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Archaeological and petrographic investigation of polished stone tools of the Neolithic and Copper Age period from the collection of the Hungarian National Museum

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Abstract: 605 pieces of Middle Neolithic to Copper age stone tools from authentic excavations in Hungary were studied, of which 255 pieces were selected for detailed archaeological and petrographical analyses. 175 pieces came from the Eastern part of the country, 81 from the territory to the West of the Danube. During morphological classification we noticed, that the traditional nomenclature do not reflect the actual function of the tools in the majority of cases, in fact the tools were used for several purposes. In these instances, we suggest the name multi-functional plano-convex tool for the tools. Different traces of use observed in natural light by naked eye and by the help of a magnifying glass were encountered on the tools denoting their way of use and hafting. All selected tools were petrographically determined, 33 of which was observed and precised by petrographic microscope. 17 main rock types were distinguished. The majority of stone tools were made of three large group of rocks, the andesite-basalt and meta-volcanites, the ophiolitic originated diorite-dolerite-gabbro and serpentinite-greenschist-blueschist and the sandstone-quartzite groups. Raw material provenance area was grouped on 7 regions according to geographical distribution of the archaeological site and that of the possible source of the rock type.

Key words: petrography, traces of use, polished stone tools, Neolithic and Copper Age, Hungary

Introduction

A research program was started by the financial support of the Hungarian National Science Foundation[1)] in 1997 for the study of polished stone tools in the Hungarian National Museum. The aims of the project were to investigate both archaeological and petrological issues important for the study of polished stone tools. The rich collection of the Hungarian National Museum comprising several thousand stone tools offered an ideal background for these studies. Mainly, evidences of the earliest farming communities found on settlements or burial sites were selected from the period between VIth-IIIth Millennium BC With the exception of the Earliest Neolithic, almost all cultures of these periods were investigated. Due to the research history of the HNM collection, sites from the Eastern, north-eastern parts of Hungary were better represented in this study (Fig. 1).

Opposed to traditional typological investigations, the tools were analysed in a complex way. Emphasis was given to the objective description of the probable function of the tools, traces of utilisation, raw material of the tools and their possible provenance.

Altogether 605 pieces of stone tools were studied, of which 255 pieces were selected for detailed archaeological and petrographical analysis. 175 pieces came from the Eastern part of the country, 81 from the territory to the West of the Danube. All of them came from authentic excavations, their archaeological age could be clearly identified and, at the same time, they represented a characteristic and varied sample of the polished stone tool kit.

Archaeological investigations

Evidences of previous documentation (1850-1999) were revised and organised into a computerised database. All the tools were newly assigned. Aspects of morphological and functional elements were systematically described with special concern on utilised parts (working edge, butt, traces of fixing in handle) and types of use-wear (fracture, wear, polish, abrasion etc.). Dimensions and weight were also recorded. Probable use of the pieces were indicated.

Morphological classification of the tool types was considered essential mainly for their possible chronological implications. Hungarian museums own a large number of polished stone tools of unknown age and (archaeological) provenance the assignment of which can be made possible by comparison with pieces of known context. This method helped us to give possible temporal dimensions to 449 pieces of artefacts from unknown age within the collection of the Museum. Typological classification was made with an eye on the finish of the functional

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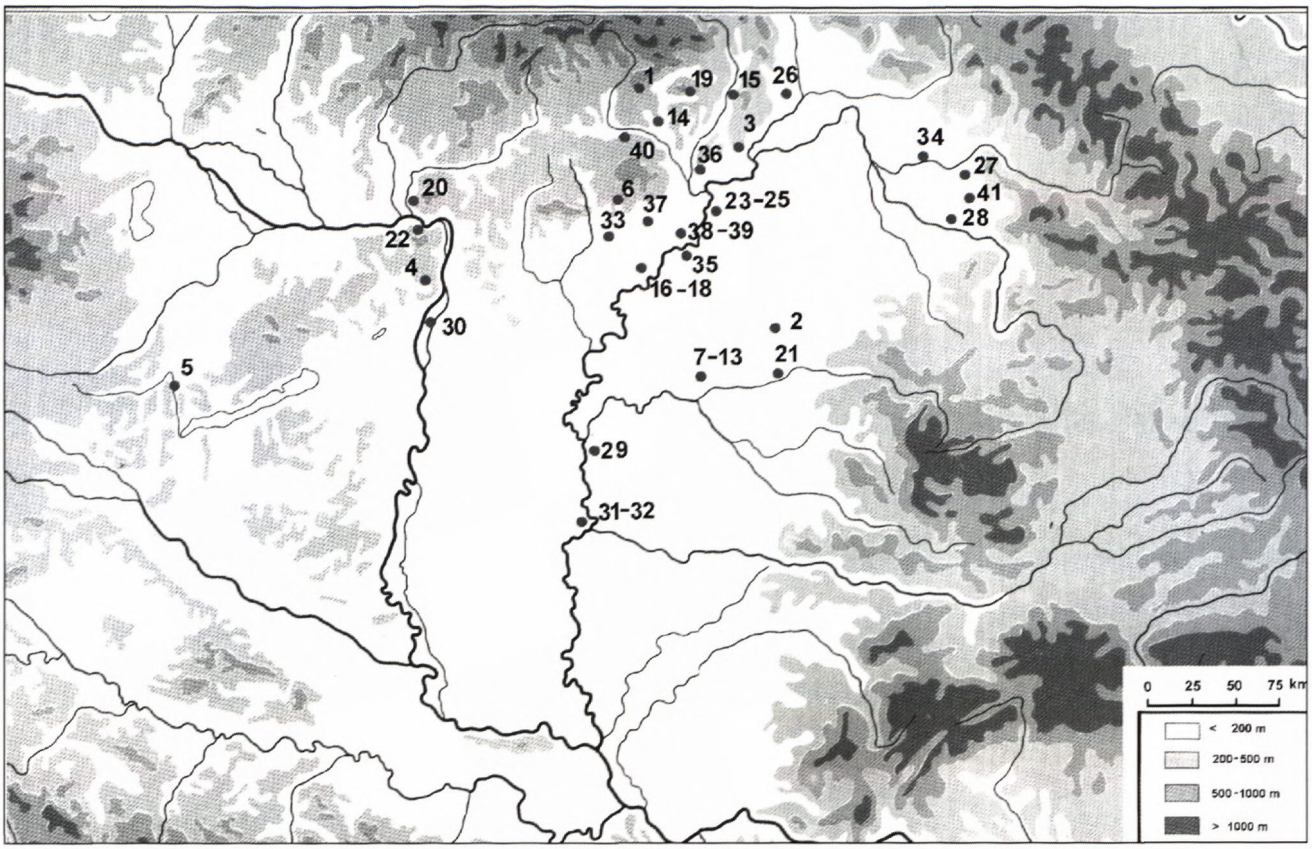

Fig. 1. Archaeological sites investigated (See also Table 1.)
Key: 1 Aggtelek-Baradla barlang;2 Berettyószentmárton;3 Bodrogkeresztúr-Kutyasor ;4 Budakeszi ;5 Csáford;6 Demjén-Hegyeskőbérc;7-13 Dévaványa -Sártó, -Réhelyi gát, -Simasziget;14 Edelény (Borsod)-Derekegyháza;15 Hejce-Püspöktábla;16-18 Kisköre-Gát;19 Krasznokvajda-Kőtelek dűlő;20 Letkés-Vízfogó;21 Magyarhomorog-Kónyadomb;22 Pilismarót-Szobi rév;23-25 Polgár-Csőszhalom, -Folyás-Szilmeg, -Basatanya;26 Sátoraljaújhely-Ronyva part;27 Sonkád;28 Szamossályi;29 Szegvár-Tűzköves;30 Szigetcsép-Tangazdaság;31-32 Tápé-Lebő Alsóhalom, -Lebő Felsőhalom;33 Tarnabod;34 Tarpa-Márki tanya;35 Tiszafüred;36 Tiszalúc-Sarkad;37 Tiszanána;38-39 Tiszavalk-Tetes, -Négyesi határ;40 Uppony-Malom ág;41 Zajta

parts (edge, butt, sides). Among the tools, "traditional" forms were separated the form of which underwent no or very little changes during the Neolithic and the Copper Age period. An essential portion of the tools could be classified to this group like plano-convex items. At the same time, types typical of certain periods were also found, e.g. among the axes, more typical for the Late Neolithic / Copper Age cultures.

In course of the typological classification we were facing the inadequacy of traditional nomenclature in most of the cases. Names applied for the tools according to the traditional nomenclature do not reflect the actual function of the tools in the majority of cases. Partly, the terms do not meet the actual function; partly, the tools could be (in fact, were) used for several purposes. E.g., the tool type generally referred to as "flat axe" could not be used as axes proper but served for several, at least three functions, i.e., carving, planing and fine cutting. In these instances, the suggested name for the tools was multi-functional plano-convex tool. In a number of cases we have observed differences in the use of tools seemingly of identical form, not reflected in the name. Such evident differences could be seen in the so-called trapeze-form chisels having large (3-400 g) and small (15-20 g) versions. As a consequence it was deduced that while naming the tool, basically the aspects of function should be considered.

Different traces of use were encountered on the tools denoting their way of use and hafting. Most of these signs could be observed in natural light and by the help of a magnifying glass. Fractures, abrasion, polish were observable on the polished surface to the naked eye as well.

Most of the traces observed relate to the way of use of the item (grooving, cutting, planing etc.). Part of the features observed related to way of application and hafting. The handles attached to the stone blades caused characteristic traces of wear: grooves, bright spots, fray. Typical traces of abrasion could be observed for instances of hafting (into a socket or amidst wooden chops), inserting into a handle or pinching the piece out to a sort of handle.

In the following some characteristic types of tools will be presented the function of which could be identified on the basis of traces of characteristic abrasion (Plate I.).

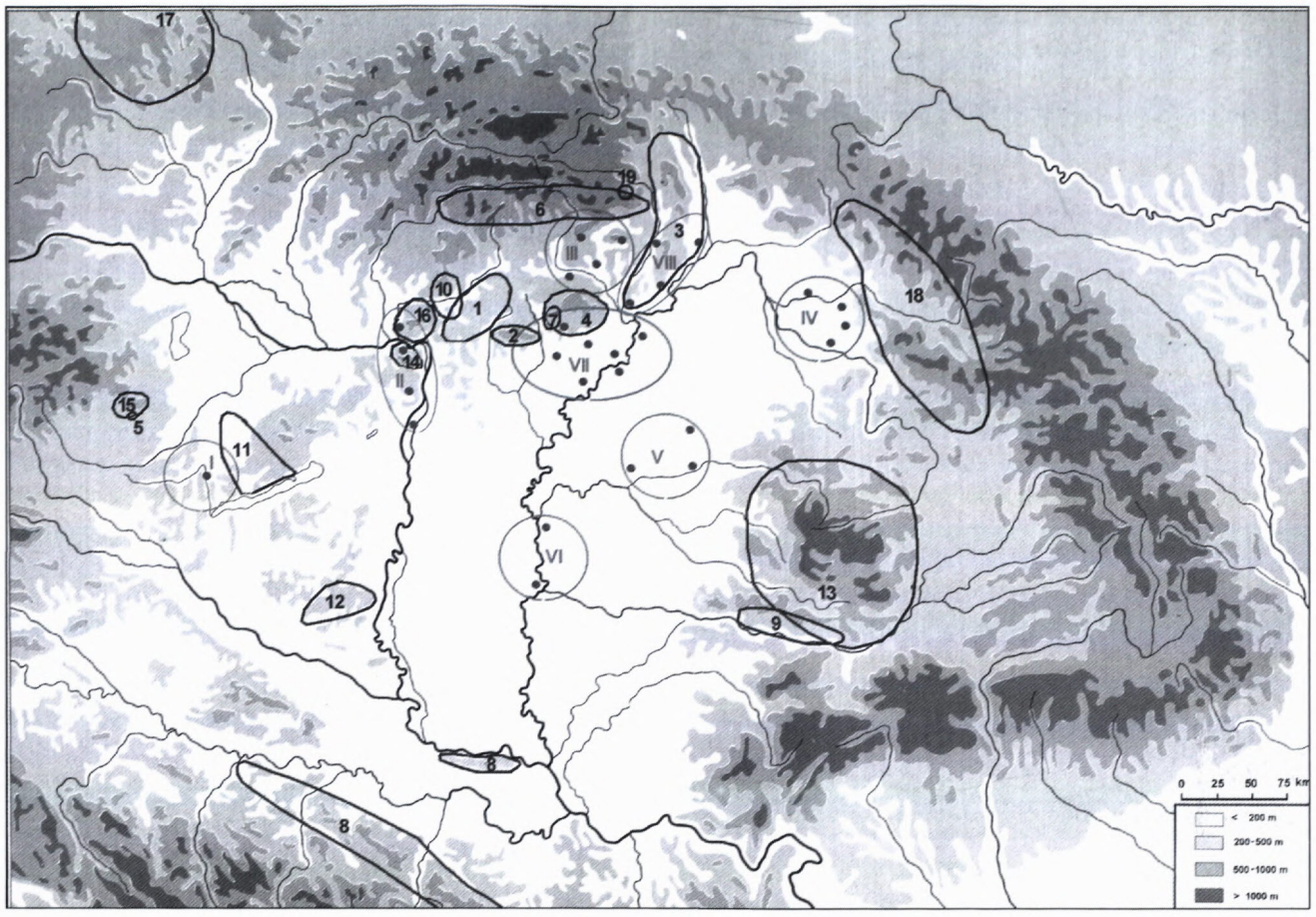

Fig. 2. Connection of the archaeological sites investigated, based on petrographical observations
Key: Roman numbers: archaeological districts I: Zala county region, II: Pilis Mts. region, III: Borsod region, IV: Szamos region, V: Körös region, VI: Szeged environs, VII: Tisza region, VIII; Tokaj Mts. Arabic numbers: raw material source regions 1:Cserhát Mts. , 2: Mátra Mts., 3: Tokaj-Prešov Mts., 4: Bükk Mts., 5: Felsőcsatár environs, 6: Gömör-Szepes Ore Mts., 7: Szarvaskő environs, 8: Vardar zone, 9: Maros (Mureş) valley, 10: Nógrád-Gömör region, 11: Balaton-Highlands, 12: Mecsek Mts., 13: Transylvanian Ore Mts., 14: Visegrád Mts., 15: Penninicum, 16: Börzsöny Mts., 17: Bohemian Massive, 18: Subcarpathian volcanites, 19: Sugov Valley

Petrographic investigations

The aim of the petrographic investigations was to define the raw material of the tools. As a first step, groups of rocks coming possibly of the same geological setting were separated. Analysis was performed macroscopically for the complete set (255 items) and by petrographic microscopy on a selected set of characteristic types, in 33 instances (12,5 % of the total number studied, Table 1). More elaborate analytical studies, necessary for the exact characterisation of the source, could not be accomplished due to high costs of the suitable analyses.

