

## City of David Is Being Scanned

### Commentary for February 1, 2024 — For Underground Spaces and Chambers

The February 2024 article is "[King David's Tomb, 1. What Is Inside?](#)" Read first the "[February 2024 Newsletter](#)" that gives background to the article. It updates information about what might be in King David's Tomb.

### *Scanning the City of David*

An interesting July 2, 2023 article titled, "Israeli Archaeologists Enlist Cosmic Rays to Unveil Underground secrets of Jerusalem," by Ariel David, a reporter for "[Haaretz.com](#)," an Israeli news website. (Haaretz did not give permission to reprint the article, so I summarize it below.)

The scans are being done in the City of David. Ariel David writes:

**"... after the Canaanites founded Jerusalem some 4,000 years ago, its residents began to tunnel into the bedrock, mostly to improve access to the city's vital water supply, but also TO CARVE OUT TOMBS ... archaeologists have been investigating the complex waterworks of ancient Jerusalem, uncovering tunnels that ... still carry water from outside the city walls ..."**

**• Underlining and highlighting are mine for emphasis, DWS**

Hezekiah's tunnel was carved through limestone bedrock, by hand chiseling the limestone with another stone, one hammer blow at a time. This was done around 700 BC. The City of David where both the Israelite Temples and King David's Tomb (underground) are to be found.

Ariel David's article tells of a system of detecting voids, tunnels, or spaces such as tombs. If the Israeli Antiquities Authority is doing comprehensive scans of underground structures, they cannot miss a complex of tombs of several chambers as described in Scripture, in the writings of Josephus, rabbinic writings, and other sources.

### *What Are Muons? How Do They Scan for Them?*

The Israeli Antiquities Authority and Israeli universities are conducting the archeological scans of the City of David. The data collection is "passive." Muon particles pass through a detector panel which is able to determine how fast the muon particles pass through it. The collector panel must remain stable for a period of time to count enough muons and their speed. Muons travel slower through rock than in air. By taking measures from several locations, they can determine directions from which muons travel faster or slower.

When cosmic rays hit earth's atmosphere, one result is the creation of new particles called muons. They are harmless, move fast, exist for microseconds, and pass through everything on earth. But they travel measurably slower through rock than through spaces, voids, tunnels, or chambers such as a tomb or a tomb complex. The speed difference and direction can be determined. Moving the scanner allows triangulation to locate the void or spaces. Or so the process is described. Again quoting Ariel David's article:

**“Researchers know how many muons they can expect to find at any given depth, explains Prof. Erez Etzion, a physicist from Tel Aviv University. If detectors placed below the surface receive more muons than expected, it means that, for at least part of their underground journey, the particles didn’t travel through matter but through an empty cavity ...”**

• ***Underlining mine for emphasis, DWS***

Muon detection scans have been used to find voids or chambers in the Great Pyramid at Giza, in volcanoes, and at a burial site in a populated area of the city of Naples.<sup>1</sup>

David explains that two muon detectors have been operating for **“about one year”** and are currently used and redirected when there are no results. Currently one detector at the Gihon Spring is pointing west, which in my opinion is the wrong direction. The detector should be pointing south from the blue-lit pool (it was perhaps once a reservoir).

The article says archaeologists want to use the scanner north of the Gihon just south of the Haram Esh-Sharif area. That will not be productive for Old Testament findings, according to Scripture and history. The Temples are not there.

It is hoped that the muon detection technology will improve in both quality and speed.

In future “King David’s Tomb” articles I will point out where they should scan. They could take several measures pointing in the correct direction, using ladders or scaffolds. The David’s Tomb complex is within the first curve of Hezekiah’s Tunnel, a 90° turn from going west to turn to go south. There is no need to go into Hezekiah’s Tunnel. The public area for tourists is open, available, and the scan can be done with minimal disruption of either residents or tour groups. I will point out the precise area they **should** scan.

Once a thorough scan is done, and a height for the voids is determined, the chambers might go up a slope (lower in the east, higher in the west). Boreholes can be drilled at the best estimated place until the drill “pushes through” into a void, a tunnel, or a space. Then a plumber’s scope and camera with its own light source could be inserted into the hole drilled into the void, chamber, or “space” to see what is inside. It might be a passageway, a tomb chamber, or a room with physical objects, who knows? Josephus mentions all these possibilities in relation to David’s Tomb in his book *Antiquities of the Jews*.

The drilled hole would then be plugged to determine further “next step” procedures. How might investigative methods safely be used to protect everything within the exposed area? Along with the camera, a sample of air inside would determine how much oxygen entered during the drilling process. Oxygen destroys delicate artifacts. Perhaps pumping nitrogen into the exposed chamber would decrease the percentage of oxygen. Truly, the discovery of King David’s Tomb would transform and expand biblical knowledge for every person in the world.

David Sielaff  
[david@askelm.com](mailto:david@askelm.com)

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<sup>1</sup> [“Cosmic-Ray Particles Reveal Secret Chamber in Egypt’s Great Pyramid.”](#) *Scientific American*, November 2, 2017. [“Muon radiography applied to volcanoes imaging: the MURAVES experiment at Mt. Vesuvius,”](#) in *Journal of Instrumentation*, March 10, 2020. [“Underground Greek tomb discovered in Italy by using cosmic rays”](#) in *Jerusalem Post*, May 7, 2023.