Rocks of Medvednica

As you climb Medvednica's steep paths, it is difficult to imagine that this 1,035-meter-high mountain was once submerged beneath a deep sea. Although formed inancient seas, these rocks were thrust to their present height over millions of years by the Earth's restless crust—a process involving intense uplift, subsidence, folding, fracturing, and faulting. Medvednica was thus essentially "born" around 12 million years ago, when its central massif rose between deep fractures (faults).

However, these geological processes are far from over. Recent earthquakes, triggered by the movement of rocks along the faults that line Medvednica's slopes, serve as a stark reminder of this ongoing activity. Traces of volcanic activity have not entirely vanished either. Although Medvednica's volcanoes became extinct over 20 million years ago, their geothermal legacy lives on; thermal springs in Podsused, Gornja Dubravica, and Stubičke Toplice, along with a cold sulfur spring near Gornja Bistra, still bear witness to this ancient volcanic past.

Due to this dynamic geological history, all three primary rock types are found on Medvednica: igneous (formed by the cooling of lava), sedimentary (deposited in ancient seas from rock fragments or organic remains), and metamorphic (transformed from existing rocks by intense heat and pressure). The mountain's core is composed of ancient metamorphic rocks, most notably greenschist. This stone has become a hallmark of Medvednica, adorning the façades of many Zagreb buildings and structures across the mountain. Today, green schist is legally protected to prevent further exploitation.

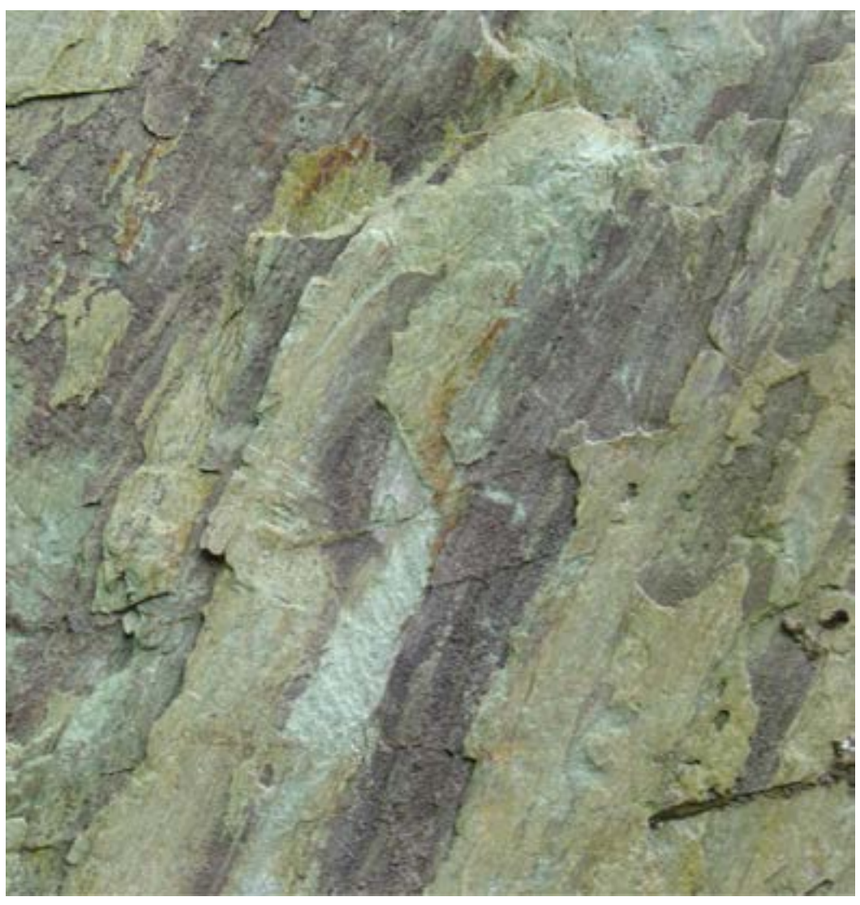
The use of Medvednica's stone dates back to antiquity; the Romans operated at least four quarries on the mountain to build local settlements. Evidence of these operations remains at Bizek, Vrapče, Črna Voda near Markuševec, and Čučerje.

There were once 12 active quarries on Medvednica, where stone was extracted for construction purposes. Even the stone used to build Zagreb Cathedral—lithothamnium limestone, locally known as "litavac"—was quarried at the Bizek quarry. Today, all quarries within Medvednica Nature Park are inactive.

Minerals are the building blocks of rocks, most often forming through the crystallisation of magma. Beyond active quarries, these minerals are most easily found in abandoned mine shafts, ditches, road and stream cuttings, as well as in natural underground cavities such as caves and pits. Carved by water draining from the Ponikve plateau along deep rock fractures, Veternica has over 7,000 m of explored channels, making it one of the longest cave systems in the country. The Zakičnica area contains around forty smaller caves and pits, which Zagreb speleologists have been exploring for years in hopes of discovering another hidden entrance to Veternica. Diverse karst features on Medvednica can also be found around Horvatove stube and within the limestone regions of Lipa and Rog.

You can learn more about the complex geological history of Medvednica and explore its unique rocks and minerals firsthand if you visit the educational trails arranged and managed by the "Nature Park Medvednica" Public Institution.

For a perfect introduction, we recommend a walk along the Miroslavec educational trail (mountaineering trail no. 13), which runs from Šestinski Lagvić to Kraljičin Zdenac.



Greenschist
JU PP Medvednica



Bizek quarry
JU PP Medvednica