Analysis of struck lithic assemblages recovered during excavations around Măgura in the Teleorman River Valley, Southern Romania

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1. Introduction

The archaeological excavations at the early-middle Neolithic (*c.* 6000-5300 BC) sites of Măgura 'Buduiasca' and Măgura 'Boldul lui moş Ivănuş' carried out by the Southern Romania Archaeological Project (SRAP) and the Muzeul Judeţean Teleorman (2001-2009) in the Teleorman River Valley have produced sizable assemblages of flint from both pits and surface scatters. A selection of assemblages derived from sealed and distinct complexes associated with different styles of ceramics have been analysed to assess the nature of the lithic resource through the Neolithic period. Each complex will be discussed separately, however a summary of each is presented in table 1 below.

Complex No.	Date	Total Assem.	Retouched	% Retouched
58	Pre-Criş	143	21	15
35	Starčevo-Cris	62	14	22
40	Dudeşti	529	176	33
22	Vădastra	210	51	24

Table 1. Composition of each assemblage.

2. Results

2.1 Complex 40

The assemblage comprised 529 struck lithics from a pit feature containing 97 complete ceramic vessels. The assemblage will be discussed by depth.

Depth	Total Lithics
1.2-1.3m	44
1.3-1.4m	73
1.4-1.5m	74
1.5-1.6m	66
1.6-1.7m	82
1.7-1.8m	60
1.8-1.9m	79
1.9-2.0m	49
2.0-2.1m	2
Total	

Table 2. Quantity of lithics by depth

1.2-1.3m

Primary Technology

44 struck lithics were recovered between 1.2m and 1.3m. The dominant raw material was a mottled dark grey flint, although brown and light grey pieces were also identified, together with 4 pieces of honey-coloured (Balkan) flint. A single piece of burnt flint was also identified. The assemblage was flake dominated (59%) with a high proportion of blades (32%). Dorsal scar patterns on complete pieces indicated that the majority had been struck from single platform blade or flake cores, with two pieces struck from opposed platform cores. A single core was present in the assemblage, although this comprised a rounded beach pebble with a small number of flakes struck from it, suggesting that it may have been discarded as unsuitable. This had subsequently been used as a hammerstone. Three core trimming flakes were identified, two of which were struck from single patform conical blade cores and the third from an unidentifiable core.

The complete pieces were on average 36.5mm in length, 23mm wide and 7.9mm thick. A platform was present on 20 pieces, the majority of which were planar. Average platform size was 8.9mm. Platform preparation was noted on 4 pieces and a lip on a single piece. Of those pieces retaining a termination, 12 (40%) were hinged or stepped, with 8 retaining a feathered termination and one a plunging termination.

Secondary Technology
Retouch was noted on 13 of the pieces. The retouched assemblage comprised 8 end scrapers formed on the distal end of both flakes and blades. Two scrapers had also been worked along one edge. Two truncated blades were identified, one of which had been truncated at both proximal and distal ends, the second only at the distal end. A blade with retouch along both edges and a large notch on one side is thought to be a failed truncation. A medial blade fragment had retouch along one edge while a piece of flake shatter had retouch along both edges – neither is identifiable as a specific tool type. Gloss was identified on the double truncated blade and the medial blade fragment indicating that these could have been hafted or used for cutting activities.

1.3-1.4m
Primary Technology
73 struck lithics were recovered between 1.3m and 1.4m. The dominant raw materials were a dark grey/black flint and a dark grey mottled flint, although brown and light grey flint were also identified together with 3 pieces of honey-coloured (Balkan) flint. Chalky cortex was retained on some pieces. Two pieces had been burnt. The assemblage was roughly equal in numbers of flakes (40; 55%) and blades (30; 41%), with the dorsal scar pattern indicating that the majority had been struck from single platform flake or blade cores, with a small number of pieces struck from opposed platform cores and possible discoidal or lateral cores.

