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Aspects of Long Distance Trade by the Precucuteni Culture

The largest category of imported lithics from the Precucuteni settlement is represented by the artefacts made of so called "Balkan flint," a raw material that originates in the Lower Danube region.

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Introduction

The objective of this study was to determine whether lithic artefacts or raw materials were being imported from the Lower Danube region into the Târgu Frumos settlement, in the Moldavian Plain,

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during the Early Chalcolithic. This is of particular interest because both zones were occupied at that time by populations with different material cultures: the settlement at Târgu Frumos—*Baza Pătule* (Iaşi county, northeastern Romania) is included in the Precucuteni III–Tripolye A area, while in the southern areas the early Gumelniţa communities were spreading in the Romanian Plain and Dobruja (where some late Hamangia communities still existed). For this purpose, flint artefacts from the Târgu Frumos—*Baza Pătule* site were studied. Of the over 6,000 chipped stone artefacts found at this site, almost 250 items were suspected of being flint from sources at least 300 km away on the Danube terraces. The rest of the assemblage appeared to have been made predominantly from the relatively closer Moldavian flint and a small number from local or allogenous rocks. Macroscopic and petrographic analyses of artefacts and geological samples were used to help distinguish between Moldavian flint and flint from the Lower Danube as well as to help determine the origin of suspected imported artefacts. Researchers specializing in the prehistory of these regions have suggested the existence of a trade network that conveyed commodities from south to north and vice-versa at that time (regarding import and influences between the two areas, see Roman 1963, 33–49; Marinescu-Bîlcu 1972, 29–38, 1974, 1976, 347–353; Ursulescu and Boghian 2001; Pandrea and Vernescu 2005, 263–278), but until now have not demonstrated this through a petrographic analysis.

Since Moldavian flint is just as good in functional quality as flint from Dobruja, and the territory of the Precucuteni culture has numerous river bank and surface outcrops of this materials (the closest being along the Pruth River) from a purely logistical or practical point of view, the Chalcolithic inhabitants of the site would not have needed to import flint from far away in the Lower Danube area. This study was conducted to verify or deny this theory of long distance importation. Finally, artefacts were examined to determine whether imported artefacts show any differences in depositional context, or technological and typological aspects in comparison to artefacts made of much more locally available flint (i.e. Moldavian flint).

Trade has been seen in the archaeological literature as the transfer of goods or services between individuals (Alden 1982, 84), from hand to hand or from one social group to another (Earle 1982, 2). The transfer involves the individuals that trade the objects, constrained by the society and the environment in which they live. This gives both an individual as well as a social character to the trade (Earle 1982, 2). The exchanged items are not only related to subsistence necessities, but as ethnological and sociological studies have demonstrated the exchanged commodities can take the form of polite formalities, children, women, labor, religious services, ranks or amulets (Mauss 1925, 37). All these can be

traded during feasts, rituals, celebrations, fairs, in moments when trade is one of the components of a more general and durable contract (Mauss 1925, 37). In most cases, the archaeological record does not allow us to interpret the more or less festive background of the exchange. Fortunately, traded commodities are easier to identify, because they constitute in the overall picture of a settlement the foreign element, different from the majority. This is also the case of the imported items from the Precucuteni settlement at Târgu Frumos—*Baza Pătule*.

Background

Archaeological Background

THE EARLY Chalcolithic settlement at Târgu Frumos—*Baza Pătule* has an estimated surface area of 10 ha and is situated on a high ridge on the right side of the Adâncata River (Bahlui River basin) in the Moldavian Plain (Ursulescu, Boghian, and Cotiugă 2005) (Figure 1), between the Carpathian Mountains and the Pruth River, about 50 km from each and about 15 km from the Siret River. The landscape during the Chalcolithic was very different from the current one. The Adâncata River Valley was not as deep as today, the hydrographic network was more diverse and the two ravines that delimit the site to the north and south were more pronounced (Ursulescu, Boghian, and Cotiugă 2005). The existence of large fields for agriculture and pastures alternating with forests (although large deforestation took place, the forest regenerated fast) made the site an advantageous habitat for human settlements (Ursulescu et al. 2002, 41). Unfortunately, the settlement was only partially excavated because a large part of it is covered by modern cement structures. At the time that the site was occupied, the territory of the Precucuteni culture was geographically at its largest. It extended west into the Carpathian Mountains (modern day Romania), north to the upper Dniester River basin, east almost to the Dnieper River (modern day Ukraine) and to the south almost to the northern part of the Romanian Plain. There, it bordered on the territory of the Stoicani–Aldeni–Bolgrad (S.–A.–B.) communities, which are seen in the Romanian archaeological literature either as a sub-group within the Gumelniţa culture or as a mixture between Gumelniţa and Precucuteni elements (see the map in Figure 1). For a review of the S.–A.–B., see Dragomir (1983), Sorokin (2000, 157–168), and Frânculeasa (2007, 7–32).

The remains at the Târgu Frumos—*Baza Pătule* site have been typologically connected to the last phase (phase III) of the Precucuteni Culture (Ursulescu and Boghian 1996). Carbon-14 data shows that the settlement began its almost

