

The choice of Luigi Bernabò Brea as the person to establish the Soprintendenza Archeologica in Liguria in 1939 can be seen today as a decisive event in the development of north Italian prehistory. It was his excavations in the cave of Arene Candide, with its now classic triple subdivision of the neolithic occupation, together with a prompt publication containing an exhaustive analysis of the wider context of the prehistoric stratigraphy, that was the main catalyst in bringing about the end of more than half a century of stagnation in north Italian neolithic research.

Although trained as a classical archaeologist - and it was in this capacity that he was appointed to the post in Liguria - Bernabò Brea was quick to recognise that the main potential for archaeological research in Liguria lay in the prehistoric field, especially in the clarification of Neolithic chronology through cave excavation. In his own words his aims were: "La revisione dei problemi della preistoria ligure colla speranza di poter giungere, attraverso scavi sistematici nelle caverne del Finalese, a meglio precisare la successione delle culture specialmente per le età piu vicine a noi" (Bernabò Brea 1946: V; Maggi 1997 pp. 14-15). In this project Bernabò Brea was fortunate in having the collaboration of Luigi Cardini who brought to the excavation the experience in cave stratigraphy and excavation developed by Florentine school of Palaeolithic studies (The Italian Institute of Human Palaeontology) (Maggi 1997; Peroni 1992, p. 65).

The story of how Arene Candide was chosen, almost accidentally, as the main site for excavation is retold by Maggi (1997 p. 20). The cave had in fact been ruled out of Bernabò Brea's and Cardini's original cave survey plan, as being thought too disturbed by earlier excavation to be of any further interest. However, since on 24th October 1940 it was raining, a visit was made to this cave, which was close to where they were staying, in the course of which, surviving intact stratigraphy was noted. Thus the most important excavation in the story of the north Italian Neolithic was set in motion. If it had not rained in October 1940, Italian prehistory would surely have developed along different lines.

Culture and Chronology

The study of prehistory in northern Italy had promising beginnings in the third quarter of the 19th century, with the pioneering research by a group of outstanding figures, such as G. Chierici, B. Gastaldi and G. Scarabelli ecc. These individuals, who mostly came to prehistory through the study of geology and the natural sciences, were inspired by the new discipline of prehistory recently developed north of the Alps and they

set out to investigate this period of early humanity in their own Italian countryside using an empirical scientific approach. It was then that G. Chierici and P. Strobel made their first studies of the Neolithic and Eneolithic in region of Reggio Emilia (Peroni 1992). This brief flowering of research, which had been motivated by the spirit of pure scientific enquiry, was, however, soon to be diverted into the more politically centralised and nationalist direction initiated by L. Pigorini; a direction that repressed regional research and left a stultifying legacy on the subsequent course of the study of Italian prehistory down till the middle of the 20th century.

Until the excavation of Arene Candide only limited progress had been made in the establishment of a neolithic chronology for northern Italy. Whereas in the 19th century it had been possible to create meaningful subdivisions of the Bronze and Iron Ages, using artifact typology and burial seriation, for the Neolithic this was difficult owing to the meagre data base and limited methodology. Attempts were indeed made by Chierici to use, not so much artifacts, but alternative criteria such as structures and settlement styles (neolithic *fondi di capanne* were contrasted with later, bronze age *palafitte*) as well as a more speculative antiquarian methodology, based on population movements cited by the classical authors of antiquity, involving ethnic groups such as the Pelasgi, Ibero-Liguri and Italic.

Neither approach, in fact contributed any advance in chronological understanding; if anything it impeded progress since we can, for example, note that the neolithic site of Molino Casarotto, Fimon, was classified as Bronze Age, as late as the second half of the twentieth century (Battaglia 1958-59), on the grounds it was a '*palafitta*'.

