Geomorphology and Archaeology: an integrated heritage along the Roman Via Flaminia in the mid Metauro River valley (Central Italy)

Geomorfologia e Archeologia: un patrimonio integrato lungo la Via Flaminia nella media Valle del Metauro (Italia centrale)

1. – INTRODUCTION

The landforms of the mid Metauro River basin are impressive as well as crucial to unravelling the Plio-Quaternary evolution of this sector of the Apennines (e.g. Di BUCCI et alii, 2003 and references therein; MAVER et alii, 2003 and references therein). In this area the geomorphic constituents flawlessly integrate into a wider naturalistic and historical-cultural context (VARIOUS AUTHOR, 2003). Indeed, major Roman vestiges do occur widespread (e.g. LUNI, 2003), often originating a significant blend of geomorphologic and archaeological components (DILIGENTI et alii, 2005). The over 500 m-deep Furlo Gorge is certainly the most famous site in the area, being well known for both its geologic-geomorphologic substance and beauty as well as for Roman works, such as tunnels chiselled out of rock and the imposing walls of the Via Flaminia road (DILIGENTI et alii, 2005; LUNI, 1993).
Hence, taking into account these peculiarities of the landscape, the Furlo Gorge area has been proposed (Diligenti et alii, 2005) as a Geomorphosite (sensu Panizza, 2001). Few kilometres downstream, the remains of the Roman Forum Sempronii town are placed (Gori & Luni, 1993) close to the Metauro River, on a meander which was abandoned by stream-flow only in post-Roman times (Savelli et alii, 2004). Between the Furlo Gorge and the Roman Forum Sempronii, along the Via Flaminia road, the San Lazzaro Gorge site is found, an area of the Metauro River valley characterised by significant geologic, geomorphologic and historical-cultural components (Gori, 1993; Pergolini, 1990). Recently a geologic itinerary has been suggested in this site (Savelli & Tramontana, 2001) in the framework of the paths proposed for the Umbria-Marchean Apennines by the Italian Geologic Society.

Since the Via Flaminia constitutes an “historical” road connecting all these places (Luni, 1989), an itinerary is being proposed along this route, which could allow students and tourists to benefit from an integrated approach to the remarkable geomorphologic, historical and archaeological heritage of this area. Moreover, the general aim of this work is to propose a geotouristic pathway in a sector of the Apennines chain that could be one of the first examples of sustainable use of the integrated landscape of the Marche region.

This work has been performed within the framework of a national research project which was supported by the Italian Ministry of Instruction, University and Research (COFIN 2004, Scientific Coordinator prof. M. Panizza) and focused on the suitable exploitation of the geomorphic heritage for a sustainable and responsible tourism.

2. – GEOLOGICAL AND GEOMORPHOLOGICAL SETTING

The study area lies in the northern Marche Apennines, a northeast-verging fold-and-thrust belt (Boccaletti et alii, 1971) made up of a stratigraphic succession evolving upward from carbonatic to terrigenous terms (Coccioni et alii, 1994). The chain emerged definitely during the late Pliocene—lowermost Pleistocene (Mayer et alii, 2003) and a drainage network developed where the main streams followed an approximately sub-parallel pattern, mainly SW—NE oriented, and essentially perpendicular to the structural grain (Mazzanti & Trevisan, 1978). In the study area, the main carbonatic anticlines are prominent ridges (fig. 1) in the modern topography and the major streams cross-cut them in deep and narrow gorges (e.g. the Furlo Gorge, the most important and suggestive one) as they flow into the Adriatic Sea (fig. 1). The Marchean ridge is the most relevant morphostructure of the study area. Significantly (Mayer et alii, 2003), the Pietralata and Paganuccio Mts. (Marchean Ridge) match to an axial culmination of the structure. More to the east, minor ridges - up to a few hundred of meters - can be found (e.g. the calcareous and marly-calcareous Monti della Cesana minor Ridge (fig. 1)). Close to the coast, the mountain chain area merges in a hilly piedmont and coastal zone, where slightly deformed Plio-Quaternary terrains predominate.

The landscape is influenced by the inherited Pleistocene landforms referable to periglacial morphogenesis, characterized by slope and fluvial depositional processes. Alluvial deposits are arranged in at least four different levels of terraces (Fanucci et alii, 1996) formed as response to aggradation and erosion phases of rivers, associated to Quaternary climatic oscillations and regional uplift (Neschi & Savelli, 1986; Bisci & Dramis, 1991).