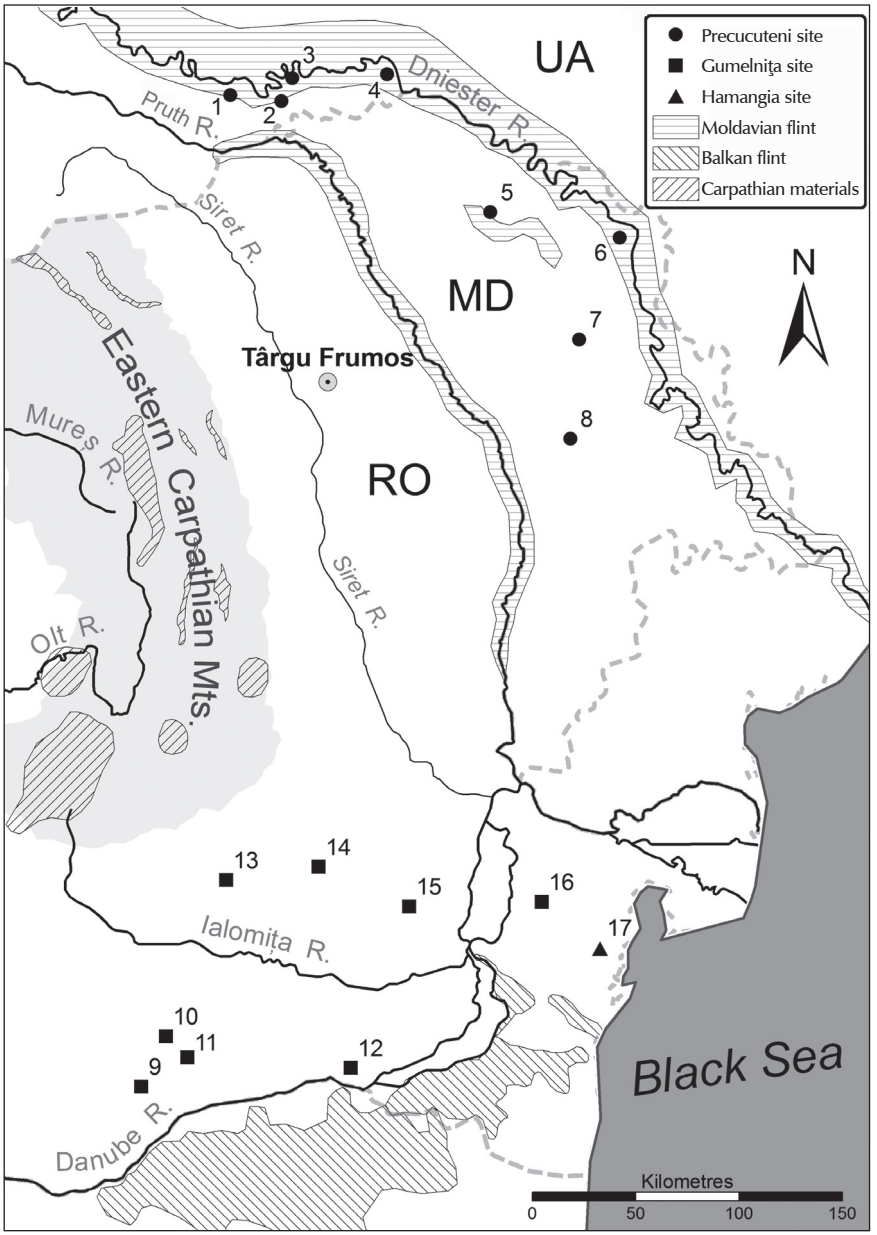

FIGURE 1. Location of the Târgu Frumos site and the territory of the Precucuteni culture at the time of its occupation (Vornicu 2011). Abbreviations: RO—Romania, MD—Republic of Moldova, UA—Ukraine. Sites mentioned in the text. Precucuteni sites: 1. Okopy, 2. Luka–Vrublevetskaya, 3. Lenkovci, 4. Bernashevka, 5. Alexandrovca, 6. Solonceni I, 7. Isacova, 8. Ruseştii Noi. Gumelniţa sites: 9. Stoeneşti (formerly Tangâru), 10. Măgurele, 11. Vidra, 12. Cuneşti, 13. Ghinoaica, 14. Borduşani, 15. Lişcoteanca, 16. Cârjelari. Hamangia site: 17. Baia–Goloviţa.

300 years of development around 5830±100 BP (Lv-2152: 5830±100 BP; 3830 b.c.; 4838–4584/4940–4470 BCE) (Mantu 1998, 246, no. 5; Ursulescu, Boghian, and Cotiugă 2005; Ursulescu, Boghian, and Cotiugă 2014). During the 16 excavation campaigns, between 1990 and 2005 (Ursulescu, Boghian, and Cotiugă 2005), 14 dwellings (1 below ground and 13 surface dwellings) and a ditch which partially enclosed the oldest settlement were excavated. Within the settlement, aside from the dwellings, researchers discovered areas used for flint knapping, butchering, bone and antler processing and numerous copper objects (Ursulescu, Boghian, and Cotiugă 2005). The settlement had three levels of habitation: the oldest level is represented by only a few archaeological complexes, such as the ditch of the settlement, a few pits and a dwelling. The next two levels are richer in archaeological complexes and one can observe the growth of the settlement, in space, wealth and probably also in its importance in the cultural area. Signs of the importance and status of the settlement are indicated by the numerous imported items, originating in the neighboring cultures, some of which have already been discussed by others (Ursulescu and Boghian 2001). The largest category of imported lithics from the Precucuteni settlement is represented by the artefacts made of so called "Balkan flint," a raw material that originates in the Lower Danube region.

Geological and Lithological Background

THE AREA of the Târgu Frumos—*Baza Pătule* site belongs, geologically, to the Eastern European platform, with its Cenozoic sedimentary covering. The sediments are clayey marls, sands, clays, sandstones and some oolithic limestones (Saulea, Săndulescu, and Bratu 1966; Murgeanu and Mirăuţă 1968). The immediate area does not contain any sources of knappable material. The nearest in this respect are outcrops in the Eastern Carpathians and minor fluvial deposits in the Siret River to the west and the Pruth River to the east.

In the Eastern Carpathians, there are numerous sources of lower quality material such as biogenic jasper, chert from limestone outcrops, siliceous shale, opal and quartzite (Popescu and Patrulius 1964; Mutihac, Chelaru, and Cîstov 1966; Ion, Antonescu, and Alexandrescu 1995). It is worth noting the Cretaceous limestones with cherts of the Flysch (Murgeanu and Mirăuţă 1968).

Moldavian flint originates both in Upper Cretaceous (Cenomanian) limestones (chalky marl to be precise) with flint (a variety of chert) cropping out along the Upper Pruth River, and as flint pebbles and cobbles in the alluvial sediments of the same river (Văscăuţanu 1923, 1925; Saulea, Popescu, and Bratu 1966) (Figure 2). Outcrops of the same material can also be found at

