FOENI, ROMANIA, 1992 PRELIMINARY REPORT: ANALYSIS OF CHIPPED STONE TOOLS

ABSTRACT

During five weeks of the summer of 1992 a total of 38 chipped and ground stone artifacts were recovered in the process fo excavations at Foeni-1, a Starchevo/Criș (early Neolithic) settlement site situated ca. 30 km to the North of the Danube River. Objects recovered in excavation include cores and their fragments, formed and retouched tools, flakes and debitage. Analysis of raw materials employed, core reduction, and tool types present provide insights as to site function and possible regional economic practices. While based on a small sample size, these studies indicate that multi directional hand held core and bipolar reduction were the main form of core reduction, that chipped stone tools appear to have been used mainly for formalized cutting tasks, such as sickle blades, and that most of the raw materials were of a non-local origin. Given the non-local sources of raw materials, and the limited amount of debitage, it appears that the objects were roughly finished near source areas in upland areas before being transported to Foeni.

INTRODUCTION

As part of the broader research project examining the development of early Neolithic Agricultural communities within Romania and Yugoslavia, this study focus on the analysis of the chipped and ground stone recovered from Foeni, Romania. To provide a better understanding of the relationship between early Neolithic regional economics and technology, three topics are explored within this paper: 1) what is the nature of past stone tool technology; 2) what evidence is there for site level functional activities; and 3) how do stone materials recovered from Foeni reflect upon past regional economic practices. Of these three topics, only the first two are examined in depth within this paper. Before discussing these topics, however, it is first necessary to provide a description of the chipped and ground stone materials from Foeni and a description of raw material variability.

CHIPPED AND GROUND STONE FROM FOENI, ROMANIA

During five weeks of the summer of 1992 a total of 34 chipped stone artifacts were recovered from the excavations at Foeni that included cores and their fragments, formed and retouched tools, flakes and debitage (table 1, appendix 1). Of the recovered items, only three can be classified as formed tools and two as sickle blades. The formed tools consist of two retouched pieces and side scraper on a flake (figure 1; 4, 8). The sickle blades have extensive sheen on both their ven-

tral and dorsal sides and are based on blade segments. Beyond the five chipped stone tools, th rest of the assemblage is dominated by flakes (figure 1; 6, 7) and blades (figure 1; 3, 5), and debitage fragments or block shatter. With the exception of the sickle blades, the chipped stone tools are defined on the basis retouch along the edges, surfaces, and/or ends of the artifacts. While the two sickle blades recovered have no retouch, they both display sheen and are, therefore, classified as tools. Typical of early Neolithic lithic assemblages, the ratio of formed tools to blades, flakes and debitage is quite low.

Table 1. **Chipped and Ground Stone Tools from Foeni, Romania.**

Chipped Stone		Ground Stone	
Type	Number	Type	Number
Cores	3	Grinding Stone	1
Flakes	9	Sandstone Abrader	2
Blades	4	Adze	1
Sickle Blades	2		
Side Scrapers	1		
Retouched Pieces	2		
Flaked Cobble	1		
Fragments	13		
Total	37	Total	4

Core Types

Two types of cores were recovered from the Neolithic deposits at Foeni: 1) multi-directional blade/flake cores, often on tan/brown agate, and 2) bipolar cores of clear or milky quartz. The multi-directional blade and flake cores are based on tabular or nodular raw materials. Often flakes / blades were removed from one side of the core and then rotated to removed flakes / blades in the opposite direction. In some cases, however, flakes are removed from totally different platforms and removed from a different direction depending on specific characteristics of the material. The multi-directional cores of tan / brown often have cortex on one or more of their sides. Of the items examined from Foeni with cortex, all appear to have originated from tabular outcrops or rough nodules. None of the items had cortex indicative of river worn cobbles. On the whole the cores recovered are quite small and appear to be of a non-local origin. In light of the types of material used for flakes and blades, it appears that multi-directional cores were the main source of blades and flakes for formed tools, a practice that continues through to the later Vinca period (middle Neolithic) (see Chappman 1989; Voytek 1988;).