Complete pieces were on average 39.8mm in length, 26.1mm wide and 6.3mm thick. A platform was present on 38 pieces, the majority of which were planar. Three platforms showed scars from preparation and 4 had a pronounced lip. A single platform was faceted. Of those pieces retaining a termination, 15 (29%) were feathered, 19 (37.5%) were stepped or hinged and 2 were plunging.

Fig. 1. Flakes and blades manufactured on local dark grey materials (including one piece retaining a chalky cortex) from 1.3m-1.4m (scale 10cm)

Secondary Technology
Retouch was noted on 25 pieces. The retouched assemblage comprised 11 distal end scrapers formed on both blades and flakes, one proximal end scraper, 4 truncated blades, 4 piercers, one backed blade, and 4 pieces with retouch along one or more edges.

1.4m-1.5m

Primary Technology

74 struck lithics were recovered between 1.4m and 1.5m. The dominant raw materials were a mottled dark grey flint, a light grey flint and a dark grey flint. Brown flint was also noted together with 6 pieces of honey-coloured (Balkan) flint. Six pieces of burnt flint were also identified. The assemblage was roughly equal in terms of numbers of flakes (37; 50%) and blades (32; 43%), with dorsal scar patterns indicting that the majority had been struck from single platform blade and flake cores, with a small number struck from opposed platform cores and a single piece from a lateral core.

Complete pieces were on average 30.2mm long, 20mm wide and 4.8mm thick. A platform was present on 39 pieces, the majority of which were planar. Platform preparation was noted on 4 pieces, 2 were abraded and one had a lip. Of those pieces retaining a termination, 16 (31%) were feathered, 21 (40%) were stepped or hinged, one was plunging and one was abraded.

Secondary Technology

Retouch was identified on 23 pieces (31%). The retouched assemblage comprised 12 distal end scrapers formed on both blades and flakes, 2 piercers, one truncated blade, 3 backed blades and one double backed blade, one notched blade, one denticulate formed on a regular flake and 3 pieces with retouch along one or more edges.

1.5-1.6m

Primary Technology

A total of 66 struck lithics were recovered between 1.5 and 1.6m. The dominant raw material was mottled dark grey flint, with a high proportion of dark grey flint also present. Light grey and brown flint was also present in notably smaller quantities, together with 5 pieces of honey coloured (Balkan) flint. Only a single piece of burnt flint was identified, the remainder being fresh, unrolled flint. The assemblage was flake dominated (37; 56%), with a smaller proportion of blades identified (27; 41%), and 2 pieces of angular shatter. Interestingly, the majority of identifiable dorsal scars indicated a reduction sequence based on the removal of parallel blades.

Complete pieces were, on average 31.9mm in length, 24.7mm wide and 5.38mm thick. A platform was present on 39 pieces, the majority of which (30; 77%) were planar. Platform preparation was present on 6 pieces, one retained a cortical platform, one was retouched while one displayed a complex, abraded platform. 43 pieces retained a termination, the majority of which were feathered (17; 40%), 11 (26%) were hinged, 5 (11%) were stepped, 1 (2%) was plunging while 9 (21%) were retouched.

Secondary Technology

Retouch was identified on 24 pieces (36%). The retouched assemblage comprised 8 distal end scrapers, one of which also had retouch around the proximal end. The scrapers were formed on both blades and flakes, but were manufactured predominantly on the grey flint. Other tools identified were: one notched flake, one notched blade, two truncated blades, one denticulate, one backed blade, one double backed blade and nine blades and flakes displaying simple non-invasive edge retouch.

1.6-1.7m

Primary Technology

A total of 82 struck lithics were recovered between 1.6 and 1.7m. The dominant raw material was dark grey flint, with a high proportion of mottled dark grey also identified. Light grey, brown and honey-coloured (Balkan) flint was also present in notably smaller numbers. Three pieces of burnt flint and a single piece of probable chalcedeony were also identified, the remainder of the

assemblage being fresh and unrolled. The assemblage was flake dominated (42; 51%), with a smaller number of blades (36: 44%), together with a single core and three pieces of angular shatter. The core comprised the worked out remains of an opposed platform blade core which had subsequently been reused, displaying edge damage along one edge. Again, the majority of identifiable dorsal scars indicate the removal of parallel blades.