For a preliminary evaluation of the rocks several groups could be distinguished. Some of them, like quartzite or sandstone, can be identified also macroscopically but have a wide geological distribution and the different sources can yield exemplars of very similar appearance. The provenancing of these rock types would require further analytical studies.

There are also some rocks which are relatively easy to identify like serpentinite and actinolite schist or andesite and some plutonic magmatic rocks (e.g., dolerite, gabbro) which are not too frequent therefore even their macroscopical identification can serve as an enlightened guess for the identification of the place of origin. In the case of several interacting source regions, however, their further study is inevitably necessary.

The fastest result can be expected from the identification of rare and characteristic rock types like blueschist due to their unambiguous identification.

The macroscopical identification of certain fine grained rocks is very uncertain therefor they can be effectively separated using petrographical microscope only. The preparation of a thin section made of these rocks is necessary even for the simple identification of the rock.

Identification of the rocks, and mainly, the provenance of the pieces can be helped by the characteristic pattern of occurrence and distribution, i.e., the rocks will often appear as parts of a series. The joint occurrence of these rock types or their appearance in certain district can be of distinctive character. In the case of large areas and a representatively large number of sites the regional

distribution of the rock types can also indicate direction and distance of transport.

The characteristic rock types were encountered in the following percentage distribution (Table 2).

Petrographic evaluation and microscopic description[2] of the rock types of raw material presented in Table 2.

Concerning the whole material investigated we can establish, that the majority of stone tools were made of three large group of rocks. The first group of raw material is given by andesite, basalt and volcanite-metavolcanite (60 pieces). Most of these kind of rocks appear as members of Miocene-Pliocene volcanic series in the Inner Carpathians. The second group contains rock types of ophiolitic origin. This group can be divided to non-, or less metamorphosed (diorite-dolerite-gabbro, (35 pieces)), and metamorphosed (serpentinite, greenschist and blueschist (64 pieces)) subgroups which can be found in four main localities in the surroundings - Penninicum (in Eastern Alps), Szarvaskő-Meliata (in Bükk and Gemericum), Maros Valley (in Transylvanian Mid-Mts.) and Vardar zone (in Dinaric Mts.) - and one a bit further in Bohemian Massive. The third group is given by sandstones and quartzites (63 pieces) which have a wide geological distribution.

Andesite is one of the more frequent rock types in this collection. Different varieties of (mela-, pyroxene-, amphibole-, propylitised-, hydro-, basaltic-) **andesites** (35) were macroscopically determined. All of the six thin section analyses proved the macroscopically determined names, so this is the easiest determinable rock type among the raw materials. 6 andesites from only two localities, all on the margin of Tokaj Mts. were **microscopically** analysed: Five of them turned out to be pyroxene andesite (see microphotos II/4, II/6, III/2) with or without orthopyroxene and olivine phenocrysts and considerable glass content in the groundmass. The sixth sample proved to be strongly weathered mela- andesite (83.35.537, see microphoto II/2.). Andesite tools appeared in the Pilis region and the surroundings of Tokaj and Mátra Mts. These mountains could serve as source regions for andesitic raw materials. Polished stone tools made of andesite are generally known from the material examined so far from Hungary, but with the exception of Aszód-Papi földek (Kalicz 1985, T. Biró 1992, Judik et al. 2001) it was not found frequently in the museum collections. They also represent several types originating from, similar to the collection of the HNM, the Tertiary volcanic regions of the nearby regions. The situation seems similar in Slovakia as well (Hovorka and Soják, 1997; Hovorka and Illášová 2000).

The category of **tuff** is represented by 4 samples of andesite tuff, metamorphosed tuffs and metatufite. There were no thin section analysis made to resolve the small degree of uncertainty of macroscopic determinations. In spite of this, we have allocated two pieces of metamorphosed tuff from Uppony, and the andesitic tuff from Letkés unambigously as derived from the nearest Bükk-Uppony, and Börzsöny Mts., respectively.

In the group of **basalts** (9) 1 metabasalt and 1 questionable quartz-basalt also occurred. Moreover, four basalts of five, determined by petrographic microscope, were described by naked eye as eclogite-hornfels, amphibolite, metamicrogabbro and andesite. The **microscopically** analysed (5) basalts show different character. The sample from Szigetcsép (77.7.25.) is very fresh, and contains a lot of olivine and augite phenocrysts in medium grained plagioclase-augite bearing intergranular groundmass with few rock-glass (see microphoto IV/2.) This is a clearly Neogenic feature. One tool from Tápé (1951.7.66.) has similar character to the Mecsek type basalt. This rock has fine-grained intergranular texture with plagioclase, augite, iddingzitised or fresh olivine, opaque mineral and minor glass (see microphoto III/6) and with only one phenocryst (see microphoto III/4). The sample found in Kisköre is microscopically finer grained, but close to the ophiolitic originated metadolerite (58.35.4, see microphoto IV/6.), so the most probably source region for it is the close lying Szarvaskő area. Because of very fine-grained appearance, more thin section and chemical analyses are needed to distinguish four different possible source of raw materials for stone tools. Perhaps it is more frequent in this collection as presented. At some places in other Hungarian assemblages it was found dominant like in the Miháldy-collection (Szakmány et al. 2001), comprising almost exclusively Neogene basalts while in the South-Hungarian material, the Mecsek Lower Cretaceous basalt is found together with (lesser amount of) Neogene basalts (Schléder and T Biró 1999, Schléder et al. 2002, Nikl et al. 2002, Füri et al. in this volume). In the neighbouring countries, also several versions were described from Slovakia (Hovorka and Soják, 1997; Hovorka and Illášová 2000, Illášová 2001) and their presence was also noted in Croatia (Balen et al. 2001).

Rhyolite (3) and **volcanites-metavolcanites** (12) were determined only by naked eye. Macroscopic naming in some cases would be necessary to be proved by thin section analysis. Source area for rhyolite is not clearly detected, but the volcanite-metavolcanitic tools are concentrated around and south of Tokaj Mts. where rhyolite is frequent.

In the third largest category of rocks different varieties (meta-, micro- and/or quartz-) of **gabbros, dolerites** and **diorites** (36) were sorted. These rocks are macroscopically very well determinable, only one, the finest grained of 11 **microscopically** analysed samples was determined first, by naked eye, as hornfels. For determining the exact rock name thin section analysis is needed,

[2] Micrsoscopic description is given only if thin section was made.

and to clear up the source rock, further petrochemical analyses are necessary. On the basis of 12 thin section analyses from 4 localities it is concluded that all of these intrusives could be ranged into one group showing ophiolitic origin character (see for example microphotos IV/6, V/2, V/4, V/6) They have intergranular to ophitic texture and contain magmatic plagioclase and augite, and considerable amount of metamorphic minerals as brown hornblende, actinolite, albite, tremolite, epidote, chlorite, quartz, calcite, and in one case bluish amphibole (1973.13.7.). Rocks of this group are also fairly frequent in other Hungarian polished stone tool assemblages. Their detailed analysis is one of the great debts of petro-archaeological research. They have a variable appearance and composition which is the result of their varied grain size and degree of metamorphosis. Comparable pieces to the HNM collection were found at Aszód (Judik et al. 2001), as well as Szarvas and Endrőd (Starnini and Szakmány 1998). It was also frequently found in Slovakia (Hovorka and Soják, 1997; Hovorka and Illášová 2000).

In the **serpentinite** (26) group 14 pieces of serpentinite (1 of them was established by thin section analysis), 6 different types of metaperidotites (1 was proved microscopically), and 6 uncertainly determined serpentinite (-chlorite schist, -greenschist, -limnoquartzite) was collected. For raw material distinction chemical analyses are necessary. The **microscopically** investigated serpentinite in some places has relict ophitic texture with relict augite and laths of albite (89.2.1063, see microphoto VI/4.). The two metaperidotites investigated by microscope also kept relict texture with considerable amount of pseudomorphs after olivine (see microphoto VI/2.). This group is spread all over the Carpathian Basin both in Hungary and the neighbouring regions in minor quantities but always present (Hovorka and Illášová 1995; Szakmány 1996, Szakmány and Starnini 1998, Schléder and T. Biró 1999; Hovorka and Illášová 2000; Szakmány et al 2001, Nikl et al. 2002., Schléder et al. 2002, Szakmány and Starnini, 2002), more in the Western, south-western territories (T Biró and Szakmány 2000)

7 pieces of chlorite schist were ranked into greenschist group (25), 5 **greenschist** items were proved by microscopic determinations. These rocks are easy to determine macroscopically, but at least thin section analyses are needed for the determination of possible source area of raw material. In four fine-grained rocks, albite, tremolite, epidote, chlorite and fine grained sphene can be distinguished **microscopically**. Schistosity is not very strong (see microphoto VII/2.). These rocks are originated perhaps from Felsőcsatár. In the fifth thin section (70.9.19) beside previous minerals finer grained patches of fibrous zoizite, elongated opaque minerals and thin non-oriented laths of tremolite regulated in lenses are characteristic with strongly developed schistosity (see microphoto VI/6.). This feature is characteristic for certain Bohemian greenschists (Szakmány and Kasztovszky 2001, in prep.). Greenschist is one of the most widely used raw material for polished stone tools in the Carpathian Basin which is even more frequent at the western parts of the basin (Szakmány and Kasztovszky 2001) and the north-eastern territories adjacent to the Carpathian Basin (e.g., Slovakia: Hovorka and Illášová 2000, and the territory of the Bohemian Massiv: Přichystal 2000). Several types could be established by petrography and chemical fingerprinting, part of them probably originating from the Eastern Alps (Penninicum), but a large portion of them originate most probably the Bohemian Massiv (Szakmány and Kasztovszky 2001, in prep).

In the **blueschist** group (13) 10 surely determined (two was ascertained by microscope) and three uncertainly determined (-metagabbro, -amphibolite, -chlorite schist) blueschist was sorted. These tools are mainly concentrated to North Hungary, close to the possible source area in the Gemer Mts. Majority of rock determinations are unambiguous even without thin section analysis. The two microscopically investigated blueschist stone tool contain glaucophane, albite, epidote, titanite and opaque mineral. In the courser grained sample garnet and chlorite also exist (1949.15.233, see microphoto VII/4.). The closest source area is the Gemer Mts. in South Slovakia. A detailed elaboration of blueschist tools found so far in Hungary was performed by Józsa et al. (2001), and further specimens were pointed out by Hovorka et al. (2000) in the adjacent regions.

Hornfels (8) is difficult to determined by naked eye, half of the amount surveyed (4) were similar to quartzite, sandstone and siliceous limestone, two more samples macroscopically determined as hornfels microscopically turned out to be siliceous limestone and basalt. Identification of possible source is difficult even with the help of polarising microscope and needs further specific research. This raw material is also widely distributed in the Carpathian Basin (Hovorka et al. 2001) and the Hungarian polished stone tool kit specifically, more frequent in the SE parts (e.g., Szarvas and Endrőd: Starnini-Szakmány, 1998),

Medium-grained meta-sedimentary rocks rich in quartz (metasandstone, quartzite schist, quartz, quartzite and the transitional types between them) were described as **quartzite** (24). Detailed determination is impossible without thin section analysis, but even this method do not help much in the searching of the source rock. In our collection this rock type is comparatively frequent. It appeared also in other collections, but not in a large quantity.

Jasper (2) and **lydite** (4) was not investigated by microscope, but the few number of samples do not allow considerable conclusions for the raw material. These rock types appear very rarely as raw materials for polished stone tools.

Under the name **sandstone** (39) we collected 34 sandstones, one siliceous and one tuffitic sandstone and three questionable rocks between sandstone, siltstone and chert. Comparatively well determinable, but less informative rock type. One of the main rock groups in

this collection. It was found mainly as grinding stone (e.g., Szakmány 1996, Judik et al, 2001 etc.). The fine grained varieties may occur as polished stone tools, as well, though rarely used. (Szakmány et al 2001).

Claystone (4), **limestone** (7), and **diatom schist** (1) in this collection are not very frequent rock types. Valuable information on possible source is not possible without thin section analysis.

Raw material provenance area was grouped according to geographical distribution of the archaeological site and that of the possible source of the rock type.