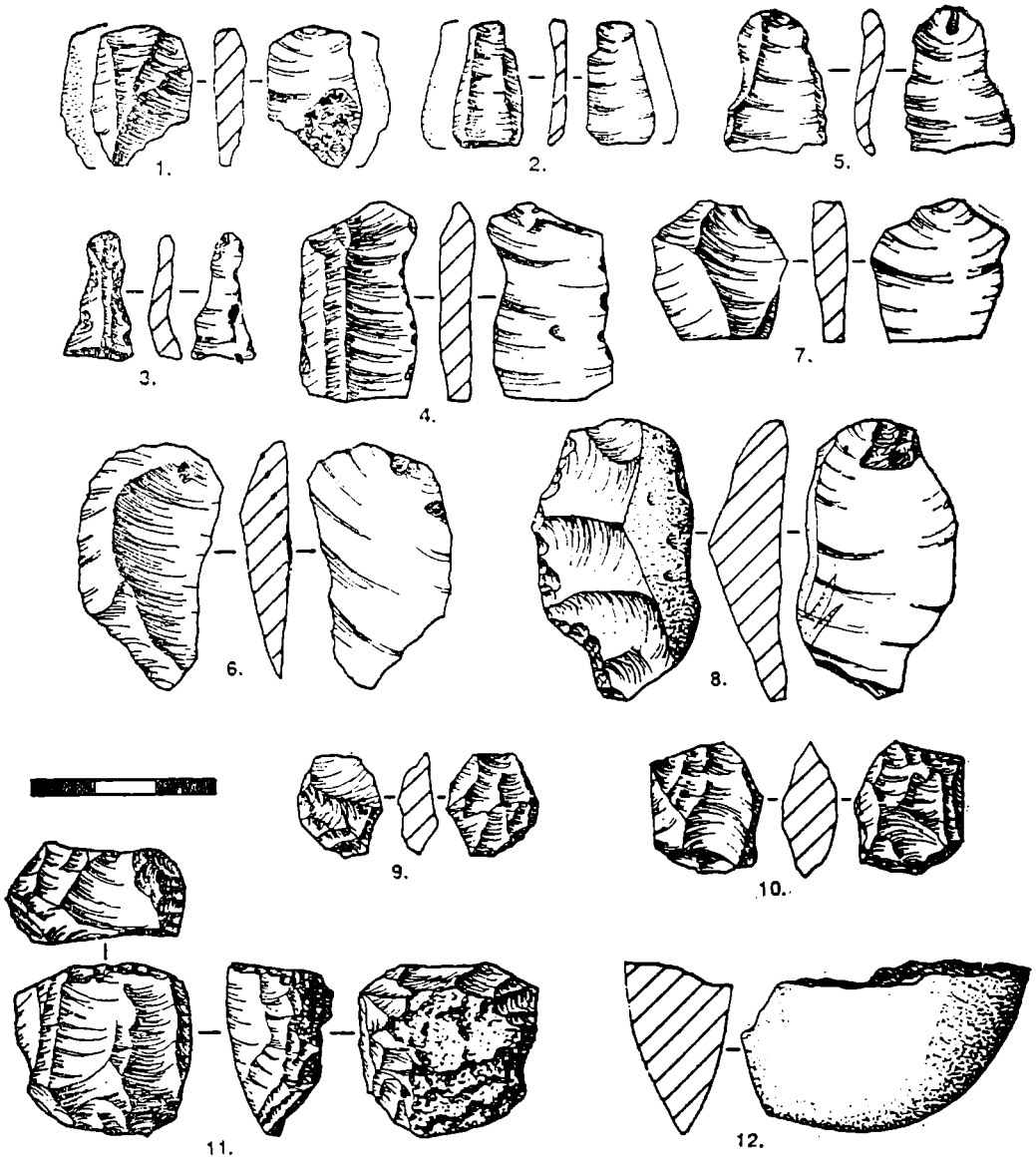

Figure 1. Starchevo / Criş period chipped and ground stone tools from Foeni, Romania. 1, 2) sickle blades; 3) retouched tool; 4) utilized blade; 5, 6) blades; 7) flake; 8) side scraper; 9, 10) bipolar quartz cores; 11) multidirectional core; 12) adze fragment.

The second type of core found at Foeni is that of bipolar cores. In many ways the hammer and anvil, or bipolar reduction strategy is among the simplest, and perhaps oldest, of flintknapping techniques (see White, 1968; and Shott, 1989 for reviews of the ethnographic and archaeological distribution of bipolar industries in the Old and New World). In brief, a bipolar reduction strategy involves placing a nodule of lithic material on a flat anvil and hitting the nodule with a stone hammer (figure 2).

Blows are directed perpendicular to the anvil face, usually with the intention of splitting the cobble into small, usable pieces. (Over the years researchers have presented a wide range of definitions for bipolar reduction. Readers are refereed to the following for more specific discussions of bipolar reduction; Binford and Quimby, 1972:356; Crabtree, 1972:42; Flenniken, 1981:29; Shott, 1989:3; White, 1968).