43 pieces were complete and these were on average 35.8mm long, 24.2mm wide and 5.5mm thick. A platform was present on 43 pieces, the majority of which were planar (28: 66%). Ten pieces (24%) showed evidence for platform preparation, while two (4%) planar platforms retained a lip, one piece retained a cortical platform, one was abraded and one retouched. Surviving terminations were predominantly feather (19; 39%), with 14 retaining a hinged termination, 4 (8%) were plunging, 1 (2%) was stepped and 11 (23%) were retouched.

Fig. 2. A range of struck lithics from 1.6m-1.7m including flakes and blades all manufactured on dark grey local materials (scale 10 cm)

Secondary Technology

A total of 30 pieces (36%) were retouched, with 12 (15%) displaying signs of edge damage. The retouched assemblage comprised 8 distal end scrapers, five of which were manufactured on flakes and three on blades, with the majority manufactured on the grey coloured flint. The remainder of the tool assemblage comprised: three piercers; one notched blade; two denticulated blades; four backed blades; three double backed blades including one with a notched microburin truncation and possible denticulation along one edge; one truncated blade; and eight pieces with simple, non-invasive retouch along one or more edges.

1.7-1.8m

Primary Technology

A total of 60 struck lithics were recovered between 1.7m and 1.8m. The dominant raw material was dark grey flint, with high proportions of light grey and mottled grey flint also identified. Honey-coloured (Balkan) and light brown flint was also present but in much smaller numbers. Two pieces of burnt flint were identified, with the remainder being fresh and unrolled. The assemblage was flake dominated (30; 57%), with a smaller number of blades (20; 33%) and six pieces of angular shatter (10%). Interestingly, the majority of recognisable dorsal scars (20; 33%) indicate the removal of parallel blades in the previous round of reduction.

30 pieces were complete and these were on average 31.4mm long, 23.1mm wide and 5.4mm thick. A platform was present on 23 pieces, the majority of which (23; 85%) were planar, four of which displayed a distinct lip, a result of the use of a soft hammer. Two abraded platforms, one complex (prepared to a point) and one cortical platform were also identified. Surviving terminations were

predominantly feathered (16; 44%), with a high proportion of retouched terminations (11; 31%) together with hinged (8; 22%) and a single plunging termination.

Secondary Technology
A total of 19 pieces (32%) had been retouched, with a further 4 (6%) showing signs of edge damage. Six distal end scrapers were identified, four of which were manufactured on flakes and two on blades. The remaining retouched assemblage comprised: three piercers, two of which had points abraded through use; three backed blades one of which had a notch at the distal end on the right hand side and a denticulated edge at the distal end on the left hand side – this denticulated edge was covered with gloss indicating that it had been used for cutting vegetation; two double backed blades, one of which had opposed notches on each edge at the distal end and gloss along both edges; a notched blade that had also been used as a possible piercer; and four pieces with simple non-invasive retouch along one or more edges.

Fig. 3. Regular and irregular flakes manufacture on local dark grey and brown materials from 1.7m-1.8m (scale 10cm)

1.8-1.9m
Primary Technology
A total of 79 struck lithics were recovered between 1.8m and 1.9m. Both dark grey and mottled grey flint were represented in roughly equal proportions, with light brown, light grey and honey-coloured (Balkan) materials also represented but in much smaller numbers. A single piece of burnt flint was identified, the remainder being fresh and unrolled. The assemblage was flake dominated (55; 69%), with a smaller number of blades (21; 26%) and three pieces (5%) of angular shatter. Again, the majority of recognisable dorsal scars indicate the removal of parallel blades (26; 33%), with a smaller number of parallel flakes (15; 19%).

47 pieces were complete and these were on average 32.6mm long, 21.5mm wide and 5.8mm thick. A platform was present on 46 pieces, comprising predominantly planar platforms (41; 91%), five of which showed signs of preparation and two of which retained a distinct lip, indicative of the use of a soft hammer. Two cortical platforms were also identified, together with a complex retouched platform and a faceted platform. Surviving terminations were predominantly feathered (22; 41%), with both hinged (11; 20%) and stepped (14; 26%) also present in reasonable high numbers. Five terminations were plunging and two had been retouched.