Zala county region: The only locality from this region studied was Csáford. The two implements analysed from this site cannot reflect the overall features of the area. One of the stone tools found here, made of serpentinite, probably originated from the nearby Kőszeg-Rohonc Mts., because further localities of serpentinite occurrence seem to be very far off (e.g., Gömör-Szepes Ore Mts. or Transylvanian Mid-Mts.)

Pilis Mts. region: There were 6 sites with 27 stone tool items belonging to this group. Of the two rock groups which could be evaluated in respect of provenance, andesites (12 pieces) probably originate from the Börzsöny or Visegrád Mts. Their exact origin could be more precisely defined by thin-section studies. It is interesting to note that they were not found in the material of three sites close to Budapest and further off from the source area and the Danube but were found on the site lying more distant from the source but along the Danube at Szigetcsép. Chlorite schist-actinolite schist appeared here in relatively large quantities (10 pieces). It can be postulated to occur here, at most, in the Danube pebbles. Most of these were found in the material of Budakeszi and Békásmegyer. The provenance of this rock could not be ascertained so far.

Borsod region: 5 sites were assigned to this group with 21 pieces of stone tools. The most abundant rock type here was serpentinite and actinolite schist-blueschist (13) which could be procured from the close-lying Gemer-Szepes Ore Mts. in the so-called Meliata unit. Meta-volcanites and metatuffites here could have originated from the eastern Bükk volcanites. On the northernmost exposed settlements lying further off from the Bükk Mts. (Borsodedelény and Krasznokvajda), these rocks were not present. The dolerite-diorite group of rocks could have come equally from Szarvaskő environs in the Bükk Mts. and the Meliata unit of the Gemer-Szepes Ore Mts. Sandstone implements in this region occurred mainly on the eastern parts (Borsodedelény and Krasznokvajda) and could be connected to the Szamos region.

Archaeological sites of the **Szamos region** can be mainly characterised by the sandstones. There were four sites investigated from here with one item on each site. The more precise location of sandstone could only be realised by expensive analytical techniques, with sampling for comparative material over large areas.

On the sites of the **Körös region** (5 sites with 35 pieces of artefacts investigated), stone tools made of two groups of rocks were found mainly, partly serpentinite and in minor ratio, chlorite and actinolite schist and blueschist. Such rocks are known to occur, nearest, in the Maros valley, a bit further off, also in the Gömör-Szepes Ore Mts. More exact analyses are needed to decide on provenance, which is still in progress. The same can be said about the group of rocks diorite-dolerite-gabbro as well.

Among the rock types of the 48 pieces of artefacts from **Szeged environs** region comprised mainly sandstone (12) which is difficult to attribute for specific sources being widespread and not easily separable. The rock group comprising quartzite (9) is similarly difficult to locate. Rocks comprising serpentinite and actinolite (5) as well as diorite-dolerite-gabbro (10) can be connected to those of the Körös region and an origin from the Maros valley can be postulated for both. The evaluation of further rock types need more analyses.

The most complex region within the study areas was the **Tisza region** (110 pieces analysed). Sites of this region, with one exception only (Tiszavalk), are characterised by the presence of andesite tools (26 items) which could have come from the Tokaj, Mátra or Cserhát Mts. as well but more distant origin (Selmec Mts. or N-Transylvanian outcrops) could be equally considered. By a simple petrographical thin section a more exact sourcing could be realised in this set of samples. Rocks of the serpentinite, chlorite- actinolite- and blueschist group (23 items) appear here not on all of the sites. The considerations made in the case of the Szeged region could be acknowledged here, i.e., they could have come from two directions. The same relates to the group diorite-dolerite-gabbro appearing only on two sites, however, on these two sites in considerable quantities (12 pieces).

A separate **sub-region** is formed by the sites lying **close to the Tokaj Mts**. A small shift in the ratio of rocks can be observed here in favour of andesite which can be explained by the vicinity of the Tokaj Mts. Moreover, apart from the previously mentioned rocks, further characteristic rocks could be observed here. Such is sandstone (21 pieces), with a seemingly characteristic area of distribution but no definite clue on provenance. The most characteristic rock type of the region is quartzite (5 pieces), which is also difficult to locate. At the northernmost lying site of the Tisza group, at Polgár, sandstone and quartzite could be also observed which fits well into our observation made on the distribution of these rocks.

Summary

Analysing the raw material of the tools it is apparent that the people of the Neolithic period used the raw material sources lying close to their settlement, surface outcrops and river pebbles (for example andesite). Copper Age people were less bound to their immediate vicinity. Some raw materials from more distant localities were also in demand like greenschist, blueschist, hornfels and diorite-dolerite-gabbro. For obtaining these raw

materials, "expeditions" for several days might have been organised or exchange relations could have been established with the neighbouring cultures.

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Table 1. Description of the polished stone tools investigated by archaeological and petrographical criteria

Site	Type of tool	Inv. Nr. Hungarian National Museum (HNM)	Archaeological age	TS	Rock name and short macroscopic features	Possible origin of the rock
Csáford[1)]	axe	1960.15.6.	Copper Age		green quartzite with white weathered crust	
Csáford	symbolic tool	1960.15.7.	Copper Age		serpentinite	Penninic Unit (E-Alps)?
Letkés-Vízfogó[2)]	plane	49.1948.17.	Middle Neolithic		black, fine grained slightly slaty quartzite	
Letkés-Vízfogó	chisel-plane-cutting tool	49.1948.18.	Middle Neolithic		fine grained, homogeneous quartzite(?)	
Letkés-Vízfogó	chisel	49.1948.19.	Middle Neolithic		dark grey very fine grained amphibole andesite	Tokaj Mts.?
Letkés-Vízfogó	symbolic tool	1985.2.161.	Middle Neolithic		medium-dark grey, fine grained andesite tuff	Tokaj Mts.? Mátra Mts.?
Letkés-Vízfogó	chisel-plane-cutting tool	1985.2.162.	Middle Neolithic		black - dark green, strongly foliated quartzite schist	
Letkés-Vízfogó	plane	1985.2.188.	Middle Neolithic		dark grey andesite, rich in plagioclase phenocrysts (max. 0.5 mm)	Visegrádi Mts.? Velence Mts.? Mátra Mts.?
Letkés-Vízfogó	chisel-plane-cutting tool	1985.2.520.	Middle Neolithic		strongly foliated quartzite schist or metasandstone	
Szigetcsép-Tangazdaság[3)]	grinder	1977.7.25.	Copper Age, Baden Culture	TS	gray fine grained basalt with olivine	Balaton Highland or Little Hungarian Plain or Nógrád
Szigetcsép-Tangazdaság	undetermined	1977.7.333.	Copper Age, Baden Culture		dark green, fine grained homogeneous greenschist (actinolite schist)	Felsõcsatár? Bohemian Massive?
Pilismarót-Szobi rév[4)]	chisel-plane-cutting tool	1984.1.60.	Copper Age, Baden Culture		gray andesite	Visegrádi Mts.
Pilismarót-Szobi rév	chisel	1987.21.395.	Copper Age, Baden Culture		medium grained well crystallized fresh andesite	Visegrádi Mts.

1) Korek (1960).
2) Papp (1973).
3) Korek (1984).
4) Unpublished finds. With kind permission of M. Bondár.

Site	Type of tool	Inv. Nr. Hungarian National Museum (HNM)	Archaeological age	TS	Rock name and short macroscopic features	Possible origin of the rock
Pilismarót-Szobi rév	symbolic tool	1988.1.2343.	Copper Age, Baden Culture		dark gray, fine grained andesite, rich in oriented plagioclase phenocrysts	Visegrádi Mts.
Pilismarót-Szobi rév	other stone utensil	1988.1.2258.	Copper Age, Baden Culture		Silicified andesite (jasper-like)	Visegrádi Mts.? Börzsöny?, Mátra Mts.?
Pilismarót-Szobi rév	chisel-plane-cutting tool	1988.1.3077.	Copper Age, Baden Culture		fine grained greyish black andesite(?)	Visegrádi Mts.? Börzsöny? Cserhát? Mátra Mts.?
Pilismarót-Szobi rév	chisel-plane-cutting tool	1988.1.3078.	Copper Age, Baden Culture		chlorite schist rich in quartz	
Pilismarót-Szobi rév	cutting axe	1988.1.3079.	Copper Age, Baden Culture		very fine grained, dark grey andesite	Visegrádi Mts.? Börzsöny? Cserhát? Mátra Mts.?
Pilismarót-Szobi rév	cutting axe	1989.1.200.	Copper Age, Baden Culture		gray, fine grained and porous andesite (weathered)	Visegrádi Mts.? Börzsöny? Cserhát? Mátra Mts.?
Pilismarót-Szobi rév	other stone utensil	1989.1.318.	Copper Age, Baden Culture		hornfels (pebble)	Apuseni Mts.?
Pilismarót-Szobi rév	undetermined	1989.1.363.	Copper Age		dark grey amafitic andesite	Mátra Mts.? Cserhát? Visegrádi Mts.?
Pilismarót-Szobi rév	grinder	1989.1.363	Copper Age		amafitic andesite	Mátra Mts.? Cserhát? Visegrádi Mts.?
Budakeszi[5)]	chisel	1969.17.1.	Middle Neolithic		dark green, fine grained strongly schistosed chlorite schist	
Budakeszi	chisel-plane-cutting tool	1969.17.2	Middle Neolithic		finely schistosed green chlorite schist	
Pomáz[6)]	symbolic tool	1957.34.40.	Middle Neolithic		strongly schistosed chlorite schist	
Békásmegyer[7)]	chisel-plane-cutting tool	9.1937.2.	Middle Neolithic		dark green, schistosed chlorite schist	
Békásmegyer	chisel-plane-cutting tool	9.1937.1.	Middle Neolithic		dark green chlorite schist	
Demjén-Hegyeskõbérc[8)]	chisel-plane-cutting tool	1975.2.274.	Middle Neolithic		light green and white metavolcanite(?)	Bükk Mts.?
Uppony-Malom ág[9)]	chisel	1962.68.12.	Middle Neolithic		slightly metamorphosed tuff	Bükk Mts.?
Uppony-Malom ág	symbolic chisel	1962.68.26.	Middle Neolithic		light greenish grey slightly metamorphosed tuff	Bükk Mts.?

5) Excavation of A. Mozsolics and J. Korek. Unpublished finds.
6) Excavation of I. Bognár-Kutzián and S. Sashegyi. Unpublished finds.
7) Excavation of F. Tompa in 1932. Unpublished finds.
8) Dobosi(1976).
9) Korek (1971).

Site	Type of tool	Inv. Nr. Hungarian National Museum (HNM)	Archaeological age	TS	Rock name and short macroscopic features	Possible origin of the rock
Aggtelek-Baradla barlang[10]	chisel	37.1948. 37.	Middle Neolithic		medium size grained, slightly lineated blueschist	Gemericum
Aggtelek-Baradla barlang[11]	paint crusher made of symbolic tool	64.1929.63.	Middle Neolithic		dolerite	Szarvaskõ? Vardar zone? Maros-valley?
Krasznokvajda-Kõtelek dûlõ[12]	plane	1980.1.104.	Middle Neolithic		very fine grained laminated siliceous sandstone - clayey siltstone	
Tarnabotörölnid[13] ***	fragment of polished tool	1980.1.155.	Middle Neolithic		actinolitised blueschist	Gemericum
Edelény (Borsod)-Derekegyháza[14]	chisel	15.1949.69.	Middle Neolithic		greenschist (actinolite schist)	Felsõcsatár? Bohemian Massive?
Edelény (Borsod)-Derekegyháza	chisel-plane-cutting tool	15.1949.70.	Middle Neolithic		fine grained, slightly bluish grey metavolcanite	Bükk Mts.?
Edelény (Borsod)-Derekegyháza	chisel-plane-cutting tool	15.1949.71.	Middle Neolithic		serpentinite	
Edelény (Borsod)-Derekegyháza	undetermined plano-convex tool	15.1949.72.	Middle Neolithic	TS	dark green greenschist (actinolite schist)	Felsõcsatár
Edelény (Borsod)-Derekegyháza	chisel	15.1949.73.	Middle Neolithic	TS	greenschist (actinolite schist)	Felsõcsatár
Edelény (Borsod)-Derekegyháza	undetermined plano-convex tool	15.1949.74.	Middle Neolithic		white microholocrystalline diorite	
Edelény (Borsod)-Derekegyháza	chisel-plane-cutting tool	15.1949.125.	Middle Neolithic	TS	greenschist or contact metamorphite	
Edelény (Borsod)-Derekegyháza	chisel-cutting tool	15.1949.155a.	Middle Neolithic		blueschist with epidote and actinolite.	Gemericum
Edelény (Borsod)-Derekegyháza	chisel-plane-cutting tool	15.1949.181.	Middle Neolithic		blueschist, with vein of epidote-quartz-albite.	Gemericum
Edelény (Borsod)-Derekegyháza	undetermined tool	15.1949.192.	Middle Neolithic		serpentinite.	
Edelény (Borsod)-Derekegyháza	chisel-plane-cutting tool	15.1949.224.	Middle Neolithic	TS	blueschist	Gemericum
Edelény (Borsod)-Derekegyháza	chisel-plane-cutting tool	15.1949.233.	Middle Neolithic	TS	blueschist with garnet	Gemericum
Edelény (Borsod)-Derekegyháza	chisel	15.1949.234.	Middle Neolithic	TS	greenschist (actinolite schist) with epidote	Felsõcsatár
Edelény (Borsod)-Derekegyháza	other stone utensil	15.1949.235.	Middle Neolithic		sandstone	

10) Korek (1970).
11) Excavation of F. Tompa in 1929. Unpublished.
12) Losits (1980)
13) Unpublished surface find from the neolithic settlement.
14) Korek-Patay (1958).