One major achievement in the refinement the north Italian cultural sequence was, however, made by G. Chierici in 1884, when his excavations at Remedello di Sotto clearly demonstrated the contemporary use of stone and copper tools and thus the presence of an 'eneolithic' phase of transition between the Neolithic and the Bronze Age, such as had first been proposed in France in 1875 and Hungary in 1876 (Chierici 1884). The recognition of this phase as a clearly separate phenomenon was unfortunately soon blurred by the Pigorinian 'palaeoethnic' theoretical model, in spite of the masterful study of the Eneolitico by G. A. Colini (1898-1904) and the later definition of a Remedello culture by Menghin (1931). By the 1930s Laviosa Zambotti could characterise the whole period before the Bronze Age as a continuous process, which she named the 'Neo-Eneolitico' (Laviosa Zambotti 1939).

Early in the 20th century changing styles of pottery form and decoration began to be seen as the most useful cultural traits for period and cultural classification of the neolithic period (Childe 1925, Menghin 1931). This new methodology was only belatedly applied to northern Italy from the late 1930s, when new 'ceramic' groups were identified. These included the Lagozza culture (1939), Danubian/Theiss influence (later called the Square Mouthed Pottery culture, VBQ) (1943) which were defined by P. Laviosa Zambotti. In spite of this positive development Laviosa Zambotti's analytical methodology was so chronologically unfocused and based on comparative data so random and wide ranging, that a clear sequence was not defined (Grifoni Cremonesi 1987). Other main cultural traditions coined somewhat later were Fiorano by F. Malavolti (1953) and Impressed Ware by L. Bernabò Brea himself (1946).

Stratigraphy

One archaeological method that was missing from the early approaches to classifying the Neolithic and Eneolithic in Italy was stratigraphy, even though it had indeed been successfully applied in the inter-war years to Italian palaeolithic studies in Italy by Cardini and the Florentine School of Palaeolithic Research. For the Neolithic this absence stratified sites was due as much to of the lack of suitable sites of this period, as to the inertia of fieldwork and directed research. Caves are the obvious starting points to look for a stratified prehistoric sequence, but in Northern Italy Liguria, in fact, has proved to be the only region in which there is evidence for the continuous occupation of caves throughout this period. The rarity of continuous cave or rock shelter occupation from other areas of Northern Italy is not surprising since caves were generally abandoned for settlement with the advent of farming, and it is their continuing use that requires explanation. Not all areas of northern Italy, of course, have caves suitable for human occupation as their occurrence depends on suitable limestone formations. Where these do occur, as in Lombardy, Trentino, Veneto and the Trieste Karst, neolithic and eneolithic occupation was mostly eclectic. In Trentino, in the Central Alps, following a general decline in the use of caves and rock shelters during the Palaeolithic and the Mesolithic (Broglia 1984), there is a pattern of cave/rock shelter use with frequent early Neolithic occupation representing the continuation of a mesolithic-style, hunter-gather economy. This was followed generally by abandonment but subsequent re-use in the Eneolithic, mainly for burial and/ or metal working rather than settlement. This pattern of use has recently been graphically presented by Pedrotti (in De Marinis and Pedrotti 1997). The rock shelter of Riparo Gaban is a good example of such a sequence (Bagolini 1980). Only the rock shelter at Romagnano Loc, TN, shows a complete Mesolithic to Bronze Age sequence, although the later use of this site is by no means comparable with Arene Candide in term of intensity of use (Broglia 1971).

The few finds from of Middle Neolithic material from caves and rock shelters in the Veneto (Broglia 1984), such as in Grotta del Mondo and Riparo Scalucce in the Monti Lessini, which were probably in an association with seasonal flint exploitation, (Barfield 1994), and the Bocca Lorenza in Vicentino suggest transient use.

In the Trieste Karst cave occupation follows a similar pattern to that of Trentino with intense early Neolithic (Vlaska culture) settlement, followed by a general abandonment and a later, substantial eneolithic (Ljubljansko Barje culture) reoccupation. The neolithic activity here appears to be associated more with a pastoral economy than with surviving hunting and gathering. The reasons for the Copper Age reoccupation are less clear (Montagnari 1994).

