

AN ITINERARY AROUND THE APUAN ALPS (TUSCANY, ITALY): AN EXAMPLE OF LANDSCAPE MODELLED BY DIFFERENT AGENTS

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ABSTRACT: M. Bini, An itinerary around the Apuan Alps (Tuscany, Italy): an example of landscape modelled by different agents. (IT ISSN 0394-3356, 2005).

The combined action of various exogenous agents, together with the powerful endogenous thrust and anthropic activities, have all contributed to the genesis of the current Apuan landscape. This landscape is characterised by numerous geosites, among which the most important is certainly the *Antro del Corchia*. This karst cavity of international scientific interest, since its opening to the general public has become an important attraction of the Park of the Apuan Alps. However, it tends to be visited purely as an isolated monument, without links with the rest of the area, which offers, also in the immediate surroundings, the chance to observe various other sites of geological or geomorphological interest of comparable scientific value. The exceptional drawing power of the cave could therefore be used to better divulge information relative to those other lesser known nearby sites, which, connected together in an easily followed itinerary, could tell the story of the area from its geological and geomorphological characteristics to the significant impact of man on this landscape.

RIASSUNTO: M. Bini, Un itinerario attraverso le Alpi Apuane (Toscana, Italia): un esempio di paesaggio modellato da differenti agenti. (IT ISSN 0394-3356, 2005).

La concomitante azione di diversi agenti esogeni, unita alla poderosa spinta endogena e all'attività antropica, ha portato alla genesi dell'attuale paesaggio apuano che è caratterizzato dalla presenza di numerosi geositi tra i quali spicca sicuramente l'Antro del Corchia. La cavità carsica di interesse scientifico internazionale, dal giorno della sua apertura al pubblico è divenuta una importante attrazione del Parco delle Apuane, ma sfortunatamente è visitata come un monumento isolato, senza legami con il resto del territorio, che offre, anche nelle immediate vicinanze, l'opportunità di osservare altri siti di interesse geologico - geomorfologico, di altrettanto valore scientifico. L'eccezionale potere attrattivo dell'Antro potrebbe essere sfruttato per diffondere le conoscenze relative a questi siti meno noti, che, collegati tra loro in un facile itinerario, potrebbero raccontare pienamente la storia del territorio dalle peculiarità geologiche a quelle geomorfologiche fino alla incisiva impronta antropica.

Keywords: Geomorphosites, Apuan Alps, Mt. Corchia.

Parole chiave: Geomorfositi, Alpi Apuane, M. Corchia.

1. INTRODUCTION

The Apuan Alps are rich in geosites and particularly geomorphosites, yet today probably the only site that has been adequately exploited, and the only one recognised by the local community and tourists is the *Antro del Corchia*. Since its opening to the general public in August 2001 it has received a great number of visitors, who however very often see the cave as an isolated monument, without being able to appreciate the natural context within which it is located.

The exceptional drawing power of the *Antro del Corchia* could be better exploited also to divulge important scientific concepts associated with the presence of other geological-geomorphological sites which taken singly would otherwise be less well known to the public. These sites, linked to the cavern in a single tourist itinerary, could help fully understand the natural and cultural features of the Apuan area. These range from its geological peculiarities and modelling by exogenous agents, to the many signs of human influence which have had a significant impact on an area long characterised by mining activities.

This paper proposes a touristic-cultural itinerary which makes the most of the Apuan area by means of a series of geosites in the surrounding area of the *Antro*

del Corchia, so as to exploit the already existing tourist flow to the area.

The sites included in the itinerary are the following:

- Levigliani Mercury Mine
- Hercynian Discontinuity of Mt. Corchia
- *Antro del Corchia*
- Marble quarries of Mt. Altissimo
- *Padule di Fociomboli*

For some of these sites emphasis has been placed on obviously non-geological features, such as the biological and historical-cultural component, which were considered particularly important and able to increase the value of the single elements. The itinerary, conceived as an informative and discovery route of the area, proposes some points of reflection on the close link between geotopes and biotopes and on the difficult, but not impossible, relation between safeguarding cultural assets and exploitation of natural resources.

