

CULTURAL CONTACTS IN THE NEOLITHIC PERIOD: ANATOLIAN OBSIDIANS IN THE SOUTHERN LEVANT

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INTRODUCTION

Obsidian items were found in Neolithic and Chalcolithic sites throughout the central and southern Levant. These were and still are usually small samples constituting mostly of debitage and debris including broken blades and bladelets, small flakes, chips and small chunks. In the mid 1960's a pioneering study was published introducing both advanced provenance analysis methods and results as well as a distribution model for obsidians (Renfrew *et al.* 1966, 1968). This has remained a cornerstone of Eastern Mediterranean obsidian studies up until today.

In the past three decades obsidian was tackled as a research object in the Neolithic of the southern Levant in a few ways:

a) **Obsidian as a material** - In a very simplistic way, the items found were sampled for provenance analysis and the conclusion was that there is contact between find spot and source area (sometimes a very specific source area).

In a more detailed way - all obsidians found were of Anatolian origin but a shift was recognized from Central Anatolian - Capadocian obsidian sources in the 9th - 7th millennia BC (uncalibrated ^{14}C dates) Pre Pottery Neolithic (PPN) period, to eastern Anatolian - Lake Van sources in the 6th - 5th millennia BC Pottery Neolithic (PN) period (Perlman and Yellin 1980). A recent development suggests that obsidians do not appear throughout all the above sequence, or at least it has "ups and downs" in quantity (Garfinkel 1992, 1993). In other words, following the same logic, there were "gaps" in contact with the source area at least during part of this sequence.

b) **Obsidian as an industry** - This was usually a very neglected aspect constituting mostly of descriptions of blank types with basic typology if there were shaped tools in the assemblage. Usually even in cases where technology could potentially be studied or partly studied, it was not a research focus - probably because samples were generally very small.

c) **Obsidian for reconstructing trade/distribution models** - Obsidian was counted and/or weighed usually as part of a simplistic procedure of verifying a "down the line" model of distribution (e.g., Crowfoot-Payn 1983; Lechevallier 1978).

d) **Obsidian and its social significance** - Obsidian was treated as a commodity reflecting power and prestige of specific personage or communities in the southern Levant

(e.g. Kuijt 1994; Bar-Yosef *et al.* 1991; and see also Campbell 1992 for a case in Mesopotamia).

The missing elements in southern Levant obsidian studies were:

a) It was not studied as an industry - and thus not compared to industries in the north including Syria, Iraq and Turkey where obsidian was used as a common raw material in lithic industries of the Neolithic period. In general this was mainly due to the small samples of obsidian available.

b) No discussion on obsidian function was presented in the Neolithic Levantine context - at any level. It was generally stated that obsidian is a rare and thus expensive commodity that gained importance as a prestige material or used in specific contexts (a very western way of thinking).

c) Mechanisms of transportation were not reconstructed and thus no answers were offered for questions such as in what form was obsidian transported - chunks, cores, blanks (blades and bladelets), finished tools? who was moving it and through which routes? who was working it and where? etc.

d) The "Anatolian connection" was not dealt with culturally or in an attempt to see the large scale cultural bodies involved.

While we are not going to remedy all these deficiencies of obsidian studies, we will attempt to present new data and provide some insights into some of the above issues using a unique opportunity.

HAGOSHRIM - OBSIDIAN FROM A 6-5TH MILLENNIUM BC SITE IN THE UPPER GALILEE

In 1997, an assemblage of thousands of obsidian pieces was given to us for study both from a rich surface collection and a large scale stratigraphic excavation season (1996) at Hagoshrim - a 6th - 5th millennia BC site in the Hula valley in the Upper Galilee of Israel¹. (Fig. 1). The sequence of the site as far as is known now (the site was further excavated in summer 1997) includes an early layer of very late PPN which can be called PPNC (e.g. Rollefson and Kohler-Rollefson 1993) or Final PPNB (Bar-Yosef 1995); a pottery bearing layer of the PN period which can be culturally related to the Lodian - Jericho IX entity; overlying it is another PN layer with a well known assemblage of the Wadi Raba culture known throughout central and northern Israel (Gopher and Gophna 1993); and a top-damaged layer of the Chalcolithic period joining with the northern cultural variants of the period well known from the Golan Heights (Epstein 1977, 1978) and the Upper Galilee (Levy 1986, 1995).

