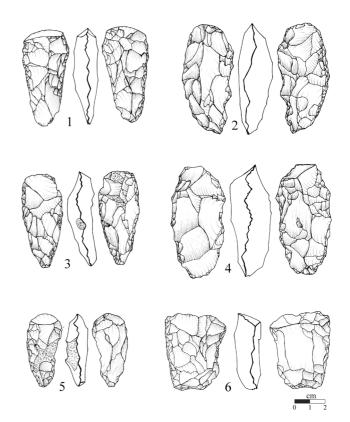


Fig. 2 1-5: axes; 6: axe(?) fragment.

# Chisels

Chisels are generally narrower then the axes, featuring elongated forms and a narrow, sometime slightly pointed active edge (Fig. 3: 1-5). Some of the active edges are damaged, and others are straight, convex or irregular in shape. Bases are convex, straight, pointed, or damaged. The general shape of the chisels is triangular, trapezoid or rectangular, with convex-convex or irregular long sections; they are mostly characterized by convex-convex or irregular cross sections. Chisels are 55-60 mm long, 18-20 mm wide and 10-13 mm thick, and they weigh between 10 and 35 g. Chisel active edges are 3-8 mm thick and 7-18 mm wide. Bases are 2-5 mm thick and 4-15 mm wide.

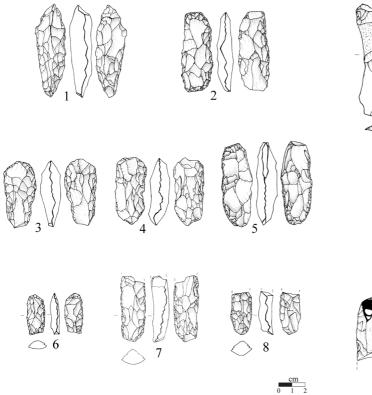


Fig. 3 1-5: chisels; 6-8: chisel(?) fragments.

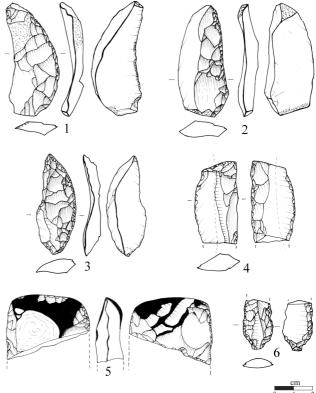


Fig. 4 1-3: transverse axe spalls; 4: Beit Ta'amir knife;5: polished adze fragment; 6: arrowhead fragment.

# Unidentified fragments

Bifacial fragments usually bear the remains of a single edge, though a clear distinction between active edge and base is not always possible. Clear distinctions between axes and chisels, based on length-width ratio and/or relative width of the active end (Cauvin 1968: 136) is difficult in this group, thus further division is merely tentative. Most of the items included in this group (n=31) seem to represent axe fragments (Fig. 2: 6), amongst which one may actually be an axe preform, while only eight are likely to represent chisel fragments (Fig. 3: 6-8).

Transverse spalls, representing the rejuvenation and/or shaping of the active edges, number seven items (Fig. 4: 1-3). Of these, three are relatively large and thin; two are narrow and thin, while the rest are thicker. The thinner examples bear the negative of the renewed active edge, while the thicker examples possibly resulted in a more blunt convex edge. The size of a few of the thinner examples suggests that some of the original blanks and bifacials were considerably larger then most of the items presented here.

The single Beit Ta'amir knife (Fig. 4: 4) is shaped on a thick blade (25 mm wide; 13 mm thick). The proximal end is shaped by an oblique truncation and the distal end is broken. The back is partially shaped by bifacial flaking, and the active edge bears intensive gloss on both ventral and dorsal faces.

# Others

A fragment of a polished adze was also found (Fig. 4: 5). This is a burnt, active edge fragment of a squarish tool. The active edge is straight and the section is convex-convex. Polished surfaces are on both faces. The single retrieved arrowhead is a proximal fragment shaped on a small blade section. The laterals and tang were shaped by pressure retouch (Fig. 4: 6).

