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15. PALAEOECOLOGICAL IMPLICATIONS FOR THE LATER PREHISTORY
OF NORTHERN ITALY

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At the beginning of the Atlantic period, the late Mesolithic Castelnovian Culture replaced the earlier Sauveterrian all over Northern Italy (Kozlowski and Kozlowski 1979). Great concentrations of sites of this period are known in the North Eastern Alpine region (Bagolini et al. in press; Broglio 1971; Cremonesi 1978-81), in the Ligurian (Biagi and Maggi in press) and Emilian Apennines (Biagi et al. 1981), while there are new discoveries of Castelnovian encampments scattered along the fluvial terraces of the Central Po Valley as well as on the shores of small intermorainic basins of lakes Garda and Iseo (Biagi 1980). Environmentally, the area between the Emilian Apennines and the Alps had a very complicated tectonic and geomorphological evolution. Climatic conditions were highly favourable to the development of a woodland cover dominated by different deciduous oak species, alder and ash, as shown by the pollen diagrams and charcoal analyses (Bertoldi 1968; Beug 1964; Biagi et al. 1981; Lona 1960). Most of the environmental and faunal data provided by the Castelnovian camps come from the rock shelters of the Adige Valley (Boscato and Sala 1980; Cattani 1977a) and from one cave in the Berici Hills in the Veneto (Cattani 1977b).

The only known site of this period to have provided faunal data is that of Gazzaro situated in the Po Valley at the foot of the Emilian Apennines (Alessio et al. 1980). Here the hunting of red deer and roe deer seems to predominate over that of wild boar.

This camp, on the right bank of the Enza river, consists of a few hearths. The charcoal from these hearths was of oak, ash and fir (Biagi et al. 1981).

The first Neolithic villages appear at the end of the 5th millennium b.c. North of the Po, they are often located on fluvial terraces or on the shores of small intermorainic lakes or, on the northern edge of the Apennines, on wide fluvial fans (Biagi and Cremašchi 1981; Gruppo Ricerca Geomorfologia C.N.R. 1982). They belong to two different cultures: the Fiorano, distributed south and north east of the Po, and that of Vhò, north of the same river (Bagolini and Biagi 1975; 1976; Malavolti 1951-52). The site of Vhò, Campo Ceresole, which lies on a low hill once surrounded by swamps and marshy areas, as indicated by the environmental data (Biagi et al. 1983; Cattani 1975; Girod 1978; 1982) extended over at least 20,000 m.² (Bagolini et al. 1977). It has been dated to 4220±110 b.c. (I 11445), while the nearby settlement of Ostiano, Dugali Alti (Biagi 1979), produced a
Plate 15.1. - A) Pit IV at the early Neolithic, Whò Group, site of Ostiano Dugali Alti, whose profile shows traces of hydromorphy. B) The terraced site of Völseraicha (Aica di Fìè), in south Tyrol (arrow) settled during the IVth, IIIrd and IIInd millennia b.c. (Photo P. Biagi).
Fig. 15.1. Evidence of north Italian agriculture in early Neolithic (1), middle Neolithic, Square Mouth Pottery Culture (2) and late Neolithic Chassey and Lagozza Culture (3) period. A) Western Impressed Ware Culture, B) Eastern Impressed Ware Culture, C) Vhò Group, D) Fiorano Culture, E) Isolino Group, F) Gaban Group, G) Fagnigola Group. H) Agricultural implements (querns and/or sickles). I) Wheat and/or barley grains.
$^{14}C$ date of 4140±110 b.c. (Bln 2795) (Quitta pers. comm. 1983) and that of Cecima, in the Staffora Valley, where a shallow pit, or 'hut floor foundation' according to the excavator, has been recently brought to light, gave a date of 3980±130 b.c. (Har 5123) (Simone in press). Quite an opposite picture is given by the Fiorano villages extending south of the Po. Here the early Neolithic diet was based on domesticated animals, mostly cattle (Malavolti 1951-52).

Only one site of this period has been investigated in Friuli. Some early Neolithic pits were excavated at Fagnigola in 1974 and in 1979 (Biagi 1975). Pit IV and pit I produced two radiometric dates of 3810±160 b.c. (R 1545) and 4100±90 b.c. (R 1544) respectively. All the structures brought to light consist of cylindrical pits, one of which, possibly a storage pit, was lined with clay. At Fagnigola, the few bones recovered, indicate that the economy of the site was mainly based on hunting. Burnt hazelnut shells, but no seeds, come from the pits, while agriculture is only documented by a few sickle blades with oblique gloss (Biagi and Nisbet in press).

