

Discovering Ancient Pompeii with iPad

In Pompeii — the longest continuously excavated archaeological site in the world — iPad is revolutionizing how scientists work in the field. Rather than recording notes and sketches on paper, researchers at the site use iPad and apps to capture invaluable historical data faster, more easily, and with far better accuracy.



Field researcher Kevin Dicus records his observations of well construction in a database using FMTouch. With no electric power in the trenches, the long battery life of iPad makes it perfect for data entry during an eight-hour workday.



Deep Data

For Dr. Steven Ellis, who directs the University of Cincinnati's archaeological excavations at Pompeii, perhaps the most significant discovery at the site this year was iPad. Ellis credits the introduction of six iPad devices at Pompeii with helping his team solve one of the most difficult problems of archaeological fieldwork: how to efficiently and accurately record the complex information they encounter in the trenches.

Most archaeological researchers today collect data from their sites as others have for the past 300 years. "It's all pencil and paper," says Ellis. "You have to draw things on paper, or in preprinted forms with boxes. That's a problem because all these pages could be lost on an airplane, they could burn, they could get wet and damaged, or they could be written in unintelligible handwriting. And eventually they have to be digitized or entered into a computer anyway."

Although portable computers offer a paperless solution, field archaeologists rarely use them in the trenches because their size, input limitations, battery life, and sensitivity to dirt and heat make them impractical in the harsh conditions of a dig.

iPad Rx

But Ellis, Assistant Professor of Classics at the University of Cincinnati, was determined to find a better way to collect data for his current project, which involves excavating below the floor line of an entire neighborhood near the main thoroughfare of Pompeii. He and a handpicked team of 35 scholars hope to learn from the patterns of reconstruction under the buildings how middle-class Pompeian families actually lived during the 2000 years before a volcanic eruption covered their city in AD 79.

"I've been very lucky to get permission to dig up an entire neighborhood," says Ellis. "This gives me a real chance of looking not only into a single building but at how a whole community of families developed over time."

The idea of using iPad to collect the massive data the project would generate came from Ellis's University of Cincinnati colleague John Wallrodt, an expert on digital databases for archaeological projects. Wallrodt had looked unsuccessfully into using various tablet devices for field research, but when iPad was introduced in January 2010, he knew at once that it was right for their project. Says Wallrodt, "Perfectly portable, with no moving parts, a Multi-Touch screen, and a battery that lasts the whole workday, iPad was practically custom built for our needs."

Adds Ellis: "It was the ability to enter so many disparate kinds of information, recording everything from architectural elements to fish scales and bones to the actual sequences of events. That my team could both type and draw on the screen, and also examine all previously entered data, made it an ideal single-device solution."

Forms and Functions

Excavators generally make four kinds of paper records in the field: forms (sometimes a hundred per trench) for describing soil layers and features; notebook entries for recording elevations and space; daily scaled drawings of the trench; and a Harris Matrix, an illustration that shows chronological relationships among layers.

With iPad, Wallrodt was able to re-create each of those functions using "off-the-shelf" apps from the App Store. FMTouch replaced paper forms by allowing researchers to make direct entries into their database forms on iPad. The Pages app supplanted paper notebooks, enabling them to not only enter notations on the iPad keyboard but also import drawings and photos. Scaled drawings were made directly on iPad in iDraw. And OmniGraffle handled the intricate matrix illustrations.

"iPad replaced all of these functions and added many others," says Wallrodt. "In this way, all of our piles of paper were replaced with a single 1.5-pound device."

iPad Revolution

Ellis, who estimates that iPad has already saved him a year of data entry, plans to increase the number of iPad devices from one to two per trench. "The recovery of invaluable information from our Pompeian excavations is now incalculably faster, wonderfully easier, unimaginably more dynamic, precisely more accurate, and robustly secure," he says.

Beyond the scope of his project, Ellis sees iPad as revolutionizing the 300-year-old discipline of archaeological fieldwork. "A generation ago computers made it possible for scholars to move away from just looking at pretty pictures on walls and work with massive amounts of information and data. It was a huge leap forward. Using iPad to conduct our excavations is the next one. And I'm really proud to be a part of it."

iPad Apps They Used



Pages for iPad

Combines robust writing and advanced layout tools with the simplicity of Multi-Touch.

[View in the App Store](#)



FMTouch

FileMaker to go for iPhone and iPad.

[View in the App Store](#)



iDraw

A feature-packed vector drawing and illustration app.

[View in the App Store](#)



OmniGraffle

Create diagrams, process charts, page layouts, wireframes, or graphic designs.

[View in the App Store](#)



Photos

The built-in Photos app lets you organize your photos in intuitive new ways.

[View in the App Store](#)

About the Excavations

See how researchers at the Pompeii Archaeological Research Project: Porta Stabia are uncovering the structural and social history of a largely forgotten Pompeian neighborhood. [Learn more](#)



iPad Pompeii

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