# Discussion

Tel Bareqet offered a large collection of PPNA bifacials originating mostly from disturbed EBII contexts and fills. This collection seems to indicate a probable PPNA occurrence in the area, which was intruded upon by later activety on the tel. Other features that could be related to an Early Neolithic activity are the numerous cup marks, which are spread on the rock exposures – a known Early Neolithic phenomenon (Samzun 1994), although these could not be securely dated.

The bifacial tools found at Tel Bareqet bear similar characteristics to items noted at other PPNA sites such as Jericho (Crowfoot-Payne 1983: Figs. 254–256, 267–272); Netiv Hagdud (Nadel 1997: Fig. 4.14-20); Gilgal I (Groman-Yaroslavski 2003: Pl. 10: 2); Gesher (Garfinkel and Nadel 1989: Figs. 3-5); Ain Darat (Groman-Yaroslavski 2003: Pl. 42: 15); Hatula (Lechevallier and Ronen 1994: Fig. 18); Nahal Lavan

108 (Noy et al. 1981: Fig. 4); Nahal Oren (Noy 1975: Fig. 103); Dhra' (Goodale and Smith 2001: Table 2); Zaharat adh-Dhra' (Edwards et al. 2002); Wadi Faynan 16 (Pirie 2001). Two additional sites located in the same ecozone as Tel Bareqet that also feature similar bifacials are Sha'ar Ephraim (Barkai 1998: 98, Fig. 3: 1) and the Modi'in sites (Barkai 2005: Figs. 15: 1-16: 2-3; 17: 2; 18: 1-5; Zbenovich et al. 2005).

A few things are worth noting, disregarding the problematic contexts where these PPNA bifacials were found. The raw materials used for the production of both axes and chisels seem similar and of the same quality, suggesting that raw material was not an important factor in relation to the functional differences between axes and chisels. It is likely that the source of this raw material may be found in the immediate vicinity of the site where large nodules and blocks of high quality flint are present. If so, it is possible that at Tel Bareqet, just as in Modi'in Shimshoni, bifacials were probably produced and reshaped at or near the source of raw material. As recently demonstrated by use-wear studies of both bifacials tools and spalls (Yamada 2000; Yerkes et al. 2003), these axes/chisels, and primarily the tranchet axes were woodworking, mainly carpentry tools, though other materials seem to have processed by them as well.

Intriguingly, some of the spalls found at Tel Bareqet represent edge rejuvenation of relatively large bifacials, when compared to the size of most of the bifacials in the present study assemblage. Thus, it is reasonable to assume that axes were intensively utilized and reshaped before they were abandoned at their present size. It is also possible that when the original relatively large axes, utilized for more heavy-duty tasks, were worn-out and were no longer suitable for their primary function, they were reshaped to undertake more delicate carpentry tasks.

The form and small size of most of the bifacials points to a clear discard pattern in which bifacials are likely to have been abandoned only when their form and size were substantially changed and possibly reduced. Thus, discard considerations may include the (small) size and/or weight of the bifacials, severely damaged active edges, or unsuccessfully repaired tools.

The PPNA bifacial assemblage from Tel Bareqet demonstrates yet again the high craftsmanship involved in the manufacturing of bifacial tools as early as their initial appearance in the Neolithic. The state where these bifacials were discarded suggests that they were utilized and rejuvenated until they were exhausted.

The problematic contexts in which these tools were found preclude further elaboration; still it seems reasonable to assume that at Tel Bareqet or in its vicinity, bifacial-related activities took place during the PPNA. This assemblage and others retrieved from in *situ* PPNA sites in the hilly flanks of the Judea and Samaria Hills, suggest that Early Neolithic communities were engaging

in various wood-working activities in this area, distanced from the large settlements of the Jordan Valley.

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# **Notes**

<sup>1</sup> Excavations at Tel Bareqet were carried out by the Sonia and Marco Nadler Institute of Archaeology at the University of Tel Aviv through the Israeli Archaeological Association and the Israel Antiquities Authority.

<sup>2</sup> The study of the large EBII assemblage is currently under examination by the authors.