3. – ARCHAEOLOGICAL OUTLINE

Besides its environmental and geologic-geomorphologic features, the target area is distinguished by remarkable historical-archaeological elements. In the first instance, it is run across by a primary Roman arterial road formerly joining Rome and Rimini, the Flaminia consular road, opened by consul C. Flaminius around 220 BC. In ancient times, the Flaminia was the major road link between the Roman world and northern Italy and, later on, with Mideastern Europe. It is marked by the constant presence of Roman age infrastructure such as bridges, sluice gates, viaducts, rock cuts, tunnels, pavements, milestones and inscriptions. Moreover, a lot of Roman settlements rose in close proximity to the consular road which could guarantee easy communications and economic development. The municipium of Forum Sempronii, by today’s Fossombrone, stands out among them on account of its being favourably located in the middle of the Metauro valley, close to the river; here visitors can admire one of the most important archaeological parks in the region. The best known and visually impressive site is undoubtedly the Furlo Gorge, where geologic-geomorphologic components perfectly complement historical-archaeological ones. Here the Flaminia road wedges into a narrow canyon, thus proving the Romans’ extraordinary skill in exploiting and
capitalising on natural elements. The road is provided with retaining walls, rock cuts and artificial tunnels to allow crossing even where difficult.

4. – THE ROMAN VIA FLAMINIA ITINERARY BETWEEN FORUM SEMPRONII SITE AND THE FURLO GORGE

An integrated geo-archaeotouristic itinerary along the “historical” Via Flaminia road is here proposed. It covers an interval of about 15 km along the S.S. n° 3 road, a secondary way of communication with a low frequency of traffic. This road is parallel to the S.S. n° 3 bis motorway which nowadays constitutes the main connection way in this sector of northern Marche region. The proposed itinerary matches approximately the ancient Roman Via Flaminia road. Actually, travelling along this road is just like to travel along the ancient Roman one. The proposed itinerary (fig. 2), from the Forum Sempronii site to the San Lazzaro one, runs entirely in the Metauro River valley. From the Calmazzo village up to the upstream end of the Furlo Gorge, the itinerary leaves the Metauro River valley-floor entering the Candigliano River valley - the major tributary of the Metauro River and here crosses the Furlo Gorge.

The three most remarkable sites of geomorphologic and archaeologic interest pertaining to considered sector of the Roman Via Flaminia road are taken into account (fig. 2) and described. Hence, the geologic, palaeontologic and geomorphologic characteristics of the Furlo Gorge, the geomorphologic relevance of the San Lazzaro Gorge and, finally, the archaeological and historical components of the Forum Sempronii area will be considered. The presence of several and remarkable cultural components well distributed throughout the area and along the “historical” Via Flaminia road is suitable for promoting an integrated approach in landscape exploitation for this sector of the Marche Apennines.

4.1. – THE ROMAN FORUM SEMPRONII SITE

The Roman town of Forum Sempronii is set upon a wide upper Pleistocene terrace, on the left flank of Metauro River valley, about 20 m above the present valley-floor (SAVELLI et alii, 2004) (fig. 3). A
Fig. 2 - Digital Terrain Model (DTM) of the study area (kriging grid, 25 m resolution; vertical amplification: 1: sites described in the text. 2: the Roman Via Flaminia.

Fig. 3 – Geomorphological sketch of the Forum Sempronii area (after: Savelli et alii, 2004). 1: Landslide body; 2: Slope-waste deposits; 3: Active alluvial deposits; 4: partially re-incised alluvium post-dating the 50ies; 5: Terrace alluvium post-dating the 4th-5th century AD; 6: Terrace alluvium (Holocene); 7: Terrace alluvium (middle-upper Pleistocene); 8: Bedrock.

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broad relict meander of the Metauro River is certainly one of the most important landforms of the modern landscape immediately close to the archaeological site (fig. 4). The abandoned meander cuts the upper Pleistocene terrace-alluvium and is bounded to the north by the terrace scarp where the southern wall of the Roman town was built (fig. 3). The scarp enclosing the abandoned meander separates the upper Pleistocene terrace-alluvium from the Holocene one. This scarp is well-preserved and shows a sharp upper edge and scarce colluvium/debris accumulation at the toe. Furthermore, the abandoned Metauro River channel is still well recognisable along almost all the scarp toe. The excellent preservation of such landforms hints at quite a recent cut-off of the meander neck and abandonment of the previous course. On the basis of several considerations (e.g. Roman bricks and tiles in alluvial deposits at the mouth of the meander, historical maps dating to 16th-18th century) it can be assumed that in Roman times the Metauro River flowed through the present day abandoned meander, at the toe of the southern walls of the town.