2. ITINERARY

The itinerary starts with a visit to the historical **Mercury Mine of Levigliani** (Fig.1). It is located just before entering the village of Levigliani, following the

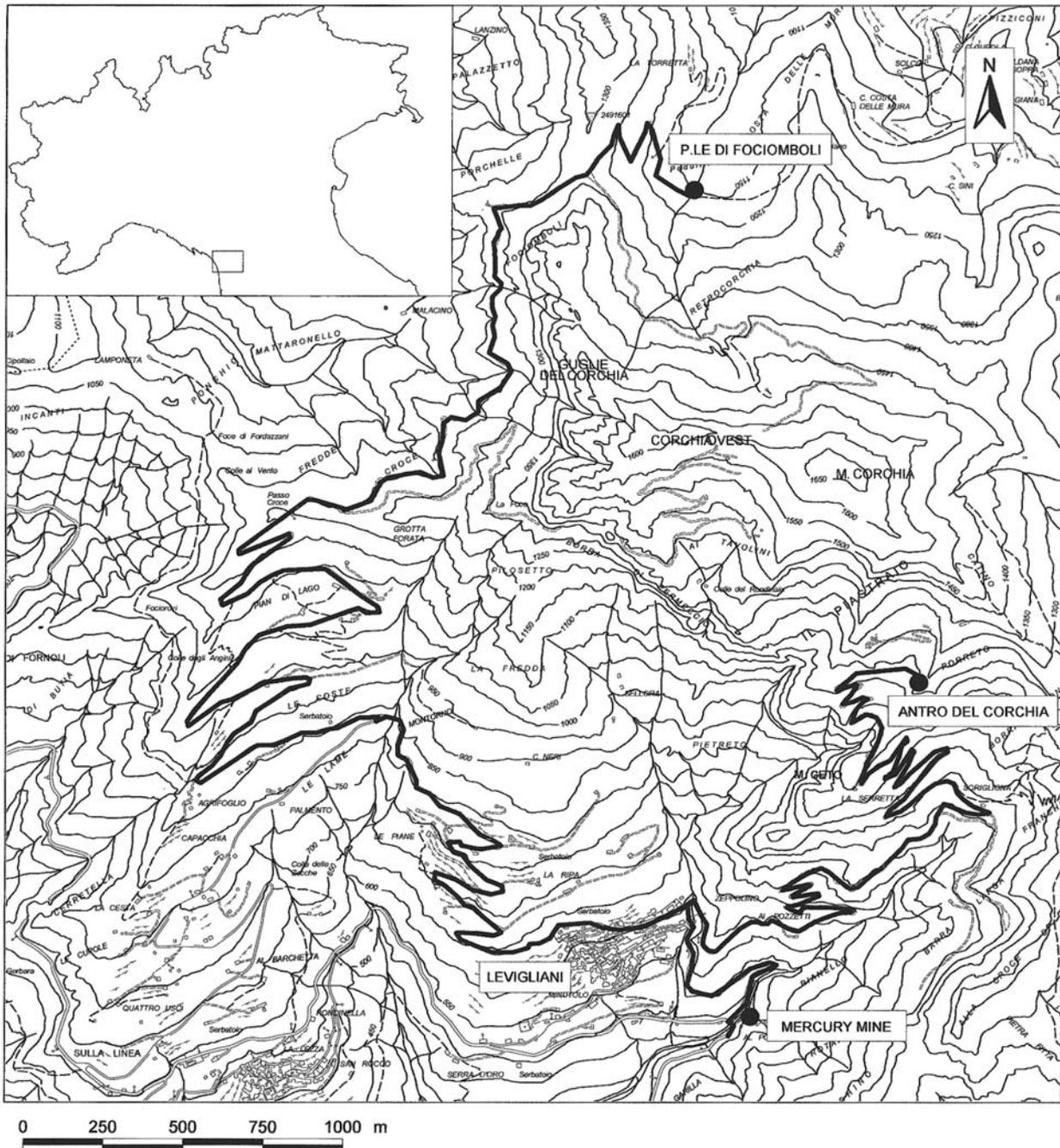


Fig. 1 - The itinerary.
L'itinerario.

provincial road, near the first turning for Levigliani on the road that runs along the side of Canale del Bosco. Along this channel there are the remains of the mining works for the extraction of mercury and cinnabar, whilst on the orographic left there are the entrances to the mining galleries (Fig. 2). Active from Medieval times, when it gave an impulse to the development of the village of Levigliani, the Mine is today delapidated and risks deterioration and general decay. The interesting mineralisation, which offers a paragenesis unique in Italy, follows the quartz veins that reappear in the Paleozoic porphyroid schists. Of particular importance is the pre-

sence of native mercury in metallic drops and cinnabar, which was used in the past for the manufacture of red pigments for the characters of illuminated manuscripts and ecclesiastical books (Mancini, 1998). There are numerous rare minerals, some of which, such as *Leviglianite*, were discovered here for the first time. Closed down in 1970, after various vicissitudes, the mine is no longer economically viable for extraction, but if opportunely re-equipped and restored it could certainly become an economic resource from the tourist point of view.