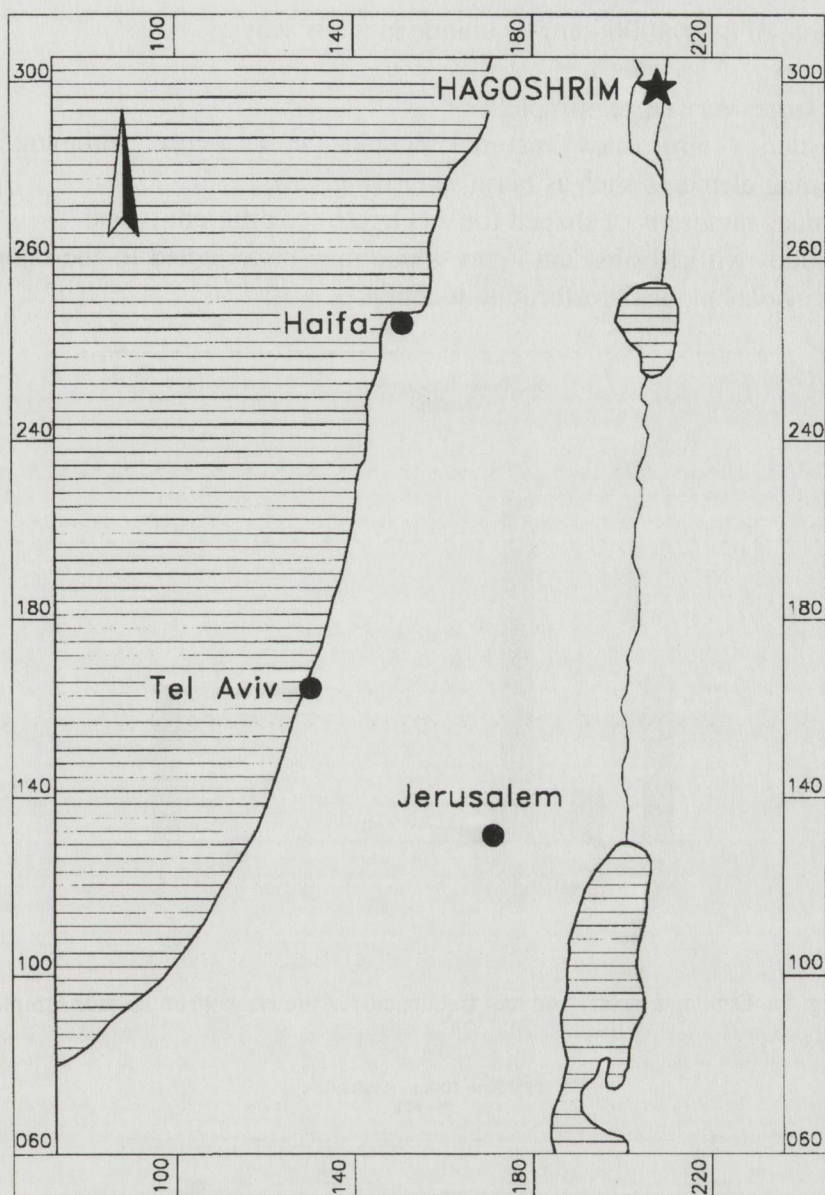


Fig. 1. Map showing location of Hagoshrim.

For the first time we had a chance to study systematically a rich obsidian assemblage, one which can be described as “hard data”.

The study is done in collaboration with A. Asaf of the Mayan Baruch museum in the Hula valley who collected the surface assemblage, N. Getzov of the Antiquities Authority of Israel who excavates the site on its behalf and H. Khallayla who is studying the flint assemblage of the excavation at Hagoshrim.

