INTRODUCTION

This paper examines the correlation between the sources for high grade flint, used primarily for sickle blades, and the ‘traditional’ cultures of Neolithic Europe that developed during the late sixth and through into the fifth millennium BC and were mainly defined by ceramic styles. We conclude that many of these culture areas make sense in terms of the distribution of high quality lithic sources, and that it is the ceramic styles that follow the lithic distribution rather than the other way round. We urge that these regional patterns of Neolithic cultures should not be neglected, as is the current fashion in Anglo-Saxon research, but be re-examined and perhaps be seen as a reflection of ethnic groups developing around lithic sources. We do not suggest, however, that such a correlation is necessarily true for all periods, it being difficult to perceive in either the initial Neolithic or the Later Neolithic/Copper Age of the late fourth and third millennia. The current state of the debate concerning culture and ethnicity is also considered.

FLINT AND CULTURE AREAS

Three examples of Neolithic cultures, flourishing between the later 6th and 4th millennium BC, are initially examined — Fiorano, Villeneuve-Saint-Germain (VSG) and Chassey — in which flint industries, as well as the ceramics, are the defining features.

Fiorano and northern Italy

Northern Italy possesses various flint sources but the best and most accessible for blade and tool production are those in the Monti Lessini north of Verona (Figure 1). This source was neglected during the Mesolithic (Barfield 1994; 2000) and the first Neolithic cultural tradition to enter northern Italy, the Impressed Ware, which only established itself on the margins of the Po Plain, is not thought to have reached the Lessini and did not make use of Lessini flint (Barfield 2000). It may nevertheless have eventually contributed to the initial prospecting of these sources, since it was the source from which farming and the need for farming equipment (sickles) would have been diffused. During the later stages of the Early Neolithic, however, between the late sixth to early fifth millennia BC (c. 5300–4700 cal. BC; Impronta & Pessina 1998), the Fiorano culture, which developed to the north of the Impressed Ware, became closely associated with the exploitation of the Lessini flint sources (Barfield 1994; 2000). The ceramic component of this culture is distinguished by a high quality and distinctively incised pottery while the flint industry is characterised by high quality blades and a range of geometric and blade-based tools, among which sickle blades are a major item.

On all Fiorano sites so far examined, a close association between Lessini flint and Fiorano pottery has been observed (Pessina 1998; 2000) and the pottery and flint are even found together as far south as the site of La Querciolaia, Livorno, on the coast of Tuscany, some 240km from the lithic source (Figure 1; Pessina 1998, note 8; Iacopini & Grifoni Cremonesi 2000). Flint was exported in the form of pre-cores to many sites as well as, probably, finished

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blades. While it had been suggested that the exploitation of Lessini flint had been carried out by means of seasonal expeditions to the mountains (Barfield 1994), a major production site involved in intensive blade manufacture, Lugo di Grezzana (VR), has now been found on the southern margin of the Monti Lessini (Moser 2000).

Figure 1. North Italian Neolithic regional groups c. 5000 BC. [Illustration by H. Buglass]

In northern Italy, Lessini flint was also used at this time by the ‘ceramic’ groups of Vhò to the west and, probably, by the Friuli Group, which comprises such sites as such as Fagnigola and Sammardenchia, to the east of the main Fiorano culture (Figure 1). These two ceramic traditions can be regarded, essentially, as closely related to Fiorano, and sites in both groups contain imported sherds of Fiorano wares (Pessina 1998). We can also observe that two other groups, with slightly different ceramic styles, Gaban and Isolino, were developing at the same time along the southern Alps, both located close to sources of flint of lesser importance (Figure 1).

