

IMPORTED PERCEPTIONS VS. NEW REALITIES IN THE VOYAGING CORRIDOR

Some thoughts on changes in mobility, landscape learning and raw material acquisition in the Eastern Adriatic Early Neolithic

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Abstract. The topic of this paper revolves around the central theme of farmers moving into pristine or previously exclusively hunter-gatherer environments. It is argued that implementation of general expectations from landscape learning is helpful in elucidating specific strategies used by coastal colonisers during the Early Neolithic in the Adriatic. Lithic data from the Istrian Peninsula in Croatia are used to develop an understanding of the strategies employed by diverse farming groups as they moved onto new agricultural frontiers. The localised and self-reliant character of the lithic industries associated with Impressed Ware on the southern tip of the peninsula is viewed as an expression of a low level of adjustment to the physical landscape and a limited degree of networking with indigenous hunter-gatherers and neighbouring Impressed Ware groups.

Résumé. Le sujet de ce papier tourne autour du thème central de l'arrivée des premiers agriculteurs dans des environnements vierges ou précédemment occupés exclusivement par des chasseurs-cueilleurs. L'utilité de la mise en œuvre du concept de *landscape learning*, pour comprendre les stratégies spécifiques employées par les colonisateurs côtiers au cours du Néolithique ancien en Adriatique, est démontrée. Les données lithiques de la péninsule d'Istrie en Croatie sont utilisées pour appréhender les stratégies employées par divers groupes d'agriculteurs alors qu'ils arrivaient sur de nouvelles terres agricoles. Le caractère local et autonome de l'industrie lithique associée à la Céramique Imprimée de la pointe méridionale de la péninsule est considéré comme l'expression du faible degré d'adaptation à l'environnement physique et des relations limitées avec les chasseurs-cueilleurs indigènes et les groupes à Impressa avoisinants.

Introduction

The establishment of Neolithic settlements along the Mediterranean seaboard is the beginning of an extended and complex process of colonisation of new landscapes, together with the displacement, acculturation, and/or assimilation of indigenous Mesolithic hunter-gatherers. This paper focuses on a local aspect of the patterns of mobility and strategies employed by Early Neolithic farming groups as they settled along the Adriatic coast between app. 6200-5600 BC¹. To examine this, I briefly discuss lithic data sets from a cluster of Impressed Ware sites in South Istria. Although the accompanying archaeological information is relatively scarce, the assemblages provide evidence, which may help to make clearer how such movements were structured.

It is becoming gradually more accepted that the establishment of agricultural communities along the Mediterranean seaboard was largely the result of colonisation by migrating farming groups (Zilhão 1993; Van Andel & Runnels 1995; Budja 1996; Harris 1996; Renfrew 1996; Peltenburg *et al.* 2001; Perlès 2001; Forenbaer & Miracle 2005). Regardless of the criticism directed at the Demic Diffusion Hypothesis

and The Wave of Advance Model formulated first in 1973 by Ammerman and Cavalli-Sforza (1973, 1984), migration- and colonisation models remain fundamental to our understanding of the spread of farming. Contributions to the most recent debate (Colledge *et al.* 2004; Pinhasi & Pluciennik 2005) underline the importance of colonisation issues, which have historical and anthropological, as well as political, implications (Chapman & Hamerow 1997; Budja 1999:119). Colonisation is a theme that is most pertinent to the spread of early farming in Europe particularly since it draws heavily from the movement of people across the landscape: either as relocation of households or settlements (demic diffusion) or else the contact and exchange between people living in different places (cultural diffusion), which also would have involved movement.

It is also becoming increasingly accepted that the spread of the Neolithic was not a continuous process of expansion but was, in fact, made up of stages whose development displays certain regularities (Anthony 1997). As more data has been accumulated, models and explanations have also become progressively more sophisticated, those now frequently recognise migration and colonisation as social strategies that deserve to be considered carefully in their own right. Zilhão, for instance, suggests that the structure of migration in the Mediterranean is rooted in social issues, in that Neolithic

[1] All dates BC are calibrated.

pioneers would seek to break away from authorities in ranked societies (supposedly Near Eastern tell sites) and continue to strive to maintain egalitarianism through the application of strict controls to group size (Zilhão 1997). Inspired by recent progress in ideas relating to the spread of farming in the Mediterranean region, this paper supports a rethinking of the traditional approaches to material expressions of colonisation.