*Forum Sempronii* was founded, in a site populated in pre-Roman times, between 132 and 126 BC, probably by *Caius Sempronius Gracchus*, whose presence in that area is documented by an inscription (CIL, I², 719), recovered in the 18th century on the hill of *Monte Giove*, not far from Fano. The so-called “cippo graccano” mentions the activity of the triumviral committee appointed to enforce the *lex Sempronia* of 133 BC, aimed at reorganising the *ager publicus* by parcelling out and allotting the agricultural land. *Forum Sempronii*, which turned into a *municipium* during the 1st century BC, has been ascribed to the *Pollia* tribe and mentioned by Strabo (Suda V, 2, 10), Plinius (HN, III, 113) and Tolomeus (III, 1, 46), as well as in the *Itineraria*. Marked by a flourishing Christian community since the late 4th-early 5th century AD and known as bishopric (VERNARECCI, 1903: 97-116), the city was heavily damaged during the greek-gothic war of 535-553 AD. After that, most of the inhabitants, for defensive reasons, moved to a nearby hill, thus originating the centre which evolved during medieval and renaissance times under the name of *Fossombrone*. The former city was almost completely abandoned, but the new settlement kept its name, despite some alterations due to the passing of time and language changes (LUNI, 2001, 16).

The site of the ancient *municipium* had been lo-
cated, since the 15th century, on the vast plain where the modern village of S. Martino del Piano is, about 2 km east of Fossombrone, after the recurrent discovery of artefacts during the ploughing-season (VERNARECCI, 1903: 30-34; MERCANDO 1983: 83-84; GORI & LUNI, 1983: 91-96). Besides affecting town layout, the Flaminia road, built around 220 BC, played a major role in the city’s economic development, mainly in the first two centuries of the empire.

At least three sides of the Roman town walls took advantage of geomorphologic elements. Indeed, they were against the foothill to the north; to the west they ran along the edge of a steep scarp on the left of Fosso della Conserva (a small left-tributary stream of the Metauro River), and they rose southwards on the edge of the Pleistocene terrace. Relations with modern geomorphological features are more problematic in the eastern side of the town: nevertheless, recently, SAVELLI et alii (2004) have found some correlation of Roman town and the course of an ancient, no longer recognisable gully. Large cemeteries were found both to the west, over the Fosso della Conserva, and to the east of the settlement, thus allowing us to mark the boundary of the ancient urban area. The existence of some Roman tombs was reported in the easternmost sector of the scarp which borders the city south-east. Probable sections of defensive walls and the rests of two quadrangular towers in opus quadratum, incorporated in the foundations of two farmhouse (GORI & LUNI, 1983: 92, 103), are currently visible on the southern side, while a wall section and a circular tower in opus tumultuarium (dated to the half of the 6th century AD and connected with the Greek-gothic war) were discovered on the very eastern side. Here, in 1806, some structures were found probably pertaining to a gate, in the same place where, on 3rd October 1603, an inscription mentioning the Porta Gallica was recovered (CIL, XI, 6136; VERNARECCI, 1903: 34-35; GORI & LUNI, 1983: 103). As a consequence, the settlement was extended for about 30 hectares, having a squared road network, with parallel and perpendicular streets crossing each other at right angles (fig. 5). The members of the Urbino University Archaeological Institute, in collaboration with the regional board of the Ministry of Cultural Heritage, have systematically studied the city since 1974, through surveys and soundings, locating and

Fig. 5 – Roman paved streets of Forum Sempronii.
– Strade lastricate Romane di Forum Sempronii.
digging out two baths, a urban stretch of the Flaminia consular road, as well as the stretches of other streets, thus allowing us to recognise at least one rectangular insula, measuring 2 by 3 attus (ca. 70x105 m.; LUNI, 2001: 11-16; LUNI, 2003).

4.2. – THE SAN LAZZARO GORGE AREA

This area is located in the neighbourhood of the village of Calmazzo (fig. 2), where the Metauro valley crosses and deeply cuts the Monti della Cesana minor Ridge (fig. 1). Here, the valley shows a strong flanks asymmetry. The left valley flank is steep and completely lacking in terraces older than upper Pleistocene (fig. 6); these latter on the contrary are preserved on the right valley side. In addition, the left valley flank shows significant gravitational instability stressed by extensive erosional processes, deep landslides, marked slope-waste production and formation of alluvial fans (fig. 6). The gravitational instability of this valley side is also underlined by the 1934 landslide, which produced 11 victims and is remembered by a commemorative inscription. The different characteristics of the two valley sides suggest a major tectonic control in the valley profile evolution (SAVELLI et alii, 2002). The most significant geomorphologic feature of this area is a gorge, up to 30 meters deep, carved by the Metauro River out of the Cretaceous limestones of the Maiolica Fm (fig. 6). Well preserved giants potholes (fig. 7) are the most relevant landforms of the gorge. Six major potholes, both active and fossil, can be easily watched from the so-called Ponte di Diocleziano on the left gorge side; nevertheless, several minor potholes are present all along the gorge.