The earliest agriculture in the Po Plain was practised in an environment characterized by stable conditions and formation of Sols bruns lessivés (Haploxeralfs) with a development of a forest dominated by oak and ash, hornbeam, lime, elm, alder and maple, though microclimate and local ecological conditions must be taken into account. Only two of the sites previously mentioned produced evidence of domesticated plants: Vhò, Campo Cersole, with einkorn and emmer, and Cecima, with barley. Barley was cultivated also at the Fiorano sites of Albinea and Rivaltella as shown by seed impressions on pottery (Evett and Renfrew 1971) (Fig. 15.2/1).

Early Neolithic people seem to have preferred to settle on the Holocene flat terraced areas of the Po valley as well as on the partly drained alluvial plain soils of the Apennine fringe. The soils from some of these sites, like Vhò and Ostiano, show clear evidence of hydromorphy (Plate 15.1/A) while well drained soils were selected by the Neolithic settlers of the IVth millennium b.c. The dominant woodland covering of the Po Plain at that time was composed of oak, ash, wild pear and sorb with maple and lime. Pedunculate oak (Quercus robur) seems to be the commonest oak. Some of these sites, like Cavriana, Tobiera Cascina, show evidence of Turkey Oak (Quercus cerris), while pine and poplar appear at Cecima, in the Apennine area.

The Square Mouthed Pottery Culture makes its appearance at the beginning of the IVth millennium b.c. It reached its apex at the middle of the millennium to decline soon afterwards (Bagolini et al. 1979) with the spread of the Chassey and Lagozza Cultures from the south west (Biagi in press). The villages of this Culture, in the Central Po valley, are often located on fluvial terraces. Many of these have been discovered in the region between the old bed of the Oglio river and the lowlands extending towards the Po. Settlements of this Culture have also been found in the
morainic amphitheatre of lake Garda, both on top of the moraines and along the shores of the small lakes. In this region the economy of the Square Mouthed Pottery people shows radical changes from that of the preceding early Neolithic communities as can be seen also from the different flint sources exploited (Cremaschi 1978), and being based on domesticated animals, especially cattle, at the beginning of the IVth millennium b.c., and sheep/goats in the later phases (Biagi et al. 1983). There seems to be a tendency towards the fragmentation of the mixed oak forest certainly due to the expansion of the human settlements.

Consequently there is a gradual increase in plants of ecotonal environment like hazel and cornelian tree, more or less spread between diverse floral associations. Hexaploid wheat and legumes make their first appearance even though the best represented cereal is still naked barley followed by emmer and einkorn (Fig. 15.1/2).

Between the IVth and IIIrd millennium b.c., most of the sites of the Central Po Valley were abandoned. The changes in land use had a profound effect on the structure of the vegetation and soil, in particular in the development of the Sols bruns lessivés which formed during the early and middle Neolithic. These soils were badly or completely eroded during the Subboreal period. This phenomenon has been studied in detail thanks to the excavations carried out at Casatico di Marcaria and Rivarolo Mantovano in the Province of Mantua (Biagi et al. 1983).

The abandonment of sites, as a consequence of final or post Neolithic deforestation and, perhaps, of a climatic deterioration (identified in the Swiss Alps as the Priora phase (eg. Zoller 1960)), could have caused an interruption of the fersiallitic brown soils of the Atlantic period and a change of the forest ecosystem with a progressive break-up of the canopy. However, the cold Priora oscillation, dated between 3250 and 2050 b.c., seems to play a minor influence on the human settlement south of the Alps, as in this period increasing evidence of the spread of upland farming is documented, particularly at Aica di Piè, at about 1000 m., where barley was grown on terraced fields of the slope (Bagolini et al. 1982) (Plate 15.1/B).

