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The Dead Sea Fault system wrought havoc and brought life in the biblical Hazor, a word heritage site in northern Israel

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Hazor, a word heritage site located about 15 km north of the Sea of Galilee (Israel), preserved substantial remains from the Bronze and Iron Age (ca 3300-586 B.C.E.) with biblical connection. The remains include several palaces and temples, and a massive six chambered stone gate attributed to the time of King Solomon. Noteworthy elements are water systems built to supply water to the thousands of the city's inhabitants at the time of peace and war. Among which, the Iron Age system demonstrates one of the most sophisticated engineering solutions to water supply. Resurveying Hazor and its Iron Age water system indicates that they were built along a major strand of the Dead Sea Fault (DSF), a seismically active boundary between Arabian and African plates. The DSF system poses a seismic risk on the site and its exceptional archeological remains.

Like many other ancient cities of the eastern Mediterranean, Hazor was built on a hilltop for defensive advantage. Consequently, it suffered from the disadvantage that it natural water sources (e.g., springs, creek floods) were outside the settlement – a fatal weakness at the time of siege. The usual ancient solution to this situation was to dig a vertical shaft inside the city and at the bottom to dig a tunnel sloping downward to the spring outside the city wall. In Hazor, the gigantic underground water system hewn down to the groundwater table and is unconnected to any outside spring. The underground water chamber at Hazor happens to be exactly along strands of the DSF, but the aquifer is tens of meters below the Hazor water chamber. At this level, the groundwater is pressurized due to the high elevation of the water source and as a result they used the DSF strands as preferred avenues to ascend and release the pressure. This is the source of groundwater that flows into the water chamber.

The seismic activity in the vicinity of Hazor includes repeated destructive historical earthquakes (M>6.5) triggered by the motion along the DSF. Offsets of archaeological structures at Crusader castle located only 5 km west to Hazor indicate that the currently main active strand of the DSF is located west of Hazor. Hence, Hazor is prone to severe damage due to future earthquakes not only due to activity along fault strands located underneath the mound, but also due to activity along faults located elsewhere in northern Israel and southern Lebanon. The Israeli authorities should therefore take actions to preserve the remains in such a way that they can withstand ground motions associated with M=7 earthquakes.

Ironically, the DSF system, 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. The city was destroyed by the well-known mid-8th century B.C. earthquake mentioned by Amos (Amos, I.1) that reached the city through one of these strands of the DSF.