

INTRODUCTION

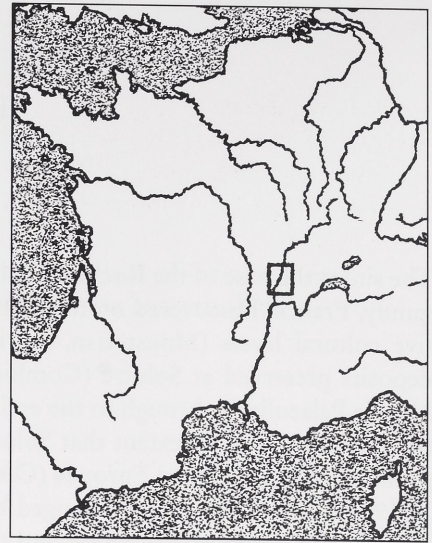
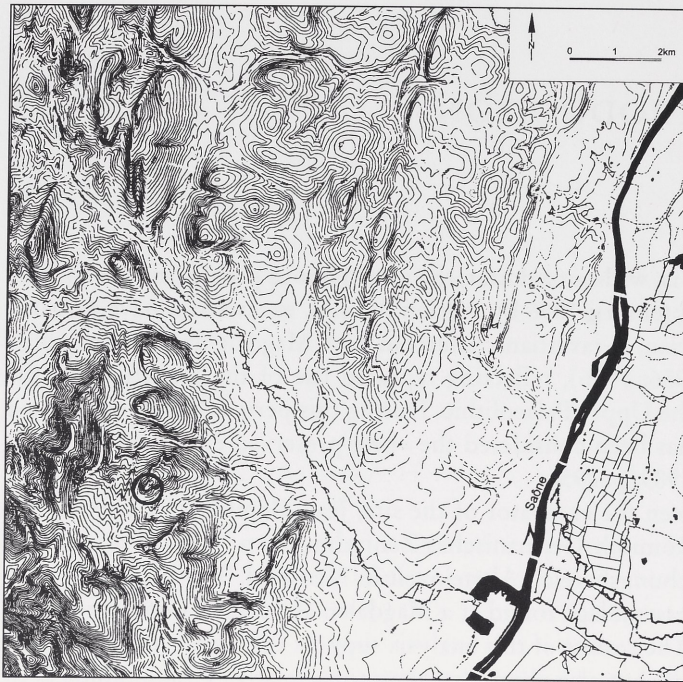
The site at the base of the Roche de Solutré is, without a doubt, the most famous prehistoric site in Burgundy, France. Discovered on the 27th. September, 1866 by Adrien Arcelin, excavations have revealed five cultural levels (Mousterian, Aurignacian, Gravettian, Solutrean and Magdalenian) in the thick deposits preserved at Solutré (Combiér 1956; 1976), reflecting repeated use of the locality from the Middle Palaeolithic through to the end of the Upper Palaeolithic. During this period, horses dominated the faunas to such an extent that Solutré has been considered the »best preserved example of a large-game kill-site in Western Europe« (Olsen 1989, p. 295).

In 1994, a joint project was arranged between the excavator of the site, Jean Combiér, the Service Régional de l'Archéologie in Dijon and the Römisch-Germanisches Zentralmuseum Mainz, Forschungsinstitut für Vor- und Frühgeschichte, Forschungsbereich Altsteinzeit in Neuwied. The aim of the project was to characterize the type of faunal assemblage found at a Magdalenian kill and butchery site by analysing a large sample of bone material. The results of this analysis support the theory that Magdalenian people hunted mainly horses at Solutré, but also show that they took relatively high numbers of reindeer and bison. Times of death of horses, reindeer and bison suggest that the site was probably used at varying times of the year, and that groups of juvenile reindeer and juvenile bison were possibly taken on a seasonal basis. One of the characteristics of the Magdalenian faunal assemblage is the extremely low number of butchery traces and high number of carnivore gnawing traces on the remains of horse, reindeer and bison.