Site	Type of tool	Inv. Nr. Hungarian National Museum (HNM)	Archaeological age	TS	Rock name and short macroscopic features	Possible origin of the rock
Edelény (Borsod)-Derekegyháza	chisel-plane-cutting tool	15.1949.287.	Middle Neolithic		actinolitised blueschist	Gemericum
Sátoraljaújhely-Ronyva part[15]	plane	27.1912.34.	Middle Neolithic		green coloured siliceous fine grained volcanite	Tokaj Mts. ?
Sátoraljaújhely-Ronyva part	cutting axe	27.1912.35.	Middle Neolithic	TS	pyroxene andesite	Tokaj Mts.? Cserhát? Mátra Mts.?
Sátoraljaújhely-Ronyva part	chisel	27.1912.36.	Middle Neolithic		light grey amphibole bearing andesite	Tokaj Mts. ?
Sátoraljaújhely-Ronyva part	chisel-cutting tool	27.1912.37.	Middle Neolithic		translucent, red-greenish-bluish grey, quartzite, resembling jasper	
Sátoraljaújhely-Ronyva part	chisel-plane-cutting tool	27.1912.38.	Middle Neolithic		green metavolcanite with lilac pebble	Tokaj Mts.? Bükk Mts.?
Sátoraljaújhely-Ronyva part	chisel-plane-cutting tool	27.1912.39.	Middle Neolithic		striped, greyish-yellow siliceous sandstone	
Sátoraljaújhely-Ronyva part	symbolic tool	27.1912.40.	Middle Neolithic		siliceous siltstone-fine grained sandstone	
Sátoraljaújhely-Ronyva part	chisel-plane-cutting tool	27.1912.41.	Middle Neolithic		fine grained greenish metavolcanite (keratophyre?)	Bükk Mts.?
Sátoraljaújhely-Ronyva part[16]	symbolic tool / paint crusher	50.1929.7.	Middle Neolithic		siliceous, kaolinitic sandstone.	
Sátoraljaújhely-Ronyva part	symbolic tool	50.1929.8.	Middle Neolithic		clayey slightly limonitic sandstone	
Sátoraljaújhely-Ronyva part	chisel-plane-cutting tool	50.1929.9.	Middle Neolithic		fine grained, siliceous sandstone	
Sátoraljaújhely-Ronyva part	symbolic tool	50.1929.10.	Middle Neolithic	TS	basaltic andesite with olivine	Cserhát?
Sátoraljaújhely-Ronyva part	symbolic tool	50.1929.11.	Middle Neolithic		striped, slightly siliceous sandstone.	
Sátoraljaújhely-Ronyva part	symbolic tool	50.1929.12.	Middle Neolithic	TS	slightly altered greenish grey glassy pyroxene andesite	Tokaj Mts.
Hejce-Püspöktábla[17]	symbolic tool	1984.2.1142.	Middle Neolithic		dark grey pyroxene andesite	Tokaj Mts? Mátra? Cserhát?
Hejce-Püspöktábla	chisel-plane-cutting tool	1984.2.1672.	Middle Neolithic		propilitised andesite	Tokaj Mts.? Mátra Mts.?
Hejce-Püspöktábla	other stone utensil	1984.2.1942.	Middle Neolithic		metamorphic quartz	
Tarnabod[18]	chisel-cutting-grooving tool	1953.7.28.	Middle Neolithic		fine grained medium grey amphibole andesite	Tokaj Mts?
Tarnabod	symbolic chisel	1953.7.62.	Late Copper Age		black spotted schist	

15) Visegrádi (1912).
16) Visegrádi (1937).
17) Losits (1981)
18) Kalicz-Makkay (1977).

Site	Type of tool	Inv. Nr. Hungarian National Museum (HNM)	Archaeological age	TS	Rock name and short macroscopic features	Possible origin of the rock
Bodrogkeresztúr-Kutyasor[19]	chisel-plane-cutting tool	1953.38.81.	Late Neolithic		very fine grained, layered quartzite or quartzarenite	
Bodrogkeresztúr-Kutyasor	chisel-plane-cutting tool	1953.38.82.	Late Neolithic		blueschist	Gemericum
Bodrogkeresztúr-Kutyasor	symbolic chisel	1953.38.83	Middle Neolithic		striped serpentinite	
Bodrogkeresztúr-Kutyasor	symbolic chisel	1953.38.84	Middle Neolithic		fine grained andesite	Tokaj Mts.? Mátra Mts? Cserhát Mts?
Tiszalúc-Sarkad[20]	adze	1976.2.1.	Copper Age, Hunyadihalom Culture		dolerite	Maros-valley? Szarvaskõ? Vardar-zone?
Tiszalúc-Sarkad	undetermined	1977.8. 197.	Copper Age, Hunyadihalom Culture		Coarse grained micaceous sandstone	
Tiszalúc-Sarkad	adze	1977.9. 230.	Copper Age, Hunyadihalom Culture		Fine grained tuffy sandstone or sandy tuff	
Tiszalúc-Sarkad	grinder-polisher	1980.3. 71.	Copper Age, Hunyadihalom Culture		Fine grained hard micaceous (meta)sandstone slightly foliated, rich in muscovite.	
Tiszalúc-Sarkad	undetermined	1980.3. 137.	Copper Age, Hunyadihalom Culture		lydite (black quartzite)	
Tiszalúc-Sarkad	chisel-plane-cutting tool	1980.30.221.	Copper Age, Hunyadihalom Culture		green banded quartzite	
Tiszalúc-Sarkad	chisel	1980.3. 341.	Copper Age, Hunyadihalom Culture		fine grained, grey andesite	Tokaj Mts.? Mátra? Cserhát?
Tiszalúc-Sarkad	chisel	1982.3.251.	Copper Age, Hunyadihalom Culture		massive, slightly oriented metavolcanite with rare small cavities	Bükk Mts.?
Tiszalúc-Sarkad	symbolic axe	1982.3. 425.	Copper Age, Hunyadihalom Culture	TS	dark grey, medium grained basaltic andesite with cavities	Cserhát
Tiszalúc-Sarkad	axe	1983.35.379.	Copper Age, Hunyadihalom Culture		lydite (black quartzite)	
Tiszalúc-Sarkad	chisel	1983.35.537.	Copper Age, Hunyadihalom Culture	TS	gray, fine grained sericitized amaphitic andesite with small cavities	Cserhát? Tokaj Mts.? Mátra?
Tiszalúc-Sarkad	axe	1983.35.589.	Copper Age, Hunyadihalom Culture		black very fine grained quartzite (Lydite?)	

19) Korek-Patay (1958).
20) Excavation of P. Patay. Examination of polished and grinding stone made by H. Oravecz and S. Józsa.

Site	Type of tool	Inv. Nr. Hungarian National Museum (HNM)	Archaeological age	TS	Rock name and short macroscopic features	Possible origin of the rock
Tiszalúc-Sarkad	adze	1983.35.590.	Copper Age, Hunyadihalom Culture	TS	fine grained metadolerite (diabase)	Maros-valley? Szarvaskõ? Vardar-zone?
Tiszalúc-Sarkad	chisel	1986.30.130.	Copper Age, Hunyadihalom Culture		green, slightly slaty metavolcanite	Bükk Mts.?
Tiszalúc-Sarkad	symbolic tool	1986.30.531.	Copper Age?	TS	fine grained strongly sheared metadolerite	Maros-valley? Szarvaskõ? Vardar-zone?
Tiszalúc-Sarkad	symbolic chisel	1986.11.216.	Copper Age, Hunyadihalom Culture		light green, slightly mottled fine grained siliceous sandstone	
Tiszalúc-Sarkad	adze	1986.12.497.	Copper Age, Hunyadihalom Culture	TS	pyroxene andesite	Tokaj Mts.
Tiszalúc-Sarkad	cutting axe	1987.5. 252.	Copper Age, Hunyadihalom Culture		blueschist or chlorite schist	
Tiszalúc-Sarkad	chisel	1987.5. 536.	Copper Age, Hunyadihalom Culture		green metavolcanite	Bükk Mts.?
Tiszalúc-Sarkad	chisel	1987.6. 309.	Copper Age, Hunyadihalom Culture		metadolerite	Maros-valley? Szarvaskõ? Vardar-zone?
Tiszalúc-Sarkad	chisel	1987.6. 397.	Copper Age, Hunyadihalom Culture		basaltic andesite	Cserhát?
Tiszalúc-Sarkad	other stone utensil	1987.6. 730.	Copper Age, Hunyadihalom Culture		quartzite or fine grained metasandstone	
Tiszalúc-Sarkad	other stone utensil	1988.7 82.	Copper Age, Hunyadihalom Culture		Fine grained micaceous sandstone	
Tiszalúc-Sarkad	other stone utensil	1988.7. 131.	Copper Age, Hunyadihalom Culture		diorite or sienite	
Tiszalúc-Sarkad	symbolic chisel	1988.7. 195.	Copper Age, Hunyadihalom Culture		slightly foliated metamorphic quartzite with ore minerals	
Tiszalúc-Sarkad	chisel	1988.7. 379.	Copper Age, Hunyadihalom Culture		coarse grained siliceous sandstone (quartzarenite)	
Tiszalúc-Sarkad	chisel	1988.7. 866.	Copper Age, Hunyadihalom Culture		dark grey, argillaceous, bituminous limestone	Bükk Mts.?
Tiszalúc-Sarkad	symbolic chisel	1988.7. 1011.	Copper Age, Hunyadihalom Culture		reddish grey, medium grained micaceous sandstone	

Site	Type of tool	Inv. Nr. Hungarian National Museum (HNM)	Archaeological age	TS	Rock name and short macroscopic features	Possible origin of the rock
Tiszalúc-Sarkad	symbolic tool	1988.7. 1244.	Copper Age, Hunyadihalom Culture		propilitised andesite	Tokaj Mts.? Mátra? Börzsöny?
Tiszalúc-Sarkad	chisel-plane-cutting tool	1988.7. 1245	Copper Age, Hunyadihalom Culture		dark grey micaceous quartzite or hornfels	
Tiszalúc-Sarkad	chisel	1988.7. 1381.	Copper Age, Hunyadihalom Culture		light-medium green strongly altered andesite	Tokaj Mts.? Mátra? Visegrádi Mts? Börzsöny?
Tiszalúc-Sarkad	adze	1988.7. 1464.	Copper Age, Hunyadihalom Culture		andesite	Tokaj Mts.? Mátra Mts.? Cserhát? Visegrádi Mts.?
Tiszalúc-Sarkad	chisel	1988.7. 1599.	Copper Age, Hunyadihalom Culture		fine grained andesite	Tokaj Mts.?
Tiszalúc-Sarkad	chisel	1988.8. 16.	Copper Age, Hunyadihalom Culture		green, propilitised andesite	Tokaj Mts.? Mátra? Börzsöny?
Tiszalúc-Sarkad	grinder	1989.2.120.	Copper Age, Hunyadihalom Culture		white quartzarenite	
Tiszalúc-Sarkad	other stone utensil	1989.2.164.	Copper Age, Hunyadihalom Culture		sandstone	
Tiszalúc-Sarkad	other stone utensil	1989.2.1063.	Copper Age, Hunyadihalom Culture	TS	serpentinite	
Tiszalúc-Sarkad	other stone utensil	1989.4.512.	Copper Age, Hunyadihalom Culture		greenish-black slightly mottled hornfels	Apuseni Mts.?
Tiszalúc-Sarkad	chisel-plane-cutting tool	1989.4.458.	Copper Age, Hunyadihalom Culture		dark red, fine grained micaceous sandstone	
Tiszalúc-Sarkad	chisel-plane-cutting tool	1989.4.459.	Copper Age, Hunyadihalom Culture		red, medium grained micaceous sandstone	
Tiszalúc-Sarkad	other stone utensil	1992.1.902.	Copper Age, Hunyadihalom Culture		quartzite schist	
Tiszalúc-Sarkad	other stone utensil	1992.1. 746.	Copper Age, Hunyadihalom Culture		dark grey, clayey, bituminous limestone	Bükk Mts.?
Tiszalúc-Sarkad	other stone utensil	1990.1.42.	Copper Age, Hunyadihalom Culture		greenschist	Felsõcsatár? Bohemian Massive?
Tiszalúc-Sarkad	grinder	1993.1.78.	Copper Age, Hunyadihalom Culture		andesite with large amount of phenocrysts	Tokaj Mts.? Mátra? Börzsöny?