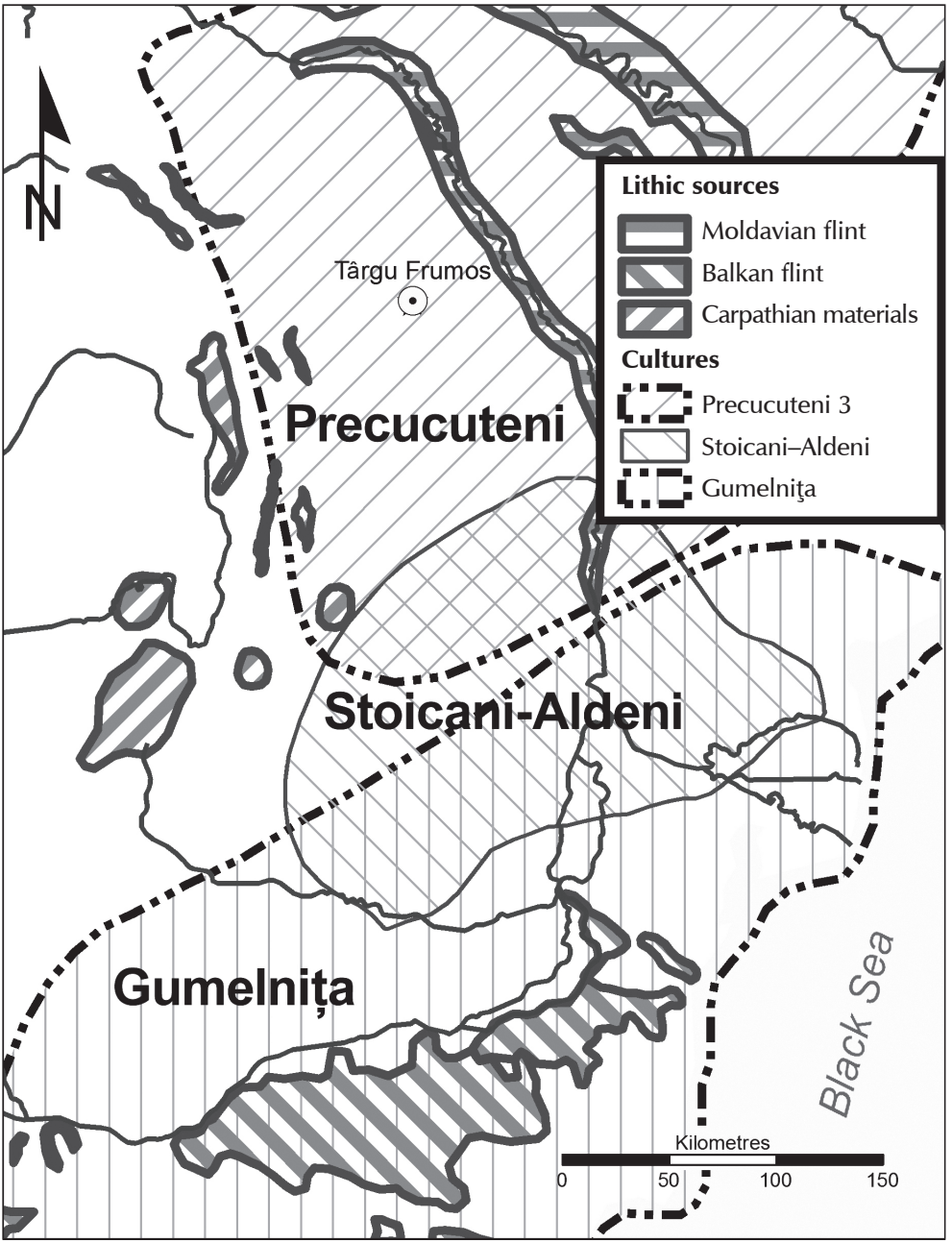

FIGURE 2. Location of rock samples used in the study, possible sources used for lithic tools and the distribution of cultures in the Chalcolithic (based on Brandabur and Patrulius 1967; Chiriac 1968a, b; Mirăuţă, Mutihac, and Brandabur 1968; Dragomir 1983).

locations across the Pruth River as far away as the Răut and Dniester Rivers (Macovei and Atanasiu 1934, 179–181; Chetraru 1995a, b; Chirica, Borziac, and Chetraru 1996). Geologists refer to this material as Miorcani type flint—the type locality being the village of Miorcani (Botoşani county, Romania) situated on the bank of the Pruth River where even today a modern flint mine still exists (Simionescu 1897; Văscăuţanu 1923; Chelărescu, Nichita, and Mihul 1961). In archaeological literature, it is referred to as "Pruth Flint," "Dniester Flint," "Prutho-Dniestrian," "Moldavian Flint," and "Volhynian Flint" (Barfield 2004; Połtowicz-Bobak 2005; Ryzhov, Stepanchuk, and Sapozhnikov 2005; Biagi and Voytek 2006; Sytnyk et al. 2007; Boghian 2009; Szakmány et al. 2011). Although this material has been referred to by all of these names, it should be noted that these names may have also been used to refer to other materials as well. To be clear, in this study all flint sampled in the Moldavian Plateau was from the Cenomanian limestone layer. In this paper it is referred to in general as Moldavian flint (or flint from Moldavia).

About 300 km to the south there are abundant sources of good quality flint, the so called "Balkan flint" (Jolkičev 2007; Nachev 2009; Biagi and Starnini 2010, 2011; Crandell 2013). Also known as "Balkanic flint" and "Honey flint," the primary sources of Balkan flint are found throughout the Drobruja region of Romania and Bulgaria and along the lower Danube River (Figure 2). Current research in Bulgaria indicates that several different materials from that region are referred to as "Balkan flint" (Gurova 2008; Nachev 2009; Biagi and Starnini 2010; Bonsall et al. 2010). The closest of these is Murfatlar flint (aka Dobruja flint, Moesian flint), which comes from the Late Cretaceous chalk formations between the Danube and the Black Sea. The type locality is the town of Murfatlar in Constanţa county, Romania (Macovei and Atanasiu 1934, 203–207; Ciocârdel 1953, 157; Ciocârdel and Popovici 1954, 322; Chiriac 1957, 93, Table B; Macovei 1958, 368; Ianovici et al. 1961, 47, Table 3; Chiriac 1964, 336; Brana 1967, 421–422; Mutihac and Ionesi 1974, 99–101; Chiriac et al. 1977; Chiriac 1981, 12–22; Ionesi 1988, 112; Crandell 2013). Sources in Dobruja (i.e. the Romanian region also called Northern Dobruja) have been noted as well by archaeologists (Comşa 1975, 1976).

Samples and Analytical Methods

For the present study, approximately 5,338 of the lithic artefacts found at the site were compared to 84 different rocks sampled in Moldavia and Dobruja (Figure 2) (Brandabur and Patrulius 1967; Chiriac 1968a, b;

Mirăuţă, Mutihac, and Brandabur 1968), 32 of which were thin sectioned for petrographic analysis. The macroscopic observations were followed by optical microscopy (OM) in plan polarized light, carried out on thin sections cut from each artefacts and rocks. A Nikon Eclipse E200 Pol microscope was used and images were captured with a Nikon D3100 DSLR camera. Macroscopic and microscopic observations for each geological sample and artefact were stored in a database (Crandell 2005, 2006, 2009).