The Landscape Learning Concept

The concept of travelling into areas unknown to Early Neolithic peoples, undoubtedly involved aspects that were as important as the journey itself: To travel is to move, which in a metaphorical sense is to innovate, to achieve, to progress, and to evolve. Landscape learning is a recently introduced field in archaeology, which specifically addresses issues related to initial colonisation and seeks to chart its processes and material expressions (Rockman 2003). It is strongly influenced by research that looks at how people adapt and how complex adaptive systems "map" parts of the variety and constraint of its environment into its organisation as structure and/or information (Buckley 1968). This mapping process registers changes in environment and thus selectively matches system to environment (Kirch 1980).

Landscape learning provides a heuristic device that helps to explain changes in mobility patterns and land use, without affecting the significance of environmental variables. It is thus a useful vehicle for approaching adaptation and a potentially very strong tool for studying how people learn about landscapes. Rockman (2003) provided elements for building a framework around this theme in their collection of important papers on colonisation and the archaeology of adaptation. They stressed the importance of landscape learning or adaptation in the pioneering phases of colonisation and that this process potentially has an impact on the way human occupation was structured. The process can be viewed as a set of distinct phases defined by increasing levels of landscape learning that culminate in a socialised landscape (Pettitt 2004:148).

Landscape learning theory promotes the concept that diverse human groups conceive and approach landscapes in different ways according to their locational and social knowledge of natural resources in a region (Rockman 2003:4). The ideas presented in this paper rest on the assumption that activities connected to the procurement and trade of stone raw material, are particular ways of interacting with and learning about the environment and other human communities.

Moving into the Adriatic

New evidence from the East Adriatic, and Istria in particular, concerning mainly Early Holocene foragers has emerged from projects and surveys within the last decade (Miracle 1997; Miracle *et al.* 2000; Balbo *et al.* 2004; Miracle & Forenbaer in press). There is nevertheless still only very scarce evidence of an indigenous Late Mesolithic population prior to the introduction of farming. The extent of the Early Neolithic

colonisation on the Eastern side of the Adriatic is likewise not very well known. Although a large-scale influx of outsiders in the early stages of migration (from around 6200/6100 BC) seems unlikely, coastal aspects of initial colonisation events might escape our attention as the rise in sea level may well have obliterated all traces of the Late Mesolithic and Earliest Neolithic. Such circumstances would in particular be a limiting factor for an understanding of past processes if this transitional period follows the trend from many other coastal areas in Europe, where a distinct marine focus is displayed in the economies and settlement patterns of the Late Mesolithic and Earliest Neolithic.

While data is currently being accumulated and new models have been developed to predict patterns of colonisation for the Aegean (Cherry 1990; Broodbank & Strasser 1991; Van Andel & Runnels 1995; Broodbank 2000; Perlès 2001) and the Adriatic (Bass 1998), these efforts, although highly informative, focused mostly on the timing of colonisation (evidence of first colonisation) and the physical limitations for human migration. There have been no specialised case studies for the Adriatic to detect the material manifestations of the organisation of colonisation and little effort dedicated to understanding how Early Neolithic people moved in a coastal landscape and coped in colonising situations.

Many migration models resting on the concept of "waves" have an inherent problem in that they disregard time depth. A wave speaks of a unilateral and almost immediate effect when in reality we are more likely to see links that move back and forth (trade/exchange/marriage ties, etc.) over a great time depth. The effect would be one of ripples rather than a wave. Forenbaer & Miracle (Forenbaer & Miracle 2005, in press) most recently re-evaluated the radiocarbon dates and different

