

The Volubilis project, Morocco: excavation, conservation and management planning

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Volubilis in northern Morocco is famous for the impressive remains of its Roman city, but it was also an important early Islamic town and is listed by UNESCO as a World Heritage site. Teams from Morocco and the Institute of Archaeology recently began a joint project there, focused on the investigation of the Islamic occupation and the conservation and presentation of the site to the public.

Spectacularly sited on a foot-hill overlooking a broad plain near the holy city of Moulay Idriss (Fig. 1), the Roman and medieval city of Volubilis is the most important archaeological site in Morocco. It has great intrinsic interest and it attracts many tourists – almost 200,000 people visit it every year. The main aims of the

UCL/INSAP (Institut National des Sciences de l'Archéologie et du Patrimoine) Volubilis project are to investigate the site and to work on conserving and presenting the extensive archaeological remains. The project also incorporates a training programme in archaeological survey and excavation, archaeobotany, ceramic analysis and site management, and is working

towards the creation of a visitor centre.¹

The site and its history

The ruins of the city cover an area of 44 ha that slopes down from its northeast gate along a broad spur that gradually narrows until the two streams forming its edges unite to the south of the town. Excavations since the early part of the twentieth century have cleared about a third of the Roman city. This is advantageous in terms of the visibility of the site's plan and of its major monuments, but the drawbacks of the excavations of the French colonial period are evident. Until the 1980s, no attention was paid either to the stratigraphy or to the periods before and after the Roman occupation. However, during the past two decades, careful excavation carried out by the Moroccan archaeologist Aomar Akkeraz has led to a clearer view of the problems involved. It is now clear that the original Mauritanian settlement, founded in the second century BC, lay more or less in the centre of the later city, in the area of the Roman forum and the zone to the south of it. The Roman layout seems to have followed at least some of the major lines of this earlier settlement, although a massive extension to the northeast (Fig. 2) certainly dates to the time of the Roman colonization. There is no doubt that the population of the Roman city consisted at all times mainly of indigenous people, the magistrates (*decurions*) being recruited from the native elite.

The Roman city, founded in AD 40, flourished throughout the early empire. Large houses with columned courtyards (peristyles) and elaborate mosaics flanked the main road (*cardo*). However, in AD 285,



Figure 1 Northwest Africa, showing the location of Volubilis and other ancient sites mentioned in the text.



Figure 2 View of the northeast quarter of the Roman city of Volubilis from the centre of the ancient site.



Figure 3 The northern medieval house at Volubilis.

the Romans abandoned most of their North African province of Mauritania Tingitana (present-day northern Morocco) and the city appears to have been at least partially evacuated. Its history then becomes obscure. Pottery with red slip decoration continues into the fifth century, but the city itself seems to have become increasingly occupied by cemeteries. At about this time a new rampart was built along the ridge above the western slope of the hill. Although it was long assumed that this wall implied occupation of the eastern two-thirds of the site, it is now clear from the work of Akerraz that the early medieval Islamic town lay to the southeast of this wall, in an area that has barely been touched by excavation.² It is in this area that our new excavations are taking place.

Excavations in the area of the early medieval town

Archaeological investigation of the earliest period of Islamic settlement in North Africa is still in its infancy. To date, there are published excavations only from Sétif and Cherchell in Algeria,³ and unpublished excavations at Uchi Maius in Tunisia (Fig. 1). Neither Sétif nor Cherchell has yielded any significant evidence for the first three centuries after the Arab conquest at the end of the seventh century. Little is known of the housing, the layout of an urban site, or the specific changes brought about by the new empire. It has been suggested that Islam brought with it radical changes in domestic architecture, together with a new way of conceiving the city. Excavation at Sétif has shown that major environmental changes were caused by an increase in pastoralism and the introduction of new crops such as hard wheat.⁴ The large, certainly urban, site of Volubilis, with its stratigraphy still intact and a relatively early abandonment during the eleventh century is an ideal place to

investigate the early period of the Islamic town.

