

## INTRODUCTION

A simple itinerary, charming, within the built-up area and in the immediate neighbourhood, searching for scientific aspects (geological, hydrogeological, palaeontological, geomorphological) and for ethno-environmental aspects (culture of stone, legends, ancient tools, pieces of sculpture...).

A journey to discover fossils and geological events, in the pavements, in the stone monuments, in the decorations, in the outcrops, in the caves within the town centre.

A different way to approach the historic architecture, the artistic manufacturing of stones, the geological story of an area that enthralled geologists, naturalists as well as people fond of it.

This is an original path, far from the usual schemes, fascinating, aroused from the determination of the association Haliotis of enhancing the value of portions of the environment that are inner or neighbouring to the towns and that succeeds in joining naturally both geological aspects and the remains of human activity bound to them, and developing in this way the Geopark of Madonie Mountains.

The itinerary has been carried out interacting with two museums deeply different but both

tied to the stone by specific prospects of research: the Geologic Museum of Geopark and the Ethno-Museum 'u Parmintieddu (dial. For "the Millstone") a chieving, in this way, a combination of the science of rocks and the popular culture of manufacturing them.

It couldn't escape the presence, to chisels used to search for veinings and uocchi (dial. for "eyes"), (the popular culture considers the crystals as the eyes of a living and not inert matter), of mysterious fossils shapes: shells, strange flowers, leaves and fantastic shapes. All of them always of stone. The fossils give rise to a sense of marvel about the unknown and they are elaborated in an epic and narrative sense, becoming heritage of oral tales, of cultural identity and of collective memory.

It is a cycle: from stone fossils are born legends, but from legends come out mysterious figures and the collective imaginary comes back to become concrete in stone, in the simple and charming art of popular sculptures that have got a great narrative force.

Among all, it is curious a figure of a person with a stone shell on his head, to decorate a ring to fasten horses: it's 'a cruocchila di San Japicu (trans.: the fossil of St James).



'U canal' fountain



Geologic Museum of Geopark

## THE GEOLOGICAL MEANING OF PETRALIA SOTTANA'S LIMESTONES

The calcareous outcrops on which most of the living area of Petralia Sottana is built have got a peculiarity: they are made mostly of little colonies of corals completely fossilized, where you can see the genera: Porites and Tarbestrallea, besides of the Briozoi (encrusting coral forms).

The relative age of these sediments is about 8-10 millions years.

The geology of the substratum of Petralia, was studied in detail by the geologist Giuseppe Torre, who in a publication of 1971 writes: "The built-up area of Petralia Sottana lies on a slope that descends to the West, where coral limestones, datable to the Sup. Miocene, come up".

The limestone often appear empty, discontinuous and with cavities in relation to both the energetic and complex tectonic action underwent by these portions of land, and to a mature karstic process which final product is evident through the various caves within the living area of Petralia Sottana.

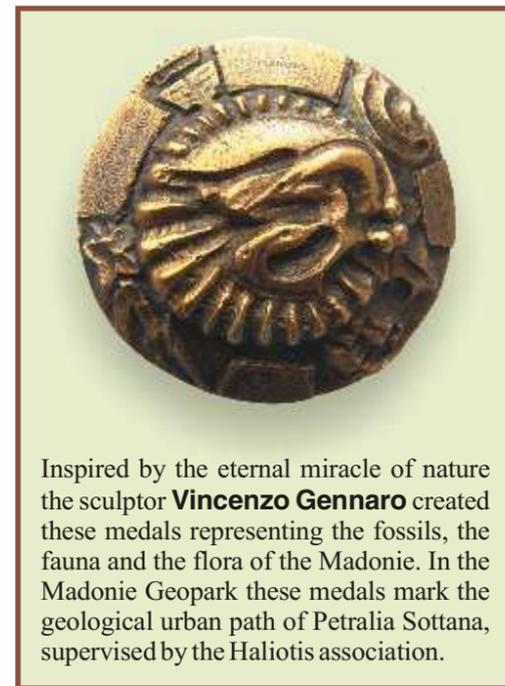
In some places, in association with the calcareous outcrops, it is possible to see bodies of polygenic conglomerate in which prevails pebbles of quartz of the Numidian Flysch, or, parts of clayey sand.

Furthermore, under the calcareous parts, you can find calcarenites horizons where you can observe rich sea faunas among which emerge: molluscs, ostreids, rests of echinids and foraminifera.

The morphology of Petralia, is in strict relation with the nature of the grounds of surface and, in relation to the different behaviour showed to the erosive action of exogenous agents, the calcareous outcrops more compact emerge, delimited by steep slopes.

