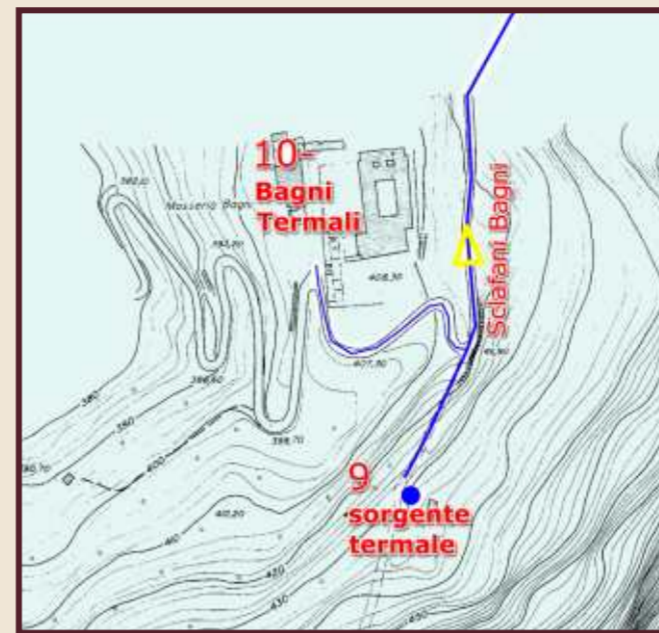


VIEWPOINTS



5. Silicious argillites and red biddy radiolarites coming to the surface. As a consequence they are used as substratum for building. Besides we can admire San Giacomo Church, going back to the sixteenth-century, decorated with a stony portal.



SCLAFANI BAGNI

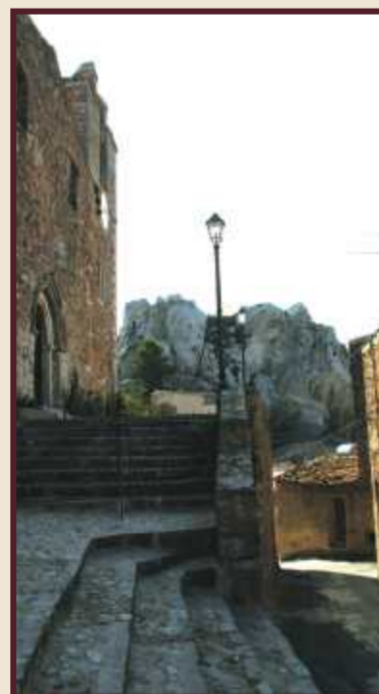
town geological pathway



1. Silicious argillites and red biddy or grey-green radiolarites with strata going from a few centimetres to 20 centimetres, related to the Grisanti family. They show conspicuous levels of quality jaspers red-yellow in colour.



3. Going from the main door of the fortress, admiring the medieval Mother Church, towards the panoramic point in the ruins of the castle, were we can admire a wide landscape about the geology in this area. Actually, going Northwest along the Imera Settentrionale river stick, we can explain the tectonic origin of the relief on which they built the residential area and catch sight of, geochronologically speaking, more and more young warps clearly dropped.



4. Ellipsactynia fossiliferous limestones, interbedded with silicious argillites and radiolarites acting, in this case, as foundation for the building of hystorical residential areas of Sclafani Bagni.



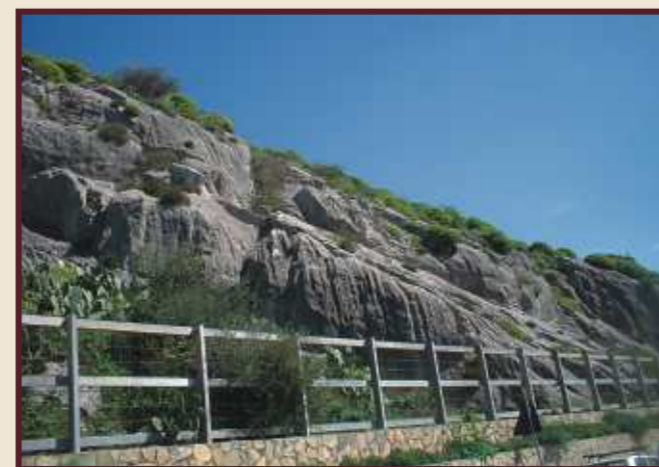
2. Silicious argillites and red biddy or grey-green radiolarites well stratified, in which we can see interpolation of calcareous levels dark-grey in colour with stripes and chert nodules.

6. Silicious argillites and red biddy radiolarites come to the surface moving towards San Filippo Church. The argillaceous-siliceous outcrop is entirely tectonic, that's why the stratification appears folded and fragmented. Here you can see recrystallized calcite. San Filippo Church, belonging to the sixteenth-century, appears on a particular square, panoramic point in front of the valley.



