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The influence of geology on the evolution of cultural heritage: The case of the Meteora-Pyli Geopark

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By the term cultural heritage we mean all those material and intangible elements that connect a place with its history, memory and identity: the monuments, settlements, traditions, myths, religious life, knowledge and practices that have been shaped over time and are passed down from generation to generation.

Often, when we talk about culture, we think of monuments, history, traditions, religious symbols and human creations. Much less often, however, we think of something deeper and more fundamental: that culture never develops in a vacuum. It is always formed on a specific natural and geological background. Geology shapes the landscape, the landscape influences the way people live, and human life, in turn, shapes culture. In this sense, geology is not simply the “set” of history. It is part of history itself.

The Meteora-Pyli Geopark is one of the most characteristic examples of this relationship. In an area of approximately 2,500 square kilometers, unique geological formations, rich biodiversity, historical settlements, religious monuments, traditions and human activities that developed in direct connection with the natural environment coexist.

The geotopes of the Geopark are not just impressive natural monuments. They constitute a geological record of millions of years. The rocks of Meteora, as has been characteristically said, resemble “pages of a stone story”, where time, water, rivers, sediments and geological forces created the landscape we see today. If we go back millions of years, the Meteora area was a sea. Then sediments accumulated, tectonic movements followed and, through the long process of erosion, the rocks were revealed. This geological result did not remain just a natural phenomenon. It became the foundation on which a unique civilization developed.

First of all, geology influenced the first forms of habitation. Thousands of years ago, the basic need of man was survival: protection from the weather, wild animals and the dangers of the night. Caves, natural shelters and protected areas offered safety and the possibility of settlement. In the area of the Meteora-Pyli Geopark, a typical example is the Cave of Theopetra, one of the most important archaeological sites in Greece and Europe. Human presence has been recorded there for more than 100,000 years, with findings

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associated with both Neanderthal and modern humans, as well as the transition from the Paleolithic to the Neolithic era. The cave was created by geological processes, but was transformed into a place of life, protection and evolution.

Geology, however, did not only influence habitation. It also influenced imagination, mythology and the symbolic way in which people interpreted the landscape. The imposing rocks of Meteora inspired narratives, myths and religious symbolism. Characteristic is their connection with the tradition of the Titanomachy. According to Greek mythology, the huge rocks were associated with the legendary conflict between the Olympian gods and the Titans. Where science sees geological processes, myth saw a cosmic battle. This is precisely what shows the human need to interpret the natural environment and integrate it into the collective memory.

Another critical area is biodiversity. Geology affects the relief, soil, microclimates, flora and fauna. In the Meteora Geopark – Pylis, the variety of rocks, altitudes and ecosystems has contributed to the creation of a rich natural environment, with significant vegetation and native plants. This natural diversity was associated from an early age with human knowledge and therapeutic practice. The ancient Greeks, taking advantage of the biodiversity of the area, developed knowledge that was associated with medicine. Local tradition connects the area with Asclepius, the god of medicine, precisely because of the richness of nature and the therapeutic value of plants. Thus, geology affects biodiversity, biodiversity affects medical knowledge and this knowledge is incorporated into the culture of the area.

The most striking effect of geology on the cultural evolution of the region is the development of spirituality and monasticism in Meteora. As societies evolved, man's relationship with the landscape changed. The landscape was no longer just a place of survival. It became a place of meaning, symbolism, and spiritual quest. The rocks of Meteora offered isolation, natural protection, and inaccessible access. These features were crucial to the development of monastic life. But their significance was not only practical. It was also deeply symbolic. The monks did not simply choose a safe place. They chose a landscape that enhanced their spiritual quest, creating a sense of elevation, detachment from the world, and proximity to heaven.

In this sense, the rocks of Meteora were not just stones. They became carriers of spiritual meaning. The monasteries built on them today constitute one of the most important cultural and religious complexes in the world and a unique example of how geology can be transformed into a spiritual experience. This influence is not limited to the large monasteries of Meteora. In the wider area of the Geopark we find hermitages, smaller monasteries and carved places of worship, which show that the landscape largely determined the way in which religiosity was practiced.

Geology even determined the architecture and the techniques of human adaptation to the environment. The monks did not attempt to radically change the landscape. They adapted to it. They developed ways of access with ropes, baskets and lifting mechanisms. The relationship between man and nature here is not one of dominance, but one of respect, adaptation and coexistence.

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Today, the Meteora-Pyli Geopark can be seen as a living cultural landscape. It is not just nature and it is not just culture. It is the coexistence and interaction of the two. Geology created the base and man added the meaning. The result is a place where natural history and human history cannot be separated.

This is precisely why the current challenges are particularly important. The region is facing increased tourist pressure, which, if not properly organized, can lead to environmental damage and a burden on the very landscape that we are called to protect. The challenge, therefore, is to maintain a balance between tourist development and the protection of this unique natural and cultural resource.

The answer lies in sustainable management, education, information and responsible geotourism. Geoparks are not just protected areas. They are educational tools, frameworks for sustainable development and spaces for connecting people with nature. The role of the Meteora-Pyli Geopark is to highlight the geological and cultural heritage, protect the natural environment, strengthen local identity and cultivate a more meaningful relationship between residents and visitors to the place.

In closing, I would like to emphasize three key points. First, geology is not a passive element. It is an active factor in shaping the cultural landscape. Second, the Meteora-Pyli Geopark is a unique example of global importance, where geology, nature, man, culture and spirituality coexist in a rare and essential way. Third, understanding this relationship is crucial for environmental protection, education of residents and visitors, and for the sustainable development of the region.

The landscape of the Meteora-Pyli Geopark is not just impressive. It is living proof that nature, geology and man can coexist creatively and leave behind a unique cultural imprint.

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