Pessina sees the Fiorano culture as a prime organiser of the flint trade (Pessina 2000), and the distributional correlation between the Lessini flint and the Fiorano ceramic style would suggest that a symbiosis existed between the two products, with the flint to be seen as a prime economic element in the cultural dynamic. We would further suggest that it was the discovery and exploitation of this specific high quality lithic source that lead to the formation of the cultural identity centred around this economic resource. The fact that the first exploitation of this flint coincides with the appearance of Fiorano, and indeed the first appearance of Neolithic settlement so far to the north, only underlines this association.
Fiorano was clearly not derived from a single cultural base since it shows a number of multicultural features which include the local Mesolithic (the Castelnovian lithic technology) and the Balkans (house types, as at Lugo di Romagna; Degaspari et al. 1998). The ceramics from Lugo di Grezzana (VR) might even suggest Impressed Ware influences in its inception (Moser 2000). A relationship with LBK (Linearbandkeramik) pottery, which has been claimed in the past, is less certain (Pessina 2000). All these elements may have contributed to its formation as a culture, coalescing, as it were, around the catalyst of the Lessini flint source.

The Square Mouthed Pottery (VBQ) culture, which developed in northern Italy with the start of the Middle Neolithic, after c. 4700 cal. BC, continued the role of distributing Alpine or Lessini flint over long distances, indeed as far as Arene Candide on the Ligurian coast (Starnini & Voytek 1997).

**Villeneuve-Saint-Germain (VSG)**

A similar situation to that of Fiorano is represented by the Villeneuve-Saint-Germain group (VSG) that emerged from the LBK in the Seine Basin in the early fifth millennium (Figure 2). This incised ceramic style was first defined in 1982 and is centred on the Cretaceous and Tertiary flint sources of the north central France.

While the abundant Cretaceous flint of the area was also exploited for the basic flint industry, including blades, the high quality Tertiary Bartonian flint, produced from a restricted number of sites, was used for blade production of a higher technical competence, and probably by specialists (Bostyn 1998). The appearance of sites of this group to the west of the culture area, like the most westerly Haute-Mée in southern Normandy, is characterised not only by the massive importation of flint from the Seine Basin but also by what amounted to the importation of a whole new technology (Marchand 1999). While the production area of the Bartonian flint lies within the area of the VSG ceramic style, the flint itself was exchanged over a wider area — up to 200km, including neighbouring cultural groups, such as Blicquy to the east, despite access to its own flint sources, which reciprocated the exchange with schist bracelets (Bostyn 1998).

The formation of the regional style of VSG out of the local LBK may thus be closely linked to the high quality, Bartonian flint blade production and again suggests that the flint source acted as a catalyst for cultural formation and geographical location.

**Chassey**

A third example showing a correlation between blade flint and ceramic style is the southern French Chassey Culture (Figure 2). Here, in the area formerly occupied by the Impressed Ware, we find the formation of the Chassey culture c. 4700 cal. BC. The distribution area of this culture corresponds closely to the distribution of the *silex blond* ‘Bédoulien’, a high quality blade flint from a source in the Vaucluse (Léa 2004 & 2005). Indeed, even when first identified, Chassey sites were in part characterised by the abundance of these blades (Léa 2005). The distribution of this flint, in the form of both finished blades and heat-treated cores, can now be interpreted as having been conducted by means of a series of redistribution sites, rather than by down-the-line exchange (Léa 2005).

Although a more detailed knowledge of the ceramics now shows that the definition of the Chassey culture as a coherent group on ceramic evidence alone is sometimes problematic (Beeching et al. 2000), we have the impression that the flint defines the group rather than the ceramics.

The *silex blond* exchange network came into being with the formation of the Chassey group and it collapsed at the same time as the demise of the Chassey pottery, an event that appears to have been linked to a population decline c. 3600–3500 BC (Beeching 2003). We can thus deduce that the economics of *silex blond* flint were closely bound up with both the origin and the disappearance of the culture, as well as explaining its cultural cohesion.

In a similar way to the Fiorano culture, *silex blond* was supplied to two closely related Neolithic groups to the west, Montbolo (eastern Pyrenees) and the Fosa Grave Culture of Catalonia (Figure 2; Léa 2005).