Secondary Technology
A total of 27 pieces (34%) had been retouched, with a further 6 (8%) showing signs of retouch. Eleven distal end scrapers were identified, one of which had abrupt bifacial retouch along both edges. The majority of scrapers were manufactured on grey or mottled grey flint, with only one on light brown flint. Four had been manufactured on blades, whilst the remainder were flakes. The

remainder of the retouched assemblage comprised: two nosed scrapers; one denticulate; two double backed blades, both of which are likely to have been used as piercers; one piercer; one denticulate; two truncated blades and a truncated flake; and seven pieces with simple non-invasive retouch along one or more edges.

Fig. 4. One double backed blade (right) and a blade (left) struck from local dark grey lithic materials from 1.8m-1.9m (scale 10cm)

1.9-2.0m

Primary Technology

A total of 49 struck lithics were recovered between 1.9m and 2.0m. The assemblage was dominated by mottled and dark grey materials, with light grey and light brown represented in much smaller quantities. The assemblage was entirely fresh and unrolled, and was flake dominated (55; 69%) with a smaller number of blades (21; 26%), three pieces of angular shatter and two cores. The cores comprised one single platform core and one opposed platform core with a single striking face. A single chunk may also represent the last vestiges of a worked out core. The majority of dorsal scars were indeterminate, however both parallel flakes and blades were represented.

25 pieces were complete, and these were on average 31.9mm long, 23.3mm wide and 8mm thick. A platform was present on 20 pieces, of which 16 (80%) were planar, one showed signs of platform preparation, one was retouched and two were cortical. Surviving terminations were split roughly equally between feathered (25%), hinged (37.5%), retouched (16%) and stepped (16%), with two (5.5%) plunging terminations.

Fig. 5. Pieces manufactured on local grey materials with a single irregular flake struck from brown flint from 1.9m-2m (scale 10cm)

Secondary Technology
A total of 15 pieces (31%) had been retouched, with a further 4 (8%) showing signs of edge damage. Three distal end scrapers were identified, all manufactured on dark grey flint flakes. A double side scraper and single side scraper were also identified manufactured on grey flint flakes. The remainder of the retouched assemblage comprised: two piercers; one truncated blade; one backed blade; and six pieces with simple non-invasive retouch along one or more edges.

2.0-2.1m
Primary Technology
Two struck lithics were identified between 2.0m and 2.1m. Both were manufactured on fresh mottled grey flint. The assemblage comprised one flake fragment and an amorphous core. The flake retained a planar platform but no termination.

Secondary Technology
The flake fragment had been retouched, with notches along one side forming a denticulate.

Interpretation
The assemblage is generally homogenous throughout the sequence, with little difference in the materials identified within each excavated layer. The whole assemblage is dominated by local flint materials, both grey and light brown, with only a very small number of pieces manufactured on the imported honey-coloured (Balkan) flint. The assemblage is flake dominated, with roughly twice the number of flakes than blades. Around 30% of the assemblage comprises knapping debris including cores, angular shatter and microdebitage. The dorsal scars on blades indicate that they predominantly derived from single platform blade cores, while the flakes generally have indeterminate dorsal scar patterns indicative of a more expedient method of manufacture. The cores identified are predominantly amorphous or multiple platformed, with only two single platform flake cores.

The number of retouched pieces is high, around 30% of the assemblage, with distal end scrapers dominating. Other scraper forms were also identified, including side scrapers and double end scrapers, and several had been further modified to form a cutting edge or piercing point. The identification of two nosed-scrapers within the 1.8m to 1.9m excavated layer is interesting, and may hint at the deliberate placing of these tools together in the deposit. Other tool forms are also present, including piercers, edge retouched pieces and a couple of denticulated flakes. Interestingly, a large number of the blades had edge damage along one or more lateral edges, indicating that they were probably used for cutting.

