

## MARTEL'S VOYAGE TO RUSSIA IN 1903

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### ABSTRACT

The news concerning caves and karst reported in a Martel's book on his voyage to Russia in 1903 are here listed and the cave maps are reproduced.

### RIASSUNTO

[Il viaggio di Martel in Russia nel 1903]. Vengono riportate le citazioni di grotte e di fenomeni carsici contenute in un libro di Martel sul suo viaggio in Russia nel 1903. Sono anche riprodotti i rilievi di grotta.

### INTRODUCTION

Martel visited the southern Russia, the western Caucase and the Transcaucase during an official mission upon request of the Russian Government in 1903. The results of this voyage were published in 1909 (Martel, 1909). Since the book is now quite difficult to be found as few librairies have it, it was deemed convenient to report here the parts directly concerned with speleology to make easily available the information gathered by Martel.

A copy of the original book is available in some specialized librairies, e.g. that of Società Speleologica Italiana in Bologna; in addition it must be emphasized that all the correspondence between Martel and the Russian minister Yermoloff is deposited at the "Association E.-A. MARTEL, La Lèche, ISPAGNAC, France (Martel, 1997).

The invitation to visit Russia came through the Minister of Agriculture and Russian Domains, A.-S. Yermoloff, and Martel acknowledged such an invitation by dedicating his report to the minister as an "hommage affectueux et reconnaissant".

The data concerning caves are here reported in the same order as they are quoted in the book. In the captions of the figures the corresponding page of Martel's book are indicated. To avoid any possibility of confusion dueto translitteration the geographical names are here reported as written in the original book by Martel.

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## Chapter I

In the region between Touapsé and Soukhoum-Kalé he noticed the existence of a number of caves and shafts. In the vicinity of Gagri some underground rivers (Bégherepsta, Podzemnaia, Gagrypsch, Mitchich, Novi-Athon, etc.) had a water temperature about 4 to 5°C below the local mean temperature and therefore are the resurgences of waters from the mountains. Such an hypothesis was confirmed by an investigation on the Mt. Arabika (2,660 m) where many inlets were found.

## Chapter V

A source of fresh water to be distributed to the town of Nikita were found at an altitude of 300 m; the water temperature was of 10°C (about 2°C lower than the local mean temperature supporting the hypothesis that the water comes from a limestone area of the Mt. Iaila between 1000 and 1500 m above the sea level.

## Chapter VII

Some dolmens were visited in Pchada and Touapsé (Circassie). These features may be considered as artificial caves since one of them (Touapsé) is excavated in the rock (Fig. 1).