A close ceramic cultural linkage to the major flint sources of the Vaucluse and Monti Lessini is clearly demonstrated along the boundary between Chassey and the north Italian Square Mouthed Pottery (VBQ) culture, which was probably initially located close to the watershed of the eastern Alps. This boundary c. 4300 BC shifts eastwards across the Alps into the
headwaters of the Po River catchment, displacing the VBQ culture and eventually establishing the Lagozza culture over much of the Po Plain. As Chassey infiltrates this area, Lessini flint is replaced by silex blond (Barfield 1999). This is most clearly demonstrated in the settlement cave of Arene Candide in western Liguria (Figure 1; Starnini & Voytek 1997). Here a cultural sequence covering the entire development of the Neolithic can be divided into three main cultural periods: Impressed Ware, VBQ and Chassey. Each of these phases corresponds with a different flint source (Table 1). In the Impressed Ware, the flint is local or from the south; in the Middle Neolithic, the VBQ is associated with Lessini flint from the east, while in Chassey levels the French silex blond flint predominates. We can thus appreciate that the chronological boundary between Chassey and VBQ was here a political reality and not just a vagary of ceramic style (Barfield 1999). The difference between the two cultures is further emphasised by the evident Balkan traits — decorated houses, stamp-seals and figurines — that characterise the VBQ, which all cease at the Chassey border. We can note that the later, developed Lagozza culture makes use of local Italian flints.

In these three examples, while not precisely contemporary, we can thus see a very similar interdependence between flint and ceramics both in time and space, with a good blade flint source as possibly the dominant factor in this process. In the case of Fiorano, the development is out of various cultural components uniting at a flint source in virgin territory, beyond the boundary of the first Neolithic settlements of the Impressed Ware culture, but possibly involving elements of that culture. In the case of VSG and Chassey, their formation is clearly out of the pre-existing LBK and Impressed Ware cultures respectively.

<table>
<thead>
<tr>
<th>Ceramic cultural style</th>
<th>Layers</th>
<th>Flint</th>
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<tbody>
<tr>
<td>Chassey</td>
<td>15-14</td>
<td>Silex blond</td>
</tr>
<tr>
<td>Square Mouthed Pottery</td>
<td>22-16</td>
<td>Alpine (Lessini?) flint</td>
</tr>
<tr>
<td>Impressed Ware</td>
<td>27-25</td>
<td>Local flint and east Ligurian jasper</td>
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*Table 1. Sequence at Arene Candide, showing the relationship of ceramic cultural style and flint (after Starnini)*

**OTHER EUROPEAN NEOLITHIC CULTURE GROUPS**

With the start of the Neolithic in Europe there is a trend, or often an abrupt switch, to the exploitation of fewer, better quality sources of flint on a more intensive basis with wider distribution zones than in the Mesolithic. In northern, central and eastern Europe the production of high quality blades, arguably related to the manufacture of sickles, was established in a number of centres where suitable flint occurred. The principal of these, besides those already described, were Sredna Gora in northern Bulgaria, Volhynia in the Ukraine, Southern Poland (chocolate flint, Krakow and later Swieciechow), the Bakony Mountains in Hungary (Szentgál), Denmark, and the Meuse (Rijckholt, Rullen, Lousberg; Figure 2).

The earliest stages of the Neolithic during the 7th and 6th millennia BC are characterised in Europe by widespread ‘pioneer’ farming cultures such as Köröș/Starčevo, LBK and Impressed Ware. The correlation between these first farmers and flint is characterised by the use of multiple sources. In the central and western Mediterranean, the Impressed Ware culture exploited various local sources along its extensive, coastal distribution area. In the northern Balkans, Köröș/Starčevo was largely reliant on northern Bulgarian flint in the south and obsidian from the Carpathians to the north of its range, while the LBK exploited several major
sources from the Ukraine in the east to the Paris Basin in the west. We can suggest that these first farming communities owed their cultural coherence to other factors than the existence of specific flint sources, and that they were in fact involved in prospecting the best flint sources for blades and establishing the exchange networks relating to them.