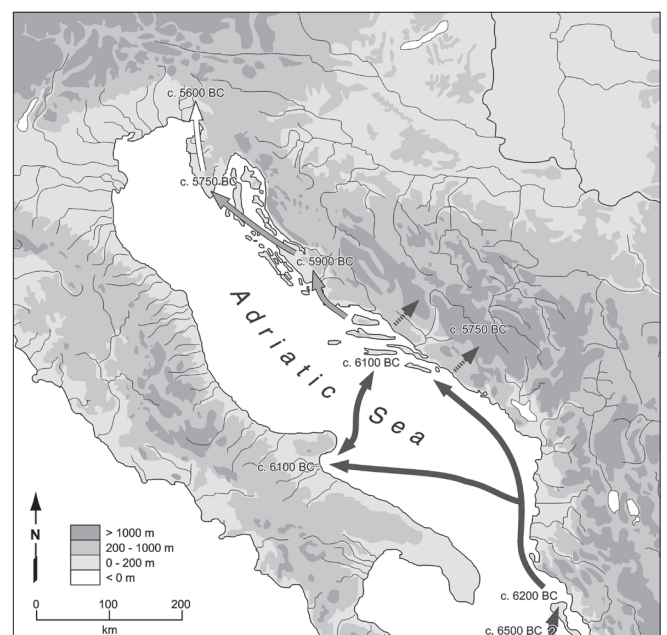


Figure 1. Forenbaer & Miracle's model of the spread of farming and herding in the Eastern Adriatic. After Forenbaer & Miracle (Forenbaer & Miracle 2005:522, fig. 4).

	'Pioneering' Impresso	'Mature' Impresso
Focus of activity / site type	coastal focus; primarily caves?	coastal & inland; caves & open-air
Settlement density	low	medium, locally concentrated
Mobility strategy	frequent re-location of settlement?	sedentary
Networking	little evidence of established contact with long-distance networks; no wide-spread free flow of raw materials	increasing exchange and networking
Resource focus	pastoralism, hunting, gathering	pastoralism, mixed farming
Raw material use	diverse, predominantly local	increasing uniformity, more 'distant' raw materials
Lithic industry	expedient, flake-based industry	predominantly blade-based
Neolithic package	pottery + some domestic animals	fuller suite of Neolithic package
Interaction indigenous / coloniser	some	little / none
Adaptedness	low degree of initial adaptedness	high degree of adaptedness
Behavioural variability	high	low

Table 1. Examples of possible archaeological expectations for "pioneering" and "mature" Early Neolithic migrants in the Eastern Adriatic. Descriptions partly based on dichotomous models of colonisation strategy compiled by Hazelwood & Steele (2003).

categories of Early Neolithic data from the Eastern Adriatic. They advocate a two-phase model for the spread of farming (fig. 1) and stress the likely complexity of the transition and the active participation of indigenous hunter-gatherers (e.g. through intermarriage).

According to their model, advancing migrants may be divided into "pioneers" and "developed" settlers. Smaller, highly mobile Impressed Ware groups who quickly colonised the southern part of the Adriatic characterised the initial stage of Neolithic migration. They are followed by the slower but more widespread dispersal of more mature and settled farming communities (Forenbaher & Miracle in press). The model is useful in an Adriatic context because it assumes the existence of two phases of migration, which, to a certain extent, are distinct in nature (although most likely part of the same ethnic group) – and therefore, in theory, is testable. Although adapting to the same general coastal landscapes, it is implicit that this two-phase process of colonisation is characterised by *different colonisation strategies*, which hypothetically have a visible effect on the archaeological record (fig. 1). In other words: we may expect differences between the material and behavioural expressions of the *earliest* Neolithic and the Early Neolithic as they each leave somewhat different traces on the landscape. Contrasts between pioneering- and mature Impressed Ware groups may, for instance, be expressed in settlement location, technology, storage strategy, size of artefact assemblage

and varying approaches to local resources (Davies 2001) (tabl. 1)².

Knowing about suitable raw materials would have represented valuable knowledge in Early Neolithic society. In the case of initial colonisation, although predictions can be built on previous experience, people are not aware of resource distribution and geographical patterning to the same extent as in the familiar area they have left. In order to endure in a new place, it was necessary to expand the existing knowledge base to include the specifications of the new landscape. One way to do this would have been to draw on knowledge already existing among hunter-gatherer groups. But because there is at this point in time so little evidence of contact between hunter-gatherers and early farmers it is difficult to evaluate the effect of transferred indigenous knowledge. One would also need to define very clearly what this kind of evidence would look like (e.g. DNA patterns indicating intermarriage between Mesolithic hunter-gatherers and "Neolithic" farmers).