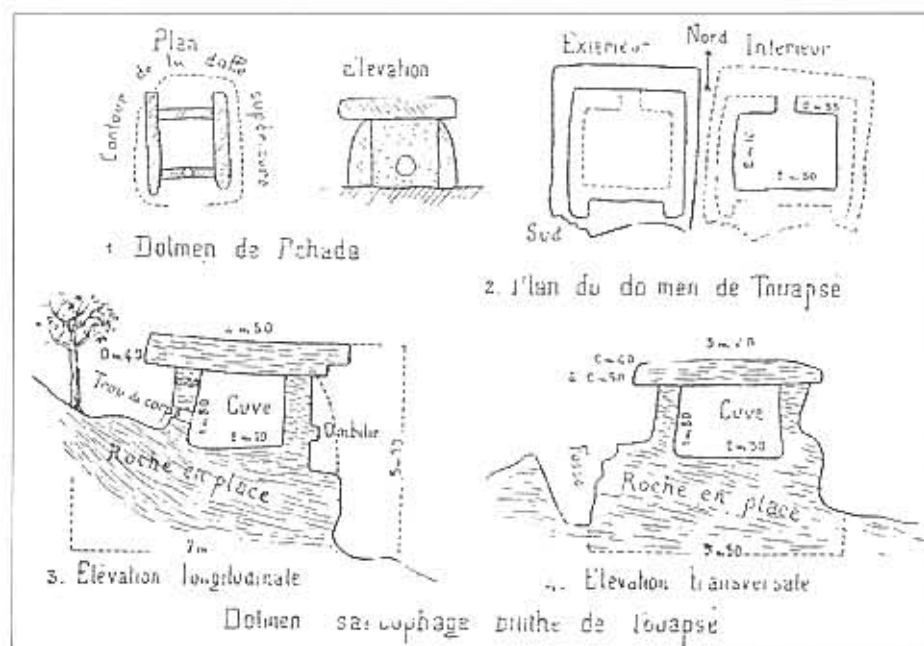


Fig. 1 - The dolmens of Pchada and Touapsé (page 81)

## Chapter IX

In the valley of Dagomis there is the cave of Slivnaia (Fig. 2). It opens in a north-western branch of the valley at an altitude of 375 m and it is 14 m deep. The cave atmosphere was probably enriched by carbon dioxide since the candles went out

and the respiration became difficult. Another cave with an horizontal entrance leading to a shaft, opens about 20 m apart.



Fig. 2 -The cave of Slivnaia (page 111)

## Chapter XI

About 10 km South East from Sochi, in the Matsesta valley there is aspring in a cave with a water temperature of 21-25° C, a density of 1.0034 and about 95 to 100 cm<sup>3</sup> of H<sub>2</sub>S per litre. The spring is located at a contact between schists and the limestone below (Fig.3). Not far away there are other two caves called "dry sources".

The concentration of H<sub>2</sub>S in the cave atmosphere was high enough to results into troubles for Martel who recovered some hours later only.

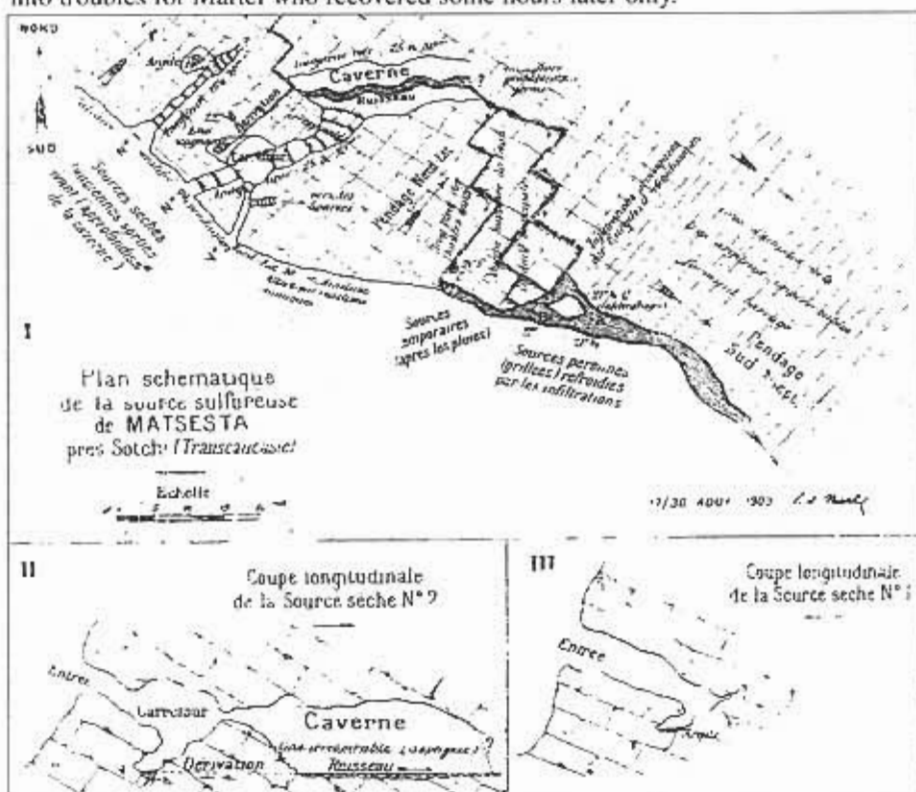


Fig. 3 - The sulphurous springs of Matsesta (page 123)