If this is the situation in the rest of northern Italy we can ask what were the special circumstance that determined a more continuous use at Arene Candide? The Ligurian landscape certainly makes it an area suitable for pastoralism (Maggi and Nisbet 1991), for which Arene Candide has also produced evidence, although Rowley Conwy points to continual occupation rather than a seasonal, transhumant pattern of use (Rowley Conwy 1997). Other factors, perhaps in combination, might be invoked. One of these could be the intensive trade in axes from Piedmont along the Ligurian coast to southern France (Ricq de Bouard et al. 1990 and 1993) an activity that would have combined well with

pastoralism, and for which Arene Candide with its high numbers of axes - 143 examples - might be seen as a staging place (Barfield 1999). The extension of the VBQ culture westwards along the Ligurian coast, with its outpost at Arene Candide, could also be seen in such a context.¹ Another explanation might be cultural, since the continuous nature of the Arene Candide sequence is more comparable with the situation in southern France, where the Chassey culture is very well represented in caves and the economy was obviously geared to their use.

A full understanding of how and where the prehistoric landscape was settled, as well as of the biases inherent in both how deposits are preserved, discovered and recorded by archaeologists, is important when attempting to reconstruct a cultural sequence.

Malavolti and the Emilian sequence

Other kinds of stratified sites, important for neolithic and eneolithic chronology, also exist in northern Italy. In Emilia the first sequence was established through geological rather than archaeological observation. Here on the margin of the Po Plain successive alluvial and colluvial deposits formed a geological succession in which prehistoric occupation phases were noted by Fernando Malavolti at about the same time as Bernabò Brea's pioneering research in Liguria. Malavolti, a gifted amateur in the mould of his local 19th century precursors, like them came to prehistory from the discipline of Natural Sciences. In his spare time from his pharmaceutical practice he recorded occupation levels stratified in brick clay quarries, was able to construct his own four-fold chronological scheme to match the Ligurian sequence (Malavolti 1953). By combining a ceramic typological approach with the stratigraphic method he recognised a significant difference between Emilia and Liguria with, in particular, the important Fiorano culture taking the place of the Impressed Ware in the Emilian sequence. Although some modification of Malavolti's scheme has been necessary since the 1950's, notably the re-evaluation of his Pescale phase, the scheme still forms the basis of the chronological framework for the Po Plain.

It is recorded that Malavolti and Bernabò Brea developed a spirit of friendly collaboration in their research and Bernabò Brea acknowledges his "proficuo scambio di idee" with Malavolti, at the time of writing his first volume on Arene Candide (Bernabò Brea 1946 p. 265). It is a remarkable coincidence that the two schemes were established at about the same time, independently utilising two very different kinds of stratigraphy.

Other Stratigraphies

Stratigraphies on several open sites have more recently contributed to the clarification of the internal development of the north Italian Neolithic. These now include such sites as the Isola Virginia or Isolino, Varese, where the Isolino facies, equating with Fiorano, was found below the Chassey-Lagozza and later levels (Guerreschi 1976-77). On the Rocca di Rivoli (Verona) an intersecting pit sequence permitted the subdivisions of the VBQ pottery into two main phases (Barfield and Bagolini 1976), named 'stile mean-

drospiratico' and 'stile incisione e impressioni' by Bagolini (or now more usually called VBQ II and VBQ III). This sequence lead to the three-fold phasing for the VBQ culture. In Trentino, at La Vela (Trento) (Pedrotti pers.comm.) and Isera (Rovereto) we again have short, stratified sequences, in the former from VBQ I to II and in the latter VBQ III to Eneolithic (Pedrotti in De Marinis and Pedrotti 1997).

At Monte Covolo, Villanova sul Clisi (BS), a sequence covers the period from the late Neolithic (Lagozza) through the Eneolithic and Beaker to the Early and Middle Bronze Age (Barfield et al. 1975-76).

One problem with all multi-stratified sites is the question of contamination between the layers which results in a subsequent difficulty of defining a clear cultural sequence. Indeed Bernabò Brea acknowledged problems with the understanding of the Arene Candide sequence on this account (Bernabò Brea 1956 p. 54). A mixing of levels can produce the impression of gradual transformation when the true situation may be completely different. This problem was particularly acute on deposits on sloping hillsides especially where the stratigraphy may be difficult to see, such as at Monte Covolo. For this reason a careful metre square control of the sequence was maintained during excavation, from which the original sequence could be approximately reconstructed (Barfield et al. 1972).