In general, this represents a broad based utilitarian assemblage that includes knapping debris and cores. The tools identified would have enabled a multitude of tasks to be carried out, from the butchering of animals to the cutting of vegetation. This is an assemblage typical of the Dudești period.

2.2 Complex 35

Primary Technology
A total of 62 struck lithics were recovered from Complex 35. The assemblage comprised roughly half grey, locally derived flint materials, 34% (21 pieces) honey-coloured Balkan flint with the remainder being light brown and brown flint. One piece of burnt flint was identified; the rest of the assemblage is fresh and unrolled. The assemblage contains roughly equal numbers of flakes (30; 49%) and blades (28; 45%), together with one core and three pieces of angular shatter. The core comprised a heavy, irregular, flake manufactured on light grey local flint. One face of the flake had been used for blank removal, and it was evidently supported on an anvil when struck as it retained a crushed termination characteristic of bipolar working. The majority of dorsal scars were

indeterminate (50%), however a large proportion (30%) showed parallel blade removal.

Only 19 of the pieces were complete, and these were on average 29.4mm long, 21.4mm wide and 6.2mm thick. Of the fragmentary pieces a high proportion (11; 19%) was medial blade fragments, a number of which retained the scars from deliberate truncation. Surviving platforms were predominantly planar (16; 94%), including two showing signs of platform preparation and one retaining a lip. Roughly equal numbers of feathered (16; 45%) and hinged (14; 40%) terminations were identified, together with a small number of plunging terminations (2; 6%) and two that had been retouched.

Secondary Technology

14 pieces had been retouched, with a further 5 showing signs of edge damage. Around half of the pieces (6; 43%) comprised flakes and blade fragments with abrupt, non-invasive retouch along one or more edegs. Other tools included: three double backed blades, two of which were manufactured on medial fragments; a backed blade manufactured on a proximal fragment; a piercer manufactured on a crested blade; a notched blade; a denitculated flake; and a nosed distal end scraper manufactured on a honey-coloured flint flake. All of the edge damaged pieces were blades, predominantly medial fragments with one proximal fragment.

Interpretation

The assemblage from Complex 35 is distinctly Criş in morphology, with a clear focus on the use of the imported Balkan flint for the manufacture of a small range of tools. The tools are predominantly blades that have been retouched simply to form a backed edge – these are generally medial fragments that have been deliberately truncated to remove the proximal and distal ends. The tools identified in this assemblage would have been used for a narrow range of tasks, predominantly cutting. Only one scraper was identified and this had been manufactured on local, grey, flint.

This assemblage is characteristically Criş, and demonstrates the clear focus on the use of imported materials to make small pieces that are likely to have been hafted to form composite cutting tools.

Fig. 6 A selection of materials from Complex 35 including a number of blades manufactured on honey-coloured Balkan flint (scale 10cm)

2.3 Complex 22

Primary Technology

A total of 210 struck lithics were recovered from complex 22. The assemblage comprised nearly 90% locally derived lithic materials, with only 10.5% imported, Balkan flint, pieces. A single piece of chert was also recovered. Eighteen pieces of flint (8.5%) had been burnt, with colours ranging from light grey to bright red; they had been exposed to different extremes of heat. The remainder of the assemblage was fresh and unrolled. The assemblage was flake dominated (153; 74%), with a smaller number of blades also identified (45; 21.5%), together with three cores and five pieces of angular shatter. Surviving dorsal scars indicated that 23% of pieces had been struck from single platform blade cores and 28% from single platform flake cores, with 1.5% from opposed platform blade cores and the remainder (12.5%) from a variety of flake cores. A total of 112 pieces were complete, retaining both proximal and distal ends. They were on average 27.2mm in length, 21.3mm wide and 6.3mm thick. Surviving platforms comprised predominantly planar (80; 90%), 13 (15%) of which showed signs of platform preparation. The remainder comprised 7 (8%) cortical platforms, 1(1%) crushed platform and 1 (1%) retouched platform. Surviving terminations were predominantly feathers (47; 34%), with a reasonable proportion of hinged (36; 27%) and stepped (31; 23%) terminations also identified. Two (1%) were crushed, indicative of bipolar working.