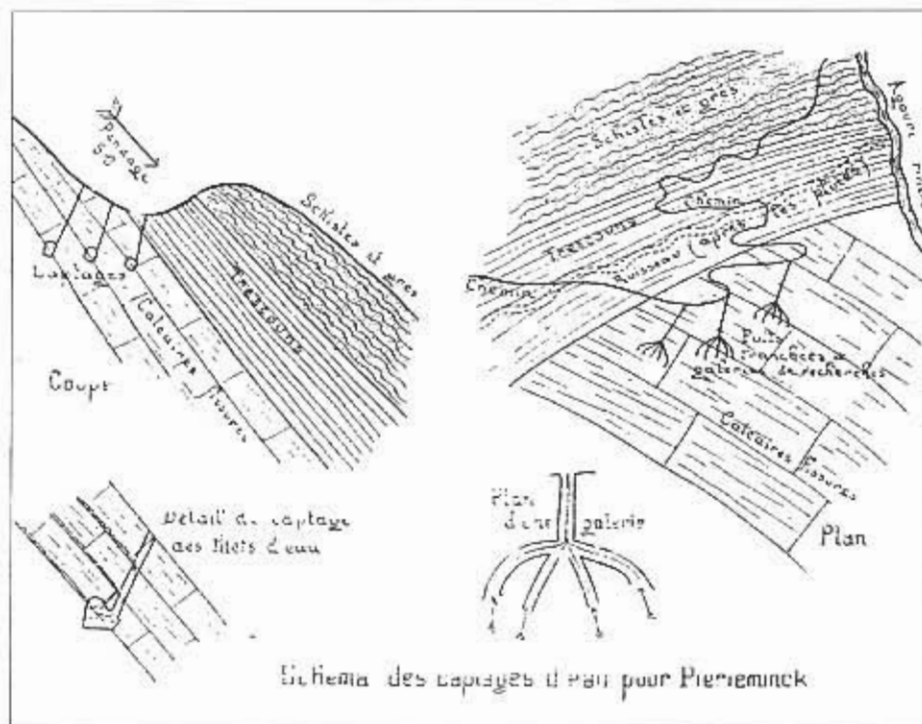


Fig. 4 - The fresh water supply for Piériminck (page 129)

## Chapter XII

In the Agouri valley, not far from Sochi, there is another sulphurous spring similar to the Matsesta one. But in this case the water comes out from the the limestone, not within a cave. Few kilometers upstream the river is subject to piracy. This phenomenon and the presence of some dolines could be attributed to a widespread subterranean karst, possibly with the presence of gypsum.

In the same region, in the Mt. Okhoun, a fresh water supply for Piériminck was designed as reported in (Fig. 4).

## Chapter XV

In the vicinity of Krasnaia-Poliana, at 13 km from Adler, there is shaft about 20 m deep. Its entrance is at 360 m above sea level in cretacic limestone (Fig. 5). Other shafts are also present. On the right side of the Mzimta there is the entrance of the Akhchirkh cave (Fig. 6) with some small formations. It was supposed that entrance could have been inhabited by prehistoric men on account of its size and position.

On the plateau of Arabika the entrance of other shafts are found.