The horizontal stratification of mutually isolated sites, lying within a limited geographical area, is another useful way of establishing a regional sequence and is, in fact, preferable to a stratified site where contamination between phases is likely to be a problem. Such a situation was found at Spilamberto in Emilia where a chronological succession was recognised between several contiguous sites covering the period from the VBQ through to the Eneolithic. It is here that we are able to see how VBQ II was replaced, as in Liguria, by a Chassey phase (Bagolini 1981).

Arene Candide and Bernabò Brea's legacy

The significance of the two original Arene Candide volumes lay not only in the clear publication of the results of the stratigraphical excavation itself but also in the extensive general discussion concerning the cultural sequence in the context of Italian and European prehistory (Bernabò Brea 1946 and 1956). Bernabò Brea assessed the three Neolithic cultural phases – as well as the Eneolithic – within the clear relative chronological parameters that the stratigraphy defined and within an explanatory framework.

The lower Neolithic levels at Arene Candide provided the information for a characterisation of Impressed Ware. In the first volume (1946) this culture is only identified, but later Bernabò Brea (1950 and 1956) delineates it much more clearly as major Mediterranean phenomenon with origins in the near East, associated with the introduction of farming into Europe along a Mediterranean route. In establishing this thesis Bernabò Brea also pointed out the dual nature of the penetration of Europe by neolithic farmers; one the Mediterranean route and the other, recognised first by V. Gordon Childe, by way of the Danube river basin (Bernabò Brea 1950).

Since the original publication a possible role for the Mesolithic substratum in the formation of the Neolithic has been considered. This suggestion, that the Impressed

ware culture might represent an indigenous acceptance of farming by mesolithic populations, was initially based on Castelnovian – Impressed Ware sequences found in southern France. Although the role of the Mesolithic at Arene Candide was alluded to by Bernabò Brea (1956 p. 197), was not discussed in any depth and the assumption of a movement of culture and/or intrusive farmers from the east seemed to him to be paramount. Currently there is increasing evidence that Bernabò Brea's invocation of an intrusive immigrant population is the correct reading of the evidence, at least in the southern France, the Tyrrhennian area and the Adriatic (Gallay 1995), although it is not a view accepted by many Anglo-Saxon scholars (Whittle 1985, 301-303).

In Liguria the break between the Mesolithic and the Impressed ware has now been shown to quite definite, especially since the so-called 'mesolithic' levels as Arene Candide have been reclassified as Upper Palaeolithic, with a hiatus of occupation between this and the Impressed Ware. In any case the late mesolithic Castelnovian tradition appears to have been totally absent from the western part of the Ligurian coast line (Biagi and Nisbet 1986) so that the neolithic settlement at Arene Candide can only be seen as a colonisation of the area.

The origins of Fiorano and the related groups of Vho, Gaban, Isolino and Sammar-denchia, on the other hand, do seem to be rooted to a greater or lesser degree in the local Castelnovian Mesolithic tradition. Neolithisation as a whole in northern Italy can thus be seen as a dual process of intrusion and acculturation.

The beginnings of the Middle Neolithic are unclear, especially since the recently identified Pollera phase, with scratched wares and no square mouthed forms, is not yet well understood and is not in evidence at Arene Candide as the re-publication of the Arene Candide finds has shown (Maggi and Starnini 1997).