The hydrogeology of Petralia Sottana is really linked to the calcareous lithology where water layers can settle deriving from karst phenomena, when, where they are next to clayey lithology, that are notoriously impermeable, they allow the formation of springs of contact.

In the towns of Madonie Mountains people call affectionately Petralia Sottana Giglio di Roccia (Lily of stone), and its history is linked, from the very origins, to stones and water.



Inspired by the eternal miracle of nature the sculptor **Vincenzo Gennaro** created these medals representing the fossils, the fauna and the flora of the Madonie. In the Madonie Geopark these medals mark the geological urban path of Petralia Sottana, supervised by the Haliotis association.



La ristampa di questo pieghevole e la realizzazione del Sentiero Geologico Urbano, danno l'occasione per ringraziare quanti hanno offerto il loro generoso contributo:

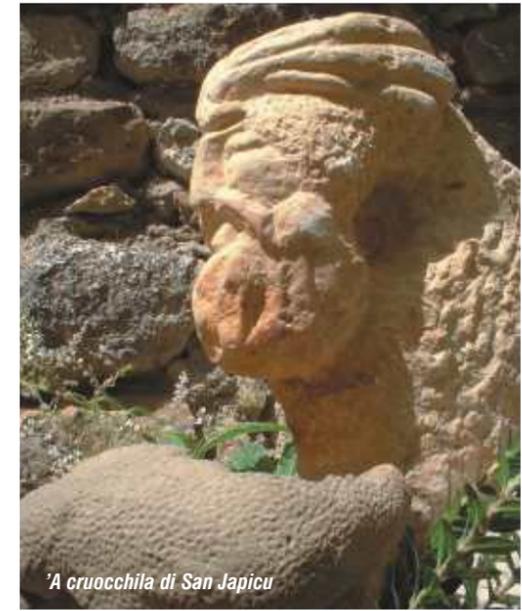
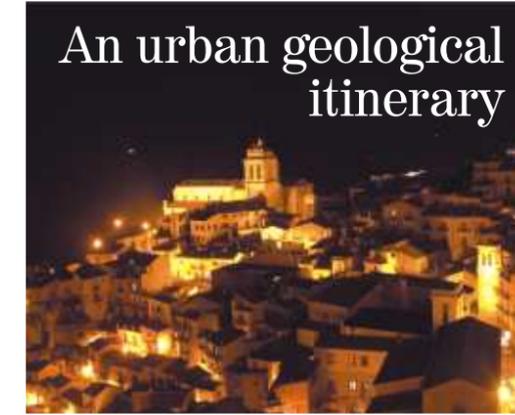
Il Prof. Mariano Valenza, Università di Palermo; Massimo Belli dell'Isca e Pasquale Li Puma, Ente Parco delle Madonie; Sergio Mammina per il progetto grafico; Enzo, Michele e Giuseppe Carapezza per i testi, Museo 'U Parmintieddu; Alessandro e L. Fabio Torre per i testi di geologia e le foto, Associazione Haliotis; Roberta Ferraro per la traduzione; il M° Vincenzo Gennaro per le sculture; Roberto Ardizzone, Giuseppe Castrianni e Leonardo Neglia.

Il Sindaco  
**Santo Inguaggiato**



# PETRALIA SOTTANA

## An urban geological itinerary



'A cruocchila di San Japicu

## PRELIMINARY REMARKS



Geology is a science that helps us to reconstruct the evolutionary story of our planet through observations about the morphology and composition of the rocks and the earth, of a certain area. The idea of organizing an itinerary in a built-up area with the aim of detecting the geological and hydrogeological peculiarities of the territory on which a town is built is innovative, and illustrates the fact that we routinely visit over time can also highlight, if you look with particular care, details that in a variety of ways are richly informative.

The reconstruction of the geology of a central township area is often complex and difficult to adequately simplify. We are often aided by indirect information of various kinds and additionally by the chemical and physical characteristics of hydric and natural emergences of an area. In fact, as realised by the father of naturalists, Pliny the Elder, the natural water has the same characteristics as the ground it crosses (*Tales aquae quam terrae in*

*quas fluunt*). In the case of this itinerary, in the built up areas of Petralia, you can come across some springs suitably used, the nature of which (bicarbonate, alkaline and calcareous) is a clear indication of the fact that the rocks that contain the water are surely made by carbonate rocks, and this is also very evident in some more or less extended outcrops of the town.

Recognition of the characteristics of a stone from a monument, or from a manufactured article, allows us to go back to the natural formation which it was once part of and so it also assists in our being able to reliably reconstruct the habits of generations who preceded us. It is very evocative to imagine that a well mapped out urban itinerary could allow, in addition to the fruition of various kinds of architectural buildings, also the make up and possible origins of the materials used in their construction.