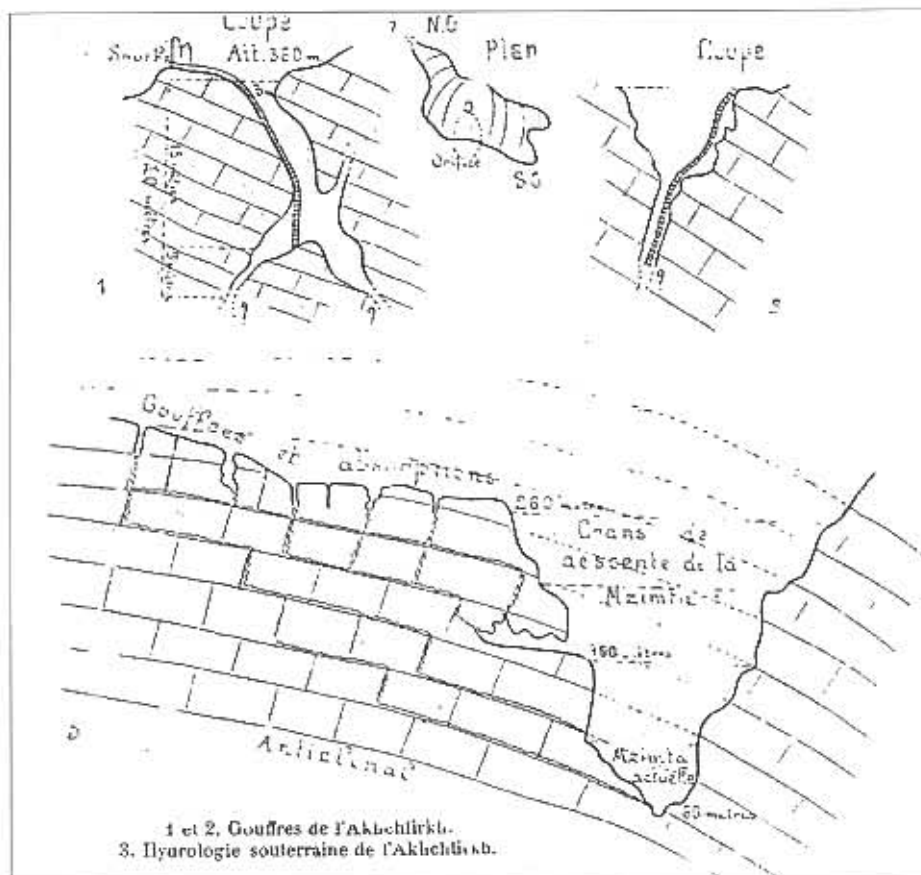
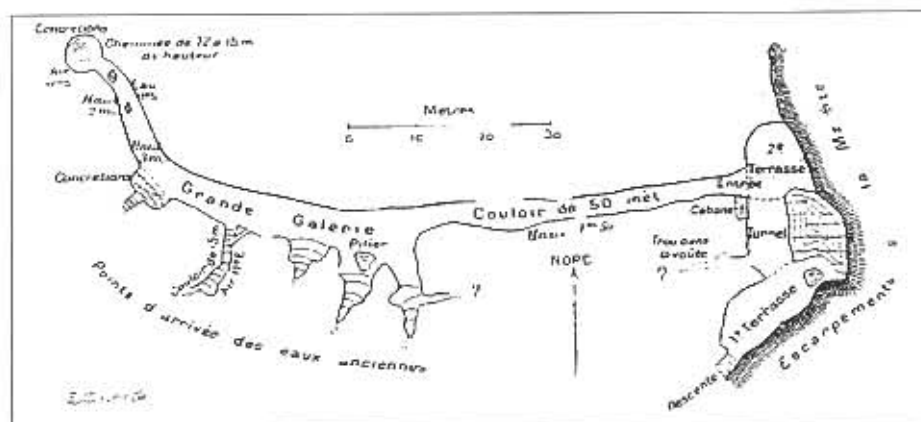


Fig. 5 - The shaft and the underground hydrology of Akhchtirkh (page 163)



## Chapter XVII

Close to Gagri there are some karst springs. The Begherepsta (4 km SoutEast from Sandripsch) comes out from the gravel covering the limestone, at 45 m above sea level and 1500 m from the shore; the water temperature is 10° C. Another one, the Podzemnaïa, is located 1 km South West from Gagri.