7. Panoramic point of the South-valley in the residential area situated in a square drawn into the fortification.

8. Big outcrop of Ellipsactynia fossiliferous limestones, interbedded with silicious argillites and radiolarites, were we can sight the karstic features and processes (Karren), interpolated with silicious argillites and radiolarites, kind of boreholes, drills and erosion trays.



SENTIERO GEOLOGICO URBANO DI SCLAFANI BAGNI

INTRODUCTION

A simple and charming pathway into the downtown and nearby in search for scientific aspects (geological, hydrogeological, petrological and physiographical), in addition to historical aspects linked to the building of the residential area. A different way to come to the historical architecture, to the geological history of a territory that fascinates naturalists, geologists and is protected by the European Geopark. A very charming and original path, far from the usual conventions engineered by the Haliotis association in synergy with the Ente Parco delle Madonie and with the backing of Sclafani Bagni Municipal Administration.

HOW TO GET TO SCLAFANI

Motorway PA - CT A19 (Scillato or Tremonzelli exit) Caltavuturo or Sclafani Bagni direction. When arrived in Caltavuturo, at the junction, go on ahead the sports field. Then follow the traffic signal for Sclafani Bagni on the provincial road. To reach the thermal baths from the entrance of the small village of Sclafani Bagni, going through the junction, follow the scheduled directional marks.



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THE TERMAL BATHS IN SCLAFANI BAGNI

The thermal baths in Sclafani Bagni belong to the west-Sicily group.

The water in Sclafani Bagni is very salty but it can't be considered the result of a mixture with sea water because it is 20 km far from the Northern-shore of Sicily.

The baths of Sclafani are on the left side of the Salito torrent nearby the northern Bagni di Sclafani farm. The contrast between the wide valleys with big undulations and the high mountains is peculiar of this area: as in the two main relieves of this area «Sclafani Bagni Mountain» and «Rock of Sciar», in Imerese Facies.

Nearby there are some salinas with a lower temperature; on the first schedule there are the temperatures of both hot and warm springs.

In the Sclafani-Cerda I area we made lots of hydrocarbon researches,

Numerose ricerche di idrocarburi sono state effettuate nella zona Sclafani-Cerda I Madonie, aroused by gas emissions as in Sclafani and Caltavuturo, or oily as in Petralia. From the examination of these drillings SCHMIDT DI FRIEDBERG the limestone found in the three pits constitute a water vessel helped by the great number of faults, the Sclafani and Scillato baths are originated from this single tank were, at a particular deep, there was a dilution with meteoric waters with a consequent decrease of salinità.

The Sclafani Bagni waters can be classified as alkaline-sulphate-chlorinated waters from the analisis in the schedule I and from the Langelier-Ludwig classification.

The existence of H₂S in the hot one is a proof that we can consider it as a sulphureous thermal water with all the therapeutics effects connected with this kind of waters.

Between the waters with a Ca/SO₄ far from the unit, the Sclafani Bagni springs (hot and warm) need a particular consideration.

The report between the SO₄⁻ ion concentration and the chemical composition allow some considerations about the oxidative processes the waters are conditioned by.

The Sclafani Bagni hot spring is very salty but, anyway, it seems to not contain sea-water. As a matter of fact the δ¹⁸O value (H₂O) quite positive (-4,34 ‰) indicate that the water, in its deep flow, underwent isotopic exchanges with the surrounding rocks and also an alteration of its chemical composition. The compari-

son between this spring and the warm one is interesting. This one is few meters far from the previous and it has got a lower temperature. From the chemical and isotopic analisis (Schedule I) we can see a correspondence between the two waters, except a bigger quantity of sulphate and the absence of sulphuretted hydrogen in the warm spring. Here the H₂S is almost absent and it sets totally different Eh values between the two waters.

The relatively high ammonium ion (5,5 ppm), in the hot spring, put us off to a H₂S production, coming from a bacterial reduction of the SO₄⁻ ion.

Prof. Mariano Valenza

Ordinario di Geochimica presso l'Università degli Studi di Palermo

SCHEDULE I - Chemical analisis of the thermal and sub-thermal water in Sclafani Bagni. The discharge is of above 41/sec.

	Hot spring (10)	Warm spring
Abstraction date	1/6/77	1/6/77
Temperature (°C)	32.7	19.2
Cond. (μS·10² a 25°C)	170.4	165.9
pH	6.5	n.d.
Na (meq/ℓ)	143.8	137.3
K "	1.4	1.3
Ca "	13.5	16.2
Mg "	16.3	17.1
Sr "	3.26	2.9
Fe (ppm)	<1	<1
NH₄ "	5.5	n.d.
C1 (meq/ℓ)	172.0	162.8
HCO₃ "	7.0	6.5
SO₄ "	0.9	4.5
S_{total} "	1.1	ass
CO₂ lib. (ppm)	65.1	n.d.
δO¹⁸ (H₂O)	-4.34	-4.39

Le Terme di Sclafani Bagni



GEOLOGY

Two geological treasures are now available thanks to the creation of two new geological pathways: "Rocca di Sciar pathway" and the "Sclafani Bagni town geological pathway".