During the fifth millennium — Fiorano appears slightly earlier — these early, extensive culture zones break down into smaller regional areas, and it is now that several distinctive regional ceramic styles appear. What caused this fragmentation remains unclear, but a correlation between ceramic style and major flint sources can be suggested along the lines of the examples we have already described. In fact, a major source existed within most of the main culture zones, highlighting the significance of the flint sources as a cohesive force even though flint may also have been traded beyond the cultural boundaries (Figure 2). In this way, we can look at the pattern of cultures first defined by Childe (1957, Maps IIIa and IIIb) and suggest that the territory of many groups may have been influenced by the distribution of lithic sources. Thus the Tripolje culture of the western Ukraine was closely associated with the Volhynian flint sources whose blades were exchanged over long distances, reaching the area of the southern TRB (Trichterbecher) culture in southern Poland (Hoika 1998) as well as the Central Danube Basin. Meanwhile the Late Neolithic/Chalcolithic Gumelnitsa is clearly in control of the ‘honey coloured’ blade flint sources of the Sredna Gora in northern Bulgaria. Here, the southern limit of its graphite-decorated pottery coincides with that of the flint at sites like Sitagroi in north-eastern Greece (Els ter 2004). Likewise, in northern Italy, the VBQ culture may owe its coherence to the distribution of Lessini flint, although other flint sources are in use as well.

Later we can see that the two main areas of the TRB culture are linked respectively to the southern Polish sources (chocolate flint, Krakow and Swiecowice) in the south-east, while the northern TRB is associated with rich Danish and north German sources. West of these, the related Michelsberg Culture is closely involved in Meuse flint exploitation over much of its range. In Bavaria, the working of the rich seams of tabular flint Plattensilex (De Grooth 1994) would seem to be closely related to formation of the Altheim culture.

While we acknowledge that the linkage of lithics to ceramic cultures may not always have been as close as in the three cases examined, and that other factors played their part in group formation, we suggest that most cultures had a major flint resource within their boundaries and that the control of flint sources was important in the formation of many culture groups as the Neolithic developed.

OTHER LITHIC SOURCES

The exploitation of lithic materials other than flint blades shows a less clear relationship with ‘ceramic’ culture formation.

Obsidian is one such material. Its exploitation coincides with the start of the Neolithic, parallel with the establishment of flint ‘sickle blade’ industries. It was then that all the useable European obsidian sources were rapidly developed for blade production. This material is at first sight not so closely linked to specific ceramic styles as it was exchanged over long distances, crossing many ‘cultural’ boundaries. The distribution of obsidian by itinerant specialists, working from redistribution centres within alien culture areas, may explain this phenomenon and evidence for such a scenario exists both in Italy (Ammerman & Polglase 1993) and Greece (Perlès 1992).
In southern Italy a relationship between the exploitation of Lipari obsidian and the ceramic style of Stentinello, which is found in Calabria and western Sicily as well as on the island of Lipari itself, has been suggested and Di Lernia saw the Stentinello culture as a mediator in obsidian trade (Di Lernia 1998).

Stentinello pottery forms the ceramic assemblage on the site of Piana di Curinga (Ammerman & Shaffer 1988), one of the most important sites for the off-loading of Lipari obsidian on the mainland Calabrian coast. This site is analogous to Nea Makri in Greece which is, likewise, a coastal site, at which Melian obsidian was landed in quantity for further dispersal throughout the Greek mainland (Figure 2; Pantelidou-Gopha 1995). It is interesting, therefore, to observe that there are some similarities between Stentinello and Nea Makri ceramics. Both used unpainted incised (and in the case of Stentinello, impressed) pottery in areas where the fine ceramics were usually painted. Also the dominant motifs — chevrons and concentric lozenge patterns — are found on both these styles and both designs were encrusted with red or white paste, suggesting a similar symbolic iconography (Pantelidou-Gopha 1995, Figure 74; Ammerman 1985, Figures 4.4 & 4.5). The technological similarities between Lipari and Melian obsidian, involving just the production of small, unmodified blades, might further suggest that a specialised exploitation of obsidian sources was carried out by related populations.