It is an obvious point that getting to know a landscape well on which one is dependent is critical to the ultimate success of colonisation. One must therefore assume that colonisers

[2] It is not suggested that colonisers thought in terms of a specific strategy. Yet, on the other hand, it is clear that aspects of the strategies do relate to the ways in which colonisers behave and also to the way in which they think about the landscape.

initially would have focused primarily on those natural resources, which were a prerequisite for survival. Rockman (2003) suggests that procurement of lithic raw material requires colonisers to acquire substantial locational and limitation³ knowledge, as it is necessary to actually find non-organic natural resources in order to access and assess it. She argues that information related to non-organic resources may be the least transferable across long distances and that substantial social adjustments may be necessary to establish new non-organic resource access patterns or maintain access to previously used sources (or both) (Rockman 2003:19).

Lithics and raw materials as markers of resource strategies

Without de-emphasising the importance of technical and cultural traditions, it is clear that the technological and typological characteristics of lithic assemblages are linked to raw material availability and characteristics: Although a procurement strategy's tasks and its necessary organisation and technology are directed to some degree by its cultural context, for the most part it is determined by the particular character and location of a resource. Variations in lithic resources would therefore have had a significant impact upon the procurement system operating in any given area (Gould 1980).

It seems likely that Early Neolithic groups would have altered their procurement strategy to accommodate changes in settlement location. For example, it would have been necessary to change strategy if a colonising movement/residential shift took a group from an area in which lithic resources were readily available to one in which they were either uncommon or unknown to newcomers. Lithic assemblages will in such cases represent the most robust evidence for demonstrating shifts in the knowledge base and raw material acquisition patterns – changes that with supporting evidence perhaps can be explained by a lack of / access to previously acquired knowledge about resource distribution⁴. Shifts in strategies may also have occurred to facilitate the procurement of selected types of material for specific tasks (Haury 1994:27).

Basic approaches used to acquire lithic raw material are direct and indirect procurement. Direct procurement, where raw material is collected directly at the source, requires locational and limitation knowledge of the resource (Rockman 2003). Indirect procurement, on the other hand, depends on reliable trading- or exchange-links (in a "socialised landscape"). Both of these procurement strategies (and other alternative strategies) leave certain patterns in a lithic assemblage that can yield information on patterns of movement and the relationship between human groups and specific locations in the landscape.

[3] "Limitational" refers to: "... familiarity with usefulness and reliability of various resources, including the combination of multiple resources into a working environment" (Rockman 2003:5).

[4] "Pioneering behaviour" in terms of lithic actions may only be detectable archaeologically for a rather short period (a couple of generations?), after which non-locals supposedly would have become locals.

Although lithic raw material sources clearly cannot be located and evaluated by examining assemblages alone⁵, preferences for particular raw materials (those represented) and variations in technology and procurement mode can be examined and assessed at the assemblage level. Observations of macroscopically visual attributes such as cortex coverage, debitage size and the varying rates of visually recognisable raw material types (*e.g.* expressed in percentages), can be used to put forward specific assumptions regarding raw material procurement patterns. Although potentially of a complex nature, a relationship exists between the selection, procurement, and use of raw materials and the logistical organisation of the populations whose technologies relied upon them (Haury 1994:28).

Variations in procurement technologies are reflections of decisions made concerning ranking and scheduling of activities. Primary factors that influenced these decisions include selection of appropriate raw materials for specific tasks and the integration of procurement with other group activities and movements. The procurement strategy employed by a group at any particular time reflects the fact that the effort directed toward obtaining specific raw materials varied in accordance with the perceived quality and desirability of the material.

Prioritisation of different resources or application of different rules of thumb for locating resources may have resulted in noticeably different paths of movement. Such alternative paths in the landscape learning phase would have brought colonisers into contact with different ranges of resources, which in turn may have influenced the rate and direction of further dispersal movements (Rockman 2003:xxi).

The Early Neolithic in South Istria

Settlement sites and traces of the Early Neolithic (Impressed Ware) in Istria in modern day Croatia are all found on the southern tip of the peninsula (Forenbaher *et al.* 2004) (tabl. 1). More sites are likely to be found with an increased intensity of research and although accurate dating is a general problem, many new lithic scatters have been found in recent years (Balbo *et al.*; D. Komšo, pers. comm.). Although we cannot at this point in time be confident that the Early Neolithic settlements that we know are contemporaneous, such concentrations of sites in Southern Istria and on the productive plains in Dalmatia implies the existence of nuclear or preferential areas in the Eastern Adriatic Impressed Ware, but on a smaller scale than the settlement conglomerations in the Italian fertile lowlands. The distribution of sites furthermore underlines a need for access to maritime communication networks as Impressed Ware groups targeted areas immediately on the coast (*e.g.* Debeljak and Kargadur) as well as the dry ground on low hilltops slightly inland, within view of the former coastline (*e.g.* Vrčevan and Vižula). Further south, Impressed Ware sites are also known from several Adriatic islands (Bass 1998; Forenbaher 1999).

