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Contribution in support of a *Global Heritage Stone* designation for the *Leitha Limestone s.l.* of eastern Austria because of its use in Roman times

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The *Leitha Limestone s.l.*, which has been proposed *for Global Heritage Stone* listing, comprises the red algae dominated sediments of shallow water carbonate platforms distributed around the Leitha Mountains, the Ruster Hills and other parts of the Vienna Basin. In our sense it comprehends the *Leithakalk* faciostratotype of the Badenian regional stage along with its lateral equivalents of near shore calcareous sandstones, breccias and conglomerates. It also includes the so called *detrital Leithakalk*, an informal name for calcareous algae sandstones of the Sarmatian regional stage that is perhaps comparable with the Skalica Formation and finally it covers the algae strata known from the Pannonian regional stage. Thus the *Leitha Limestone s.l.* belongs to the middle and upper part of the Miocene, i.e. ranging from about 16 to 10 my BP.

The geoscientific focus of this multidisciplinary research is on deciphering the petrological types and carbonate facies of stone monuments and building stones and on comparing them with the successions of the strata outcropping in abandoned quarries. We are recording distinguishing lithological features and collecting appropriate field samples for microscopic, petrophysical, and geochemical analysis. The results of these analyses will be used to characterise the different varieties of *Leitha Limestone s.l.* of the investigated stone objects, with a view to setting up a catalogue based on lithological types that could be of considerable value for restoration and conservation too.

Carnuntum was the regional metropolis of the Roman province Pannonia Superior and one of the legionary camps along the Danube Limes from about 40 AD to the end of the 5^{th} century. It is situated about 40 km east of Vienna city centre, in the present-day market-town of Petronell-Carnuntum. Most of the stone objects from Carnuntum are made of the local quarried *Leitha Limestone s.l.* from the Hainburg Mountains and from ancient quarries in the Leitha Mountains probably in the region between Winden, Jois and Bruckneudorf.

As part of the same research project, the above-mentioned methods are also being applied to a Roman stone inventory from Vindobona and to individual discoveries from the surrounding region. The remains of Vindobona lie in the centre of Vienna - it was another legionary camp of the Danube Limes, from the 1^{st} to the 5^{th} century AD. Gravestones and ornamented architectural parts (for example) have been identified as *Leitha Limestone s.l.* from local quarries along the western border of the Vienna Basin as well as from further afield in the Leitha Mountains. Compared with Carnuntum, the geological hinterland of Vindobona contains a greater variety of natural stone resources and the catchment area for rock used in Vindobona appears to have extended southwards along the Alpine margin as far as Bad Fischau.

In addition to our understanding of the geology and petrology of the *Leitha Limestone s.l.*, archaeological conclusions will be drawn regarding the historic and economic value of the resources contained in the identified quarry districts during the Roman period.

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