For the middle Neolithic VBQ culture Bernabò Brea efficiently defined the culture first revealed by Laviosa Zambotti and followed Laviosa Zambotti's Danubian hypothesis for its origins (Laviosa Zambotti 1943). In discussing these south eastern influences it is important to distinguish between the terms 'Balkan', which comprises the whole of south eastern Europe, including the Adriatic, and 'Danubian' which more closely implies the Danube Basin. We find that Bernabò Brea in fact stressed the general Balkan links, more strongly in Vol I (1946) than in vol II (1956) when his emphasis followed more closely Laviosa Zambotti's argument. Today's standpoint on this which still recognises a strong south-eastern ritual component, present in the clay pintaderas and figurines, would follow Bernabò Brea's 1946 Balkan hypothesis rather than the Danubian option (Bagolini and Barfield 1991). Today we would, however, see the square mouthed pottery itself, and the VBQ culture to which this gives its name, as essentially of local origin, albeit with renewed Balkan input, since there are now some transitional assemblages, like Quinzano (VR) (Biagi 1972) and no single Balkan source culture can be recognised. The cave of Arene Candide at this time still appears as a very westerly outpost of a balkanised culture and this situation is emphasised by the sharp boundary between the VBQ and early Chassey lying immediately to the west of Arene Candide.

With regard to the end of the VBQ Bagolini and others suggested that the latest phase of the culture VBQ III was restricted to the Veneto, marking perhaps a retraction in the face of the expansion of the Chassey culture eastwards into northern Italy (Bagolini 1986). This latter culture is now well documented on new sites in Appennine Emilia

(Bernabò Brea 1991 and 1992) and Lombardy (Barfield and Buteux 1998).

The replacement of VBQ by Chassey, represented in the Arene Candide sequence between layers 26 and 24, was seen as a very definite break in continuity of settlement in the cave by Bernabò Brea. More recently this interruption has been confirmed in the revision of the flint from the cave by Starnini and Voytek (1997). This study demonstrates the two geographical directions, Chassey to the west and VBQ to the east, which these phases reflect, is confirmed by the sources of flint used in these two periods; the VBQ used alpine flint, possibly from the Monti Lessini, and Chassey the *silex blond* of the Rhone Valley. Such a cultural change indeed appears to have the 'historical' reality of a population movement from southern France and, as has been mentioned, might relate to competition for the control of axe sources in the Piedmontese Alps (Barfield 1999). The definition of Chassey and Lagozza and their relationship to other groups such as VBQ and Breno are current problems (Odone 1998).

It is to the merit of Bernabò Brea to have re-established a clear distinction between the neolithic and the eneolithic periods, a distinction that had become increasingly clouded during the earlier part of the 20th century. He wrote that "Recentemente si è voluto attribuire alla denominazione Neolitico un senso che vorrei dire più geologico che culturale" and went on to clearly state "con la parola 'eneolitico' attenendoci alla tradizione seguita dai vecchi paletnologi italiani, è ancora oggi quasi universalmente seguita fuori d'Italia" (Bernabò Brea 1956, p. 156). It is somewhat ironic that he wrote a chapter on the Eneolitico in the second volume of *Arene Candide* even though he had not noted any clear eneolithic presence at *Arene Candide* whereas at about the same time M. Acanfora recognised the significance of the metope, decorated pottery from the cave, already illustrated by Bernabò Brea in 1946, as eneolithic and as evidence of a connection between southern France (the Fontbousse culture) and Remedello (Acanfora 1956 p. 358, fig. 10 c and d). Other similar sherds have since been published by Maggi and Starnini (1997, fig 39 1-13).

After *Arene Candide* Bernabò Brea recognised the significance of another key site for the Neolithic, namely Alba in Piedmont, a site which had long been recognised as a major centre for the production of axes (Bernabò Brea 1947). The importance of Alba site has since been confirmed by more recent excavations (Venturino Gambari 1995) as well as by general studies of the axe trade (Ricq de Bouard et al. 1990 and 1993).