Site	Type of tool	Inv. Nr. Hungarian National Museum (HNM)	Archaeological age	TS	Rock name and short macroscopic features	Possible origin of the rock
Tiszalúc-Sarkad	chisel-plane-cutting tool	1994.10.4.	Copper Age, Hunyadihalom Culture		medium-dark green, siliceous metavolcanite (keratophyr)	Bükk Mts.?
Tiszalúc-Sarkad	symbolic tool	1995.11. 377.	Copper Age, Hunyadihalom Culture		volcanogenic sandstone(?) with muscovite	
Tiszalúc-Sarkad	chisel-plane-cutting tool	1995.2.117.	Copper Age, Hunyadihalom Culture		pink and yellow diatomic schist	Tokaj Mts. or Mátra Mts.
Tiszalúc-Sarkad	chisel	1996.1.44.	Copper Age, Hunyadihalom Culture		chloritised dolerite	Maros-valley? Szarvaskõ? Vardar-zone?
Tiszalúc-Sarkad	grinder	1996.1.90.	Copper Age, Hunyadihalom Culture		dark grey andesite with large amount of amphibole phenocrysts	Tokaj Mts.
Tiszalúc-Sarkad	chisel	1996.1.141.	Copper Age, Hunyadihalom Culture		dark grey, medium grained micaceous sandstone	
Tiszalúc-Sarkad	chisel	1996.1.170.	Copper Age, Hunyadihalom Culture		dolerite	Maros-valley? Szarvaskõ? Vardar-zone?
Tiszalúc-Sarkad	plane	1996.1.207.	Copper Age, Hunyadihalom Culture		yellowish grey, medium grained micaceous sandstone	
Tiszalúc-Sarkad	symbolic chisel	1996.1.281.	Copper Age, Hunyadihalom Culture		greenish-red quartzarenite	
Tiszavalk-Négyesi határ[21)]	grooving axe	1970.9.19.	Copper Agei	TS	greenschist (actinolite-schist)	Bohemian Massiv
Tiszavalk-Négyesi határ	symbolic cutting axe	1970.9.325.	Copper Age		basalt(?)	Nógrád? Balaton-highland? Mecsek?
Tiszavalk Tetes[22)]	other stone utensil	1962.67.46.	Middle Copper Age		green metavolcanite with light pink grains	Bükk Mts.?
Kisköre-Gát[23)]	symbolic tool	1967.2.162.	Middle Neolithic		fine grained grey porphyritic (feldspars, piroxene) andesite	Tokaj Mts.? Mátra? Cserhát?
Kisköre-Gát	chisel-plane-cutting tool	1963.27.1.	Late Neolithic, Tisza Culture		serpentinite or greenschist	
Kisköre-Gát	chisel-plane-cutting tool	1963.27.21.	Late Neolithic, Tisza Culture		dark-light striped serpentinite or greenschist	
Kisköre-Gát	cutting axe	1963.27.39.	Late Neolithic, Tisza Culture	TS	weathered metaperidotite	Maros-valley? Szarvaskõ? Vardar-zone?

21) Excavation of P. Patay. Unpublished finds.
22) Patay (1978), (1979).
23) Korek (1977a).

Site	Type of tool	Inv. Nr. Hungarian National Museum (HNM)	Archaeological age	TS	Rock name and short macroscopic features	Possible origin of the rock
Kisköre-Gát	grooving axe	1963.27.74.	Late Neolithic, Tisza Culture	TS	weathered microquartzdiorite (banatite?)	Apuseni Mts.?
Kisköre-Gát	axe	1965.16.7.	Late Neolithic, Tisza Culture		dolerite or microquartzdiorite	
Kisköre-Gát	chisel	1965.16.82.	Late Neolithic, Tisza Culture		fine grained, homogeneous, chromitic serpentinite	Maros-valley? Vardar-zone?
Kisköre-Gát	symbolic chisel	1966.4.1.	Late Neolithic, Tisza Culture		blueschist or amphibolite	
Kisköre-Gát	cutting axe	1966.4.2.	Late Neolithic, Tisza Culture	TS	metasomatized basalt	Szarvaskő? Maros-valley? Vardar-zone?
Kisköre-Gát	chisel	1966.4.157.	Late Neolithic, Tisza Culture		serpentinite (metaperidotite) with relict texture	
Kisköre-Gát	chisel	1966.4.203.	Late Neolithic, Tisza Culture		serpentinite (metaultramafite) with chromite	
Kisköre-Gát	chisel-plane-cutting tool	1966.4.204.	Late Neolithic, Tisza Culture		dark green metavolcanite(?) with small sized porphyrytic feldspar	Bükk Mts.?
Kisköre-Gát	chisel-plane-cutting tool	1966.4.205.	Late Neolithic, Tisza Culture		hornfels with white mica	Apuseni Mts.?
Kisköre-Gát	chisel-plane-cutting tool	1966.4.206.	Late Neolithic, Tisza Culture		serpentinite	
Kisköre-Gát	chisel	1967.8.3.	Late Neolithic		metabasalt	
Kisköre-Gát	chisel-plane-cutting tool	1967.8.4.	Late Neolithic		meta-microgabbro	Maros-valley? Szarvaskő? Vardar-zone?
Kisköre-Gát	chisel-plane-cutting tool	1967.8.347.	Late Neolithic		dark grey limestone with calcite veins	Bükk Mts.?
Kisköre-Gát	chisel-plane-cutting tool	1967.8.417.	Late Neolithic		dolerite	Maros-valley? Szarvaskő? Vardar-zone?
Tiszanána[24]	chisel-plane-cutting tool	1969.19.1.	Middle Neolithic		dark grey andesite	Tokaj Mts.? Mátra? Cserhát?
Tiszafüred[25]	chisel-plane-cutting tool	1973.31.134.	Copper Age		metavolcanite	Bükk Mts.?
Polgár-Basatanya[26]	chisel	1952.95.86.	Copper Age, Bodrogkeresztúr Culture		slightly translucent serpentinite	
Polgár-Basatanya	chisel-plane-cutting tool	1952.95.104.	Copper Age, Bodrogkeresztúr Culture		greenschist (actinolite schist)	Felsőcsatár? Bohemian Massiv?

24) Excavation of J. Korek. Unpublished find.
25) Excavation of T. Kovács. Unpublished find.
26) Bognár-Kutzián (1963).

Site	Type of tool	Inv. Nr. Hungarian National Museum (HNM)	Archaeological age	TS	Rock name and short macroscopic features	Possible origin of the rock
Polgár-Basatanya	mace-head	1953.1.29.	Copper Age, Bodrogkeresztúr Culture		white marl or limestone, with oolithes	
Polgár-Basatanya	plane	1953.1.183a	Copper Age, Bodrogkeresztúr Culture		greenschist (actinolite schist)	Felsõcsatár? Bohemian Massiv?
Polgár-Basatanya	symbolic tool	1953.1.84.	Copper Age, Bodrogkeresztúr Culture		fine grained quartzarenite	
Polgár-Basatanya	symbolic tool	1953.1.192.	Copper Age, Bodrogkeresztúr Culture		light green/dark green serpentinised metaperidotite or retrograde eclogite, with garnet and lilac grains	
Polgár-Basatanya	symbolic tool	1953.7.36.	Copper Age, Bodrogkeresztúr Culture		dark gray hidroandesite	Tokaj Mts.? Mátra Mts.?
Polgár Folyás-Szilmeg[27)]	symbolic chisel	1952.77.45.	Middle Neolithic		eclogite(?)	W-Alps? Bohemian-Massiv?
Polgár Folyás-Szilmeg	chisel-plane-cutting tool	1952.77.283.	Middle Neolithic		eclogite(?)	W-Alps? Bohemian-Massiv?
Polgár Folyás-Szilmeg	chisel-plane-cutting tool	1952.77.284.	Middle Neolithic		very fine grained dark grey quartzite	
Polgár Folyás-Szilmeg	plane	1952.77.285.	Middle Neolithic		slightly reddish-brown, dark grey quartzite	
Polgár Folyás-Szilmeg	chisel-plane-cutting tool	1952.77.286.	Middle Neolithic		dark green siliceous porphyric (feldspar) andesite with slightly fluidal texture	Tokaj Mts.? Mátra? Cserhát?
Polgár Folyás-Szilmeg	chisel-plane-cutting tool	1952.77.572.	Middle Neolithic		blueschist with stripes of epidote	Gemericum
Polgár Csõszhalom[28)]	chisel-cutting tool	1951.125.2.	Late Neolithic		sandstone	
Polgár Csõszhalom	chisel-cutting tool	1951.125.3a.	Late Neolithic		fine grained gray andesite	Tokaj Mts.? Mátra? Cserhát?
Polgár Csõszhalom	chisel-cutting tool	1951.125.3b.	Late Neolithic		banded greenschist (actinolite schist)	Felsõcsatár? Bohemian Massiv?
Polgár Csõszhalom	chisel-cutting tool	1951.125.3c.	Late Neolithic		greenschist (actinolite schist)	Felsõcsatár? Bohemian Massiv?
Zajta[29)]	plane	1975..32.1.	Middle Neolithic		clayey sandstone.	
Sonkád[30)]	symbolic tool	1975.37.136.	Middle Neolithic		dark grey clayey sandstone	

27) Bognár-Kutzián (1966).
28) Collection of T. Bender.
29) Korek (1977b).
30) Korek (1977b)

Site	Type of tool	Inv. Nr. Hungarian National Museum (HNM)	Archaeological age	TS	Rock name and short macroscopic features	Possible origin of the rock
Tarpa-Márki tanya[31]	symbolic tool	1980.7.31.	Middle Neolithic		clayey sandstone	
Szamossályi[32]	symbolic chisel	1964.1.34.	Middle Neolithic		slightly yellowish light grey, very fine grained claystone	
Dévaványa-Sártó[33]	symbolic tool	14.1936.1.	Middle Neolithic	TS	metaquartzgabbro, with thin greenish laths of feldspar	Maros-valley? Szarvaskõ? Vardar-zone?
Dévaványa-Sártó	chisel-plane-cutting tool	25.1936.1.	Middle Neolithic		greenschist (actinolite schist) with small feldspar lenses	Felsõcsatár? Bohemian Massiv?
Dévaványa-Sártó	chisel	25.1936.2.	Middle Neolithic		strongly siliceous dark green actinolitised blueschist with epidote bands	Gemericum
Dévaványa-Sártó[34]	chisel-plane tool	1958.35.1.	Middle Neolithic		epidote rich chlorite schist	
Dévaványa-Sártó	chisel-plane-cutting tool	1958.35.2.	Middle Neolithic		siliceous meta-tuffite	
Dévaványa-Sártó	chisel	1958.35.3.	Middle Neolithic		metagabbro or blueschist	
Dévaványa-Sártó	cutting axe	1958.35.4.	Middle Neolithic	TS	(meta)dolerite	Maros-valley? Szarvaskõ? Vardar-zone?
Dévaványa-Sártó	symbolic tool	1958.35.5.	Middle neolitium		sandy muscovitic claystone	
Dévaványa-Sártó[35]	paint crusher	1960.35.25.	Middle Neolithic		amphibolite or metadolerite with feldspars and quartz veins	
Dévaványa-Sártó	other stone utensil	1960.35.27.	Middle neolitkum		fine grained white limestone	
Dévaványa-Sártó	mace-head	1960.35.34.	Middle Neolithic		dark grey gabbro(?)	Maros-valley? Szarvaskõ? Vardar-zone?
Dévaványa-Sártó	symbolic tool	1960.35.45.	Middle neolitikum		metadolerite with dark green actinolite	Maros-valley? Szarvaskõ? Vardar-zone?
Dévaványa-Sártó	chisel-plane-cutting tool	1960.35.104.	Middle Neolithic		green metadolerite	Maros-valley? Szarvaskõ? Vardar-zone?
Dévaványa-Sártó	chisel-plane-cutting tool	1960.35.105.	Middle Neolithic		bluish wavy banded greenschist (actinolite schist)	Felsõcsatár? Bohemian Massiv?
Dévaványa-Sártó	chisel	1960.35.106.	Middle Neolithic		gereenschist (actinolite schist)	Felsõcsatár? Bohemian Massiv?

31) Dobosi (1983).
32) Korek (1977).
33) Oravecz-Józsa (2001).
34) Oravecz-Józsa (2001).
35) Korek (1960); Oravecz-Józsa (2001).

Site	Type of tool	Inv. Nr. Hungarian National Museum (HNM)	Archaeological age	TS	Rock name and short macroscopic features	Possible origin of the rock
Dévaványa-Sártó	symbolic axe	1960.35.107.	Middle Neolithic	TS	metaperidotite	Maros-valley? Vardar-zone?
Dévaványa-Sártó	other stone utensil	1960.35.108.	Middle Neolithic		jasper	Tokaj Mts.? Mátra Mts.?
Dévaványa-Sártó[36]	chisel	1973.19.5.	Middle Neolithic		dolerite	Maros-valley? Szarvaskõ? Vardar-zone?
Dévaványa-Sártó	chisel-plane-cutting tool	1973.19.6.	Middle Neolithic		basalt(?)	Nógrád? Balaton-highland? Mecsek?
Dévaványa-Sártó	symbolic tool	1973.19.7.	Middle Neolithic		metadolerite	Maros-valley? Szarvaskõ? Vardar-zone?
Dévaványa-Simasziget[37]	chisel	1963.26.1.	End of Middle Neolithic, beginning of Late Neolithic		serpentinite.	
Dévaványa-Simasziget	chisel	1963.26.2.	Middle Neolithic		chlorite schist or serpentinite with white stripes	
Dévaványa-Simasziget	chisel-plane-cutting tool	1963.26.3.	Middle Neolithic		dark green serpentinite.	
Dévaványa-Simasziget	chisel	1963.26.4.	Middle Neolithic		serpentinised metagabbro	Maros-valley? Szarvaskõ? Vardar-zone?
Dévaványa-Simasziget	chisel	1963.26.5.	Middle Neolithic		metagabbro-metadolerite	Maros-valley? Szarvaskõ? Vardar-zone?
Dévaványa-Simasziget	plane	1963.26.6.	Middle Neolithic		metadolerite	Maros-valley? Szarvaskõ? Vardar-zone?
Dévaványa-Simasziget	symbolic tool	1963.26.7.	Middle Neolithic		metadolerite	Maros-valley? Szarvaskõ? Vardar-zone?
Dévaványa-Simasziget	chisel	1963.26.8.	Middle Neolithic		metadolerite	Maros-valley? Szarvaskõ? Vardar-zone?
Dévaványa-Réhelyi gát[38]	chisel	1973.21.6.	Middle Neolithic?	TS	(meta)dolerite	Maros-valley? Szarvaskõ? Vardar-zone?
Dévaványa-Réhelyi gát	chisel	1973.21.7.	Middle Neolithic		metadolerite	Maros-valley? Szarvaskõ? Vardar-zone?
Berettyószentmárton[39]	chisel	1956.10.1469.	Middle Neolithic		Very fine grained sandstone (similar to hornfels)	

36) Oravecz-Józsa (2001).
37) Kalicz-Makkay (1977); Oravecz-Józsa (2001).
38) Ecsedy (1982); Oravecz-Józsa (2001).
39) Bognár-Kutzián (1972).