Leaving behind the mine we proceed along the

provincial road to the village of Levigliani, from where, with the shuttle bus of the *Parco delle Apuane*, we go towards the *Antro del Corchia*. During the uphill trip it is possible to see the **Torriani del Corchia** (Fig. 3), at the base of which there is the passage between the Paleozoic formations of the Hercynian basement and the autochthonous calcareous beds (Carmignani & Giglia, 1983; Tucci, 1980). The presence of this landscape, which corresponds to the discontinuity with Hercynian discordancy, makes the landscape particularly spectacular, given the different responses of the two rock types to erosion and weathering. Above all it is a key point of the area for the understanding of the geological dynamics of the Apennines. In fact, it is here where the structurally deepest zone of the Northern Apennines crops out.

From the bus stop, through an artificial entrance created inside an abandoned mining extraction we enter the **Antro del Corchia**. With its 50 km and more of galleries and a depth of 1210 m, the cavern is the most extensive Italian karst cavity and one of the largest in the world. Via a walking itinerary of about two hours we can savour the typical fascination of the hypogeous karst processes, and we can understand important elements of the geological evolution of the Apuan mountain chain, such as the various phases of



Fig. 2 – System of Mercury Mine of Levigliani (Photo by S. Mancini 1988).

Impianti della Miniera di Mercurio di Levigliani (foto di S. Mancini 1988).



Fig. 3 - The hercynian unconformity of Monte Corchia.
La discontinuità ercinica di Monte Corchia.

stasis and tectonic uplift. In fact, the cave has a complex network of galleries, made up of large horizontal galleries connected by vertical shafts cut along the main joint patterns. The arrangement of the galleries, in three well defined levels, at 1400 m, 1200 m and 850 m a.s.l. reflects three successive moments of tectonic stasis of the Apuan chain occurring respectively in the Middle-Lower Pliocene, the Lower Pliocene, and in the Middle-Upper Pleistocene. The periods of uplift of the Apuan Alps originated the vertical shafts (Piccini, 1991).

Another undoubtedly typical feature of this area, without which it would be difficult to understand the culture and nature of this landscape, is that of the **marble quarries**. Visible from the *Versilia* coastline, the quarries are chiselled into the landscape and seem to be in an eternal struggle with the carbonatic rock, with its natural cavities. In this particular equilibrium, the exploration of the karst cavities has often identified good sections and vice versa the quarrying activity, above all in the galleries, has sometimes revealed previously unknown branches of the karst cavities.

This situation lends a certain importance to the controversial story of the discovery of the Antro del Corchia, explored for the first time by Emilio Simi, naturalist and local entrepreneur. For a long time it was thought that Simi had discovered a branch of the cavern during marble excavation in his quarries. In reality, as the note of Professor L. Pilla shows here, it was initial exploration of the karst cavity that prompted Simi in 1841 to start quarrying activities.

“On the cliffs of Mt. Corchia that overlook Levigliani there was the discovery of a cavern entrance in 1840, which, arousing the curiosity of many, prompted Signor Simi to undergo operations in order to penetrate the cavity [...]. One of the most notable things that was observed was that once the stalactitic crusts covering the walls were removed, these same walls were seen to be of snow-white statuary marble.” The double interest that Mt. Corchia stimulates, and which makes it an ongoing bone of contention between naturalists and quarrymen, was almost prophetically noted by Simi himself who, in 1872, wrote: “if in that beautiful group of mountains which [...] crown the rich *Versilia*, one feature deserves more than any other to attract the attention of the naturalist and the greed of the speculator,

then that feature is without doubt Mt. Corchia” (Bartelletti & Amorfini, 2001). This dual interest is today still very much reflected in the landscape. In fact, near the entrance to the karst cavity, some highly impressive grottoes open in the galleries, veritable cathedrals of marble cut into the mountainside. Probably the best known is Borra Larga, whose entrance is slightly higher up from the main cavern. Another example of a different type of mining technique, the open quarry, can be seen along the path towards the *Padule di Fociomboli*, where we can observe on *Monte Altissimo* a sharply cut summit-level