New approaches

The second half of the 20th century has seen significant innovations in archaeological methodology. One new dimension to our understanding of the full picture of Neolithic and Eneolithic in Italy, since the original excavations at *Arene Candide*, has been in the field of the analysis of economic and environmental evidence, first pioneered in Britain by J. G. D. Clark. In northern Italy the study of fauna on many sites has been a particularly important development in a field pioneered by Riedel (1948). The complementary field of palaeobotany comprises such specialisms as seeds (Biagi and Nisbet 1987), phytoliths and charcoal (Nisbet 1997). What was not widely known until recent-

ly, however, is that most of these studies had already been envisaged, although not realised, by Bernabò Brea and Cardini during their excavations - being a legacy of Cardini's training in palaeolithic research (Maggi 1997). They collected, sieved and stored fauna, micro-mammals, shell, charcoal and other samples, which now have been fully processed and published, along with new samples collected from surviving sections in the cave. P. Rowley-Conwy's study (1997) of the macro-fauna establishes, following some uncertainties, the importance of domesticated animals on the site, and thus a new economy, from the start of the Neolithic occupation. The dominant animal, sheep, was according to Rowley-Conwy, following the model proposed by Lewthwaite, probably brought in by boat; thus reflecting the Mediterranean nature of the Impressed Ware colonisation. The appearance of goats in the middle Neolithic, on the other hand, being animals that are less suited to transportation by water, are thought to have probably entered Liguria by a land route, a hypothesis that correlates well with the concept VBQ as an encroachment from the Po Plain.

Other developments since the first publications of Arene Candide include the introduction of C 14 dating. The chronology presented in the first volumes of Arene Candide reflects the very low chronology for the Neolithic that was generally accepted at that time throughout Europe. We can today use C14 to provide the absolute chronological framework. Again it is Arene Candide that provides us with the best dated neolithic sequence for northern Italian chronology with a scale in calibrated dates for the Impressed Ware of 5600 BC - 4900 BC, VBQ 49/4800-4250 BC, Chassey 43/4200-3700 BC (Maggi 1997). On the Po Plain the start of Fiorano appears to be slightly later (c 5500) than the first appearance of Impressed Ware (Impronta and Pessina 1998), while VBQ probably survives into the fourth millennium in Trentino and Veneto.

Lithic provenancing, pioneered by Cremaschi (1981) now enables us to chart the changing distribution patterns of specific lithic sources, and, as we have seen, both the microscopic study of axes and the macroscopic examination of flint, have revealed that the distribution of raw materials was organised on a far more sophisticated basis than originally supposed.

Whereas L. Bernabò Brea and F. Malavolti established the basic relative sequences we still have to tackle the important fine tuning of the sequences in different parts of the north.

Many problems remain especially relating to dating transitional stages and defining regional subdivisions of the Early Neolithic and chronological subdivisions of the VBQ.

Conclusions

As we have seen, Bernabò Brea's recognition of the Mediterranean identity of the Impressed Ware and its role in the diffusion of farming from the Near East was particularly significant for the relevance of the north Italian sequence to the wider problems of European prehistory and also defined the Balkan-influenced VBQ culture. In considering the wider European context Bernabò Brea, however, not only looked east but also west in his consideration of the source of the Chassey deposits in the Arene Candide cave. He assessed the significance of the Italian material in relationship to totality of western Eu-

rope in his review and critique of Piggott's 1953 article which had taken a more northern perspective on the characterisation of the western European Neolithic (Bernabò Brea 1955).

Bernabò Brea's north Italian research has made a lasting impact of European prehistory. It was V. Gordon Childe who was perhaps the most important prehistorian to make the findings of both L. Bernabò Brea and F. Malavolti accessible to the wider world of European prehistorians, when he included these in his book "The Dawn of European Civilisation" (1957). Even if L. Bernabò Brea's view point was essentially from Liguria and the cave of Arene Candide in particular, his research and critical assessment of the evidence irradiated the study of the Neolithic over all northern Italy. As Pittioni wrote in his review of Bernabò Brea's 1956 volume "Sie ist die erste, nach modernen Gesichtspunkten verfasste Zusammenstellung die durch die stratigraphischen Untersuchungen im Norden und Süden des Landes eine grundsätzliche Ordnung erhält, "after one of the darkest periods of Italian prehistory." (Pittioni 1957).

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1. In central and southern Italy it is possible to identify the use of caves by people involved in obsidian traffic, as at the Grotta all'Onda (Amadei and Grifoni 1986-87) and in caves in the Valle di Lao in Calabria (Tinè 1991). In both these case they were on routes taking obsidian eastwards.