Site	Type of tool	Inv. Nr. Hungarian National Museum (HNM)	Archaeological age	TS	Rock name and short macroscopic features	Possible origin of the rock
Berettyószentmárton	undetermined	1956.10.1718.	Middle Neolithic		fine grained, dark green serpentinite or greenschist	
Berettyószentmárton	chisel-plane-cutting tool	1956.10.1766.	Middle Neolithic		dark-medium green, finely striped, massive serpentinite or greenschist	
Berettyószentmárton	chisel	1956.10.1787.	Middle Neolithic		very fine grained, microcrystalline basalt	Mecsek? Nógrád? Balaton-highland?
Magyarhomorog-Kónyadomb[40]	macehead	1964.12.25.	Copper Age, Bodrogkeresztúr Culture		metaultramafite with bronze coloured serpentinised orthopyroxene crystals	Maros-valley? Szarvaskõ? Vardar-zone?
Magyarhomorog-Kónyadomb	symbolic axe	1965.20.124.	Copper Age, Bodrogkeresztúr Culture		green, propilitised andesite with pyrite crystals	Tokaj Mts.? Mátra Mts?
Magyarhomorog-Kónyadomb	symbolic axe	1965.20.133.	Copper Age, Bodrogkeresztúr Culture		light green serpentinite	
Tápé-Lebõ, Alsóhalom[41]	other stone utensil	7.1951.7.	Late Neolithic, Tisza culture		lydite (black laminated quartzite)	
Tápé-Lebõ, Alsóhalom	chisel-plane-cutting tool	7.1951.50.	Late Neolithic, Tisza culture		sandstone, with very fine grained limonitic psudomorphoses	
Tápé-Lebõ, Alsóhalom	chisel-plane-cutting tool	7.1951.65.	Late Neolithic, Tisza culture		hard, greenish black-light green banded-mottled massive quartzite	
Tápé-Lebõ, Alsóhalom	paint crusher made of a grooving axe	7.1951.66.	Late Neolithic, Tisza culture	TS	basalt	Mecsek?
Tápé-Lebõ, Alsóhalom	paint crusher made of a symbolic chisel	7.1951.67.	Late Neolithic, Tisza culture		light reddish grey, medium grained, not very hard sandstone	
Tápé-Lebõ, Alsóhalom	chisel-plane-cutting tool	7.1951.68.	Late Neolithic, Tisza culture		Grey siliceous rhyolite(?) with amoeba-shape dark patches and with porose scattered small cavities and small columnar dark minerals	Tokaj Mts.? Mátra Mts.?
Tápé-Lebõ, Alsóhalom	chisel-plane-cutting tool	7.1951.108.	Late Neolithic, Tisza culture		medium grey banded rhyolite with micro-cavities	Tokaj Mts.? Mátra Mts.?
Tápé-Lebõ, Alsóhalom	chisel-plane-cutting tool	7.1951.109.	Late Neolithic, Tisza culture		light grey fine grained metasandstone	

40) Patay (1976); Oravecz-Józsa (2001).
41) Korek (1958).

Site	Type of tool	Inv. Nr. Hungarian National Museum (HNM)	Archaeological age	TS	Rock name and short macroscopic features	Possible origin of the rock
Tápé-Lebõ, Alsóhalom	grooving axe	7.1951.110.	Late Neolithic, Tisza culture		grey clayey marl(?) with limonitic knots surrounded light narrow faded zone	
Tápé-Lebõ, Alsóhalom	other stone utensil	1951.7.127.	Late Neolithic, Tisza culture		reddish black striped compact jasper	Tokaj Mts.? Mátra Mts.?
Tápé-Lebõ, Alsóhalom	chisel-plane-cutting tool	7.1951.128.	Late Neolithic, Tisza culture		rhyolite(?)	Tokaj Mts.? Mátra Mts.?
Tápé-Lebõ, Alsóhalom	chisel	7.1951.129.	Late Neolithic, Tisza culture		bluish grey, fine grained quartzite or siliceous sandstone (maybe volcanite)	
Tápé-Lebõ, Alsóhalom	chisel	7.1951.140.	Late Neolithic, Tisza culture		light grey, fine grained, slightly clayey sandstone	
Tápé-Lebõ, Alsóhalom	chisel	7.1951.156a.	Late Neolithic, Tisza culture		banded calc-schist with slightly gneissose structure and coarse surface	
Tápé-Lebõ, Alsóhalom	chisel	7.1951.156b.	Late Neolithic, Tisza culture		light-medium grey (with yellow tint), very fine grained sandstone	
Tápé-Lebõ, Alsóhalom	chisel-plane-cutting tool	7.1951.157.	Late Neolithic, Tisza culture		magnesitic(?) sandstone	
Tápé-Lebõ, Alsóhalom	cutting axe	7.1951.158.	Late Neolithic, Tisza culture	TS	green metagabbro with minor relict blue amphibole	Maros-valley? Szarvaskõ? Vardar-zone?
Tápé-Lebõ, Alsóhalom	paint crusher made of a symbolic tool	7.1951.207.	Late Neolithic, Tisza culture		sandstone	
Tápé-Lebõ, Alsóhalom	chisel-plane-cutting tool	7.1951.208.	Late Neolithic, Tisza culture		light greyish green serpentinite with small white micas	
Tápé-Lebõ, Alsóhalom	cutting axe	7.1951.209.	Late Neolithic, Tisza culture	TS	fine grained metadolerite with small amount of quartz	Maros-valley? Szarvaskõ? Vardar-zone?
Tápé-Lebõ, Alsóhalom	chisel	7.1951.236.	Late Neolithic, Tisza culture		medium grey basalt	Mecsek? Nógrád? Balaton-highland?
Tápé-Lebõ, Alsóhalom	chisel	7.1951.262.	Late Neolithic, Tisza culture		very fine grained, light grey, slightly slaty quartzite	
Tápé-Lebõ, Alsóhalom	symbolic cutting axe	7.1951.274.	Late Neolithic, Tisza culture		quartz pebble	
Tápé-Lebõ, Alsóhalom	symbolic chisel	7.1951.275.	Late Neolithic, Tisza culture		fine grained sandstone, with alternating green-red colours	
Tápé-Lebõ, Alsóhalom	grooving axe	7.1951.276.	Late Neolithic, Tisza culture	TS	greenish gray basalt	Mecsek?

Site	Type of tool	Inv. Nr. Hungarian National Museum (HNM)	Archaeological age	TS	Rock name and short macroscopic features	Possible origin of the rock
Tápé-Lebõ, Alsóhalom	grooving axe	7.1951.277.	Late Neolithic, Tisza culture	TS	gray basalt-dolerite	Mecsek? Szarvaskõ? Maros-valley? Vardar-zone?
Tápé-Lebõ, Alsóhalom	chisel-plane-cutting tool	7.1951.303.	Late Neolithic, Tisza culture		striped magnesitic serpentinite or limnoquartzite.	
Tápé-Lebõ, Alsóhalom	chisel	7.1951.304.	Late Neolithic, Tisza culture		greenish-pink grey, fine grained quartzite or siliceous sandstone	
Tápé-Lebõ, Alsóhalom	symbolic chisel	7.1951.305.	Late Neolithic, Tisza culture		yellowish grey, fine grained sandstone with muscovite	
Tápé-Lebõ, Alsóhalom	chisel	7.1951.306.	Late Neolithic, Tisza culture		quartzite or fine grained sandstone	
Tápé-Lebõ, Alsóhalom	cutting axe	7.1951.307.	Late Neolithic, Tisza culture	TS	fine grained metadolerite with small amount of quartz	Maros-valley? Szarvaskõ? Vardar-zone?
Tápé-Lebõ, Alsóhalom	grooving axe	7.1951.308.	Late Neolithic, Tisza culture		diabase (metadolerite)	Maros-valley? Szarvaskõ? Vardar-zone?
Tápé-Lebõ, Alsóhalom	paint crusher made of symbolic tool	7.1951.343.	Late Neolithic, Tisza culture		Very fine grained sandstone or quartzite (or hornfels(?))	
Tápé-Lebõ, Alsóhalom	symbolic tool	7.1951.344a.	Late Neolithic, Tisza culture		grey quartzite or fine grained metasandstone	
Tápé-Lebõ, Alsóhalom	chisel-plane-cutting tool	7.1951.344b.	Late Neolithic, Tisza culture		dark grey sandstone with angular grains and with argillaceous matrix	
Tápé-Lebõ, Alsóhalom	chisel	7.1951.362a.	Late Neolithic, Tisza culture		greenish black greenschist (actinolite schist)	Felsõcsatár? Bohemian Massive?
Tápé-Lebõ, Alsóhalom	cutting axe	7.1951.362.	Late Neolithic, Tisza culture		bone-coloured very fine grained sandstone or silex(?)	
Tápé-Lebõ, Alsóhalom	chisel	7.1951.363.	Late Neolithic, Tisza culture	TS	basalt with mafic porphyric grains	Mecsek?
Tápé-Lebõ, Alsóhalom	chisel	7.1951.364.	Late Neolithic, Tisza culture		black hornfels(?) or siliceous limestone	Apuseni Mts.? or Bükk Mts.?
Tápé-Lebõ, Alsóhalom	symbolic cutting axe	7.1951.381.	Late Neolithic, Tisza culture	TS	siliceous crinoidal limestone	Bükk Mts.?
Tápé-Lebõ, Alsóhalom	grooving axe	7.1951.382.	Late Neolithic, Tisza culture		dark grey hornfels(?) or quartzite(?)	
Tápé-Lebõ, Alsóhalom	other stone utensil	7.1951.383.	Late Neolithic, Tisza culture		reddish brown medium grained sandstone (pebble origin)	

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Site	Type of tool	Inv. Nr. Hungarian National Museum (HNM)	Archaeological age	TS	Rock name and short macroscopic features	Possible origin of the rock
Tápé-Lebõ, Alsóhalom	symbolic chisel	8.1951.29.	Early Copper Age		dark green strongly banded greenschist (actinolite schist)	Bohemian Massive? Felsõcsatár?
Tápé-Lebõ, Felsõhalom	paint crusher made of symbolic tool	9.1951.1.	Late Neolithic		very fine grained quartzarenite or quartzite	
Tápé-Lebõ, Felsõhalom	undetermined	9.1951.2.	Late Neolithic		greenschist (actinolite schist)	Felsõcsatár? Bohemian Massiv?
Szegvár-Tûzköves[42)]	chisel-plane-cutting tool	1971.9.2.	Late Neolithic		metadolerite	Maros-valley? Szarvaskõ? Vardar-zone?
Szegvár-Tûzköves	symbolic shoe-last form chisel	1971.9.3.	Late Neolithic		Medium grey metadolerite(?)	Maros-valley? Szarvaskõ? Vardar-zone?
Szegvár-Tûzköves	chisel-plane-cutting tool	1971.9.24.	Late Neolithic		medium green hornfels	Apuseni Mts.?
Szegvár-Tûzköves	chisel-plane-cutting tool	1971.9.25.	Late Neolithic		grey quartzite(?) or microcrystalline basalt(?)	

Table 2. Overview of main rock types

Rock type	Pieces	(Thin S.)	Percentage
andesite	37	(6)	14,49
tuff	4	(0)	1,57
basalt	11	(5)	4,31
rhyolite	3	(0)	1,18
volcanite- metavolcanite	12	(0)	4,70
diorite-dolerite-gabbro	35	(12)	13,72
serpentinite	26	(2)	10,20
greenschist	25	(5)	9,80
blueschist	13	(2)	5,10
hornfels	8	(0)	3,14
quartzite	24	(0)	9,41
jasper	2	(0)	0,78
lydite	4	(0)	1,57
sandstone	39	(0)	15,28
claystone	4	(0)	1,57
limestone	7	(1)	2,74
diatome schist	1	(0)	0,39
Total	255	(33)	100,00

42) Korek (1987).