[5] Nor can it be assumed that the full range of available materials is represented in an assemblage.

Vižula (fig. 2) was excavated in the late 1960s and early 1970s (Bačić 1969) and is the only excavated Early Neolithic site in Istria, which has yielded a lithic assemblage suitable for independent analysis. A radiocarbon date of 6850 ± 180 , 6100-5450 cal BC, HD-12093 (Bronk Ramsey 2005) places Vižula among the earliest Impressed Ware sites in the Northern Adriatic. The site lies on a small, low peninsula in the inner part of Medulin Bay, SW of the town of Medulin. The inner bay was dry land during the Neolithic period, but the coastal archipelago in the outer bay would have been no more than 1.5 km away.

The dominant raw material in the Vižula assemblage and in other Early Neolithic assemblages from South Istria is a light grey to pale yellow, opaque to sub-translucent "hornstone" with no visible inclusions or banding. "Hornstone" is common in the region and occurs on a number of sites in the northern part of the East Adriatic coast. The raw material is easy to extract from shallow exploitation pits or from beach-cliffs as large chunks are continuously being eroded out from the soil that rests on the limestone bedrock. Another common raw material is the characteristic, grey-white banded "Marlera-flint", which can be collected as cobbles and boulders from the surface. This type of flint is commonly found in secondary surface deposits on the SE part of the Istrian Peninsula, where the bedrock is Upper Cretaceous limestone (Senon).

Among the c. 1700 analysed pieces of lithics from Vižula, decortication flakes are relatively scarce and only 8 flakes are fully cortical. Part of the explanation can be found in the way the local raw material was reduced. Many cobbles contain a small and rather well defined core of usable raw material and it was therefore necessary to reduce cobbles considerably before the better quality material could be extracted. Cobbles were therefore probably tested and roughed out before bringing them to the site from outcrops very nearby. Even cobbles of less-than-average quality were collected and a large part (> 40%) of the debitage produced at Vižula is in the form of shatter or chunks (which in this particular case can be used as a crude measure of flint quality).

Unsystematic knapping experiments show that the local outcrops of "hornstone" permits the production of any desired blanks. However, generally, most of the "hornstone" is only suitable for the manufacture of a limited range of larger tools, as thin blanks are too brittle for regular use and grades to chalky. A few blades, a number of regular bladelets and some bladelet cores in the assemblage demonstrate that the physical qualities of the rock varied and occasionally did allow knappers to produce more delicate debitage. Still, it is abundantly clear that the use of blade technology was very modest indeed. Excluding the irregular blades and bladelets, which in most cases are merely elongated flakes, blades and bladelets make up less than 2% of the total assemblage. The local "hornstone" satisfied the need for expedient tools and there are a significant number of easily produced, non-standardised flake-tools that do not require high technical flint-knapping skills.

Unfortunately, very little is known about lithic raw material sources in Croatia, which is due to a general lack

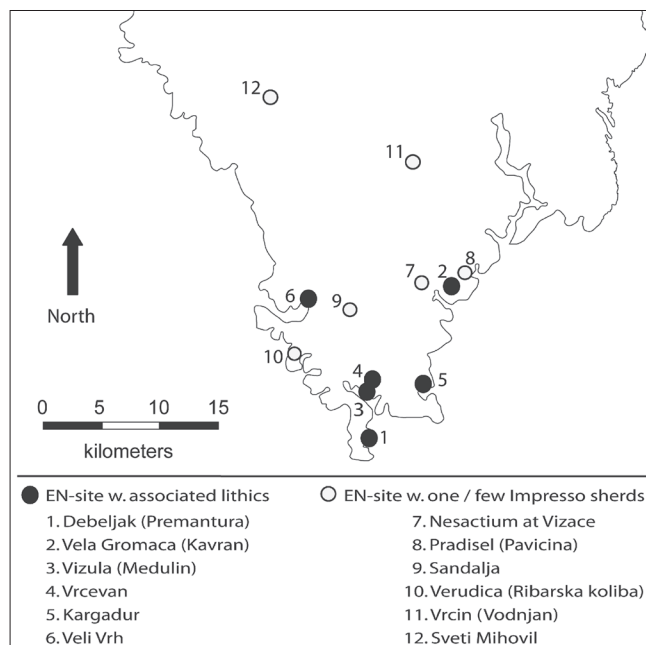


Figure 2. Distribution of Early Neolithic sites in South Istria.

