

# The Roman Settlement *Aquae Iasae* (Varaždinske Toplice) - An Example of Recycling Construction Materials

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A good example of the recycling of construction materials in Roman times is the architectural complex (a sanctuary with spring reservoir and bath complex) in the town park in Varaždinske Toplice. In the area of Varaždinske Toplice, from 1<sup>st</sup> to 4<sup>th</sup> century there was a Roman settlement *Aquae Iasae*, a popular health resort with curative sulphur water. Archaeological research, which has been carried out by the Archaeological Museum in Zagreb for more than 60 years, has shown that already from the 1<sup>st</sup> century the area around the natural spring had the function of a sanctuary. The cultic character of the area is testified by numerous stone monuments dedicated to diverse deities associated with healing and recovery. The finds of 17,000 Roman coins and other small objects discovered in the spring represent votive offerings, while some new finds also indicate the possibility that it was the site of prophecy.

It can be inferred that the sanctuary was dedicated to the nymphs during the 1<sup>st</sup> century. In the 2<sup>nd</sup> century, construction work and new temples brought about new deities. In that period the spring is enclosed by a rectangular construction of 8 x 13.5 m, with walls of 2 m in height and a fence of about 70 cm. The walls of the spring reservoir were built of large stone blocks made of local stone, in the *opus quadratum* technique.

Another construction phase is noticed at the beginning of the 4<sup>th</sup> century and it is probably related to the inscription on the so-called tablet of Emperor Constantine, who mentions repairs on structures destroyed in a fire.

It was a reconstruction project in which parts of various monuments (inscriptions, altars, sculptures) were used as building material. Particularly interesting are the columns in the sanctuary, where it is evident that various materials were available for reconstruction. Apart from the columns made of bigger cylindrical stone segments, some columns were also made of small circular sectors stacked in rows (made of brick, stone plates, and some out of pieces of inscriptions).

A vast source of information about recycling was the excavation of the spring reservoir, carried out from 2011 to 2014. The eastern and western walls were preserved from the construction phase in the 2<sup>nd</sup> century, while on the north and south wall repairs were made during the renovation of the complex, most probably at the beginning of the 4<sup>th</sup> century. Various inscriptions, altars and reliefs (more than 50 pieces) dated in 2<sup>nd</sup> and 3<sup>rd</sup> c. were reused for the reconstruction of these walls in the 4<sup>th</sup>-century renovation.

Particularly interesting are pieces of thin marble plates – mostly fragments of reliefs, which were used for supporting larger stone blocks in the construction of the north and south wall. Some parts of the same slabs were found in various places, for example, one relief depicting three nymphs was found along the northern wall of the spring and matched fragments found in the structure of the wall of the eastern temple and one wall of the baths, which confirms that the different structures were repaired and renovated at the same time.

Also very interesting are the inscriptions and reliefs that were found in the area around the spring reservoir where they were reused in the 4<sup>th</sup> c. paving. So right next to the southern fence of the spring reservoir there was a slab with a depiction of the deities of health (and an inscription for health and victories of Emperor Caracalla).

All these finds show that the builders reused the available material that was already in the sanctuary, despite the artistic and cultural significance they had in the earlier period. In this way, besides reducing the cost of purchasing and processing stone, it greatly reduced the cost of removing large and heavy stone blocks or various monuments that adorned the earlier sanctuary. The effort to reduce the costs of material removal is also corroborated by the finding of several pieces of the statue of the god Apollo Sol and Diana Luna that were, along with some architectural parts and cut stones, uncovered in the backfilling layer behind the spring pool's north wall.

A large amount of recycled material suggests that the reconstruction of the complex in the 4<sup>th</sup> c. was a very thoughtful project in which the reuse of materials considerably reduced the total cost of renovation. By rationalizing the cost of material removal, as well as processing and delivering a new one at the same time, both the time and workforce savings required for construction work are achieved. It all says that the reconstruction of the complex, as evidenced by the Emperor Constantine's inscription, reflects the state's efforts at the beginning of the 4<sup>th</sup> century to rationalize costs and invest more in reconstruction than in new construction.

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