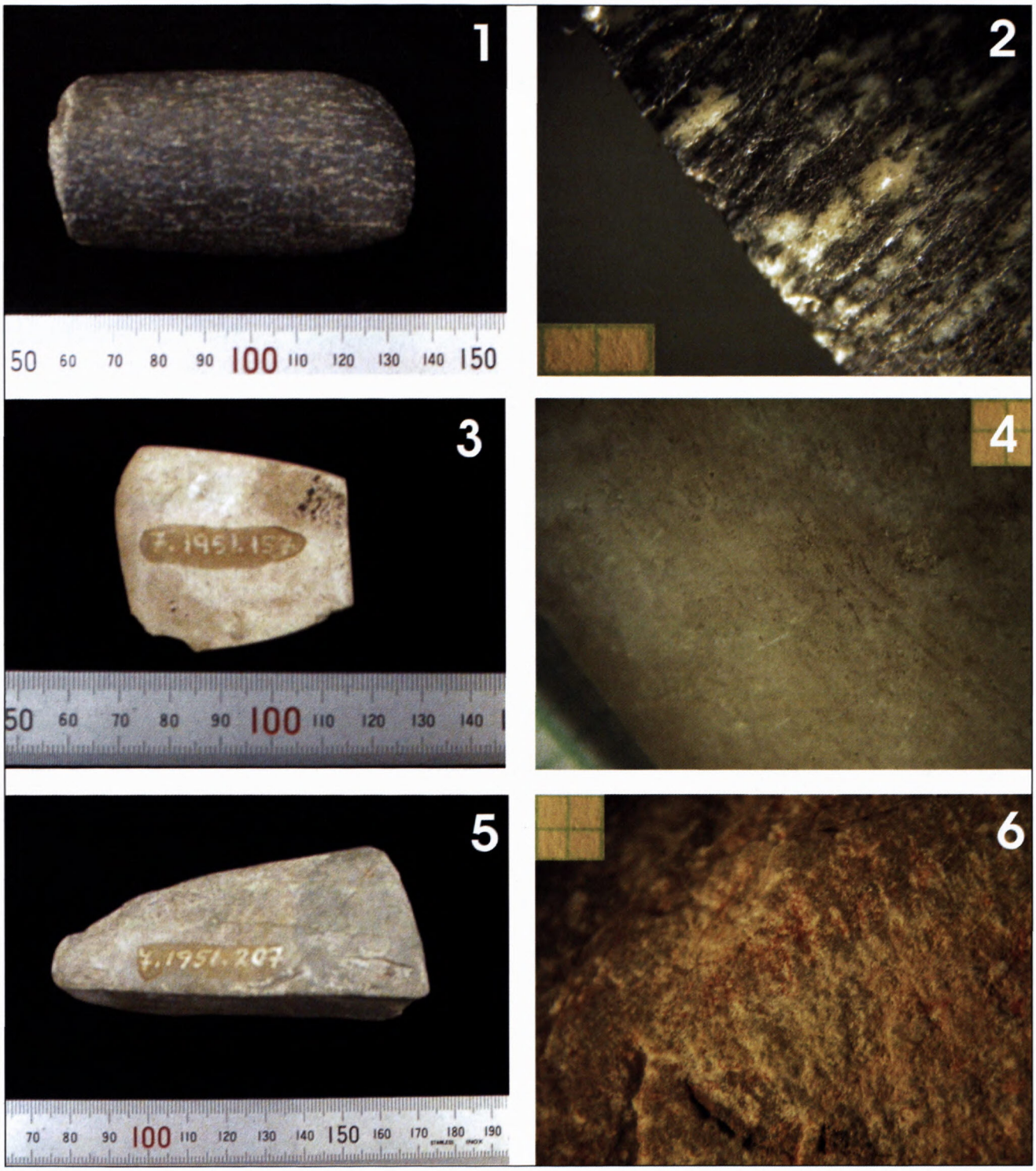

Plate I.
1-2. comb-like abrasionon the edge of a plano-convex tool resulting from grooving (working by motion perpendicular to the edge).
3-4. traces of cutting (working by motion paralel to the edge) on a plano-convex tool with widening edge, on the lower part of the convex edge.
5-6. paint crusher transformed of a "symbolic" tool with traces of ochre on the surface

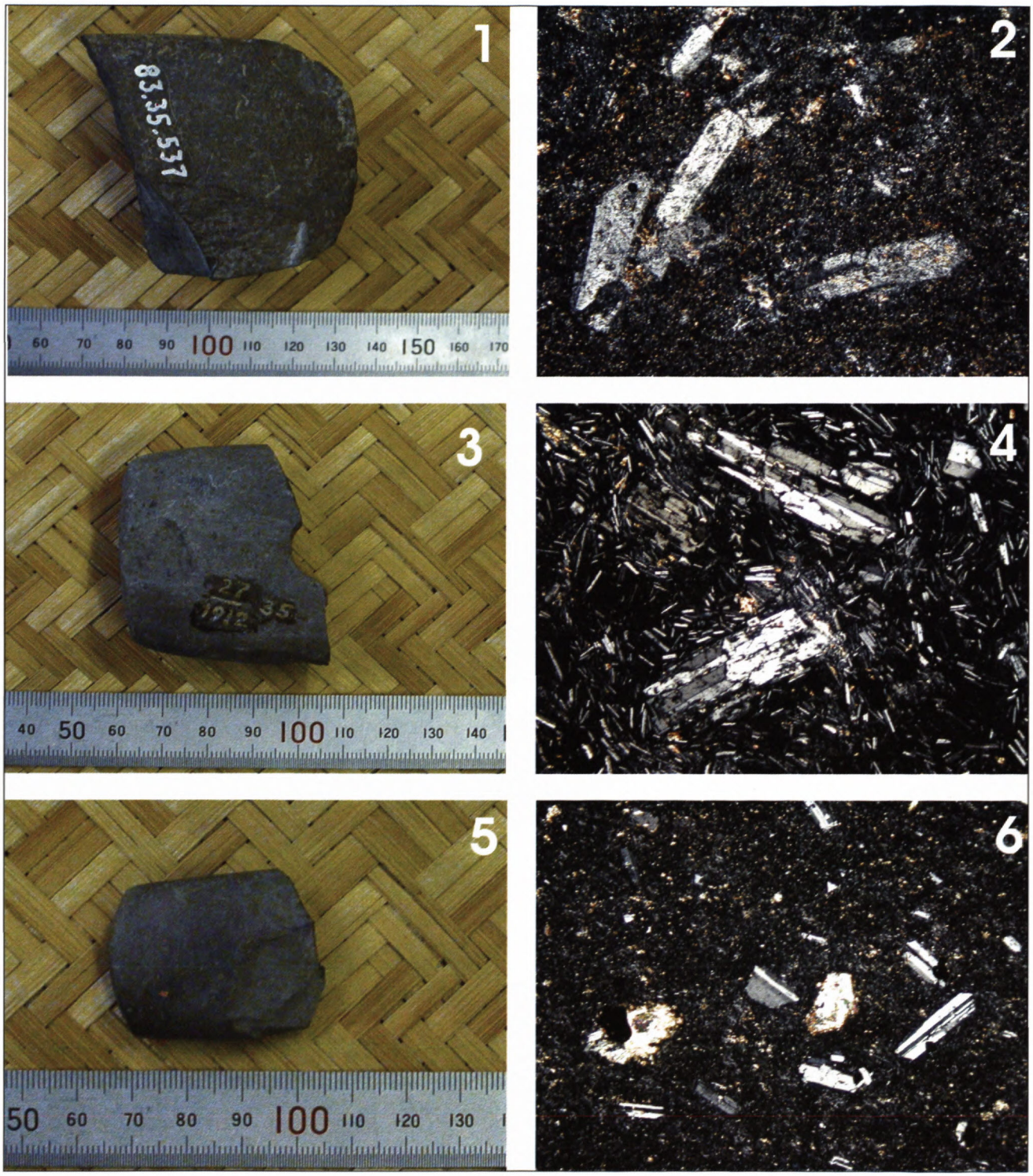

Plate II.
1-2 andesite (83-35-537),
3-4 pyroxene andesite (1912-27-35),
5-6 pyroxene andesite (29-50-12)

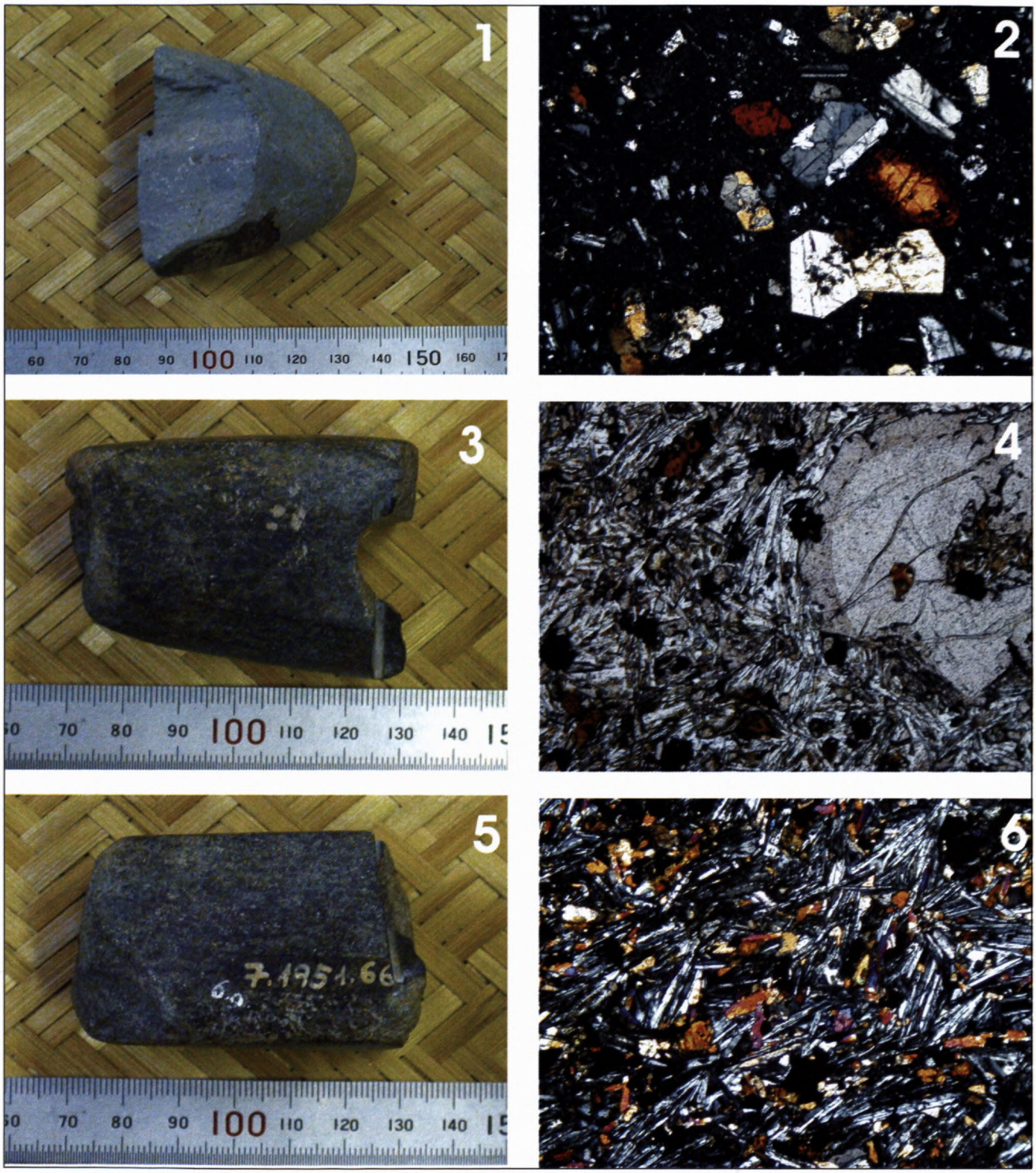

Plate III
1-2 basaltic andesite with olivine (29-50-10),
3-4 basalt with pyroxene phenocryst (1951-7-66 Mecsek?),
5-6 basalt (1951-7-66 - Mecsek?).

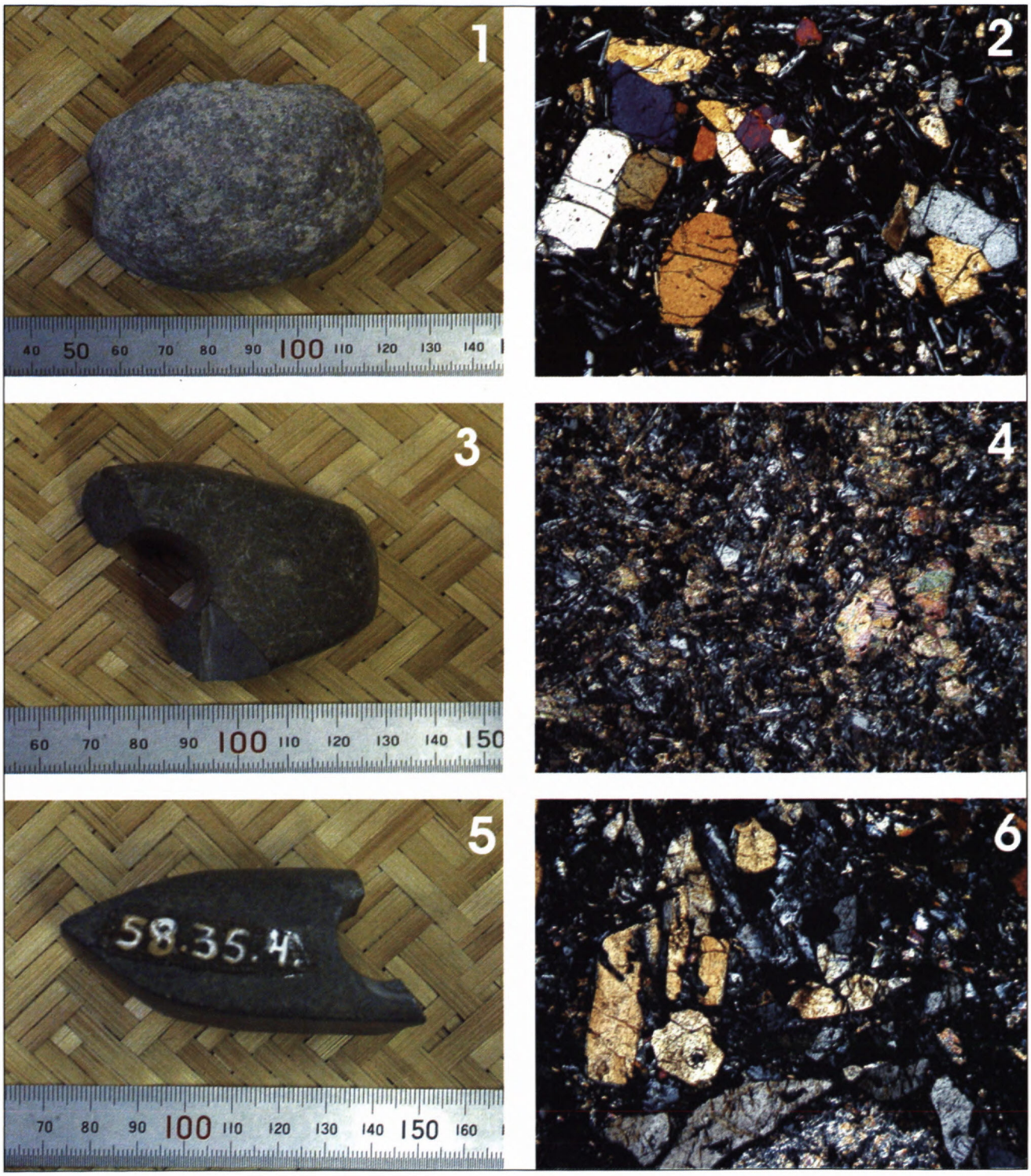

Plate IV.
1-2 basalt (77-7-25 - Neogene),
3-4 carbonatic basalt (83-35-590),
5-6 (meta)dolerite (58-35-4).