The data presented here summarizes our study of the surface collection but very similar excavated items (in the thousands) are under study now².

The sample of over 4000 items is unique in a few ways:

- a) it is a large, very large, sample;
- b) it includes large raw material chunks, cores, core trimming elements and resharpening elements such as burin spalls (Fig. 2a);
- c) it includes hundreds of shaped tools (Fig. 2b) of different types;
- d) it includes worked obsidian items which may be assigned to the bijouterie category shaped by polishing and perforating techniques.

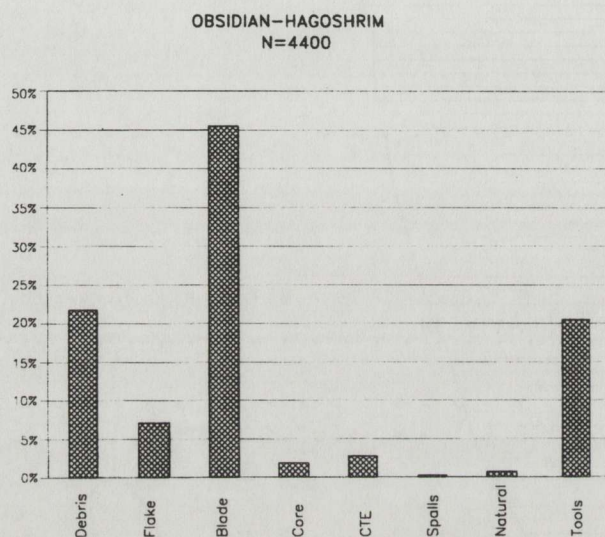


Fig. 2a. Debitage, debris and tool frequencies of the Hagoshrim surface sample.

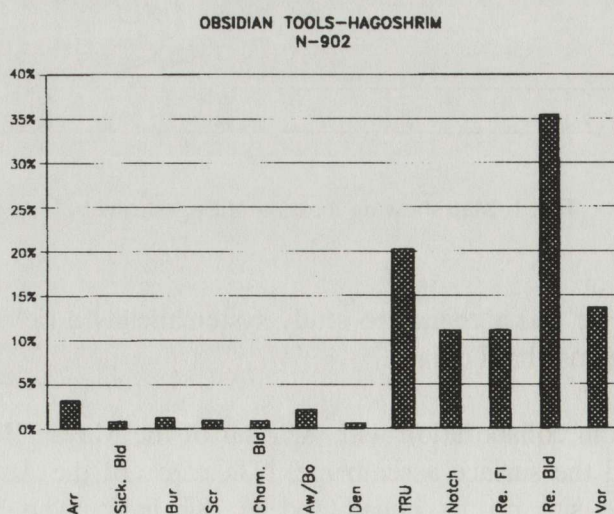


Fig. 2b. Tool type frequencies of the Hagoshrim surface collection.

PRELIMINARY RESULTS AND CONCLUSIONS

One of the most important results is the clear evidence for the use of the pressure technique for production of bladelets and blades. Without presenting a thorough technological study (which will be the topic of a separate paper), we may say that the cores show clear evidence of this technique sometimes alternating with percussion on the same core. Both cores and CTE of pressure technique as well as pressure flaked bladelets and blades are present which favors an assumption of on-site production. It is proper to note the fact that pressure technique products and the use of the pressure technique in the southern Levant is innovative and was never mentioned in the past - neither for flint nor for obsidian knapping.

For the sake of better understanding this innovation, one of us (AG) studied a few other obsidian samples from Neolithic sites to try and find out whether it is possible to pinpoint the introduction of this technique into the southern Levant.

- The PPNA assemblage of Netiv Hagdud (Nadel 1997) was briefly studied (n=50) with no tools and no cores. All bladelets and blades were struck off single direction percussion blade cores. No signs of pressure technique were detected.