Prof. Mariano Valenza,  
Geochemistry at Palermo University.

## THE MAIN ROAD (points 1-2-4-6-7)

Corso Paolo Agliata was built, from 1871, on a project of Severino Engineer who enjoined different and pre-existing road portions with different names, levels and characteristics. An ideal geometry, that is 540 metres long, in 1874 turned out to be conveniently placed above the ancient urban structure. In the pavements of this street you can find, the use of calcareous fossil lithologies in which you can recognize fossils such as Rudistis, Nerinee as well as Corals and Sponges. These last one's have a different geological meaning from the coral limestones of Petralia Sottana. In fact the grey fossil limestones from Mesozoic are from a place already sanctified before Christianity: Santo Otiero. The imposing rock of Santu Trieri has got the strange shape of an animal (the Greek etymology confirms it is a divine one) and it had been used in past times as a high quality stone quarry. The age of these Jurassic Cretaceous stones range from about 200 to 65 million of years. The culture of stone has been in touch with the culture of ceramics, of wood and iron withstanding the affects of time and historical events. Having so strong roots it has been handed down up to our days. For ages they have been pulling out stones, turning fragments of rock in building stone and decorations so that it was up to a century ago the strata di marmurari pirriatura (trans.: the street of stone engravers), a quarter of stone artisans. Carving the stone means trying the shape of soul in the hard ancestral matter, setting it free, searching for the secrets of a million years long history.