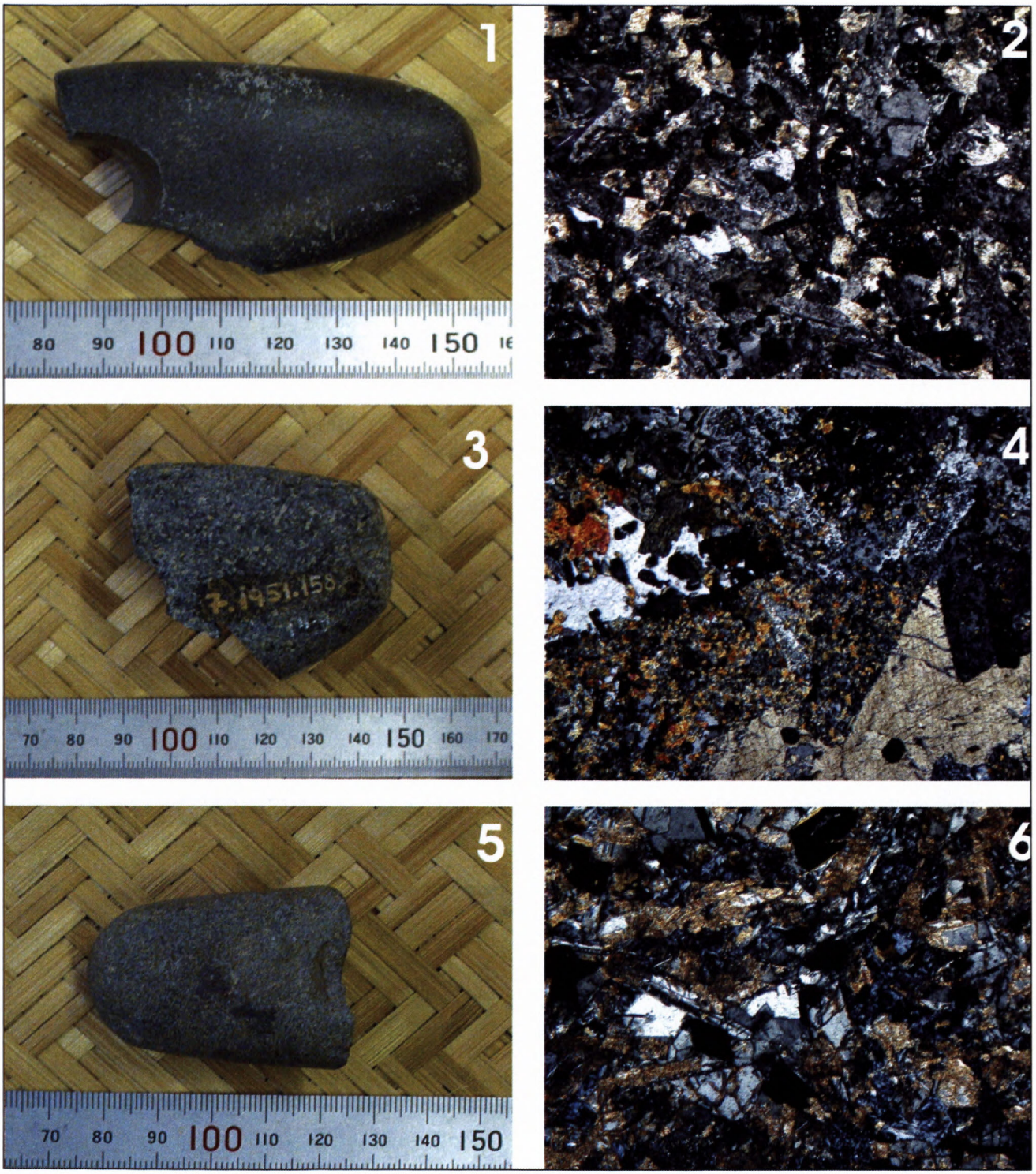

Plate V.
1-2 metadolerite with some quartz (1951-7-307),
3-4 metagabbro (1951-7-158),
5- 6 micro-quartzdiorite (63-27-74b - banatite?)

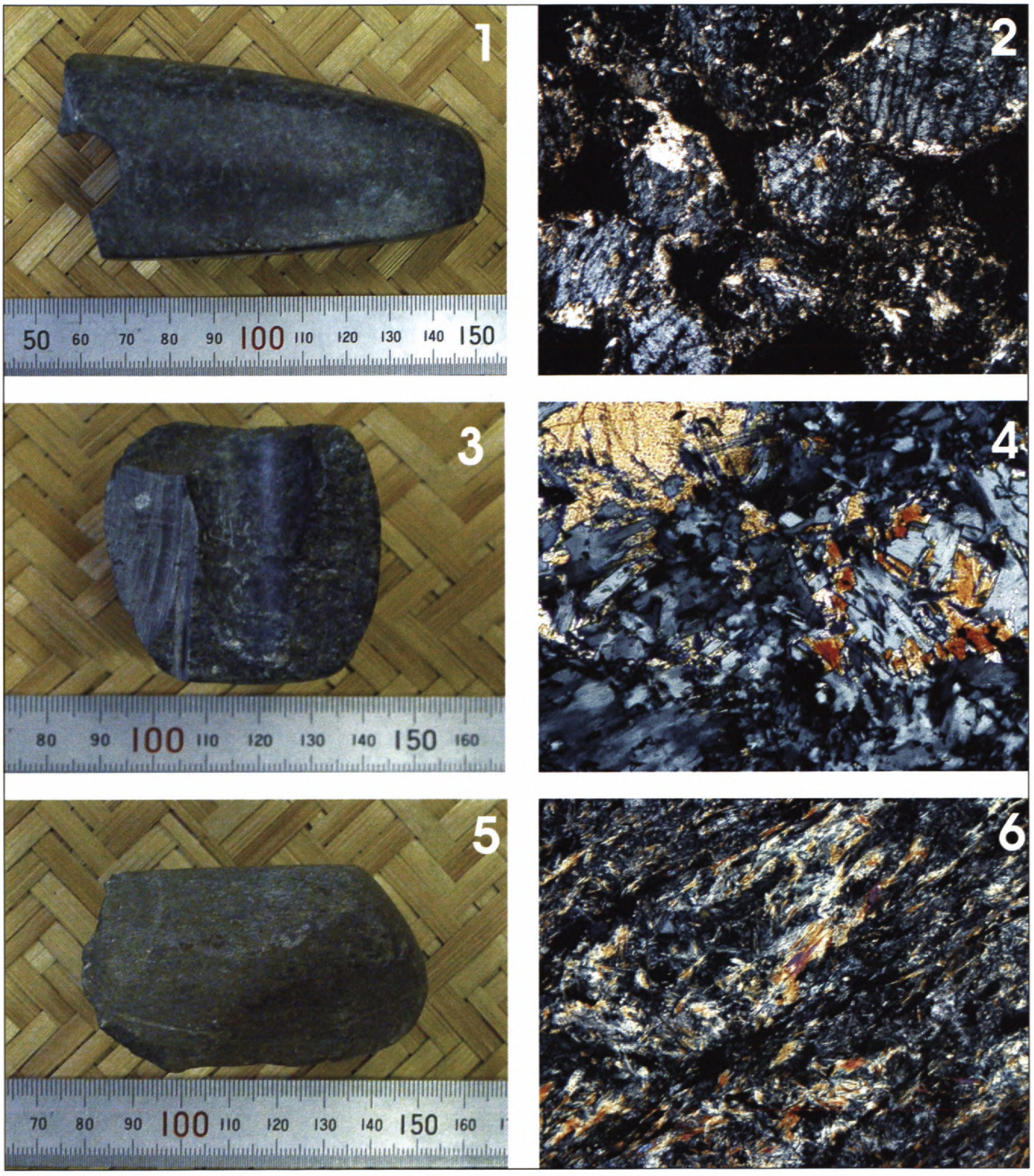

Plate VI.
1-2 metaperidotite(60-35-107),
3-4 serpentinite (89-2-1063),
5-6 greenschist (70-9-19).

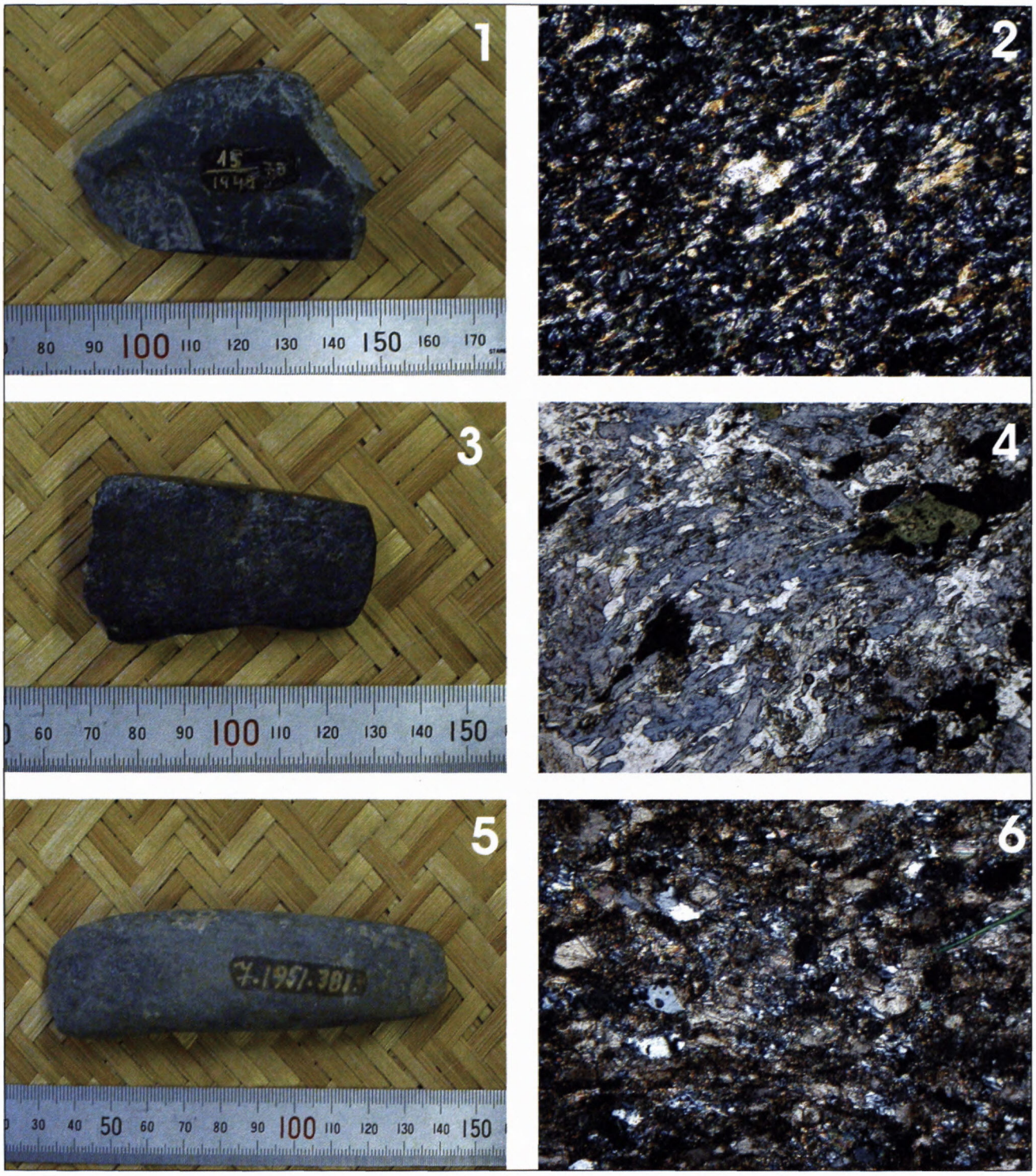

Plate VII.
1-2 greenschist (49-15-73 - Felsőcsatár-type),
3-4 blueschist (949-15-233),
5-6 siliceous limestone with Crinoidea (1951-7-381).

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