An association between obsidian production and fine pottery is also found in the Bükk culture (c. 5100–4800 BC) of northern Hungary. Here, obsidian and other stone used for tool manufacture, along with high quality ceramics, were trafficked from the Bükk mountains up to distance of 400 km from source to other culture zones, as far as southern Poland and Serbia, covering the same geographical area (Sherratt 1983).

It is interesting to note that in none of these areas is the association between obsidian and ceramic style present during the initial period of Neolithic exploitation of obsidian; it is a phenomenon that occurs at the time of the fragmentation of Neolithic culture areas noted above.

**AXES AND OTHER STONE**

The symbolic dimension of axes (Pétrequin et al. 2002; Barfield 2003) as well as their greater robustness, make them more likely to have been linked with extensive gift exchange networks than flint blades. Such distributions are thus less likely to be constrained by regional cultural identities, even though we can assume that the source areas would have been of major economic importance for a particular population group. The most striking example of these axe exchange networks is to be seen in the axe production in the western Alps from whence jadeitite and eclogite axes were distributed from here as far as Scotland and Ireland as early as the 4th millennium (Pétrequin et al. 2002).

Axes can, however, sometimes be linked to culture areas. The quartz-mudstone (formerly aphanite) production of axe-heads in the French Jura is for example closely identified with the Burgundian Middle Neolithic group (c. 4000–3750 BC). This production, and distribution, was closely integrated with a cultural identity. The settlement pattern relates to a chain of production and distribution areas that show the development of a hierarchy of sites based on the axe-head production and dissemination. The collapse of the system and the abandonment of axe production also coincides with the demise of the Burgundian Middle Neolithic,
suggesting the close link between the economic prosperity brought by control of the axe sources and group-ceramic identity (Pétrequin et al. 1993).

In northern Italy the Vhò group is seen as linked to the dissemination of early Alpine axe-head production (Figure 1; Pessina 2000), while later in Poland the Krzemionki axe production becomes culture specific in the TRB and the Globular Amphora Culture.

Other stone products may have caused the formation and economic prosperity of culture groups. One such is the variscite (callaïs) bead production of the Fosa Grave culture, a group more characterised by burial practice than by ceramics, whose distribution area matches closely the distribution of the culture (Villalba 2002). The distribution of these objects also clearly suggests an easterly direction of trade, in exchange no doubt for the *silex blond* of Chassey.

**THE TARGETING OF RESOURCES**

There are several instances in the Neolithic record where the archaeological evidence points to the targeting of lithic sources by specific culture groups, a phenomenon that reflects the actual decisions of early populations to control resources.

Binder (2002) suggests that, already at the inception of the Neolithic, the technological change seen at the sources of eastern Anatolian obsidian is due to the expansion of the PPNB (Pre-pottery Neolithic B; c. 8600–8200 BC) to take over the direct control of material that was previously obtained by exchange.

An early European example of this is the evidence for the exploitation of Rijckholt flint by the early LBK from beyond its cultural boundary, at a time when the frontier of that group lay 200km to the south-east (Gronenborn 1990; Kozlowski 2001). Only the subsequent stages of the culture fully encompassed and fully controlled these flint sources.

A similar scenario can be seen in the already mentioned encroachment of the Chassey culture into north-west Italy, across the western Alps (c. 4300 cal. BC). This can reasonably be seen as a move to take over the stone axe sources of the western Alps, previously controlled by the ‘Italian’ VBQ (Bagolini & Barfield 1991; Pétrequin et al. 2002; Thirault 2005). It is a development that has all the hallmarks of a political event, involving the seizure of ‘foreign’ economic resources. This replacement of VBQ by Chassey we have already seen cogently demonstrated in the Arene Candide sequence, by the changing direction of flint supplies switching from the ‘Italian’ Lessini to the ‘French’ *silex blond*, at the VBQ to Chassey transition. This Alpine scenario points to the importance of the control of axe-head raw material sources, even if the resulting pattern of distribution shows little correlation with social territory.

These examples show us how lithic materials can demonstrate political events, and even their motivation, in prehistory, far more cogently than do fluctuations in ceramic styles.