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# Contribution

# A New Statue of the Early Pre-Pottery Neolithic Period from Gaziantep, Southeastern Turkey

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The provenance of this statue of limestone, now preserved at the Gaziantep Archaeological Museum, is not known, and it displays great parallelism with the statues and "T" shaped pillars of the Early Pre-Pottery Neolithic Period (Fig. 1). This statue might possibly point to the presence of a second settlement to the west of the River Euphrates besides Adıyaman-Kilisik (Hauptmann 2000: 5-9).

The work is 59 cm tall and 19 cm thick. The legs are missing, and the head is 22 cm high with a depiction of two faces (Fig. 2). The arms on both sides are depicted starting right from the bottom of the neck and bent with an angle of approximately 100 degrees at the elbows. There is a second face depiction on the rear of the head (Fig. 3). However, the rear side of the statue with this second face depiction is covered with calcium carbonate sediment. Similar sedimentation is observed on the other limestone statues recovered at many Pre-Pottery Neolithic settlements.

It is thought that the second face depiction on the rear of the head could have been done after the destruction of the original depiction. This is plausible for the main face depiction is smooth as if polished, and its damage is old and worn away. The second face is depicted as if somewhat looking up, which is not in harmony with the overall posture of the figure. The back side of the statue is also carved roughly semicircular while the front side is carved squarely and with more care.

On the front side of the statue at the bottom of the body is an area clearly understood to be broken (Fig. 1). This broken part might have originally had the male genital organ as known from a statue from Göbekli Tepe (Beile-Bohn *et al.* 1998: Fig. 34). The damage here seems to be very old, and probably the genital organ was broken during the rendering of the second face depiction.

There is a totem-like statue of two women standing back to back, joining their arms, from Nevalı Çori (Hauptmann 1999: Fig. 14a-b). The fact that the example from Gaziantep also has two heads back to back suggests that it was made with the same principle as that in the Nevalı Çori example. However, the Gaziantep example has only one pair of arms, which makes a direct parallel with the Nevalı Çori example impossible.

The Gaziantep statue displays similarities with the "T" shaped anthropomorphic stelae with arm carvings and their presumed successors – the statues from Şanlıurfa-Yeni Mahalle and Göbekli Tepe (Çelik 2000b: Fig. 2;

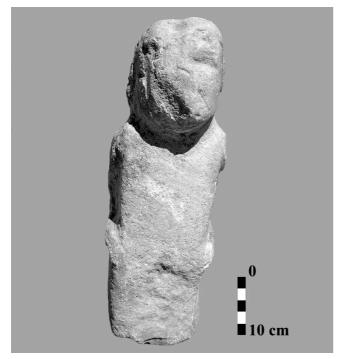


Fig. 1 Front view of the statue.



Fig. 2 Side view of the statue.

Beile-Bohn *et al.* 1998: Fig. 34). Such statues were generally recovered inside and on the walls of the temples at Göbekli Tepe and Nevalı Çori (Hauptmann 1999: 75-76).

The Gaziantep statue can be dated to the Early or Middle Pre-Pottery Neolithic B phase for it has parallels with the "T" shaped stelae with arms on the sides



Fig. 3 Rear view of the statue.

uncovered at sites like Göbekli Tepe, Adıyaman-Kilisik and Nevalı Çori, and with the statues uncovered at sites such as Göbekli Tepe, Nevalı Çori, Karahan Tepe, and Şanlıurfa-Yeni Mahalle (Çelik 2000a: 6-7).

The existence of a Neolithic settlement with "T" shaped stelae in Gaziantep province, which has common features with Şanlıurfa and Adıyaman, is not improbable. The Adıyaman-Kilisik settlement has already shown that the culture with such stelae existed to the west of the Euphrates. In addition, if this statue was indeed recovered in Gaziantep province, this will lead to the identification of a new settlement bearing common aspects with Adıyaman and Şanlıurfa regions and for the time being forming the westernmost border of this tradition.