The changing landscape of the IIIrd millennium b.c. could explain why the Lagozza sites and the associated palaeo-environmental data are often confined to specifically selected areas such as lake shores (Lagozza) (Guerrreschi 1967) or fluvial fans (Monte Covolo) (Barfield et al. 1975-76; 1977-79); Pals and Voorrips 1979). Emmer and einkorn were cultivated at both these sites, but at Monte Covolo naked barley was found together with many other plants gathered from the forest surrounding the site such as wild grape, sloe and Physalis Alkekengi. Lagozza produced the second example found so far of hexaploid wheat (Triticum aestivum) as well as barley and flax. Numerous examples of wild plants such as strawberry, apple, blackberry and wild grape also come from
the site. Of special interest are seeds of opium poppy (Castelletti pers. comm. 1981) (Fig. 15.1/3). In this period the pressure of human activity on the ecosystem on the edges of the Po Plain even began to be felt on the forest cover as shown by the pollen diagrams from the lake of Biandronno (Schneider 1978), where a rather sharp decrease in the mixed oak forest coincides with an increase in the plantain and other ruderal plants.

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Summary

The Castelnovan is distributed, at the beginning of the Atlantic period, in all of north Italy, preferring fluvial terraces and small intermorainic basins. Favourable climatic conditions allowed the development of a uniform and dense vegetation cover in the valley bottoms; deer were the main species hunted.

In this context, at the end of the Vth millennium b.c., the first Neolithic settlements appeared, that maintained, nevertheless, the same ecological locations of the Castelnovan sites. These settlements belong to the Fiorano and Vhò cultures, with dates from 4200 to 4000 b.c. The economy of Fiorano is based predominantly on domestic animals whereas at Vhò, although wheat cultivation is documented, hunting remains dominant. More to the east, the contemporary group of Fagnigola, in Friuli, developed an economy of hunting and collection of wild fruits.

The stable environmental conditions favoured the development of Haploxeralfs with Oak, ash, lime, elm, alder and maple. These soils were also used for the first
agriculture at Vhò (Triticum monococcum and Triticum dicoccum) and at Cecima (Hordeum vulgare); the most ancient Neolithic sites of northern Italy are often found, however, on poorly drained or hydromorphic soils, in contrast to the sites of the IVth millennium (Square Mouthed Pottery Culture), which are often found on soils much more favourable to agriculture. The principal economic changes introduced by the Square Mouthed Pottery Culture consisted of new sources of flint, the transfer from cow to goat herding and the appearance of soft wheat and legumes. At the beginning of the II1rd millennium b.c., profound modifications of the environment took place that caused erosion of the soil and transformations of the forest. Consequently, the prehistoric sites changed location and some of the principal settlements were lake edge (Lagozza) or valley sites (Monte Covolo).

Riassunto

Il Castelnoviano si diffonde all'inizio dell'Atlantico in tutto il Nord Italia, prediligendo terrazzi fluviali e piccoli bacinì intermolenici. Condizioni climatiche favorevoli consentono lo sviluppo di una copertura vegetale uniforme e compatta in tutta la pianura; vengono cacciati preferibilmente il cervo e il capriolo.

In questo contesto, alla fine del V millennio b.c., si affermano i primi insediamenti neolitici, che mantengono tuttavia le medesime collocazioni ecologiche dei siti castelnoviani. Essi appartengono alla Cultura di Fiorano e di Vhò, con date comprese tra il 4200 e il 4000 b.c. L'economia di Fiorano è basata prevalentemente su animali domestici, mentre a Vhò, dove peraltro è documentata la coltivazione del frumento, permane predominante l'attività di caccia. Più ad Est il coevo gruppo di Fagnigola, in Friuli, sviluppa un'economia di caccia e raccolta di frutti spontanei.

Le condizioni ambientali stabilite favoriscono lo sviluppo di Haploxeralfs con Quercia, Frassino, Tigliolo, Olmo, Ontano ed Acer. Questi suoli ospitano anche le prime forme agricole a Vhò (Triticum monococcum e T. dicoccum) e a Cecima (Hordeum vulgare); spesso i più antichi siti neolitici del Nord Italia si trovano comunque su suoli poco drenati o idromorfi, a differenza di quelli del IV millennio (Cultura Vaso a Bocca Quadrata), che sono molto più favorevoli all'agricoltura. I principali cambiamenti economici introdotti dalla Cultura VBQ consistono in nuove fonti di approvvigionamento della selce, nel passaggio dalla pastorizia basata su bovini a quella dei caprini, alla comparsa del frumento tenero e dei legumi. All'inizio del III millennio b.c., intervengono profonde modificazioni dell'ambiente, che causano erosione del suolo e trasformazioni della struttura forestale. Di conseguenza i siti preistorici cambiano collocazione geografica e alcuni dei principali insediamenti sono perilacustri (Lagozza) o interni nelle valli (Monte Covolo).