Results and Discussions

Rock Samples—Macroscopic Analyses and Optical Microscopy

Moldavian flint is often either a sub-opaque, light grey, sub-translucent light brownish-grey or a highly translucent dark brown (coffee colored). By the Munsell color system, the range of colors varies from 2.5Y 8.5/1 (white) to N 3/0 (very dark grey). Its color is generally a light to dark grey, and often brownish, particularly when viewed with a light source behind it. Typical colors of this material include 5Y 6/2 (light olive grey), 5Y 4/1 (dark grey) and 10YR 3/3 (dark brown) (Munsell Color 2009). Translucent samples often have whitish spots and speckles. (See Figure 3 a–c.) All types have a matt (non-shiny) surface. It breaks with a perfect conchoidal fracture, has a very smooth surface, and is relatively sharp (Alba, Gheorghiu, and Popescu 1960; Crandell 2008). Approximately 80% of the knapped assemblage found at Târgu Frumos—*Baza Pătule* appears to have been made from Moldavian flint. *Balkan flint* from Dobruja can be clearly distinguished from Moldavian flint by microscopic analysis. Both flints are almost completely composed of very fine, equigranular quartz. Other than where the quartz is mixed with calcite, Fe oxide or Fe hydroxide, both are relatively devoid of other minerals. Occasional larger quartz crystals (25μm being common, and up to 50μm) or opals appear. The difference between them is that Balkan flint samples showed a noticeably higher amount of Fe oxides and hydroxides, e.g., goethite and hematite, which causes the yellow, orange and red colors of this type of flint (Figure 4). Macroscopically this material ranges from greys to yellows and orange. Common colors include 2.5YR 5/1 (reddish grey) to 2.5YR 5/8 (red) and 2.5Y 7/2 (light grey) to 2.5Y 7/8 (yellow) and 2.5Y 5/4 (light olive brown) (Munsell Color 2009). There also appear to be slightly more spots with high calcite content. (See Figure 3 d–g.) Although Fe oxides and hydroxides were found in the Moldavian flint samples as well, pieces were very uncommon and were smaller and more spread out than those found in the Balkan flint samples (Figure 4). (For more details on Balkan flint, see Crandell 2013.) Petrographically, both of the flint

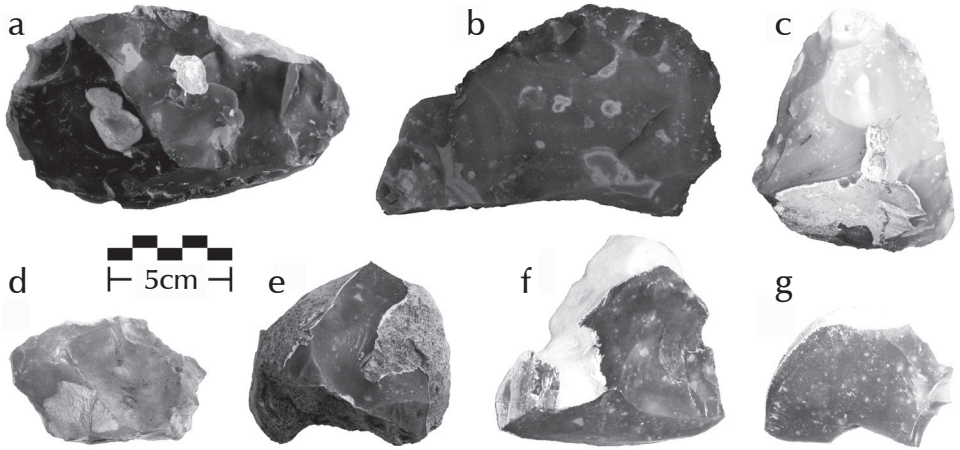

FIGURE 3. Photos of raw material samples.
a) to c) Moldavian flint from the Miorcani flint mine. Balkan flint originating from d) near Ovidiu; e) near Remus Oprean; f) and g) the Murfatlar chalk quarry.

sources in this study can easily be distinguished from the other knappable lithic resources of the nearby Carpathian Mountains. As none of the suspected Balkan flint artefacts microscopically analyzed in this study appear to be from the sources in the Carpathian Mountains, these sources will only be briefly described for the purpose of comparison.

The *cherts* (from limestone instead of chalk) are the most similar to the flints but they are typically composed of larger quartz crystals of more varying sizes. In addition, the cherts often have more calcite spread throughout the material, as well as in spots of high quantity (Figure 4).

The *biogenic jaspers*, as with the Balkan flint, have a quartz component which contains a large amount of Fe oxides and hydroxides, often considerably more than Balkan flint and many of the quartz crystals are small. Aside from the higher Fe oxi-hydroxide content, they are easily distinguished from the flints in that the quartz component often takes the form of a microfibrous quartz (chalcedony) or a granular quartz with varying size, generally larger than that of the flints or cherts. The rock is crosscut by later veins composed of fibrous quartz (Figure 4).

Other materials found in the Carpathian Mountains include siliceous shale, quartzite and menilite (opal). Microscopically, all of these materials are very distinct from the flints. They contain various other minerals (often in large quantities) and fossils. They may have a highly fragmented matrix and grain size usually varies more. Although it is not very difficult to macroscopically distinguish between different categories of knappable materials it is often very difficult to distinguish between sources of the same category of material because most are