quarry. It is one of those which most evidently modify the landscape of the area, it having been opened on the main ridge of the mountain (Fig. 4). Due to this man-made activity the crest has been lowered and has taken on the typically geometric shape and snow-white colour now very much the emblem of these mountains. More precisely, this white tone is not due only to the marble quarry walls, but also to another feature typical of this area, the *ravaneti*, piles of variously shaped blocks and stone debris originating from the worked waste material and which cover wide areas of the flanks of the Apuan Alps. The *ravaneti* can be seen at various points of the itinerary, but because of its extension and particular location, the *Mt. Altissimo* example is the most impressive. On this *ravaneto*, as on many others, it is possible to see the steep and winding access roads for the trucks that carry the marble down. In effect, in an impervious area like that of the Apuan Alps the problem of marble transport has always been of primary importance. For years the way of getting the marble blocks down was by means of the *vie di lizza*. These were hazardous tracks, furrowed into the steep Apuan slopes, along which the marble blocks were hoisted down attached to a large wooden sledge made to slide down on massive trunks, known as "*parati*", and kept in position with ropes held by a small team of men. Only at the end of the 1960s did truck transport on the access roads replace the dangerous technique of "*lizzatura*". Since then the list paths of the area, an important historical feature, risk disappearing altogether. There is not even an adequate count of how many there are, unlike that carried out in the nearby *Massa* district (Bradly & Medda, 1989). A few remains of these ancient tracks can be seen from the road leading from the *Antro del Corchia* to the village of *Levigliani*.

Returning to *Levigliani* following the road to *Pian di Lago* and *Passo Croce* we reach *Fociomboli* and from here, following C.A.I. footpath n°11 we arrive at the ***Padule di Fociomboli*** (Peat bog of ***Fociomboli***) recognised as a "site of EU interest" due to its notable naturalistic features



Fig. 4 - The "Cervaiolo" quarry in the M. Altissimo area.
La cava "Le Cervaiolo" su Monte Altissimo.

(Fig. 5). The current peat bog is the remains of an ancient glacial lake. A careful look at the landscape enables us to reconstruct the appearance of the area during the last glaciation. One of the southernmost glaciers of the Apuan chain occupied this area. It extended along the northern walls of the mountain starting from a height of 1500-1600 m, as shown by the current glacial cirques, and reached, uncovering some rocky spikes, as far down as 700 m along the *Val Terreno*. This is



Fig. 5 - View of the Peat bog of Fociomboli.
Vista panoramica del Padule di Fociomboli.

shown by the presence of a frontal moraine, and at 750 ÷ 800 m in the valley of *Canale delle Fredde*, of large boulders with glacial striations (Braschi *et al.*, 1986; Federici, 1981). In the area of *Torretta* at 1150 m. there is a stationary moraine, that is left by the glacier in a phase of retreat. It is this moraine that has caused the formation of the lake which today has become one of the few peat bogs of the Apuan area. Located on impermeable rocks, the Peatbog of Fociomboli is constantly crossed by streams that maintain a regular humidity. In addition, because they originate in the overlying calcareous relief, these waters neutralise the acidity of the soil. The combined effect of these characteristics makes this area a precious habitat for unusual and often rare flora and fauna, clearly indicating the close relationship between geotopes and biotopes (Bartelletti & Amorfini, 2001)

3. CONCLUSIONS

The itinerary proposed ambitiously intends to show both tourists and members of the local community, how geological, geomorphological and man-made elements of the same area are not detached from each other, and how, even if in constant competition with one another, they overlap and integrate in a common landscape-forming process.

The presence within the *Fociomboli* habitat of rare or unusual biological species enables us to observe the close relationship between geotope and biotope, showing how the lack of protection of the physical environment has a negative influence on the biological environment. Furthermore, the presence of two mining sites (the *Altissimo* open quarry and *Levigliani* mine) prompt us to reflect on the difficult but not impossible co-existence of this type of activity and the safeguarding of natural resources. In particular, we can see how the quarrying activity can on the one hand be a menace for the local natural resources (the *Altissimo* and *Antro del Corchia*), but on the other, it can itself become a cultural resource (*Levigliani* mine, list paths).

The idea of this proposed itinerary is to get away from the visit to a single landscape element and move towards a more integrated visit of the nature and culture of an area. This should be a small step in the direction of a knowledge-based approach which contributes to a true safeguarding and exploitation of natural resources that goes beyond an exclusively restrictive conservation.

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