The three cores were manufactured on a variety of lithic materials, including one on imported Balkan flint. All three were worked out, i.e. at the end of their useable life, and all had been used in the production of flakes. Two were single platform flake cores, the faces of which were covered in hinge fracture scars, which is probably whey they were abandoned. One appeared to have been reused as a hammerstone. The third core was a bipolar core manufactured on Balkan flint, which had been used in the manufacture of both flakes and blades.

Fig. 7. A selection of struck lithic pieces from Complex 22 including flakes, blades, scrapers and cores (scale 10cm)

Secondary Technology

A total of 51 pieces (25%) had been retouched, the majority of which were flakes with 14 blades. The majority of retouched pieces were local grey flint, although two pieces of Balkan flint had also bee retouched. Three pieces were burnt, although this would have occurred after the tool had been manufactured. The tool assemblage comprised: 3 backed blades, two of which had been manufactured on medial fragments; two medial blade fragments with the working from notch and snap truncation still evident at one end; one blade truncated through pressure rather than notch and snap; two notched blades; one notched flake; two piercers with points abraded through use; one piercer with opposed notches formed at the proximal end creating a twisting point – this piece had gloss evident along one edge; one round scraper; 24 distal end scrapers, one of which had a slight 'nose'; one scraper fragment of indeterminate form; 14 pieces with non-invasive abrupt retouch along one or more edges.

Interpretation

The assemblage from complex 22 is of Vădastra date and is broadly similar to that from complex 40. It comprises a broad-based utilitarian assemblage containing a range of tools and also includes knapping debris, indicating that knapping activities were occurring close to the pit in which the material was finally deposited. The number of retouched pieces is high (25%), and includes a range of tools that could have been used in a variety of hunting, cutting and processing tasks. The number of scrapers (26; 50% of retouched assemblage), with distal end scrapers dominating, is comparable to the numbers from complex 40, and indicates that these two assemblages were manufactured for broadly similar purposes.

2.4 Complex 58

Primary Technology

A total of 143 struck lithics were recovered from complex 58, comprising 36% (50 pieces) honey-coloured Balkan flint and the remainder locally available materials, including a single piece of quartzite. Ten pieces had been burnt, with the remainder of the assemblage fresh and unrolled. The assemblage is flake dominated (92; 65%) with a relatively high proportion of blades (37; 27%). Two cores, a hammerstone and nine pieces of angular shatter were also identified. Surviving dorsal scars indicate that the majority of pieces (33; 23%) were struck from single platform blade cores, with 17% (25) struck from single platform flake cores, the remainder being struck from flake cores. Eight pieces retained cortex on their dorsal surface demonstrating that the primary reduction of cores/nodules was occurring. A total of 88 (67%) pieces were complete, retaining both proximal and distal ends. They were, on average, 28.7mm in length, 20.8mm wide and 6.3mm thick. Surviving platforms were predominantly planar (68; 82%), with platform preparation evident on 16 (19%) and a lip indicating the use of a soft hammer on 7 (8%). Surviving terminations were predominantly feathered (48; 45%), with hinged terminations also present in high numbers (33; 31%) and stepped terminations in smaller numbers (13; 12%). The two cores were of indeterminate form, and one had been used as a hammerstone afer it had gone out of use as a core.

Fig. 8. A selection of blades from Complex 58, including 3 manufactured on Balkan flint (on left of image) and two which had been burnt to varying degrees (scale 10cm)

Secondary Technology

A total of 22 pieces had been retouched, with a further 9 showing signs of edge damage through use. The retouched assemblage was manufactured on both imported an local materials, with no apparent deliberate selection of material for specific pieces. The retouched assemblage comprised: one notched blade with a micro scraper at the distal end – this is tentatively identified (following discussions with Laurens Thiessen and Pavel Mirea) as a pottery decorating tool; two notched flakes; two piercers; a truncated blade with a notch at the proximal end demonstrating the use of notch and snap technique – this piece had gloss extending over the notch and up one edge and may have been halfted; one double end scraper with a piercer point extending from the left hand side at the distal end; one side scraper; 13 pieces with abrupt non-invasive retouch along one or more edges; and a trapizoid microlith manufactured on honey-coloured Balkan flint.