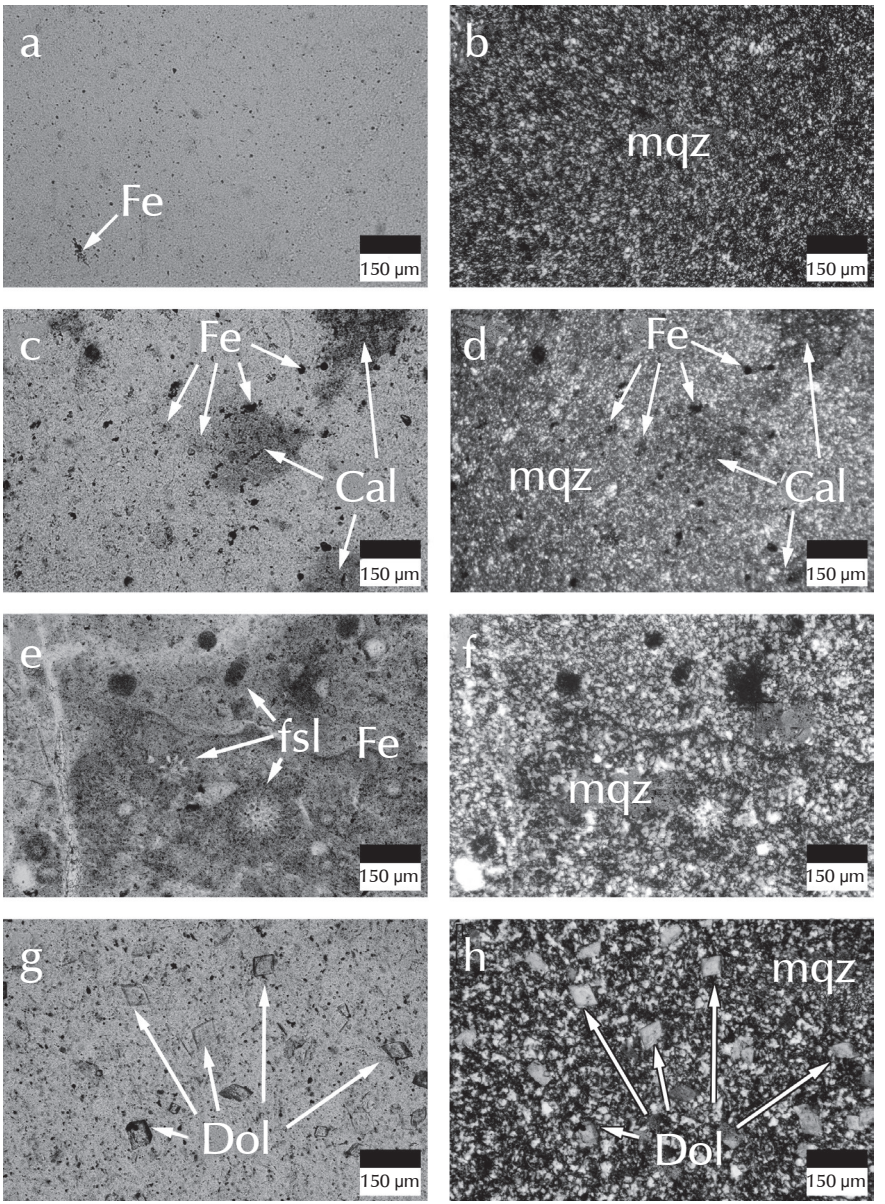

FIGURE 4. Microphotos (polarized light) of raw material samples.
a) and b) Moldavian flint from the Miorcani flint mine; c) and d) Balkan flint from near Hârşova; e) and f) biogenic jasper (radiolarite) from Dămuc Valley (microquartzitic mass with fossil radiolaria tests and Fe-rich inhomogeneous pigmentation); g) and h) East Carpathian chert from Voievodeasa R. (mixture of microquartz and relic carbonate (calcite)).
Left side, one polarizer (1P). Right side, the same with crossed polarizers (+P).
Abbreviations: mqz for microgranular quartz, Cal for calcite, Fe for iron-rich phase, fsl for fossil, Dol for dolomite.

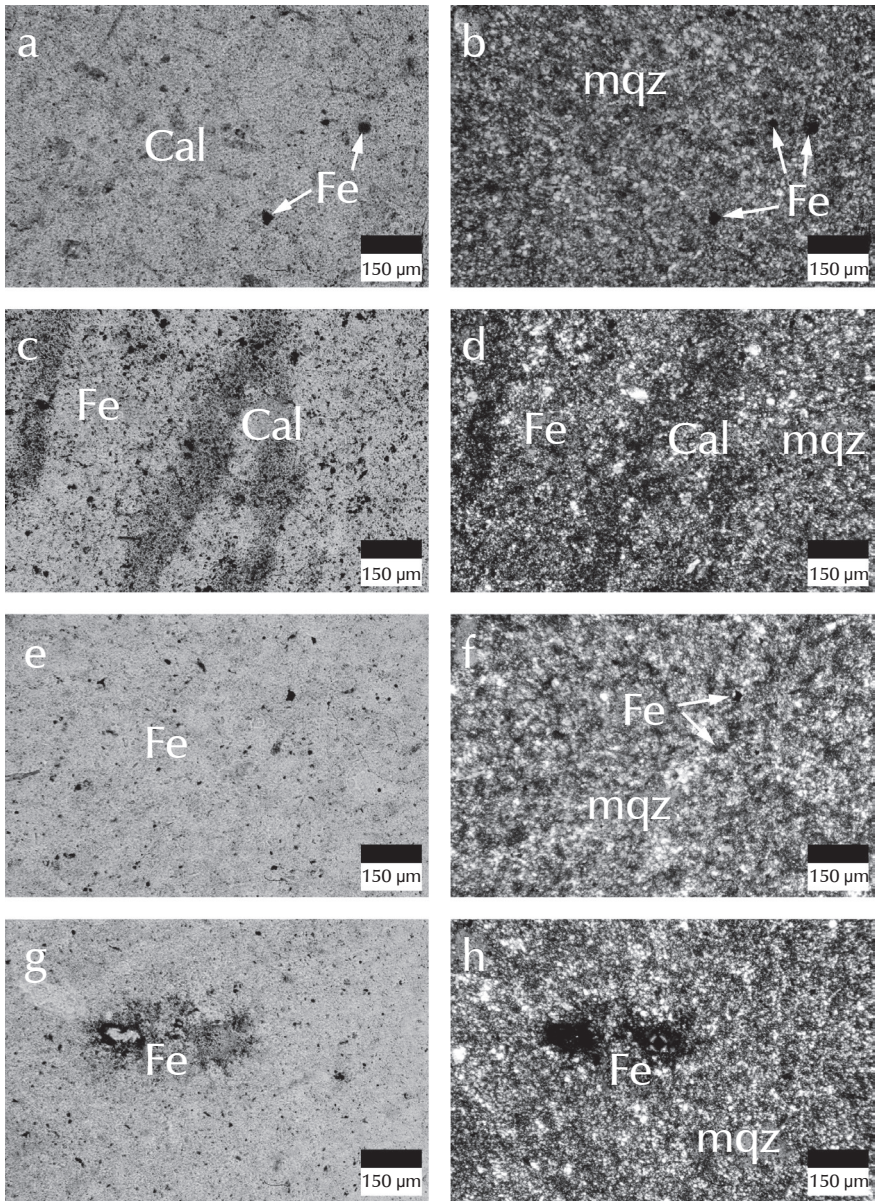

FIGURE 5. Microphotos (polarized light) of Balkan flint artefacts from Târgu Frumos—*Baza Pătule*.
a) and b) artefact number 1913 (end scraper); c) and d) artefact number 1952 (blade);
e) and f) artefact number 1855 (blade); g) and h) artefact number 1904 (end scraper).
All samples show homogeneous microquartzitic mass,
mixed with some calcite and occasionally locally pigmented with Fe compounds.
Left side, one polarizer (1P). Right side, the same with crossed polarizers (+P).
Abbreviations: mqz for microgranular quartz, Cal for calcite, Fe for iron-rich compounds.

very heterogeneous materials and there are many sources available for exploitation. Many of the sources are geographically small in size.