## Chapter XVIII

Novi-Athon is a large monastery founded in 1876 by the monks from Mt.Athos. At twenty minutes from a dam behind the monastery there are the remains of an old karst system (Fig. 7).

The cave of Guima (certainly the Gounajskaïa of Grevé) is 8 km North of Soukhoum, close to Michaïlovskoïé; the cave is 100 m long (Fig.8). At its bottom air and water temperature was 12.2°C at an altitude of 225 m, quite in agreement with the average temperature of Soukhoum of 14°C.



Fig. 7 - Scheme of Novi-Athon and shaft of St. Simon (page 211)



Fig. 8 - The cave of Guima (page 217)

## Chapter XIX

In Alpala, North of Koutaïs, many caves opens in urgonian compact limestone. In Oupliz-Tziké, eastward of Gori, between 555 and 655 m above sea level, there is a whole village with churches, homes, forts, etc., excavated in the sandstone (Fig. 9). In addition to these artificial caves, also a natural shaft was found (n.3 of Fig. 9) in the sandstone, with a total length of 75 m.

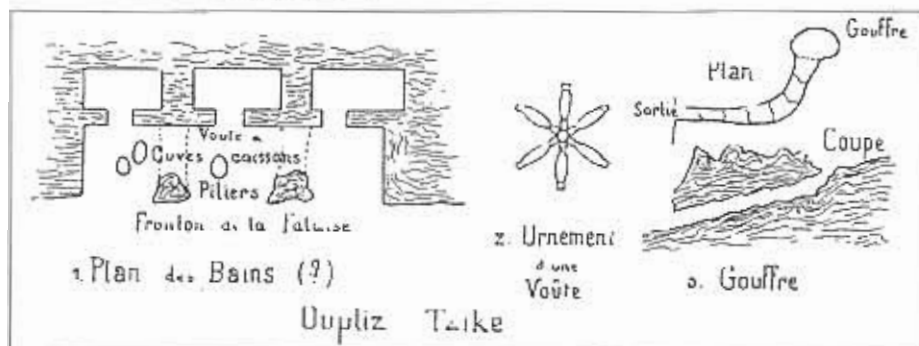


Fig. 9 - Artificial caves in Oupliz-Tziké (page 235)

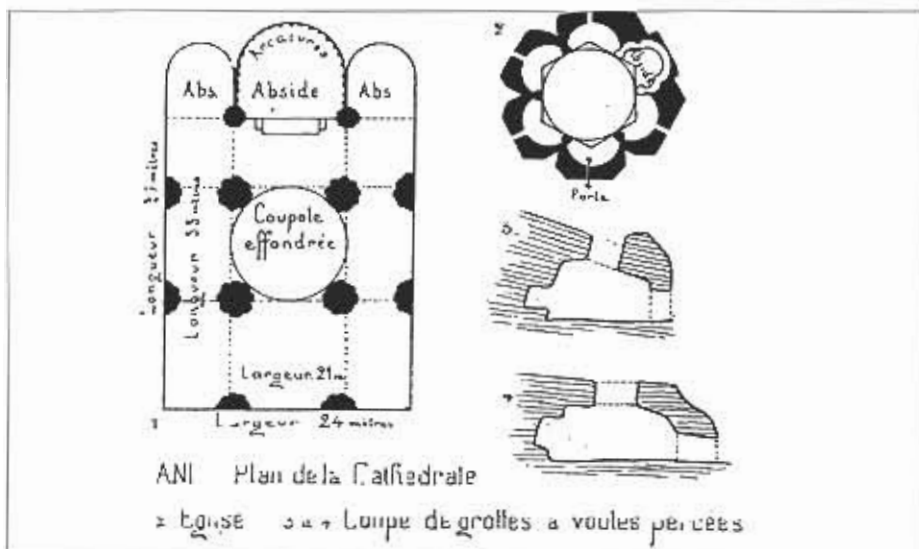


Fig. 10 - Artificial caves in Ani (page 281)

## Chapter XII

Close to Ani, on the North West corner of the plateau above the left side of Aladja, there are many artificial caves and an underground church (Fig. 10 and 11). It is interesting to report the hypothesis of a violet colouring of glass fragments attributed either to radioactivity or the UV radiation from the sun: Martel quotes Sir

William Crookes. According the present knowledge it seems more probable a weathering of glass containing some substance because the quartz vials turn violet when irradiated in a nuclear reactor at very high doses only which cannot be obtained in a natural environment in ten or hundred of years of exposure.