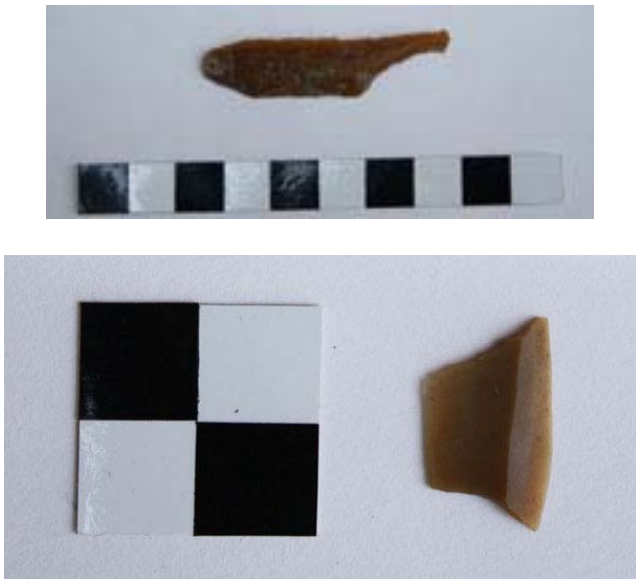

Fig. 9. Microscraper (above; scale 10cm) and microlith (scale 1cm) from complex 58

Interpretation

The assemblage from complex 58 is pre-Criş is date and as such represents the earliest Neolithic in this part of the Balkans. The morphology of the assemblage is interesting, somewhere between the Criş assemblage 35 and the Dudeşti and Vădastra assemblages 40 and 22. The assemblage contains a fairly narrow range of tools, with the majority being simple retouched blades and flakes that could have been used for many different cutting activities. The presence of cores, a hammerstone and angular shatter suggests that knapping activities were occurring close to the deposition locations, and the range of materials used does not indicate any kind of specific selection. The most interesting and significant piece is the microlith, manufactured on Balkan flint, which is typologically Mesolithic. This piece suggests that there was a degree of continuity of techniques and skills from the Mesolithic period into the Neolithic. The use of Balkan flint is perhaps significant, with a new and potentially exotic material (as suggested by the Criş assemblages) used in the manufacture of an ancient and existing tool.

While there are clearly links between this assemblage, the Mesolithic and the later Criş period, the specialisation seen in both of these phases of lithic technological development is not seen in this pre-Criş collection. Consequently, it can be suggested that this assemblage represents a stepping stone between the Mesolithic hunter gathering lithic technologies, and the specialised cereal processing assemblages of the Criş period.

3. Discussion and Conclusions

The assemblages described above allow a picture to be formed of changes to lithic technologies through the Neolithic. In the earliest Neolithic, associated with the pre-Criş pottery, there is a clear focus on blade production with the use of imported flint materials evidently becoming a significant aspect of the technology. While little is known about the Mesolithic lithic technologies in this area, a rapid assessment of an assemblage from a site recently discovered by Pavel Mirea close to the town of Turnu-Magurele, close to the Danube in southern Romania suggests that central to the technology was the creation of narrow blades on conical or bullet cores. Conical or bullet cores and narrow blades are absent from the earliest Neolithic assemblage analysed for this project, although the presence of a trapezoidal microlith and a microscraper demonstrate the continuation of certain aspects of Mesolithic lithic working practices into the pre-Criş period. The pre-Criş assemblage tends towards a utilitarian collection of materials, including a variety of retouched pieces suitable for a range of tasks, together with the waste pieces from knapping. The tendency to use the

imported, honey coloured Balkan flint in a markedly different way to the locally available dark flint is apparent in this earliest Neolithic assemblage, but the distinction is not quite as stark as in the later Criş assemblages.

