Water was critical in ancient Israel (as it is today). This was especially true in time of siege because cities were usually located on higher spots (that rose higher and higher as the tell developed over time) and the springs were outside the city walls at the bottom of the hill, exposed to the enemy.

The usual ancient solution to this situation was to dig a vertical shaft (with steps to climb down) inside the city and at the bottom to dig a tunnel sloping downward to the spring outside the city wall. Still, the residents would be vulnerable if the enemy found the spring outside the city wall.
We wrote in our gala 200th issue last year, “We need to clear the tunnel at Tel Gezer with Sam Wolff of the Israel Antiquities Authority as codirector. as we find it to the south, in the general direction of the springs,” Yadin wrote.

Instead, it veers westward and ends in a dug water chamber whose bottom is covered with fresh water, forming a shallow pool. The entire water system lies within the perimeter of the mound, providing the inhabitants of Hazor with a convenient approach to water during times of peace, and, more important, a secure one in times of siege. But how did the ancient engineers know about this source of water deep underground? Yadin attributed it to their uncanny hydrological understanding:

The deliberate and planned position and direction of the tunnel indicates that the engineers possessed sound geological knowledge. It is obvious that they anticipated encountering the water-level—the same as that of the springs—even within the perimeter of the mound.

We believe that Hazor’s engineers did not know about this underground source of water when they started digging the tunnel. We believe what happened was this: They began digging their shaft on the southern side of the mound, the nearest point in the city to the springs outside the city. Then they began digging the sloping tunnel. A horizontal tunnel should bring water inside the city walls. But instead of finding it to the south, in the general direction of the springs, the tunnel did not seem to be heading to the springs. “The direction of the tunnel came as a surprise, since we expected to find it to the south, in the general direction of the springs,” Yadin wrote.

But still the aquifer (where the groundwater is naturally stored) is tens of meters below the Hazor water chamber, so how did groundwater find its way up to the water chamber? Here along the fault, the bedrock is intensely fractured (see photo on p. 65), forming a series of narrow vertical fissures below the water chamber down to the aquifer. At the aquifer level, the groundwater is pressurized due to the higher elevation of the water source in the Galilee mountains. As a result, water looks for preferred avenues to ascend and release the pressure. This is the source of the groundwater that flows into the water chamber.

Ironically, the Dead Sea fault, one of whose strands gave Hazor a secure source of water even when the city was under siege, also resulted in the city’s destruction. In the eighth century B.C.E. the city was destroyed by an earthquake that reached the city through one of these strands of the Dead Sea fault.

SPIRALING INTO DARKNESS, steps line the walls of this deep water shaft at Hazor so the city’s residents could climb down to retrieve water (right; people can be seen on the steps at upper left for scale). As expected, Hazor’s engineers dug this shaft at the southern end of the city, near the freshwater springs that lay nearby, and planned to connect it to a downward sloping tunnel (the photo below shows the view looking up the sloping tunnel from below). What was not expected was that the sloping tunnel then turned westward, away from the springs, and ended in a water chamber deep beneath the tell. The water that filled the chamber was sufficient to supply the entire Israelite city without the inhabitants having to risk going outside in times of trouble.

UNDER PRESSURE. Tel Hazor lies directly on top of the north-south Hula Western Border Fault (HWBF) of the active Dead Sea fault system (shown as a black dashed line on the map at left). Tectonic activity over millennia fractured the bedrock in this area, creating narrow vertical fractures. Because the groundwater in this area is under pressure due to the higher-elevation source, water was forced up through these fractures in the ground toward the surface. When Hazor’s tunnelers began digging down beneath the city, they probably saw some of this water seeping out through the cracks and realized there was a source of water right beneath their feet. Instead of tunneling to the springs outside the city, they dug out a water chamber right under the tell (see aerial plan at far left and section drawing at left).