



Hungarian dimension stones: from the Roman period to present

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The wide use of natural stones in the Carpathian Basin, which is now part of Hungary, had begun during the Roman period. The favourite stone type was travertine, which was quarried in and around Budapest for thousands of years. It has been used for several important constructions such as aqueducts or fortresses on both sides of the Danube. In the Medieval period more widespread application of stones began and remnants of churches and fortresses are found throughout the country. During the Austrian-Hungarian monarchy a new era began with intense industrialisation and opening of hundreds of stone quarries. Local and imported stones were used for buildings, architectural and sculptural purposes. The present paper only focuses on the stone occurrences of present day Hungary and does not deal with the wide-range of dimension stones used in historic Hungary. Since most part of present Hungary is covered by soft Quaternary sediments, hard workable stones are located in relatively small hilly regions. Eocene and Miocene andesitic and Miocene rhyolitic volcanic rocks are found in central western, northern and north eastern Hungary. Medieval castles, fortresses such as were built from these pyroclastics (Visegrád Palace, Eger and Sárospatak Castle). Pliocene and Pleistocene basalts and basalt tuffs are mostly found in the area of Balaton Highland, where masonry structures, churches, castles are preserved. Workable metamorphic and plutonic igneous rocks are underrepresented in Hungary. The overwhelming majority of dimension stones are from the sedimentary rock group with the dominance of limestones. The most widespread types are the porous Miocene limestones that have been intensively used in large cities such as Budapest or Sopron and even in Vienna. The emblematic monuments made from these stones are the Parliament, the Opera House and Mathias Church in Budapest, or Roman Churches of Ják and Zsámbék. Mesozoic and Eocene limestones and Eocene

marls are also found in masonry structures and monuments. Best examples are castles of Sümeg and Siklós. The red Jurassic compact limestone of Tardos ('red marble'), which is similar to 'Rosso di Verona' or 'Adnet' limestone, has been intensely used as ornamental stone from the Renaissance times. The greenish grey Triassic limestone and the red, yellow or creamy Jurassic limestones of Villány Mountains are also well-known ornamental stones of historic Hungary. The Quaternary Hungarian travertine has excellent properties that were already recognized by the Romans. A second renaissance of travertine-use began during the late 18th and 19th century and new buildings were erected by using travertine. Permo-Triassic red sandstones of Balaton Highland and Mecsek mountains were applied in local monuments and found mostly in churches. The Oligocene sandstone of Buda hills and north Hungary have been more intensively exploited and many rubble walls, footings and even façades or entire churches especially in Budapest now display this stone.