Of the tools suspected of being made from Balkan flint, 15 were microscopically analyzed and compared with 32 thin sections of potential raw materials. The artefacts analyzed in this study have a fine grain size the same as most flint, and have a constant Fe oxide-hydroxide content consistent with that of Balkan flint (Figure 5). None of the pieces appears to be Moldavian flint and are certainly not from any raw materials available in the Carpathian Mountains.

Balkan Flint Artefacts

The knapped stone collection from Târgu Frumos is one of the largest in the Precucuteni–Tripolye A culture, along with those from Bernashevka (Zbenovič 1996) and Luka Vrublevetskaya (Bibikov 1953), comprising over 6,000 pieces (tools, blanks, debris, and cores) (Ursulescu, Boghian, and Cotiugă 2005).

As previously stated, the majority of the lithic assemblage excavated at site was macroscopically identified as having been knapped from Moldavian flint, most likely originating in the Pruth River area. In addition to this, archaeologists have found items knapped from other types of rocks which they macroscopically described as Balkan flint, quartzite, opal, jasper, obsidian and an unidentified material which some researchers have referred to as simply "Dniester flint" (Boghian and Tudose 1994, 147–159; Ursulescu, Boghian, and Cotiugă 2005, 231). That some of the flint brought from the Pruth River area was knapped inside the Târgu Frumos settlement is evidenced by the cores (46 cores, coming from all the levels), the flakes from different stages of knapping (10% of the flakes are cortical) and the debris found there. The technology used by the inhabitants of the Târgu Frumos—*Baza Pătule* settlement is no different from the technology used in other Precucuteni settlements. Cores for flake and for blade knapping were discovered. The blade debitage shows advanced skill. Soft percussion and indirect percussion were used and some pressure blades were produced in the settlement. The Moldavian flint blades come mainly from the advanced stages of *débitage* but cortical ones were also produced at the site. The places where some of the flint was knapped were identified along with the hammers used (Boghian and Tudose 1994, 150).

On the other hand, at Târgu Frumos no hard evidence of knapping the Balkan flint inside the settlement was discovered.

Of the approximately 6,000 knapped stone artefacts discovered at the site 5338 were examined in this study. Based on macroscopic and microscopic

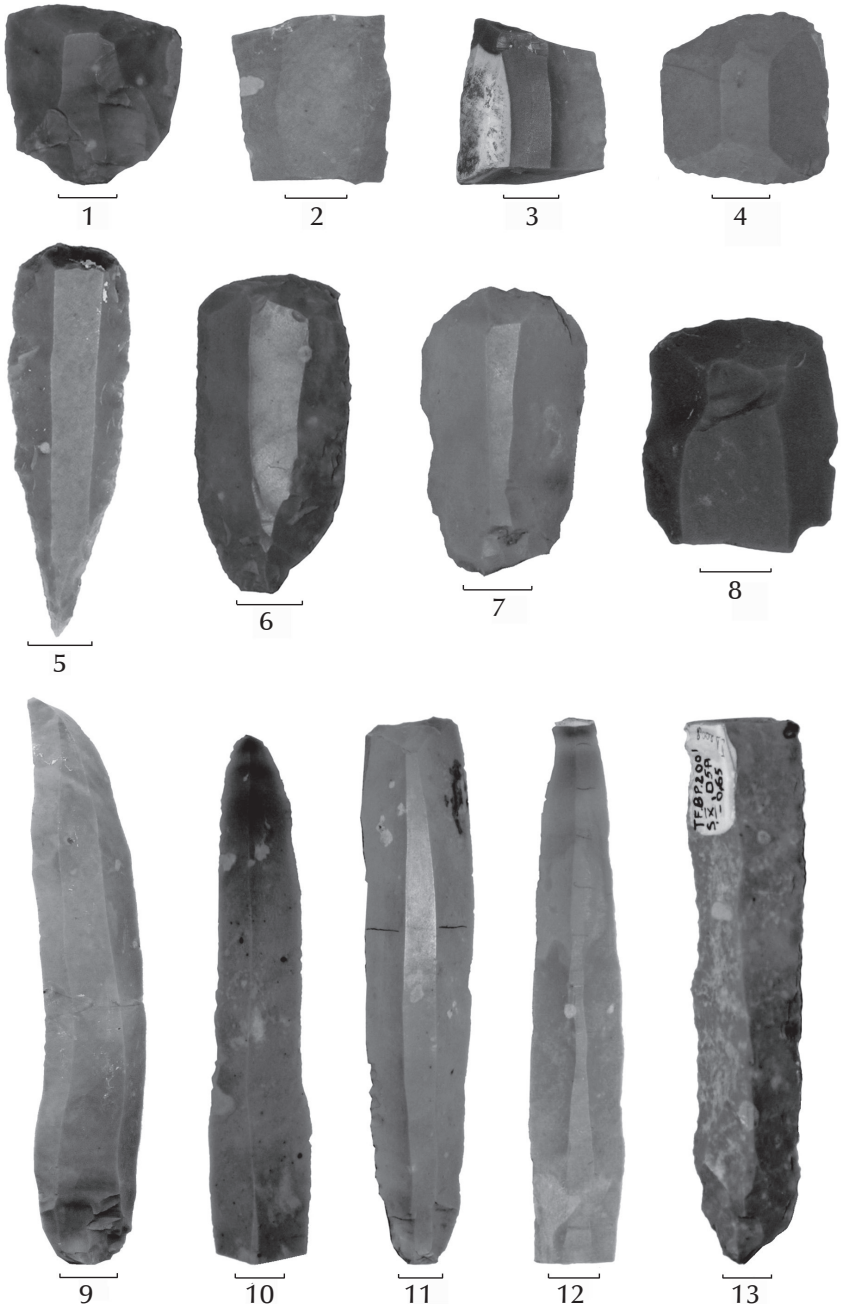

FIGURE 6. Examples of Balkan flint artefacts from the Precucuteni settlement at Târgu Frumos. In this figure, the artefacts labelled 2, 3, 4 and 8 were among those which were thin sectioned (2. artefact number 1952; 3. artefact number 1855; 4. artefact number 1904; 8. artefact number 1913). The bar below each artefact is equal to 1 cm.