THE MÂCONNAIS REGION AND THE SITE OF SOLUTRÉ

Solutré is located in the Mâconnais region of Burgundy, France (fig. 1). The »Mâconnais« is a small region, some 45 kilometres long by roughly 20 kilometres wide, situated in the southern part of Burgundy in the French department of Saône-et-Loire. Bordered to the east by the Saône river, the Mâconnais comprises two hilly regions – the Mâconnais hills and the Cluny hills – extending from north to south through the region and intersected by the valley of the Grosne river. The Mâconnais hills vary between 300-600m in height and are composed of five principal chains, oriented from NNE-SSW. The longest, broadest, and geologically most intact chain, connects Fuissé in the south to Sennecy in the north of the region and consists of Middle and Upper Jurassic formations. The southern part of this formation is characterised by a series of west-east oriented ridges or »cuestas«, formed as a result of intensive tectonic movement associated with the uplift of the Alps and the Massif Central during the Tertiary period. These ridges comprise Roche de Solutré (493 m NN) (plate 1, 1), its southern neighbour, Mont de Pouilly (485 m NN) and, to the immediate north, Vergisson (485 m NN) and Montsard (406 m NN). Each cuesta is separated from its neighbour by broad valleys drained by minor streams.

The archaeological site is located on the southern slope at the base of the cuesta known as Roche de Solutré (plate 1, 2). The finds are stratified in two talus cones, which cover an area of some 10,000 m². Even though the continuous post-depositional movement of material down the slopes below the rock has produced a complicated stratigraphical succession, the main sequence of cultural deposits at Solutré is relatively straightforward, and can be summarised as follows beginning with the youngest horizon (Floss 1995):



b

a

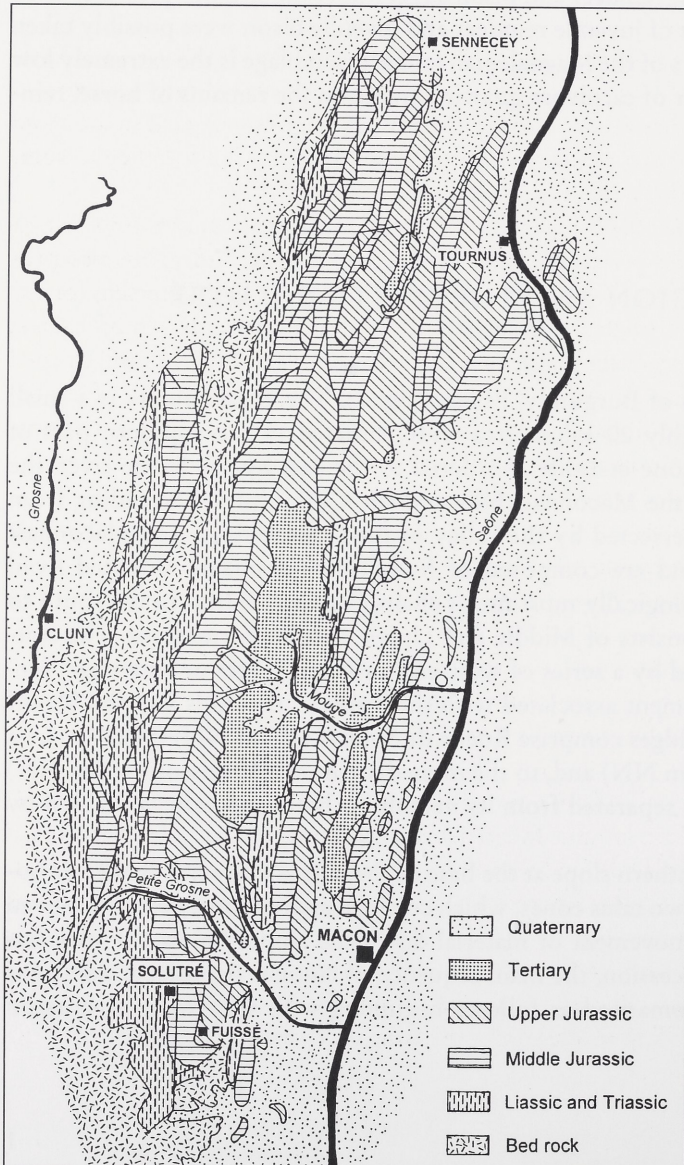


Fig. 1 Location of the site of Solutré, France. a) Main geological formations of the Mâconnais region (after Garmier 1990, p. 17). – b) Topographical map of the Mâconnais region, showing the Saône Valley and, to the west, the Mâconnais hills. To the lower left are the four «cuestas» mentioned in the text. The Roche de Solutré is marked by a circle and is flanked by Mont de Pouilly to the south and Vergisson and Montsard to the immediate north.