of systematic sourcing⁶ of lithic outcrops and secondary sources. Raw material sources have been identified only on a Third Order Level (Church 1994:22) to the topographic area from which the material was taken. We can at this stage only speculate on the exact location of the sources as statements of population affinity are based on our personal experience with the material. Research on the Croatian, Montenegrin and Albanian side of the Adriatic has also been hampered by a general limited interest in chipped stone assemblages and raw material sources in particular.

Putting these limitations aside, it is clear that lithic assemblages can provide significant information on past raw material availability and usage. Work on aspects of the lithic procurement, technology and typology of the Impressed Ware sites in Istria has been initiated recently (Martinelli 1990; Codacci 2001, 2004; Andreassen in prep; Komšo *et al.* submitted). And it is now possible to give a sketchy profile of the lithic industries associated with Impressed Ware in S Istria:

- Very local, generally low-grade raw materials were used. Groups may have brought with them a very limited stock of tools or pre-forms, but raw material was by and large procured very locally and worked in or near the settlements. Perhaps it was not necessary to obtain better quality raw material in order to fulfil the requirements for tool production. Alternatively, it could point towards a low level of landscape learning expressed as a lack of knowledge of alternative and better resources - or incapacity to obtain good material from other groups.

- The very scant presence of possible distant materials indicates a very modest flow of products to the sites. There is, for instance, a remarkable absence or near-absence of obsidian although the use of this material is widespread on

[6] Sourcing defined as the assignment of the material of a lithic artifact to a geological source (facies, outcrop, or topographical location).

many Italian Impressed Ware sites.

- The Impressed Ware settlements that we know from Istria are not associated with a "typical Early Neolithic" lithic industry with large, well-made blades with few retouched pieces. Although local raw material quality may be part of the explanation, it cannot fully account for the observed pattern.

The situation in South Istria may be outlined as follows: as colonising Impressed Ware groups established themselves in the near-coastal settings, due to insufficient knowledge of or access to available resources in the wider region, they drew only on a very restricted source area for lithic raw materials, and therefore used a considerably limited range of raw material-types. The lack or scant use of distant raw materials is possibly because lines of transport and communication were not yet firmly established. The ¹⁴C-dates and the characteristic impressed ceramic ware make it clear that the settlements are part of the Impressed Ware Complex, but there is no strong evidence preserved of exchange links with other groups.

Circulation of lithic material in Istria may have been limited in the Impressed Ware phase, both in terms of product quantity and quality. However, on the recently excavated (but undated), typologically late Impressed Ware site of Crno Vrilo near Zadar in Northern Dalmatia (Marijanović in press), the lithics look broadly similar to Middle Neolithic assemblages when they in the Danilo/Vlaška phase attain a much more standardised expression. There are in the Crno Vrilo assemblage a large proportion of prismatic blade tools and the dominant raw material appears to be a non-local high-quality translucent flint (pers. obs. 2004). This *could* indicate that a change in exchange patterns and technological behaviour set in earlier than the beginning of the Middle Neolithic around 5600 BC: Sometime during the Impressed Ware phase, the rate and extent of lithic exchange accelerated, which makes it likely that a change in social networking also took place. Certainly, increasing overall demands for raw materials and the broadening of interaction systems would have transformed the conditions of procurement, production and distribution.

Middle Neolithic Danilo/Vlaška-style ware is the first pottery style to reach the interior of Northern Istria, as Early Neolithic Impressed Ware is exclusively associated with sites in Southern Istria. During the earliest post-Mesolithic occupation at Pupičina Cave in NE Istria (Horizon I of the Middle Neolithic Danilo/Vlaška phase), the majority of flaked stone artefacts were made on-site of locally available chert. More than half of all tools from this phase were made on flakes. This situation changed during the following sub-phase of the Middle Neolithic occupation (Horizon H) when the abundance of "pale cherts" shows that acquisition of non-local raw materials became common together with an increased use of blades (Forenbaher in press)⁷.