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# Comments on "Some Notes on the Reconstruction of PPNB Architecture" by Moritz Kinzel (Neo-Lithics 2/04)

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Moritz Kinzel's article on PPNB architecture in the Greater Petra region provides an enlightening view of early Neolithic houses. His reconstructions and ideas stem from an architectural background and provide a refreshing contrast to the plethora of social and economic theories of early households and homes written by archaeologists and anthropologists. His work provides a new model for understanding PPNB architecture. In the following short paper we would like to expand upon some issues put forward by Kinzel.

To Kinzel's list of "well known" PPNB sites in the Greater Petra region we would like to add Beidha excavated by Diana Kirkbride-Helbaek in the 1950s, 1960s and 1980s (the comprehensive final report on the architecture has just appeared, Byrd 2005). Recently a conservation and presentation project was initiated at Beidha (Dennis, Finlayson and Najjar 2002), and aims to show the importance of prehistoric sites in Jordan to tourists, academics and the local population in a country where classical sites such as Jerash and Petra dominate the public's attention and receive almost all the funding. Currently experimental archaeology, and especially structural reconstructions, is being carried out at Beidha to provide a vital visual tool for explaining the elusive nature of early structural remains as well as an outdoor laboratory for testing theories (Dennis 2003, 2004). It is the latter that provides the point of comparison with Kinzel's study.

Unlike any other site in southern Jordan, Beidha has a succession of circular and rectangular structures and thus provides a unique opportunity to study the "conversion of rooms, space, and ground plans from circular structures to more rectangular ones" (Kinzel 2004) that, as yet, Kinzel can only infer from sites such as Shkârat Msaied.

As Kinzel has stated, architecture in the eyes of most archaeologists is often restricted to mere floor plans. Hillier and Hanson's (1984) two-dimensional approach to the creation of social space simply perpetuates archaeologists' limited perception of PPNB houses. Experimental reconstructions at Beidha attempt to broaden these limited views of archaeological plans. The experiments have already begun to provide an insight into the construction techniques and methods of early Neolithic architecture. For example, observations of the effects of annual flooding indicate that even in this semi-

arid environment it is a force often underestimated in taphonomic studies of post-occupation and abandonment. For example, over 50 mm of sediment built up within one structure in a single winter (Fig. 1). This sediment includes building material (run-off from the roofs, mud plaster from walls, and mud mortar from inside the walls) and, to a greater extent, slopewash. Experiments have also shown that flooding episodes may form a decisive factor in the orientation of entrances, as structures with entrances upslope flood rapidly, though this does not cause significant damage to the foundations of the structure. Experiments at Beidha also indicate that not only are flat roofs desirable in that they provide additional space for daily activities, they are also practical in construction. They are simpler to build and require less maintenance, especially in the wet seasons when reinforced with flat stones. Based on such examples of experimental observations we would like to proffer a sixth key to add to Kinzel's five keys to understanding the character of PPNB architecture. And that is simply that a practical, or easiest, solution will normally be applied to a given situation. Analysis of PPNB architecture must not loose sight of construction techniques and materials used. Factors such as availability of raw materials, dictated by the environmental setting, help to define a house's form and structural limitations.



Fig. 1 Interior view of one of the experimental reconstructions illustrating the extent of damage from flooding.

The mud plaster has been washed away at the base of the wall.

Ethnographic studies show us that houses can be built by others or past generations, and are further adapted by their users over time in reaction to their social and natural environment (Blanton 1994). In any society that may maintain any element of mobility, such as Jordan in the recent past and possibly in the PPNB, the use of structures by more than one group of people at different seasons cannot be dismissed. Nor should we always rapidly interpret structures as "houses", a term that carries much baggage. The role of structures for storage, required both in the development of farming and by intensive foraging economies, and for seasonally mobile people is important.

Kinzel asks "What belongs to a house?" (Kinzel 2004: 18). It is a simple, yet vital, question often unaddressed in an attempt to define households, dwelling spaces, social relationships, the role of households in socio-economic terms, and public and private space. A house is not a static entity, it is dynamic (Banning and Byrd 1987), and excavation routinely shows changes in use and maintenance. At Beidha, for example, entrance ways are blocked, new ones cleared, and timber supports are replaced. The history of the structure is important to our understanding of the dynamics of a community, and illustrates how much variation there is from any idealised template.