This paths are added to the preceding "Stones and water", "Battaglietta-Portella Colla swallow-hole", "Petralia Sottana town geological pathway", bringing the Madonie Park walkway area to an extension of 20 km. It is an area that shows the geological beauty spots.

This paths are a new way to enter into the most important geological areas; there are also paths for beginners that, thanks to the non-invasive signals and to the reference folder, can "discover" a new and charming geological world.

One more time the cooperation between University institution, local corporations and cultural associations operating in this territory made a valorisation of the territory possible through an intimate knowledge of it.

Mr Valerio Agnesi

The Headmaster of the Geology and Geodesy Department

The Rock in which the residential area stands must be traced to an Hogbak relief, tectonically bounded, it has a peculiar morphology; the rocks that make it up geologically represent a full series of lithologies of basin from the Imerese Domain, in the space of centuries, going from 200 to about 24 m. years ago.



Sclafani Bagni, panoramica dal Castello

In a lithostratigraphical series, from the bottom upwards we exactly find: the calcareous rocks with stripes and nodules of chert belonging to the Scillato Family (Upper-Triassic); the dolomitic limestones belonging to the Fanusi Family (Upper-Triassic, Lower-Cretaceous); the malmstones and siliceous argillites in radiolarites with calcareous rubble-stones interpolations settled again belonging to the Crisanti Family (Upper-Lias, Upper-Cretaceous); the calcilitites and the reddish malmstones with biocalcareous interpolations belonging to the Caltavuturo Family (Upper-Cretaceous Oligocene).

VEGETATION IN THE URBAN GEOLOGICAL PATHWAY OF SCLAFANI BAGNI

Passing through a lived-in centre, the pathway doesn't have an important vegetation. However, around the ruins of the castle we can find a few endemic breeds like the rupestral cabbage (*Brassica rupestris*) and the fruticose bladder-campion (*Silene fruticosa*). Along the path we usually meet the polypody (*Polypodium vulgare*), ashes, eucalyptus trees, the sweet pea (*Lathyrus odoratus*), *Ceterach officinarum*. Near San Filippo church we have a few furniture breeds like palm trees.

Samare di frassino



Cavolo rupestre



Colus hirondinosus



Pisello odoroso



Veccia

BASIC GLOSSARY

Dolomitization: the process whereby limestone becomes dolomite by the substitution of magnesium carbonate for a portion of the original calcium carbonate.

Fault: a fracture or a fracture zone along which there has been displacement of the sides relative to one another parallel to the fracture.

Formation: the basic unit for the naming of rocks in stratigraphy: a set of rocks that are or once were horizontally continuous and share some distinctive features of lithology, and are large enough to be mapped.

Flysch: succession of arenitic and clays layers generated by a turbidity flow.

Hum: residual hill of limestone on a level floor, such as the isolated hills of limestone in poljes.

Karren: superficial small-scale sculptures formed by solution processes on limestone and other soluble rock surfaces either exposed to the rain or buried beneath the soil.

Lithification: the complex of processes that converts a newly deposited sediment into an indurated rock.

Marl: intimate mixture of clay and limestone rock.

Polje: large flat-floored closed karst depression, with sharp slope breaks between the floor and the marginal limestone. The flat floor of the polje may consist of bare limestone, of a nonsoluble formation or of soil. Streams or springs drain into poljes and the outflow is underground through sinkholes. Sometimes the sinkholes are covered by impermeable rocks, so that many poljes turn into wet-season lakes.

Radiolarite: the lithified sedimentary rock formed from a siliceous deep-sea sediment composed largely of the skeletons of radiolaria.

Rounded solution runnels (Rundkarren): Karren form comprising rounded channels, commonly 50-500mm deep and wide and separated by rounded ridges. Rundkarren are the characteristic dissolutional forms created beneath superficial material such as soil, or beneath a cover of plants or mosses.

Tectonic unit: geological body delimited by two thrust planes. The thrust is a dip-slip fault in which the upper block above the fault plane moves up and over the lower block, so that older strata are placed over younger ones.

Selective erosion: erosion processes affected by a rock's geological structure. The less hardy and more fractured rocks are more erodible than harder and less fractured rocks.

Solution pan (Kamenitza): a small depression in a level calcareous surface, enlarged by the solution effect of water collecting between slight undulations. It is initially developed vertically by stagnant water; the steep sides thus created then induce the flow of water which flutes the slope and thus eventually widens the basin.

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