

SERBIA, GEOLOGY AND ME

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Serbia is a land of amazing natural beauty, long history and rich cultural heritage, situated in the central part of the Balkan Peninsula, on the crossroads between the East and the West. Its unique geographical position, which represents a combination of different cultures, ethnicities and religions, has endowed Serbia with a great authenticity.



Geographical position of Serbia.



Uvac River meanders (western Serbia). Photo: Uvac Reserve Archive.

Awareness and understanding of features of my country has been made possible for me through my professional work. Thanks to the nature of my scientific research in the area of geology, which requires intensive traveling and conducting field work, I have had a lot of great moments enjoying its natural beauty as Serbia is a country with landscapes of exceptional beauty, rich ecosystem and species

diversity. Also, I have had a great privilege and opportunity to get to know Serbia better not only for the purpose of my studies but also culturally and historically.



Rural house and a bridge at Stara Planina Mountain (eastern Serbia). Photo: B. Radulović.

With its long tradition, geology was one of the first established sciences in Serbia. Its history began in 1835 when German Baron Siegmund August Wolfgang Herder was invited by a Serbian ruler Prince Miloš to explore the mineral wealth of Serbia. Baron von Herder (1776–1838) was Saxonian mining director and geologist, the son of the famous German philosopher, historian and poet Johann Gottfried Herder who, along with Goethe, Schiller and Kant, introduced Serbian folk poetry to the world literature. Subsequently, the development of Serbian geology was initiated by two great Serbian scientists, Josif Pančić and Jovan Žujović, at the Belgrade Lyceum in 1853. Through the 19th century to the present day, geology continues to develop at the University of Belgrade, the Serbian Geological Society and the Serbian Academy of Sciences and Arts.

However, prior to the period mentioned, mining and geology made significant progress in medieval Serbia when rulers of that period brought Saxonian miners to excavate mineral wealth of Serbia.

Bearing in mind that Serbia is very intriguing in geological terms, it is unsurprising that its territory has received attention from many famous foreign scientist throughout its history (e.g., A. Boué, E. Tietze, F. Kossmat, L. Kober, etc.). With different kinds of rocks, fascinating geomorphological features and complex tectonic, regions of Serbia provide numerous clues for reconstruction of the ancient life history of the Earth.



Working at the outcrop of sedimentary rocks with fossils at Stara Planina Mountain (eastern Serbia). Photo: B. Radulović.

Regarding the geological structure of Serbia, specific place is taken by sedimentary rocks which are the main subject of my studies and extremely important for paleontological research. Because of their large distribution and the fact that they contain numerous fossil remains of different marine organisms, they give me possibility to make reconstruction of geological history of this part of the Earth. The eastern part of Serbia (Carpatho-Balkanides) is especially abundant in fossil groups of different geological age, such as bivalves (sea shells), brachiopods (lamp shells), gastropods, ammonites, echinoids etc., which all had a particular place in geological history both in time and space. The wide range of my studies includes classification of the mentioned fossils, their description, establishing relationships among them, their paleoecological reconstruction, identifying diversity dynamic of fossil species etc. The practical importance of this kind of paleontological research has been acknowledged as crucial for solving problems related to modern biodiversity crisis, natural variability, climate changes, conservation planning related to invasion of modern species, etc. Thanks to the fossil record it is possible to clarify the difference between natural changes of organic world and those induced by human activities. So, the fossil record is the only source of natural examples of what happens to living organisms under conditions the Earth is not experiencing today.



Fossil shell of ammonite, ancient marine organism from Jurassic period, Stara Planina Mountain (eastern Serbia). Photo: B. Radulović.



Fossil shell of brachiopods (lamp shells), ancient marine organism from Jurassic period, Stara Planina Mountain (eastern Serbia). Photo: B. Radulović.

Working as a paleontologist and traveling through my country I frequently have opportunities to introduce myself to the cultural heritage of Serbia. Many outcrops which are the subject of my research are situated close to the medieval monasteries which have great cultural and historical significance as they represent places of worship, and political and educational growth of Serbia. Also, it is not unusual that the monasteries' walls are built of limestone blocks which contain fossil remains of different marine organisms which are the subject of my research.



Studenica Monastery 12th century Serbian Orthodox monastery, Serbia, UNESCO World Heritage Site

Besides that, collaboration with archeologists, who are primarily interested in ancient human civilizations, but whose excavations often include fossil remains of animal and plant life, gives me insight into the prehistoric period of the territory of today's Serbia as well as the period of former civilizations which occupied this part of Europe through the history. Many Roman emperors were born and lived in the territory of today's Serbia and they left monuments and palaces which intrigue with their beauty, building technique and the use of different kinds of stones incorporated in their construction. Archeological site Gamzigrad (eastern Serbia) is one of such places, firstly described by Baron von Herder in his book: "*Bergmanische Reise in Serbie im Jahre 1835*". Since that period the systematic archaeological excavations revealed that the site was an Imperial palace, one of the largest and best preserved monuments of Roman architecture in Europe.



Imperial palace Felix Romuliana, Gamzigrad, Serbia, UNESCO World Heritage Site

Also, the remains of the oldest Neolithic civilization in Europe lies in Vinča locality, on the right bank of the Danube River, not far from the capital city, Belgrade.

With all the mentioned, and many other distinctive features Serbia is a unique part of the Balkan Peninsula, inspirational and challenging not only for geologists but also for the researchers of other disciplines who were and still are attracted by the traces of the past and secrets hidden on its territory. Throughout history, many foreign scientists were welcome to visit Serbia and together with Serbian researchers conducted their studies on its territory which resulted in many valuable scientific discoveries. Continuing with this kind of tradition, Serbia remains open and interested in scientific collaboration with international researchers and views such collaboration as being extremely important for advancing science, cultural growth and improving relationships with other countries.



Rock formation "Devil's Town" created by strong erosion of the soil that was the scene of intense volcanic activity during the geological past, south Serbia. Photo: Prof. D. Milovanović