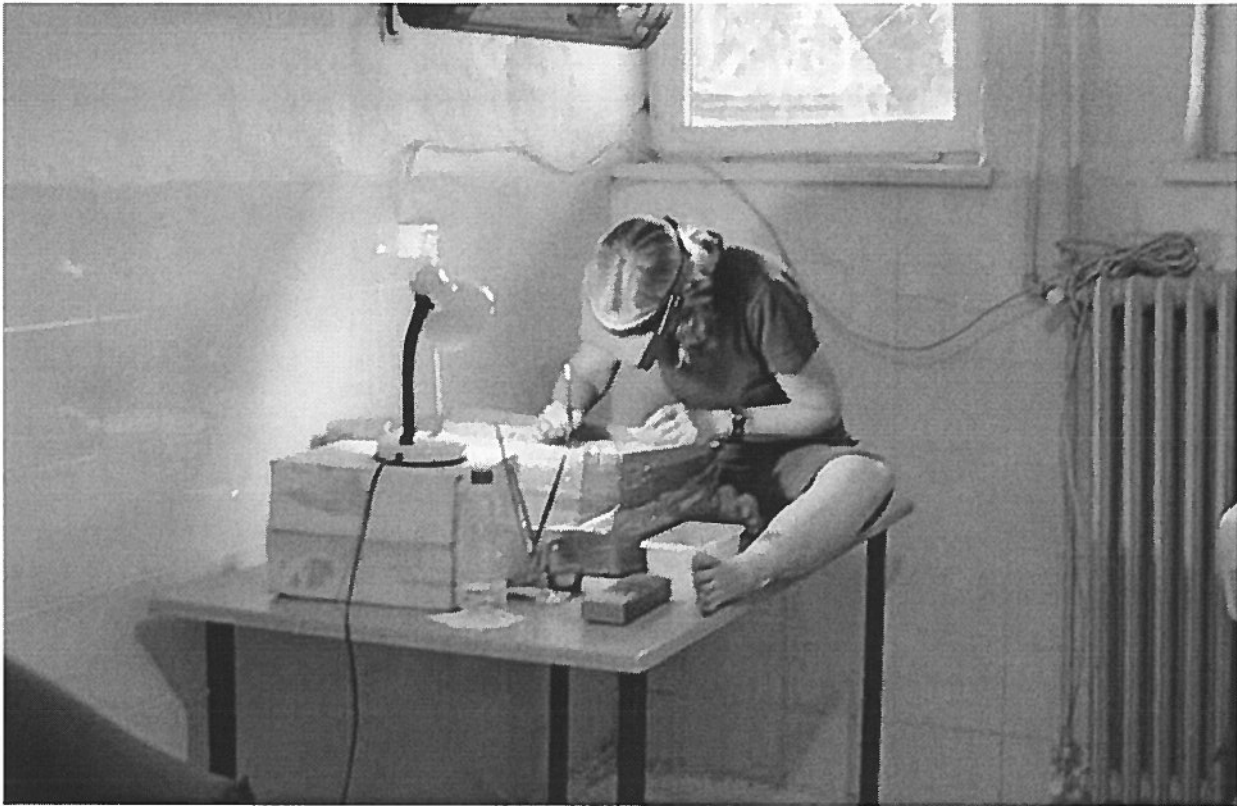


High-tech methods reveal secrets of antiquity

BY JENNIFER GREEN, THE OTTAWA CITIZEN JULY 29, 2010



Conservator Julie Unruh at the Tal Tayimat archeological site in Turkey.

Photograph by: Jennifer Jackson, The Ottawa Citizen

Tel Tayinat, Turkey — They are just hints but still, such tantalizing hints of ancient city walls, a basalt gate, and buildings immolated in a mysterious fire thousands of years ago.

High-tech methods, known as remote sensing, are “seeing” through the ground at the University of Toronto’s archeological dig in south Turkey, with everything but X-ray vision: This year, the archeologists have used magnetometry, and resistivity; other years, they have used images from declassified spy satellites. Laser and radar have been considered but for now, dropped, at least at this site.

For the past 10 years, the university has been excavating at Tel Tayinat, an ancient town or city that was occupied on and off from the early Bronze Age (3000 BC to 2000 BC). Archeologists know that a fire razed it sometime in the seventh or eighth century, and that the Assyrians took it over in 732 BC. An Assyrian governor’s residence is still under a working cotton mill just south of the dig.

The magnetometry team got exciting results this week, walking the ground with two magnetometers, one with a GPS, and one with a tape measure for pin-point accuracy.

"We found a clear boundary between the city and the area outside it," said Charly Bank, senior lecturer in geology at the University of Toronto.

Ottawa archeologist Steve Batiuk, who is the dig's director, said: "The data is preliminary but we finally got a good look at the city gates (at the north.)"

Magnetometry detects patterns of magnetism in soil, a technique particularly effective in burned areas like this. It is one of a number of high-tech methods that have revolutionized what has always been a low-tech science.

The "remote" in remote sensing simply refers to something that could be only a few feet away — or it could be a satellite in space. Another method used here this year was resistivity, which plots the relative resistance to electrical current at a site. Anomalies such as archeological features respond differently to the current.

None of these methods show exactly what is under the soil, but they help archeologists decided where best to dig.

In the early work at the site, the team used satellite shots that were declassified by the U.S. government under Bill Clinton's administration. Batiuk said archeologists often find these more useful than modern satellite images because they show the landscape as it was a few decades ago, before various areas had been developed.

Laser and radar applications have also been developed for archeology, but Batiuk says they are not too likely to be used at Tel Tayinat, not least because the Syrian border is just a few kilometres away, and the government might not be enthusiastic about planes flying low over the border.

Oddly, Batiuk is not always a fan of high-tech gear at the site. Many computers freeze — or more, properly, fry — at the 45 plus temperatures here, and the screens can be hard to see in the brilliant sun.

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