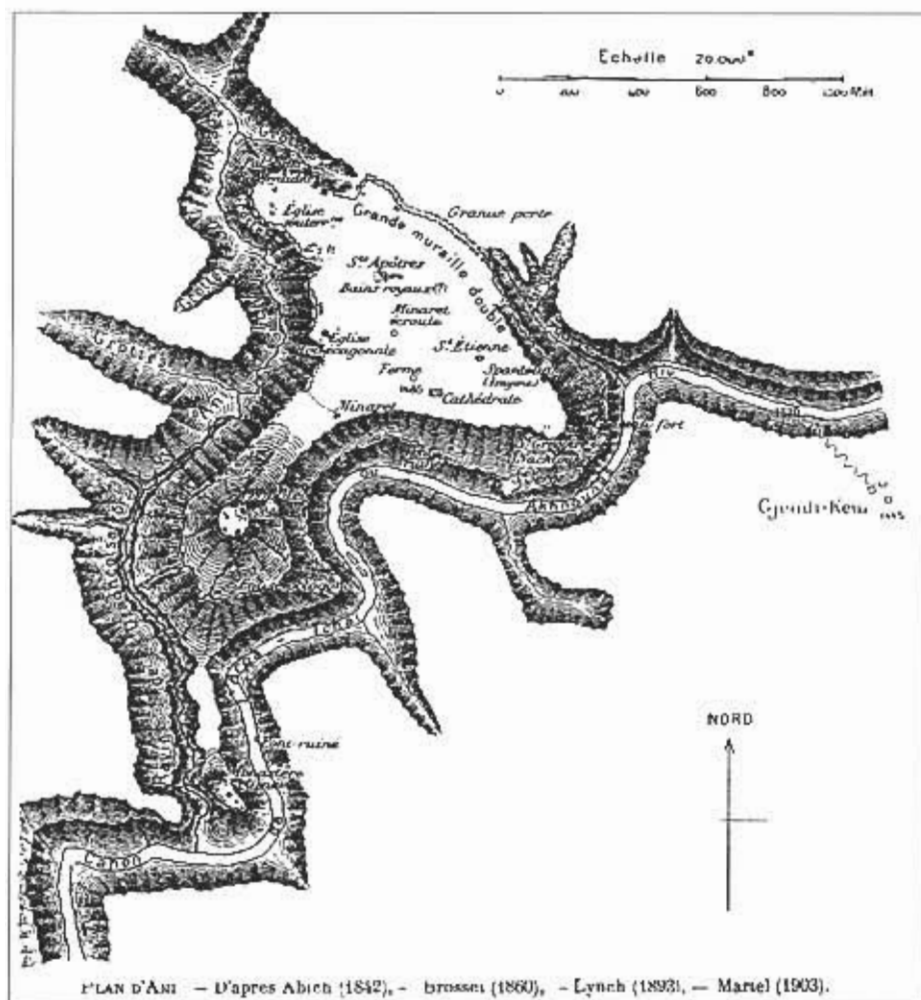


Fig. 11 - Plan of Ani (plate)



## REFERENCES

- Martel E. A., 1909 - *La Cote d'Azur Russe (Riviera du Caucase)*. LibrairieCh. Delagrave, Paris, 358 pages.
- Martel E. A., 1997 - *La Plume et les Gouffres, correspondance d'Edouard-Alfred Martel*. Saint-Georges-de-Luzençon, Impr. Causses et Cévenne, 608 pages.