Bedrock of a holy city: the historical importance of Jerusalem's geology

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Jerusalem's geology has been crucial in molding it into one of the most religiously important cities on the planet, according to a new study.

It started in the year 1000 BCE, when the Jebusite city's water system proved to be its undoing. The Spring of Gihon sat just outside the city walls, a vital resource in the otherwise parched region. But King David, in tent on taking the city, sent an elite group of his soldiers into a karst limestone tunnel that fed the spring. His men climbed up through a cave system hollowed out by flowing water, infiltrated beneath the city walls, and attacked from the inside. David made the city the capital of his new kingdom, and Israel was born.

In a new analysis of historical documents and detailed geological maps, Michael Bramnik of Northern Illinois University will add new geological accents to this pivotal moment in human history in a presentation Tuesday, October 20 at the annual meeting of the Geological Society of America in Portland.

"The karst geology played a major role in the city's selection by David for his capital," Bramnik said.

It proved to be a wise decision. One of David's successors, King Hezekiah watched as the warlike Assyrian horde, a group of vastly superior warriors toppled city after city in the region. Fearing that they'd soon come for Jerusalem, he too took advantage of the limestone bedrock and dug a 550 meter-long (1804 feet) tunnel that rerouted the

spring's water inside the city's fortified walls.

The Assyrians laid siege to the city in 701 BCE, but failed to conquer it. It was the only city in history to successfully fend them off.

"Surviving the Assyrian siege put it into the people's minds that it was because of their faith that they survived," Bramnik said. "So when they were captured by the Babylonians in 587, they felt it was because their faith had faltered."

Until then, the Jewish religion had been loosely associated. But that conviction united the Jews through the Babylonian Captivity, "and so began modern congregational religion," Bramnik said.

In an arid region rife with conflict, water security is as important today as it was during biblical times. While the groundwater for Jerusalem is recharged surface waters in central Israel, other settlements' water sources are not publicly available for research. Bramnik's efforts to find detailed hydrological maps were often rebuffed, or the maps were said to be non-existent.

"I think Jerusalem's geology and the geology of Israel is still significant to life in the region, perhaps even reaching into the political arena," he said.

More information: View abstract at gsa.confex.com/gsa/2009AM/fina … /abstract_163860.htm .

Source: Geological Society of America