- upper Magdalenian
- evolved Solutrean with small unifacial Solutrean points (pointes à face plane)
- classical middle Solutrean with leaf points
- upper Perigordian complexes with Font-Robert and Gravette points (the term Gravettian is used in this report)
- typical Aurignacian with classical lithic and bone industry
- Mousterian industry and atypical lower Perigordian industries

THE HISTORY OF FAUNAL RESEARCH AT SOLUTRÉ

At the end of the nineteenth century the discoverer and first investigator of the site, Adrien Arcelin, tried to explain the mass of horse bones revealed during his excavations by describing Palaeolithic hunters driving herds of up to 600 animals at a time over the precipice of the rock. The idea of Solutré as a horse »jump« site persisted well into this century even though there was no supportive evidence at the site for hunting tactics of this kind, and despite the fact that Arcelin (1872/1977) only published his theory in an adventure novel set in prehistoric times and never in his scientific works.

The turning point finally came in the 1950's when Jean Combier (1956) refuted the idea that horses plunged to their death over the precipice. He saw Solutré as a site to which hunters periodically returned to kill horses which passed through the valley between Solutré rock and the neighbouring cuesta of Mont de Pouilly, as part of their seasonal migrations from winter grazing grounds in the Saône Valley to summer grazing pastures on the higher land to the west of the site.

Systematic excavations by Combier from the 1960's to 1980's and several independent archaeozoological analyses of the fauna recovered during this period not only supported Combier's idea, but also provided insights into human hunting practices and butchering activities at Solutré. Bay-Petersen, for example, (1975) took Combier's theory a stage further and suggested that horses were driven up against the face of Solutré rock and slaughtered there as they attempted to escape. Levine (1979; 1983) studied several samples of horse remains from different cultural levels at Solutré (Aurignacian, Upper Perigordian and Magdalenian) as part of an archaeozoological analysis of Upper Pleistocene assemblages of horse bones. She came to the conclusion that Solutré was used almost exclusively as a kill-site, where horses were driven into an enclosure at the base of the cliff and slaughtered there.

In contrast to these researchers, Gordon (1988) was interested in the hunting of reindeer, a species also present in most of the levels at the site. He examined the incremental bands of cementum on a small sample of reindeer teeth (n = 14) from the Magdalenian horizon. His results showed that the hunters had taken late wintering and spring-aggregating animals.

Tretschöck (1986) studied faunal remains in two blocks of horse »magma« from the Gravettian horizon and compared Solutré with the North American bison site »Head-Smashed-In«. Tretschöck came to the conclusion that horses were driven by beaters towards Roche de Solutré into an enclosed area, where they were killed by the waiting hunters.

Olsen (1989) carried out a comparative analysis of faunal remains from several cultural levels at Solutré, including the Aurignacian, Gravettian, Solutrean and Magdalenian horizons, as part of a theoretical approach to the reconstruction of Upper Palaeolithic hunting strategies. She concluded that the most plausible hunting hypothesis was that horses were intercepted and driven up against the rock-face as they were passing Solutré in small bands of between 6 to 12 animals. Examination of cementum bands in horse teeth showed that horses died at Solutré from spring through to autumn, with the greatest concentration occurring in summer (Olsen *ibid.*). The low numbers of juvenile horse remains were interpreted as possibly resulting from selective killing of adults and releasing the young. Olsen also noted the

minimal utilization of horse carcasses by humans and stated that a comparable situation had also been documented at some North American bison hunting sites. In a paper published in 1995, she suggested that rather than bison jumps, bison traps or pounds may be analogous for the situation at Solutré, where a natural indentation in the southern wall of the rock may have served as a corral by enclosing its entrance with simple structures. Berke (1989) also examined finds from the Magdalenian deposits at Solutré as part of his analysis of horse remains in European Magdalenian assemblages, and concluded that the site was used predominantly as a kill-site (using similar hunting techniques as suggested above) at which there was little evidence for other activities such as the procurement of large amounts of meat or bone marrow or hides.

Research since 1994 has concentrated on two areas, sector P16 and sector I11, which have produced rich faunal assemblages associated with inventories of Magdalenian lithic tools (Combier 1976). The first site to be analysed was a small trench only 2m² in size in sector I11 (Q69, 79 & 89), and the youngest level at I11, the Magdalenian horizon, was the focal point of this first study. The second site, sector P16, is a larger area totalling 95m² in size, with finds dating mainly to the Magdalenian period, including material studied originally by Levine, Olsen and Berke.