Since the Jericho PPNA obsidian sample was not studied, I would not dare to conclude that it has no signs of pressure technology as well³. Thus my general statement that this technology was not introduced to the area in the PPNA (8000-75/400 BC) is to be considered as preliminary.

- The Early PPNB assemblage of Horvat Galil (Gopher 1989, in press a) was studied (n=100) with a few core fragments, debitage, a few shaped tools and some polished obsidian items. Pressure technique was definitely in use which is, in our view, the first time this significant innovation appears in the southern Levant. It was introduced sometime between 75/400- 7100 BC (Gopher in press b) indicating changes in the previously prevailing contact network.

- The largest Early PPNB assemblage known in the southern Levant is the one from Nahal Lavan 109 (Burian and Friedman 1988). This collection needs to be re-studied for its technology; however, it includes hundreds of items with a few cores and shaped tools. Pressure technology was not mentioned. Here again, my conclusion is based on a single EPPNB sample and should be considered preliminary.

- Additional PN assemblages from sites such as Nahal Zehora I and II, show clear presence of pressure technique.

DISCUSSION

I. Hagoshrim is an opportunity to see a complete assemblage and study its technology as well as the typology of the products - or, in other words an opportunity to study much of

the *chaîne opératoire* of obsidian production and use in the southern Levant. In terms of raw material procurement, it is fair to assume an Anatolian source even though not yet confirmed; transportation and marketing procedures can only be speculated; the use of a technology (i.e. pressure flaking) different than the usual one used for flint (i.e. percussion) is clear both from the cores and CTE and the manufactured bladelets and blades; tool shaping is clear too - the variety of types present may indicate at least partially the functions these were used for while a small sample of spalls may enable at least an attempt at reconstructing resharpening and retooling procedures. Discard patterns can hardly be reconstructed from a surface collection; however, the excavated sample now under study may enable a study of these aspects as well. All in all, the Hagoshrim assemblages of obsidian show high potential of advancing our studies of obsidian in the southern Levant as an integral part of Neolithic economy and society.

II. It was widely accepted that obsidian is a rare and expansive commodity in the southern Levant, thus restricted to elite users - as a prestige material accordingly to be used in specific contexts possibly of a social or even ritual role. We should reconsider these ideas even though obsidian is still a rare find in Neolithic archaeology of the southern Levant and the Hagoshrim obsidian study is only preliminary. Having an assemblage as large as at Hagoshrim (thousands of items), with unused or only partly used raw material chunks (in the excavated material) and with hundreds of shaped tools, seems to recommend a line of thought which is literally more functional in terms of Neolithic everyday activities - automatically relating obsidian to socio-ritual activities should not thus be uncritically accepted. This, however, does not by any means deny specific functions and/or socio-ritual roles for obsidian.

III. The preliminary study of obsidians from Hagoshrim and a few other sites enables us to reconstruct at least a general history of the introduction of this material to the southern Levant, adding aspects of technology to the process besides treating obsidian as a material only. It is clear enough even from our preliminary data that in the late ninth - first half of eighth millennia BC (Final Natufian [Khiamian?] - PPNA)⁴ obsidian was moving from Anatolia to the southern Levant - probably in a very small quantity. In mid eighth millennium BC (EPPNB) material was still on the road from Anatolia to the southern Levant but a new technology (well known in the Anatolia and the northern and eastern parts of the fertile crescent) is joining in. We cannot but speculate on how it came in but since it was a technology completely foreign to this region, it must have gone through a complex process of adoption/absorption. In the first half of the sixth millennium BC (PPNC), after the disintegration of the Pan-Levantine PPNB system, it is not clear whether or not obsidians are still imported. It seems that in Hagoshrim, the PPNC layer (of the 1996 and 1997 seasons) has some obsidian and pressure technology is in use. It is not fully studied yet and the 1997 season will augment the data needed for answering this question. In the second half of the sixth millennium BC when the PN - Yarmukian is established in central Israel, there seems to have been a decline in obsidian quantity or a complete disappearance (Garfinkel 1993). This point is not clear yet from the Hagoshrim data of northern Israel. The presence of obsidian in the Lodian - Jericho IX layer of the excavation means that if we accept a second half of the sixth millennium BC (even if a very late one within this range) date for this post PPNC - pre Wadi Raba layer at Hagoshrim, it contradicts the data from central and southern Israel, but this dating is still to be verified. In the fifth millennium BC (PN - Wadi Raba culture), a significant increase in obsidian is observed in Hagoshrim which should be checked in other PN sites of the time. This may be a