Figure 2. Bipolar reduction on a stone anvil.

Ethnographic observations indicate that nodules were often wrapped in leather or cloth to facilitate the collection of flakes (White, 1968). The technique results in the production of smaller flakes and debitage. While the level of control achieved with this technique is limited, it has two distinct advantages over other techniques: 1) nodules too small for reduction by other techniques may be reduced; and 2) the required knowledge and expertise for flintknappers to use the bipolar technique is minimal. In the case of Foeni, and typical of the early and middle Neolithic, high quality clear or milky quartz objects were bipolarly reduced leaving a small angular core with extensive crushing on opposable edges (figure 1; 9, 10). It appears most likely that these cores were reduced to produce sharp angular flakes and blades that could be hafted in wooden pieces.

Ground stone

Four ground stone objects were recovered while excavating at Foeni. Of these, two were sandstone abraders in very poor condition, one was a grinding stone, and the last was a small piece of an adze fragment of grey andesite. This small fragment was from the cutting edge, ground and polished to a smooth finish, and with a slight to the blade.

Raw Materials

Nine general categories of raw material were employed for chipped and ground stone tool manufacture at Foeni. These include brown and tan agate, grey flint, grey/blue flint, grey andesite, clear and milky quartz, obsidian, sandstone, quartzite, mica-schist and a single piece of hematite (Table 2). Of these raw materials, tan / brown agate appears to have been the most important raw material for the chipped stone industry, although clear and milky quartz, and grey / blue flint was also of importance. In general, the formed tools and multi-directional cores from Foeni are made from the tan / brown agate or from the grey / blue flint. In contrast, the items made from clear and milky quartz raw materials are either bipolar cores or debitage.

Table 2. **Distribution of Raw Materials, Foeni, Romania**

Raw Material	Starchevo phase	Mixed context
Tan / brown agete	11	1
Grey / blue flint	4	—
Grey andesite	2	3
Clear / milky quartz	5	—
Quartzite	1	—
Obsidian	1	—
Mica-Schist	3	—
Sandstone	4	2
Hematite	—	1
Total	31	7

The examination of field areas near Foeni, river banks within the Banat region around Timişoara, and surface examination of several other river bank areas, demonstrate a paucity of locally available raw materials suitable for making stone tools. While based on only preliminary research, comparisons between the stone raw materials recovered at Foeni and those observed locally suggest that stone materials was procured from a non-local source. As with the type of stone materials recovered at other local Starchevo / Vinca period sites, such as Parta III, it appears that the materials recovered at Foeni were imported from bedrock deposits located to the east of Timişoara (Draşovean 1992; Gruescu 1992) or perhaps more likely, from Cretaceous strata located Southwest of modern day Beograde between Zarkovo and Jajinci (Voytek 1988:441).

SITE LEVEL ACTIVES, INTER-REGIONAL ECONOMICS, AND OBSERVATIONS

Although tentative in nature, several preliminary observations can be made as to the nature of past use of the site of Foeni, possible inter-regional economic practices, and stone tool technology. First, several lines of evidence, such as the limited number of stone tools recovered in excavations, the absence of cortex on chipped stone tools, and the types of debitage recovered in excavations, indicate that many of the artifacts found at Foeni were produced off-site. Specifically, it appears likely that the majority of cores, and possibly tools, such as sickle blades, were roughly shaped at upland quarry areas with high quality materials. The lack of debitage, such as nonorientable objects and medial / distal flake and blade frag-

ments, fit with this hypothesized off-site shaping of chipped stone tools. Moreover, the off-site production of tools could explain the limited amount and weight of stone transported from higlands sites to march areas, as well as the paucity of stone artifacts recovered on Foeni.

While other studies have previously recognized that early Neolithic sites usually have fewer stone tools than later Vinca period sites, the number of chipped and ground stone artifacts at Foeni appears to be somewhat lower than many other contemporary sites within Yugoslavia and Romania. There are several possible reasons for this phenomena. First, the low number of stone tools may be the result of the limited extent of excavations undertaken at the Foeni. Second, this may be linked to aspects of site level function or intra-site variability. Third, this patterning may be linked to geographical characteristic of the Banat region and problems associated with prehistoric access and transportation of raw materials. Further research will be necesary to critically examine this tentative conclusion.