**NEOLITHIC CULTURES**

The culture-historical approach was first applied during the early 20th century to the European Neolithic as a means of establishing geographical, as well as chronological, sub-divisions. The period was divided into culture areas and phases, mainly defined by ceramic styles and
loosely approximated to ethnic groups (Childe 1957). This culture-historical approach has in more recent years been widely criticised by Anglo-Saxon scholars and relegated to a defunct paradigm. Among the many valid criticisms was the fact that many cultures had been defined by using weak typological categories. Also there was little recognition of a ‘culture’ as a complex phenomenon; polymorphic in D. Clarke’s interpretation. This has lead to the accusation by many that ‘cultures’ are purely constructs devised by archaeologists (Jones 1997: 109), and such criticism has involved the discrediting of this approach altogether (e.g. Hodson 1964). Culture-historical classification has been seen as ‘masking differences’ (Binford 1965: 205; Jones 1997: 109), obscuring the natural ‘untidiness’ in the cultural scene (Shennan 1989) or just plain ‘sterile’ (Trigger 1989: 288). Traditional cultural groupings are therefore dismissed, in theoretical circles, as part of a defunct culture-historical paradigm or more usually, just ignored.

Some attempts have been made to explain the geographical variations of material culture, without evoking a cultural explanation These include Sackett’s (1985) suggestion that differences naturally emerge from a geographical continuum of material culture leading to the emergence of distinctive regional concentrations; a process he termed the isocrestic formation of cultures.

Cultures are, however, still routinely acknowledged on the continent, while, even in Britain, critics still use the ‘culture-historical’ terminology (Jones 1997: 27) given the absence of any satisfactory alternative chrono-geographical classification. The fact is that in Neolithic Europe we can still recognise that many ceramic styles do have the potential for defining regional areas and phases, and traditional culture-historical names are also, in most cases, still defined by their ceramic types, giving rise groups such as Grooved Ware, LBK, TRB, VBQ; others, using a type site nomenclature, are equally linked to specific ceramic styles (Chassey, Lagozza, Starčevo, Körös, etc.). These easily recognisable ceramic styles allow us to move around the prehistoric web, both horizontally and vertically, as well as permitting excavated material an instant attribution to the group to which they belong.

We would maintain that the ability of the ceramic styles for conveying cultural identity should still be seriously considered and that the apparent correlation between flint blade production and ceramic culture zones supports this view. Also, whatever ceramic styles mean in terms of ethnicity, we cannot deny that the distribution of a specific ceramic style must indicate some form of geographical interaction (or inheritance) that itself should be worthy of investigation.

It is also evident that ceramics cannot always be interpreted in a cultural way. During the third millennium in northern Italy, for example, ceramic styles appear to show little geographical patterning (Barfield 1988). Likewise, lithic production centres at this time, like those for Grand Pressigny daggers, seem to have no clear cultural context or link to a ceramic style.

Lithics can thus provide an explanation not only for the definition of a culture but also for its geographical location. However, totally different factors can explain nodal points of cultural development, such as, for example, the Friuli group which formed in an area of intersecting contact between north Italian, Danubian and Dalmatian contact (Figure 1).

In the Near East, Koszowski (1998: 152) suggested there was here little correlation between the ceramic cultures and lithic industries, with chipped stone carrying more ancient traditions and being more resistant to change. Although he was here writing of technology rather than
raw materials, his observations suggest that the situation in the Near East was different from fifth millennium Europe and that no universal principle should be envisaged.

THE ETHNIC DEBATE

Over the years the question of ethnic identity in prehistory has been debated in relationship to patterns of material culture, although with the demise of the culture-historical paradigm and its replacement by functional, processual and other models, ethnicity has also become a somewhat suspect subject of study. Some say the subject is politically dangerous (e.g. Voorrips 1996), while Trigger suggested that it is a topic best avoided by archaeologists altogether, who would be better advised to study other questions (Trigger 1995). The existence of past ethnicities has even been seen as being a modern cultural construct; perhaps a result of colonialism and world systems of capitalism (Shennan 1989).