The Criş period lithics stand apart from all other phases of the Neolithic, and hint at a specific set of social practices. In the assemblage examined here and complex 13, examined previously (see Pannett 2009) evidence for knapping events is absent and while both local and non-local materials are being exploited, they are used in very different ways. Tools manufactured on local, dark, flint include scrapers and piercers and represent a broad-based utilitarian kit that could have been used in the processing of animals and plant materials. In contrast, the non-local materials were used very specifically for the manufacture of retouched truncated blades that were evidently designed to be hafted to create composite tools –although the initial stages of knapping did not occur on site. The composite tools formed using truncated Balkan flint blades could have taken a variety of forms, however they are predominantly thought to have been used to create sickles and other cutting implements suitable for the harvesting of cereals.

The later assemblages from Dudeşti and Vădastra contexts display much more emphasis on broad range utilitarian tools and contain large numbers of scrapers, together with piercers, denticulated flakes and complete blades modified to form cutting edges. Abundant evidence for lithic manufacture is found in the deposits, suggesting that knapping is taking place in the vicinity of the pit the material finally ends up being deposited in.

The lithic evidence suggests that in the earliest, pre-Criş, Neolithic we are seeing the cross-over of lifestyles from the Mesolithic hunter-gatherers to the Neolithic farmers, with the associated mix of lithic technologies. It is in this earliest phase of the Neolithic that the use of imported Balkan flint takes off and its appearance can perhaps be linked to the emergence of ‘exotic’ domesticates, particularly cereals. This association between flint-type and cereals becomes more marked in the Criş phase of the Neolithic, with the Balkan flint used very specifically for the manufacture of blades many of which are truncated to create individual elements of composite tools. As Gatsov (2009) has discussed, in relation to Bulgarian lithic assemblages, the actual manufacture of the blanks appears to take place away from where the finished tools are being used and discarded, leading to theories of specialised routines of production. This specialised production functions, I suggest, as a central part of the early Neolithic relationship with cereals. Indeed, I believe that by the Criş period, the imported materials were used predominantly in the manufacture of tools for the processing of cereals – an ‘exotic’ raw material used to harvest and process an ‘exotic’ new foodstuff. The lithic assemblages from the pre-Criş, but more particularly the Criş, periods are specialised, containing curated materials that have been imported as knapped blanks rather than as raw materials that have then been deposited within pits along with other, possibly deliberately selected, lithic pieces. What we are seeing are clear choices being made in the creation of the deposits, choices that reflect the significance of new-found exotics to the people of the Teleroman Valley.

By way of complete contrast, the Dudeşti and Vădastra periods are characterised by a more expedient, broad-based lithic technology that evidently reflects a shift in lifestyle. Gone are the specialised tools associated with harvesting cereals, replaced by large quantities of scrapers, together with piercers and cutting tools suitable for processing a range of materials. There is more of a focus on locally available lithic materials, and while Balkan flint is still used, it is not selected for the manufacture of specific pieces. Knapping debris is recovered in relatively high quantities in these later assemblages, suggesting that knapping activities are occurring close to or within the pit that mterial is subsequently discarded into. There appears to be little or no selection of materials, with tools, debitage and cores all discarded in the same way. The dominance of scrapers within assemblages might indicate more of a focus on animal processing, however as use-wear analysis

has shown, scrapers could have been used for a range of processing activities.

While the analysis of lithics provides only one angle on the story of the Neolithic in the Teleorman River Valley, it does enable us to start to understand changes in social practice and possibly ideology. The evidence presented here needs to be considered in conjunction with other artefact analyses in wider discussions of the pits excavated in the Teleorman Valley.

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5. Bibliography

Gatsov, I. 2009. *Prehistoric Chipped Stone Assemblages from Eastern Thrace and the South Marmara Region 7th-5th Millenium BC.* Oxford: BAR International Series 1904.

Pannett, A. 2009. The lithic assemblages from Teleor 003: Preliminary analysis and interpretations. *Buletinul Muzeului Judetean Teleorman Seria Arheologie* 1, 67-74