Third, the examination of chipped stone cores from Foeni indicate that two very distinct types of chipped stone reduction strategies were employed in the production of blades and sharp flakes. Again, these appear to be linked to aspects of raw material availability, shape, and location. It appears that larger flakes and blades were produced from multi-directional cores on tan / brown agate, while smaller items ere manufactured from almost any material. Given the lack of agate debitage it is quite possible that the majority of agate objects were manufactured at quarry sites and resharpened later on. Similarly, the multi-directional cores recovered in excavation were likely initially shaped at quarries upwards of ca. 40 km away from the Banat marshes and then traded into the region. The second type of lithic reduction occurring at Foeni is based on bipolar reduction of quarz raw materials, possibly available in local gravel's. This pattern of bipolar reduction of quartz has been noted for other Starchevo phases at several archaeology sites in the region including Divostin I (Voytek 1988), Stragari (Stanković 1988), Blagiton (Kuijt 1991), Banja, and Lepenski Vir III (Srejović 1972) to name just a few. In sum, preliminary examination of the technological practices employed at Foeni indicate that two major reduction techniques were employed, both with different aims and employing different raw materials.

Finally, examination of the chipped and ground stone tools recovered from Foeni provide insight into early Neolithic economics. At the most basic level, the presence of high quality raw materials from far removed locations for manufacturing chipped stone tools can be viewed as evidence for either the economic exchange of stone materials over a long distance; and / or the movement of people over these same distances. These two explanations have very different implications for the social and economic practices. Although data on the season of occupation for different sites is lacking at this time, architectural evidence, the presence of burials, and extensive deposits at some sites, such as Parta III, indicate long-term and year-round occupation. If this is indeed the case, then it appears that raw materials were exchanged or traded over long distances and between agricultural communities between the Banat marshes and the highlands. It is hoped that future studies

will address both the nature of variability in stone materials within contemporaneous sites within the Banat as well as undertaking a more extensive exploration of raw material sources within and surrounding the Banat region.

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Trench	Quad	Depth	Locus	Description
131-B	1, 6, 11, 16, 21	Plow Zone	001	Multi-Directional core, tan agate
	1, 6, 11, 16, 21	Plow Zone	001	Flake / block shatter, grey andisite
	21	—	002	Blade, brown agate
	21	—	002	Abrader fragment, sandstone
131-E	21, 22	79.88-83	002	Bipolar core, clear quartz
	21, 22	79.98-93	004	Blade, tan agate
	23, 24	79.98-88	004	Abrader fragment, sandstone
	21, 22	79.88-78	002	Block, grey andisite
	21, 22	79.98-88	004	Fragment, mica-schist
	21, 22	79.98-88	004	Flake fragment, tan agate
131-F	22	79.98-88	002	Flake, tan agate
	22	79.98-88	002	Sickle Blade, grey flint
	17	79.78-68	006	Flake, grey flint
	17	79.78-68	006	Side scraper, blue / grey flint, Cortext
	17	79.88-78	006	Adze fragment, grey / blue andesite
	17	79.78-68	006	Retouched tool, grey / blue obsidian
	11	79.98-88	002	Flake, tan agate
	22	—	007	Bipolar core, milky quartz
	23	79.88-78	002	Retouched piece, brown agate
	17	80.08-79.98	002	Flake, brown / grey agate
	17	79,78-68	006	Sickle blade fragment, brown agate
	17	79.88-78	006	Flake, tan agate
	17	79.88-78	006	Fragment, quartz
	12	79.88-88	006	Block fragment, quartzite
	12	79.88-78	006	Block fragment, schist
	4, 9, 14, 19, 24	—	001	Fragment, sandstone
	4, 9, 14, 19, 24	—	001	Fragment, sandstone
	21	79.78-68	005	Fragment, mica-schist
	1	80.08-79.98	002	Flaked cobble, quartzite
	21	79.88-78	002	Flake fragment, quarzite
	21, 22	79.98-88	004	Fragment, mica-schist
	12	79.98-88	004	Fragment, sandstone
	4, 9, 14	—	001	Fragments, andisite (×2)
131-J	1, 6, 11, 16, 21	—	001	Flake, course grey andisite (×2)
131-N	16	—	003	Blade, brown agate
130	—	Surface Coll.	000	Grinding stone, hemitite
150-I	16, 17	80-90 bd	010	Block fragment, large, grey agate
	16-20	70-80 bd	004	Block fragments, sandstone (×4)
	16	70-80 bd	006	Blade fragment, blue / grey flint