reintroduction or it may be when eastern Anatolian sources replace the Capadocian ones. The pressure technique is clearly practiced in the PN. Obsidians are present in Chalcolithic sites too (Yellin *et al.* 1996) but this is beyond our scope here and will need a separate study.

The nature of obsidian distribution is not yet clear, however both the obsidians from Horvat Galil (including cores and CTE (Gopher *in press a*)), and especially those from Hagoshrim, tend to support with better confidence the idea that what was circulated throughout most of the above sequence is raw material chunks (or maybe cores) rather than finished blades of shaped tools. The Hagoshrim sample clearly suggests it and a short glance at an old find from the Wadi Raba layers of Kabri (Prausnitz 1968) would further strengthen this view. What the mechanisms of obsidian distribution/trade were is another question that bears significance to the Anatolia - southern Levant contacts. The idea of chain exchange cannot be dismissed or approved since we need much more data and analysis for that. The general "down the line" model suggested in the 1960's (Renfrew *et al.* 1966, 1968) is fine as long as it is not used too rigidly. The "line" may be a bit jumpy at times and not always at an anticipated or predicted manner for this model. The site of Nahal Lavan 109 (EPPNB) in the Negev of southern Israel with a rich (hundreds of items) assemblage of obsidian including cores, CTE and shaped tools (Burian and Friedman 1988) as well as Hagoshrim may hint at a possible different model of distribution with secondary local distributors/agents - specialists? - using their knowledge (of a specific technology) to produce large quantities of blanks from imported materials in specialized workshops (if we wish to call these workshops), and distributing them in their local network.

IV. What are the implications of obsidian trade in general terms of a large-scale systems view? In my opinion the cultural groups or cultural complexes involved in the eastern Mediterranean Holocene are very large scale representing interaction spheres at different levels of intensity - e.g. the Egyptian, the Levantine (up to the Euphrates?), the Anatolian, The Mesopotamian-Iranian, the Caucasian, etc. It is within such large-scale systems that "diffusion/movement" of many cultural aspects in many rates, paces and directions is taking place bringing about what was in many cases called Neolithisation. These processes are not unidirectional or "one event" in character but rather represent a "space"/"beam" of multidirectional operations/processes influencing culture and socio-economy. Obsidian is just one signal of such interactions but the fact that it possesses a potential key for provenance studies of a rare and specifically distributed material may make it an important key to other reconstructions. This will, however, take more analysis of obsidian samples and more research in the form of detailed field work and data analysis (Balkan-Atli and M.-C. Cauvin, *this vol.*) and broad reviews summarizing our knowledge and thoughts anew (e.g. M.-C. Cauvin 1996).

Notes

1. Preliminary study of the surface collection has been done by A. Gopher and Mr. R. Barkai of Tel Aviv University, Institute of Archaeology and O. Marder of the Israel Antiquities Authority.

2. Detailed study including excavated obsidian from Hagoshrim is underway with R. Barkai and O. Marder of the Israel Antiquities Authority
3. The Jericho PPNA obsidians as studied by Crowfoot-Payne include hundreds of items but no cores were mentioned. A few CTE were presented as well as shaped tools. No specific note was made as to the technology used to produce the assemblage and we thus do not know whether pressure technique was in use or not.
4. In the summer 1997 field season at the Natufian site of Mallaha (Eynan) in the Hula valley, a few obsidian items were found in a Final Natufian layer (Valla and Khallyla, pers. comm.)

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