This paper describes the Ramses project, involving a palmtop computer to be used to record data on the field, which was tested at Poliochni in Greece. The paper discusses how this experience may be considered an on-field test for mobile computing both for hardware and software in view of other applications discussed elsewhere in this volume.

The research described here concerns a three-year project financed by C.N.R.

The main stimulus for this project came from the necessity of managing the quantity of data obtained from archaeological excavations. This requires the development of a more “efficient” system than the traditional transfer of numerous archives from a location to another one. Such a necessity became particularly urgent in the specific case of the annual excavation campaign that the former Institute of Archaeological Science, now DARFICLET, was carrying on at the archaeological site of Poliochni in collaboration with the Italian Archaeological School of Athens.

The Poliochni excavation is an “historical” project for the Italian State in Greece. It started in the 1930’s and it continued, interrupted only by the Second World War, until 1960 (Bernabò Brea 1964-74). It recently started again with a ten year campaign, from 1988 to 1998 (Arkontidou, Tinè and Traverso 1993), (Tinè 1999).

All these investigations revealed about three quarters of a Bronze Age settlement (datable between 3200 and 2300 BC). It is placed on a low hill near the sea coast, with a maximum extension of 22,000 m².

It is important to stress that, depending on such a long history of the investigation, it exists a great quantity of documentation that is substantial for any intervention within the site. This includes the old photographic and graphic archives, the excavations note-books, together with the more recent evidence (stratigraphic context forms, graphic and photographic documentation, typological cataloguing of materials, etc.). All this implied that at the beginning of each excavation campaign, we had to transfer from Genoa or Athens to Lemnos Island, where Poliochni is placed, a huge quantity of paper.

On the other hand, the availability of all this material at the mission house in Lemnos was not yet the best result for us. Every morning it was necessary to transfer the necessary documentation on the site and in the various excavations trenches spread in the plain, with the obvious inconvenience that useful documents often were missing.

Furthermore, any excavation needs the definition of an area with precise co-ordinates, independently from its dimensions and the location where it is carried out. This is normally defined within a frame of squares, usually with a side of 1 m. This permits the localisation of the findings, eases the description of the archaeological contexts and allows an easier graphic and photographic documentation.

As for the latter, usually each excavation implies:

1. stratigraphic context forms = they consist in filling out forms where it is necessary to answer some questions or to tick some squares. The result is a detailed summary of the data relating not only to the findings but, more specifically, about their archaeological context (layer nature, composition, colour, position relating to other layers, possible samples, interpretation);
2. scaled plans for each layer or context;
3. sections of the investigated deposit;
4. field note-book = notes taken daily where methodological choices and exposed archaeological contexts are briefly described;
5. photographic documentation.

A series of meeting together with the computer specialists of the Computer Science Department of Genoa University originated the project supported by C.N.R.

The aim of such a project is to develop a software tool, utilisable with a pen-based computer, a mobile, or a portable computer which could allow to substitute the traditional note-book and at the same time could allow to consult the mainframe placed close to the nearest electric source.

The Poliochni case was, therefore, an ideal experimental field for the development of a hardware prototype, which should also have the following requirements: shockproof, waterproof, resistant to dust, rain, heat, and capable of all operations needed in open air, including the possibility for drawings and text entry. Till then, the field use of portable hardware was not yet representing the ideal solution for our needs for the excessive weight, the low durability to high temperatures, often associated with strong winds, and the low battery life.

The latter was an important element for the difficulty of
accessing electricity and telephone cable connections directly on the site, making difficult for us to use portable computers in the field. As many other projects similar to Poliochni, archaeological sites do form a very hostile environment for computers. Possibly also for this reason, a traditional documentation system is often preferred. Any feasible solution should therefore consider a series of extremely limiting factors, particularly for the requirements of the tools usable directly in the field. The experimentation analysed the hardware available on the market and we chose a workstation and two or more mobile computers, connected to the workstation by radio devices. The choice of machine was conditioned by different factors, and the only real possibility was to use the pen-based palmtop computers. At the time, the market offered products with a liquid-crystal display safe from external agents, where archaeologists could write or draw everything they wanted. For this reason we chose a portable instrument versatile and resistant connected with the workstation. The workstation was installed in the archaeological mission house, where archaeologists live during the research, near to the excavation, which is connected to the Internet. The mobile computer may connect directly to the fixed host, for tests near to home; for a longer distance, or to by-pass obstacles, like hills, antennas may need to be installed (ANCONA et al. 1999). Another important aspect of the project was the development of a software capable to replace paper documentation, that is the stratigraphic context form, the field note-book and the graphic documentation (plans and sections). The software ARCHEO was created to this aim, together with the ADE data base. These permit to fill schematic context forms, starting from keywords recalling specific lexicons, to create scaled plans within an established frame, and also to draw small sections. For site-forms glossaries, and for the software implementation, a generic reference may be made to the well-known Apple Macintosh software Syslat developed by the archaeological team working in the roman town of Lattes, France. In the last excavation campaign at Poliochni, in Summer 1998, the mobile prototype and the software were eventually experimented in the field. We had positive results, particularly with the software, which proved to be a very useful tool even if it may be improved to fulfil completely all archaeologists’ needs concerning excavation notes, since the formulation of fixed queries from the context forms, and the creation of graphic frames, allowed to speed up data collection, avoiding the post-exca vation registration process of archaeological evidence. The weakest aspect of the simulation depends on the machine limits: the screen, well visible in the laboratory, was unreadable when exposed to the Greek sun.

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BIBLIOGRAPHY


Figure 1. The ARCHEO screen.