Fossils in the pavements

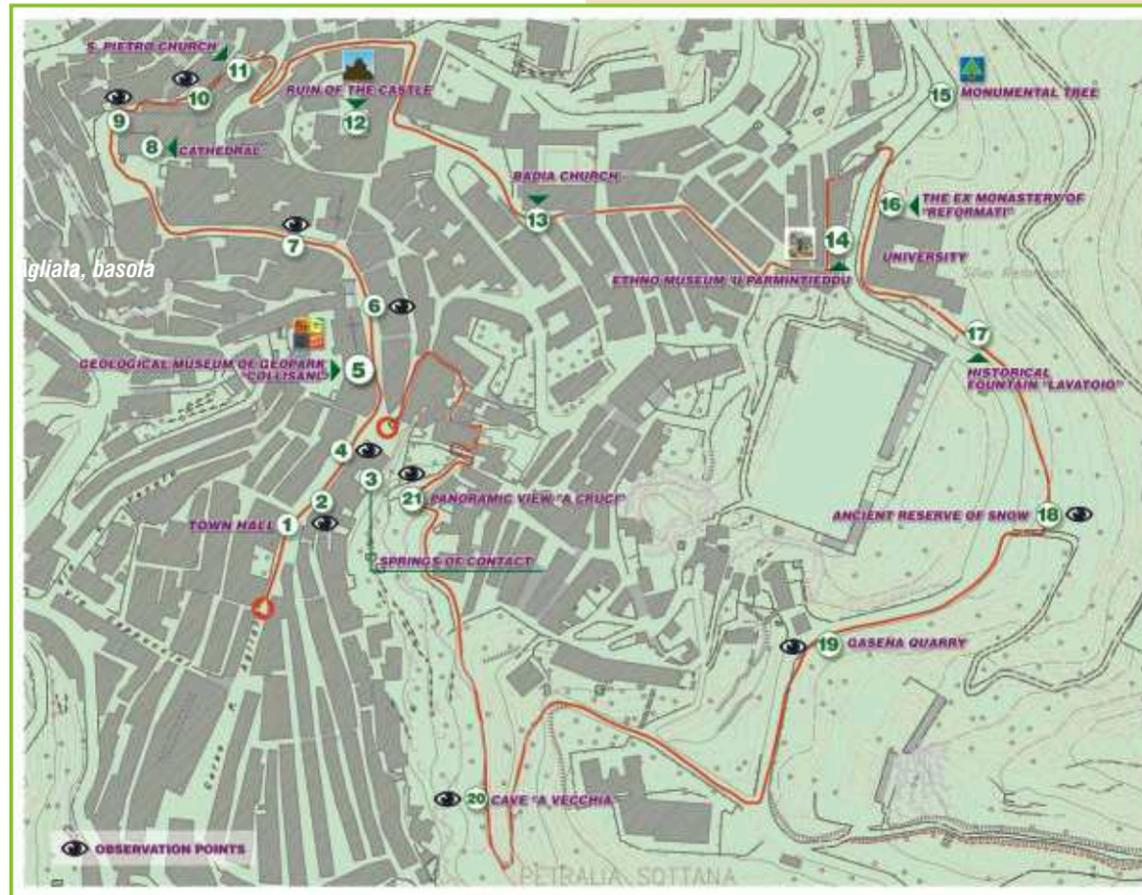
Jurassic period coral limestones

## THE SPRINGS (point 3)

We find on the right side of Corso Agliata, towards the Cathedral, a series of springs of contact. Only one, located from within the Madonie Hotel courtyard can be visited - here you can admire the waters flowing directly from the rock overhead. Other sources on Corso Agliata are: first, deriving from the grutta 'I tri funtani (trans.: cave of three fountains), a cave in the back of Santa Maria of the fountain Church, which tradition says is the guardian of an enchanted treasure ('a truvatura i Santa Maria). Second, channelled through an hydraulic system it is conveyed into the 'u canali fountain.

## GEOLOGICAL MUSEUM OF GEOPARK "COLLISANI" (point 5)

You can see the geo-paleontological collection G. TORRE, and you can interact models characteristic of Madonie mountains geology



## CHATHEDRAL (points 8-9)

It is the main parish church of Petralia Sottana, consecrated to the Assumption of Mother Mary.

The origin has been lost over the centuries, but it can go back to the modern appearance it has now to the first half of the 16<sup>th</sup> century with the difference that the modern main entrance was the ancient secondary door. Fossil limestones of Santo Otiero are in evidence here in all their beauty in both their manufactured stone elements (which constitute the main entrance) and in the inner columns of the Cathedral.

## SAINT PETER'S CHURCH (points 10-11)

We do not know the exact age of the construction of Saint Peter's the Apostle Church, but it existed before 1591. It had been built in the Quartiere delli Pitrazzi (the quarter of big stones) where there were probably Coral limestones and fossil calcarenites of the Miocene period.



Springs of contact

## RUINS OF THE CASTLE (point 12)

Its origin is unknown, perhaps it was built by the Normans on a pre-existing Roman site.

## THE abbey - 1503 (points 13)

It was commissioned by Maria Cardona Ventimiglia and it records an extraordinary snowfall of 1683.

## ETHNO-MUSEUM 'U PARMINTIEDDU (point 14)

Didactic and local museum built within a charming cave with an historical and a prevailing ethno-folkloristic character and careful to the themes of the sacred and of the mountains.



St Peter's church: fossils in its porch



The Abbey



Miocene period Coral limestones

## THE MONUMENTAL TREE (point 15)

From the sources of Silva Reformati copious flowing waters created an ideal habitat for the growth of centuries-old poplars.

It has only remained one assessed among the monumental trees of Madonie Mountains Park.

It is of an extraordinary size and is near the Museum 'U Parmintieddu. Its trunk is over 6 metres in circumference and it is 30 m in height.

From the Museum to the Monastery you can take the staircase that exemplifies an old type of construction. Surrounded by white limestone chains its big steps are made from the discarded stones of buildings and nearby gardens.

## THE EX-MONASTERY OF "REFORMATI" (p. 16)



'Reformati's' ex-Monastery

The architectural complex was built in 1655 and we presume from some niches and wall rests was broadened at the left.

Its outer facade it's highlighted with contrasting calcareous whitish litologies and the yellow-greenish calcarenites from which are taken the elements of manufactured stone of the structure.

It was consecrated to Santa Maria degli Angeli (the Virgin Mary). Entry can be made using the two flights of stairs or by a carriageway, with a sacred draffino concealing a gallery.



Little altar

## THE ANCIENT REERVE OF SNOW (point 18)

In the place where today is located the picturesque gushing fountain of the municipal Pine-wood there was a deep, steep natural hole which was filled with snow. The wood and the nivarola (people who prepared the reserves and then took the snow to the cities) have the task to cover the summit with layers of leaves, straw and ground. In this way they slowed down the melting of the snow that lasted until summer when it was cut into pieces and froze a container where the keen ice-cream manufactures and the monsù dosed the ingredients to prepare the most delicious ice-cream and crushed ice drinks, well-known all over the towns of Madonie Mountains.



The area of the ancient reserve of snow now taken up by a circular fountain

## GASENA QUARRY (point 19)

Sand was dug from this location and used to build the rural buildings of the Gasena, quarter of shepherds.

## PETRALIA'S CAVES (point 20)

In the final location of this itinerary you find various karsic caves among which we quote: Gruttidda d'u campu, the caves Vadduni and of the Cunzuria, the caves D'a pinnina I crapara (rural buildings with sheep-folds and caves in the back that name to the street), and the Grutta d'a Vecchia (the only that can be visited), legendary cave under the little church of the Spartenza that the tradition wants that it was inhabited by the Old Woman (like the Epiphany).

## CROSS (point 21)

Panoramic point sanctified with a wrought iron cross.