More recent anthropological/archaeological studies of ethnicity (Jones 1997) have pointed out that ethnic identity should indeed be considered a valid subject of study in that group identity can be defined both by reference to outside groups as well the internal identity of a group. Thus on the one hand Barth (1969) stressed that ethnic identity was often related to boundaries between groups and with groups defining themselves in relationship to an external group. Others would claim that groups are not only formed by stressing the difference from the external threat but also by the sense of self and the way personal identity relates to group identity (thus concerning both in group and out group identity). ‘The social construction of cultural difference is therefore dependent on the social construction of cultural similarity’ (Jenkins 1997).

Using such arguments Bergsvik has supported the view that ethnic identity should be, and indeed was, recognisable already in the European Mesolithic (Bergsvik 2003). We maintain that such regional identities should be even more visible in the Neolithic. While well aware of the difficulties involved with the matching of material culture to people, we would at least claim that there does appear to be a correlation between sickle grade flint sources and some Neolithic ceramic styles during the 6th to 4th millennia BC. The process of culture formation we have suggested in these cases would also correlate well with Barth’s view of ethnic identity, not just as a passive product of cultural differences but of collective organisational strategies formed as a result of competition over socio-economic resources (Barth 1969). In other words, ethnic identities emerge from a more general cultural milieu.

CONCLUSIONS

We have not been able examine the related, relevant subjects of the mechanics of trade and social organisation. Suffice to cite De Grooth (1998), who has explored how the organisation of flint extraction in Bavaria may have operated in socio-political terms and how far flint mining may have ‘served as a means to mark the producers group identity in their increasingly important communications with the outside world’. De Grooth further argues how flint mining would ‘reconcile a partly mobile subsistence strategy with the need for establishing a permanent presence in a distinct territory’. On the evidence of ethnography, she does not think that flint mines alone are ‘a sufficient criterion from which to infer the existence of a complex economic or socio-political organisation’ (De Grooth 1998, quoting Torrence) nor does she consider such production in terms of ‘commercial’ activity. We agree that a resource like good quality flint had a role in anchoring culture areas in their regional location and giving them an economic reality and a recognisable geographical shape.
The main arguments of this paper are thus that:

1. There would appear to be a correlation between quality blade flint production and traditional ceramic cultures among some of the cultures of the developed phase of the earlier Neolithic and the middle Neolithic in Europe (6th to 4th millennia BC). This seems to be the case in the Fiorano, Chassey and VSG groups and probably others. For most of the period defined, the major ‘ceramic’ cultures would have been closely linked to a major source of flint exploited for blade production. While lithic products may have been exchanged beyond cultural borders and there may be problems with defining ceramic ‘cultures’, the important factor is the presence of a prime flint source within the culture zone.

2. High quality flint sources were of economic importance and could have lead to the formation of ‘culture’ groups out of existing pioneer culture zones or, as in the case of Fiorano, ex novo. This process is thus a key to understanding culture formation in the developing picture of Neolithic Europe. Barth’s concept of ethnic identity being the result of competition over socio-economic resources is of relevance here.

3. There is evidence for the targeting of some sources by cultures, a process that can be seen in terms of ‘historical’ events that provides them with a greater physical reality.

4. Neolithic cultures should be valued as objects of examination that may lead to the identification of ethnic groups in Europe. While ceramic production might be considered a geographical continuum, individual flint sources are site, or area, specific and a focus for economic control. Neolithic ceramic studies still have an important role to play in understanding social organisation, as well as remaining one of the only surviving expressions of the contemporary artistic heritage.

5. The correlation between ceramics and lithic sources is less obvious at a later stage of the Neolithic/Copper Age, even though the economic importance of such control must have been paramount for the communities involved. Clearly, lithics cannot be the sole reason for the existence of distinctive Neolithic ceramic styles. Other factors, such as other economic resources and activities as well as natural geographical boundaries, played their part.

6. Whether or not the first farmers were of indigenous or external origin, the development of Neolithic cultures around sickle blade sources would be a similar process related to farming practice.

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