[7] Two dates from Horizon I give a time-range of 6000-4950 BC at 2 s.d. while the stratigraphically later Horizon H is dated to 5780-4850 BC (Miracle 1997; Miracle & Forenbaher in press).

It is interesting to observe that these two examples of potential transformations in raw material acquisition and networking are not related to the traditional chronological Early Neolithic/Middle Neolithic division defined by the shift from Impressed Ware to Danilo/Vlaška Ware, but are developments that occur within each cultural complex/phase.

Although the earliest Neolithic communities in Istria probably should be viewed as colonisers rather than explorers (exploration precedes colonisation) (Forenbaher & Miracle in press) - they appear to be new to the area. They moved into this part of the Adriatic for specialised purposes for brief periods of time, using knowledge, methods, and technologies that were not strongly place-dependent. A "socialised landscape", was not yet established, but access to information and known travelling routes played a primary role in settlement choice. It seems unlikely that colonisers would choose to establish a settlement in total isolation. Later, settlement strategies of early Impressed Ware groups would have been influenced by new aspects as increasingly agricultural activities replaced pastoral and foraging ones during the course of the Early Neolithic (Barnett 2000:106).

Diversity in material terms can to some extent be viewed as an expression of varying degrees of adjustment to the physical and the gradually socialised landscape. I expect that further analysis of sites from the wider Impressed Ware region will show a greater range of behavioural variation between Early Neolithic assemblages in comparison to the Mesolithic and Middle Neolithic periods. This arises as a consequence of the potential contrast in resource knowledge and raw material acquisition between pioneering and later colonising Impressed Ware communities. Secondly, colonising groups would pay more attention to tackling resource issues, which are predominantly local in nature. Colonisation of a new territory is associated with some degree of pressure or stress and adaptability may depend upon taking up new behaviours that are specifically suited to the individual area. Experimentation and innovation would play a key role. This scenario is in contrast to the more developed stage where the establishment of trade links contribute to a homogenisation of the material expressions (*e.g.* circulation of high-quality flint for sickle-blades).

Conclusion

The field of landscape learning is an instantly attractive and potentially very powerful way of looking at archaeological remains. On a theoretical level, landscape learning is a model of middle-range theory by which general migration or colonisation concepts can be related to raw data. The landscape learning concept allows the integration of various categories of data and is a productive way of introducing new dynamics into an otherwise static and over-simplified picture of the hunter/farmer interface (Chapman 1989:512). It explains change, but without presupposing a presence of "stages" (does not entail looking for the "half domesticated stage"). The concept is of obvious importance since landscape learning is an important factor in adjusting to a landscape and critical to the ultimate success of colonisation.

Although lithic procurement strategies are strongly dependent upon the availability and character of raw materials, their analysis is a tool that can be used to develop an understanding of the logistics of cultural organisation. So far, the lithic industries associated with Impressed Ware have rarely been used in a systematic manner to address questions beyond those concerned with typology. Although still of a somewhat exploratory nature, the organisation of lithic procurement from South Istria appears to be somewhat atypical in the Adriatic Impressed Ware Complex. Instead of invoking particularistic explanations for the observed picture, it may be more useful to re-phrase old research questions within the framework of landscape learning. Implementation of general expectations from landscape learning can inform us about specific strategies used during the Early Neolithic in the East Adriatic and allow us to speculate on the basis of these expectations about the process by which colonisers moved into the region.

The earliest Impressed Ware groups brought with them to the East Adriatic a knowledge base, social networking skills and a set of adaptive and technological strategies. In some

cases, they would undoubtedly have been able to map their own knowledge onto existing information derived from local hunter-gatherers. The experience that early farmers acquired in this new landscape would later form the basis for the skills and knowledge necessary for moving on or for interacting with people beyond the Adriatic region. Ultimately, it would affect the way humans approached, utilised and inhabited the landscape in other places. The landscape learning perspective may prove useful in a wider interpretative scheme to illustrate shifts in terms of changing strategies and knowledge over the long period that eventually allowed farming to develop in a familiar landscape.

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