Further experimentation and monitoring of the four experimental structures at Beidha will help address technical and structural elements of PPNB architecture in the southern Levant and will fuel the continued debate on the more complex issues of PPNB life.

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#### Abstract

The aim of this dissertation is to clarify the nature of the early Neolithic period in the Southern Levant as a key period for the beginning of agrarian societies. This goal is achieved through the analysis of lithics recovered from Zahrat adh-Dhra' 2 (ZAD 2). The importance of ZAD 2 is its short period of occupation, which helps in clarifying the tool typology and technology of the PPNA period without the problem of admixtures from other periods. According to my analysis, there are no major differences between the Khiamian and the Sultanian phases and thus I argue that there is no need to divide the PPNA into two phases. It is better to divide it according to inter- and intra-assemblage variability. By com-

bining the analyses of architecture, groundstone, lithics and radiocarbon dates, one can infer that ZAD 2 provides decisive evidence for an extension of the PPNA in the Southern-Central Levant from *ca.* 9,600 BP to *ca.* 9,300 BP, and thus a later beginning for the PPNB (about 9,200 BP). In arguing this, sites from the Southern Levant are compared to their counterparts in the Central and Northern Levant and the role of diffusion or local innovation is presented.

ZAD 2 is located in an arid environment though the region in antiquity probably featured a more hospitable landscape. None of the plant remains uncovered at ZAD 2 could grow in the vicinity naturally so pre-domestication cultivation probably happened on site. The lack of projectile points and the existence of sickle blades and groundstone at ZAD 2 indicate extensive food processing activities. A usewear analysis was conducted on the Hagdud truncation type which is dominant at ZAD 2. The results indicate that this diminutive tool type could have been used as a micro-scraper.

# **New Website**

Some preliminary information on the prehistoric ceramics excavated at Tell Sabi Abyad during the 2004 season is now available at: www.sabi-abyad.nl/tellsabiabyad/resultaten/index/0\_38/38\_48/?language=en Olivier Nieuwenhuyse

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The editors are grateful to Alexander Collo, PhD candidate at Free University of Berlin, for the effort and care he has invested to compile this Index.

Back issues of Neo-Lithics are still available and can be ordered at the address given in the Masthead.

Jürgen Baumgarten

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Klaus Schmidt: Göbekli Tepe and the Early Neolithic Sites of the Urfa Region: A Synopsis of New Results and Current Views

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Anne Pirie: Wadi Faynan 16 Chipped Stone: PPNA Variability at One Site

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Hans Georg K. Gebel & Bo Dahl Hermansen: LPPNB Ba'ja 2001: A Short Note.

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Frank Hole: Brief Report on the PPN Chipped Lithics Workshop,

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Mihael Budja: 8th Neolithic Seminar on the Neolithisation of

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Frédéric Gerard: CANeW Istanbul Table Ronde, 23-24 November

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Ran Barkai: Flint and Stone Axes as Cultural Markers

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# Hans-Dieter Bienert, Hans Georg K. Gebel and Reinder Neef

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period, during which the use of metals begun, complexity increased, and first steps towards urbanization were taken.

The continuous transitions among the group of bifacial tools from axes shaped by transversal blows to polished axes, to polished adzes, to metal tools reflect a tendency towards constant improvement and intensification of both the production system and resource exploitation. This continuum of changes and acceptance of changing technologies may emphasize the centrality of the axe and adze as a working tool, a symbol, and an ideological icon. Bifacial tools were perceived as tools of efficiency, a characteristics greatly admired during the Neolithic and Chalcolithic.

The characteristics of bifacial tools reflect new worldviews and perceptions, as well as the developments in architecture, lime plaster production, pottery production etc.

The changes in the bifacial tool category could be used in reconstructing the Neolithic and Chalcolithic social systems that supported and encouraged these rapid changes, triggering more effective innovations and the intensification of human production.

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