San Lazzaro is sometimes reported as bearing a Roman bridge, the so-called Ponte di Diocleziano. However, such bridge is not Roman, but younger in age, i.e. not older than Medieval times (LUNI, 2003, and references therein). Worth mentioning is the discovery of Roman burials at Ponte Rotto, Calmazzo (some 10 km west of Forum Sempronii), and, further to the west, the remains of an important Imperial age burial ground belonging to the local gens Cissionia (fig. 8). Indeed, a fairly important settlement, maybe a vicus, likely to be situated by Calmazzo, where the Flaminia branched off into a diverticulum connecting the consular road with middle-upper Metauro valley municipia (GORI, 1993). In the past, several archaeological finds – remains, pottery and various building materials – were recovered in close proximity to such key
crossroads and some burial areas have been detected. Chief among the latter is *gens Cissonia* burial ground, the excavation of which was performed, since 1989, by the university of Urbino in alliance with the regional board of the Ministry of Cultural Heritage. The area, approx 135 square metres, is bordered by a stone kerb originally bearing ashlar limestone slabs positioned at regular intervals. Inside the burial ground were two sepulchral altars, respectively dedicated to *C. Cissus Festus* and *C. Cissus Zosynus* and his wife *Cissonia Festa*. Noteworthy among the tools found inside the tombs is a gold necklace, as well as balsam and ointment vases, lamps and pottery. The funeral monument can be dated at early imperial age.

4.3. – THE FURLO GORGE

The Furlo Gorge site is well known for a striking canyon deeply cut by the Candigliano River, the major tributary of the Metauro River, transversally crossing the anticline mountains of *Pietralata-Paganuccio* (named *Monti del Furlo* according to a local designation). The gorge cuts the Jurassic-Paleogene calcareous and marly-calcareous formations of the Umbria-Marchean Succession. This area is one of the best examples of such puzzling
landforms typical of central and northern Apennines and shows the main geomorphologic peculiarity of the area. Recently, taken into account its attractive and scenic beauty and scientific/educational relevance (BARTOLINI & PECCEILLO, 2002) the Monti del Furlo area has been proposed (DILIGENTI et alii, 2005) as a Geomorphosite (sensu PANIZZA, 2001). Moreover, several fossiliferous sites as well as the outcropping of the regional-markers Bonarelli level and K/T stratigraphic bound, contribute to enhance the environmental significance of the integrated landscape of the Furlo Gorge site. Finally, recently the area was included in the Riserva Naturale Statale Gioa del Furlo.

The approximately NW-SE striking Pietralata-Paganuccio anticline is characterized by a slightly asymmetric box fold without any clear evidence of emergent thrust in its forelimb (CAPACCIONI et alii, 2005). The anticline rapidly plunge-down both towards the NW and the SE where forms a wide depressed area crossed by the Cesano River (fig. 1). The axial culmination of this structure matches with the Furlo Gorge. In particular, the Furlo Gorge is entrenched in the lower Jurassic Calcare Massiccio Fm., an over 500 m thick formation which manly consists of massive dolomitic limestones (CECCA et alii, 1999). This formation, the oldest outcropping in the area, is overlain by an approximately 600-700 m thick sedimentary sequence, manly characterized by calcareous, marly-calcareous and marly terrains, extending in age from lower Jurassic to lower Miocene (fig. 9).

Nevertheless the sub-vertical walls, hanging over 500 m high on present valley-floor (fig. 10), represent the main scientific and scenic attraction of the site, from a geomorphologic standpoint the area is also characterized by several minor, yet noticeable, landforms and landform assemblages. Actually, Il Buzzo minor gorge, approximately parallel to the main Furlo Gorge (fig. 9) and well-preserved flatirons immediately over the gorges, certainly represent some of the main landforms. Moreover, karst, fault-related and fluvial landforms (DILIGENTI et alii, 2005) can also be observed widespread in the area (fig. 9).

The Furlo Gorge, frequented since prehistory, represented the natural access from the coast to pastures and Apennine passes. Such key function was then heightened in Roman times with the opening of the Via Flaminia around 220 BC and the imposing works performed in order to make the gorge traversable. The significant remains both of the consular road and its associated structures make the Furlo Gorge an important and renowned archaeological site. Rock cuts and imposing walls were made (fig. 11), on the rock spur to the left flank of the Cangigliano River, to get and sustain the road (the amount of removed rock is reckoned at 1500 m³). Later on two tunnels were opened: a smaller one, the dating of which is uncertain (1st century BC – first half of the 1st century AD), and Vespasiano one, dated to 76 AD. This latter is one of the most significant examples of tunnelling in Roman times. The long-lived, primary function of the gorge as natural barrier played a prominent part in the Greek-Gothic war (535-553 AD) and, reputedly, in Longobardic times (6th-8th century AD; LUNI, 1989, 2003).
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REFERENCES