characteristics of Balkan flint (Comşa 1975; Gurova 2003, 2008; Nachev 2009; Crandell 2013; Crandell, Niţă, and Anghelinu 2013; Crandell 2015), up to 5% of the artefacts analyzed were made from this material (see Figure 6 for examples). An initial total of 228 pieces were identified of which several have since been found to fit together as fragments of larger artefacts (the current total being 219 artefacts) (for example see the blade from Figure 6.9). It is possible that more might still be found to be in the same situation. The specific number is therefore hard to specify due to the possibility that a few more of the finds may in fact be fragments of the same artefact (although the same is likely true of the artefacts from the other materials). (It should be noted that the artefacts from the 2005 excavation were not analyzed due to logistical reasons.) The Balkan flint assemblage is composed of blank blades and retouched products (representing 7% of these particular groups of artefacts) and some small debris (less than 11 mm in length, and probably coming from the breakage and retouching of tools). Since a presentation of these artefacts was made elsewhere (Vornicu 2011), a detailed presentation will not be made here. Still, mention should be made of the fact that further research is needed for identifying whether importing lithic products from southern areas had any influence on the lithic technology of the Precucuteni communities. It was observed that the items imported into the Târgu Frumos settlement from the Lower Danube area are, in general, more robust than the lithic tools made from Moldavian flint. The Balkan flint blades (including those with their distal end transformed into endscrapers) have in 70% of the cases parallel edges and arrises (a higher percentage than those from Pruth flint) and a slight curvature of the profile. The imported lamellar products (both blanks and retouched) are mainly from the *plein débitage* stages but cortical (six coming from levels II and III) and crested (one) blades were also discovered.

As for the formal tools, we noticed that the same types of tools are present in both Moldavian and Balkan flint assemblages, with the exception of arrowheads. In the 5,338 analyzed pieces were identified 21 arrowheads, mainly from Moldavian flint, none from Balkan material.

The Balkan flint artefacts from Târgu Frumos are highly fragmented: less than 20% of the Balkan flint artefacts from this assemblage are intact (up to 40 artefacts). This should not come as a surprise, bearing in mind the fact that the majority of the lithic artefacts from the settlement are also fragmented.

Whether this is a behavior related to a ritualized discard of the tools, whether they were broken during usage or being broken intentionally (perhaps for a better hafting), is still an unresolved problem. Because the assemblage is very fragmented we cannot draw conclusions regarding the accurate dimensions of the Balkan flint material compared with the Moldavian flint material.

Artefact Distribution

THE DISTRIBUTION, within the settlement, of the lithic assemblage was also examined. Although Balkan flint artefacts were discovered in all three levels of habitation, most were discovered in the last two. Almost 12% of the total supposed Balkan flint artefacts were discovered in level I (the oldest), while in the next two levels 40% (level II) and 38% (level III) of the Balkan flint was discovered. For 10% of the Balkan flint pieces the level was not determined. One can observe the fact that the import of Balkan flint at the settlement significantly increases with the transition to the second level of the settlement. During this same period both the population and the surface area of the settlement probably underwent a noticeable increase.

As far as spatial distribution is concerned, no pattern in discarding the Balkan flint products could be observed at the settlement. Tools of imported material have been found all over the site. As with artefacts of other materials, they were discarded in pits (some of them interpreted as ritual pits), near the dwellings, inside the dwellings, in the defense trench, in butchering places and everywhere else in the settlement along with the knapped lithic assemblage made of other raw materials (Vornicu 2011). There was no discriminating deposition or special treatment of the Balkan flint items.

Comparison with Other Sites

AS STATED before the Balkan flint outcrops are located within the area of the Gumelniţa–Karanovo VI–Kodžadermen and late Hamangia communities. The presence in the settlement at Târgu Frumos of artefacts made from this raw material is being considered as due to imports. Balkan flint items are also part of the lithic assemblages from other Precucuteni III–Tripolye A settlements such as those at Luka–Vrublevetskaya, Solonceni I, Isacova, Alexandrovca and Ruseştii Noi (Figure 1), where they appear only in the form of products which are already knapped and not cores (Sorokin 2000, 157–168). Thus, for the moment, a pattern can be observed: only blanks and retouched products were imported by the Precucuteni III–Tripolye A communities from southern communities which had access to the sources.

Due to a lack of much archaeological research on this topic regarding the Precucuteni-Cucuteni culture, assemblages from only a few settlements west of the Pruth have been studied with the intention of sourcing the lithic assemblages. In recent years, assemblages from several Precucuteni-Cucuteni sites in the region have been shown to contain artefacts made from Balkan flint. Whether or not

they were produced by members of the Gumelniţa culture (rather than at the sites where they were found) has yet to be determined. At Săcăluşeşti—*Dealul Valea Seacă* and Topoliţa—*La Ilioi*, both in Neamţ county, 2–3% of flint artefacts appear to have been made of Balkan flint (or about 1–2% of all knapped artefacts) (Crandell 2012). Studies by the same author found that similar sites in the area also had Balkan flint artefacts in varying amounts (unpublished reports by O. N. Crandell). Balkan flint has also been found at Palaeolithic sites in the general area, although in very low quantities (Crandell, Niţă, and Anghelinu 2013).

Along with the Balkan flint other elements of material culture specific to the southern communities were discovered in Precucuteni III–Tripolye A sites. The influences of the Hamangia culture have been seen in the pottery and statuettes from the Târpeşti settlement (Marinescu-Bîlcu 1968, 410), while at the Hamangia III sites of Mangalia (Berciu 1966, 34), Limanu, Ceamurlia de Jos and Goloviţa–Baia (Marinescu-Bîlcu 1972, 29–38) (see Figure 1) many vessels with northern influences were discovered, a fact that led S. Marinescu-Bîlcu to even propose an ethnic Precucuteni presence in the Hamangia area (Marinescu-Bîlcu 1972, 34).

Ceramics that are characteristic of the Precucuteni III area have been discovered in the Gumelniţa A sites of Vidra (Rosetti 1934), Tangâru (Stoeneşti) (Berciu 1961), Medgidia, Măgurele (Roman 1963), Cuneşti and Borduşani (Bem 2001, 44). Gumelniţa influences have been observed for some sherds and statuettes discovered in the Precucuteni–Tripolye A settlements of Traian—*Dealul Fântânilor* (Dumitrescu 1955), Târpeşti (Marinescu-Bîlcu 1981), Alexandrovca, Bernovo (Zbenovič 1989, 140), Târgu Frumos (Ursulescu and Boghian 2001) (see Figure 1) etc. While in the case of the clay objects it is hard to state whether the elements that moved from south to north and vice-versa were due to imports or to influences, for the objects made of other raw materials (e.g., stone) it is very clear that they originated in southern areas and were brought as imports into this region to the north. Examples of such imports include Balkan flint items, *Spondylus Gaederopus* bracelets (for example, see Vornicu 2013) and copper objects. According to the results of spectral analyses of copper objects from the Precucuteni cultural area, their raw material originated from the present day territory of Bulgaria which, during the Chalcolithic, was occupied by Gumelniţa–Karanovo VI–Kodžadermen communities (Chernykh 1978, 59).

When discussing the relationships between the Precucuteni area and the communities from the lower Danube (particularly the early Gumelniţa communities) one must consider them also in light of the existence of the Stoicani–Aldeni–Bolgrad culture (Sorokin 2000; Vornicu 2011). As the S.–A.–B. communities occupy a border territory between those of the Precucuteni and Gumelniţa communities it has been stated before that they must have played an important

role in the circulation of commodities (Sorokin 2000, 159). The S.–A.–B. communities, which are considered to be a mixture between the Precucuteni-Cucuteni and Gumelniţa cultures (Dragomir 1983), do not have many Precucuteni elements in their early stages, Gumelniţa elements being the majority (Sorokin 2000, 165). The lithic assemblages of the S.–A.–B. settlements contain flint brought from both the Pruth River and from the Lower Danube (Bejlekči 1978, 88–89; Dragomir 1983, 40). For the S.–A.–B. communities from the south of nowadays Republic of Moldova a 68% of the lithic assemblage is considered being of Balkan flint (Sorokin 2000, 163), but for the same cultural communities from the right part of the Pruth River we found no published percentages. There is definitely a need for future research involving the analysis of early S.–A.–B. lithic assemblages, both petrographic and typological in order to compare the results with Precucuteni and Gumelniţa lithic assemblages.

Conclusions

THROUGH A petrographic analysis of lithic artefacts, we have demonstrated that the commodities traded in the Early Chalcolithic also included flint artefacts. Specifically, we refer to Balkan flint items that originated in the Lower Danube area and were imported into the settlement at Târgu Frumos, in the Moldavian Plain, over a long distance of about 300–400 km.

In the early 1980s, Earle (1982, 3–4) suggested at least three important aspects of exchange that must be defined in every single case: *(a)* sourcing the commodities of exchange; *(b)* describing the spatial patterning of the commodities; and *(c)* reconstructing the organization of the prehistoric exchange.

For sourcing the commodities of the exchange, macroscopic and microscopic analyses as well as the field observations show that a portion of the lithic artefacts at this Precucuteni settlement came from the Lower Danube area, from outside the cultural area in which they were finally deposited. The trade routes of this commodity crossed an area which comprises different cultures from the Early Chalcolithic.

The Balkan flint artefacts were likely knapped by the Gumelniţa communities, and were traded to Precucuteni communities like those at Târgu Frumos, Luka–Vrublevetskaya, Solonceni I, Isacova, Alexandrovca, Ruseştii Noi and probably many others. The distance over which these items were traded varies from ca. 250 km (e.g. at Ruseştii Noi) to over 400 km (to the settlements along the Dniester such as Luka–Vrublevetskaya).

The distance that these tools travelled plus the time, the different cultural landscapes, the energy and knowledge required for them to arrive at the settle-

ments support the idea that occupational specialization had already occurred by this point in time. This occupational specialization related to raw material acquisition and distribution may have taken different forms. One possibility of how the tools arrived in the settlement is through travelling merchants. Members of the Gumelniţa culture living near to sources likely acquired locally available flint and knapped them into tools. They may have then traded them for other goods via a merchant. The merchants may have travelled to another region where the material was rarer and traded it for something else that was locally available. Another possibility may have been a series of traders. Raw materials may have been traded between a series of settlements via a series of traders or merchants. Yet another possibility is the existence of regional market places or seasonal fairs. In this case merchants may have only travelled half of the distance to export the flint from the Lower Danube area while people from settlements further north would have also travelled to the markets to trade for their settlements. In this case, one would expect to see some settlements in the border area that have artefacts and possibly even cultural practices from both cultures. This may be connected to the role Stoicani–Aldeni–Bolgrad communities played in this trade, their settlements being located between the Gumelniţa and Precucuteni areas. In any of these examples, the person moving the materials would have to take time from their regular self-sustaining work in order to import or export materials. Therefore the benefits of doing this specialized work must have outweighed the loss incurred by neglecting their regular work.

Import in this proportion indicates that this non-local material was well known to the local people and that a demand for it existed. If people were not travelling to the sources themselves to get materials, then it is likely that long distance trade routes were in existence at this time. This also suggests regular contact and interaction with neighboring cultures. As economics is an aspect of culture, if these cultures were interacting economically then this type of discovery requires researchers to reconsider the current definitions of the cultures of that time period and what separates them.

Judging from the high percentage of the imported tools (up to 5%) and the disposal of the imported items at the Târgu Frumos site, it is believed that the imported materials and tools were not necessarily regarded as prestige goods, as sometimes is the case with imported artefacts. They were rather widely available and accessible to everyone in the settlement. Thus this trade in lithic artefacts may be the result of the two dimensions of exchange: a *quid pro quo* dimension implying economic necessities or opportunities, as well as the symbolic dimensions of the exchange, i.e. a way through which relations are built and reinforced. ❑

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Abstract

Aspects of Long Distance Trade by the Precucuteni Culture

The objective of this study was to determine whether lithic artefacts were long distance trade commodities between different cultural areas, in the Early Chalcolithic of the Moldavian Plain. Some of the lithic artefacts discovered in Precucuteni settlements are believed to be made from Balkan flint whose sources are hundreds of kilometers away in the Lower Danube area, inhabited at that time by the Gumelniţa communities. The lithic assemblage from the Târgu Frumos—*Baza Pătule* site (Romania) was studied to help determine whether or not this was the case. Macroscopic and petrographic analyses of artefacts and geological samples were used to distinguish Balkan flint from local flint and other knappable materials and to determine that approximately 5% of the lithics were imported in the form of blanks and finished products. The depositional context of the Balkan flint tools shows no differences from that of the other tools.

Keywords

trade, Balkan flint, Chalcolithic, Precucuteni culture, Gumelniţa culture, Moldavian Plain