Our first approach to the archaeology of the site was undertaken without excavation. During a brief field season in September 2000 we surveyed as much as possible of the medieval town, and also carried out a geophysical survey across four areas. This survey, using a fluxgate gradiometer to measure magnetic resistance, revealed wall alignments and the positions of hearths and other areas of burning. The results of both surveys were then combined by means of AutoCAD (a three-dimensional drafting software package), and a GIS (geographical information system) database using this information is now being created. Mapping of standing walls in the area of the medieval town, which had never been properly surveyed,

produced the beginnings of a workable plan of that part of the site, with clear indications of road alignments and of several discrete blocks of housing. Much of this housing resembles the complexes of eleventh- and twelfth-century houses excavated at Sétif.

During the second field season, in April 2001, we undertook the excavation of two of these complexes. They were chosen because of their very distinctive forms, as well as for their accessibility to the areas of the site visited by tourists. By opening an area of 900 m² we revealed the complexity of the site, although two buildings, to the north and to the south, stand out. To the north we began the excavation of a relatively well built house composed of large square rooms (Fig. 3). To the south, across an open area, a later structure has long narrow rooms with raised platforms at their ends, which are characteristic of Islamic houses of this period elsewhere in North Africa and Spain (Fig. 4). A coin of the Almoravid period (AD 1056–1147), and other material, date the final occupation of the house shown in Figure 4 to the eleventh century. This relatively late date assures us that the stratigraphy for the Islamic period at Volubilis will yield a long sequence.

One of the aims of the project is to gain a better understanding of the pottery in this period. Victoria Amoroz-Ruiz, a ceramic specialist, is working on the pottery typology, and we hope to refine it by the systematic use of AMS (accelerator mass spectrometric) radiocarbon dating at selected points in the sequence. This technique should also enable us to date some of the archaeobotanical evidence more precisely, particularly in contexts such as the one shown in Figure 5, a grain storage pit (silo) revealed in the section of a trench excavated in the 1960s that cannot be



Figure 4 The southern medieval house at Volubilis, showing a raised platform at the end of the room.



Figure 5 Dorian Fuller (right) and a colleague dry-sieving the contents of a medieval storage pit at Volubilis, also sampled for archaeobotanical evidence.

dated stratigraphically. Dorian Fuller of the Institute of Archaeology is studying changes in grain use between the Roman and Islamic periods, as well as other aspects of the evidence for changes in food production and consumption.

The Roman basilica: analysis and presentation

Mark Wilson Jones, of the University of Bath, is combining the analysis of a complex Roman monument with a project for its presentation to the public. The Forum Basilica is now the most imposing monument on the site, because of its partial reconstruction during the 1960s (Fig. 6). A traditional survey of the monument has now been elaborated in digital form using

AUTOCAD, and digital photographs taken on the site will be used to create a photogrammetric reconstruction of the present state of the elevation. From this, we hope to develop a three-dimensional model of the original building, which will allow us to complete its analysis. Already it is clear that the plan was laid out using the standard Roman foot of 29.5 cm as a module, whereas the Punic cubit of 51 cm was used in the elevation. This suggests that the plan may have been created in Rome, but that its execution was left to local builders.

A further aim is the creation of an attractive and scientifically rigorous display of the basilica and its various remains. By limited reconstruction of the east wall and by clearing the area to the east of the basilica, we hope to create a space in which the architecture of the building will be displayed and explained. Selected parts of the basilica could be laid out on the ground in this space in order to study the different hypotheses for its reconstruction. In the longer term, the space would become an open-air museum. One or two kiosks would contain displays showing the process of reconstruction, and the evidence on which it was based.

Management planning and conservation

In the management-planning component of the project we are focusing our activities on three main types of assessment:

- stakeholders
- administrative conditions and the impact of tourists on the site
- the physical conditions of the remains.

In a typical planning process, these assessments lead to the compilation of a statement of significance, the basic element for the establishment of planning policies and the formulation of a management plan.

Assessing the stakeholders, or interest

groups, of an archaeological site may seem irrelevant in a conservation context: why should we consult or work with people who do not have expertise in conservation or the power to influence the way a site is presented to the public? In recent years, however, it has become evident that all groups with interests in an archaeological site (whether dictated by financial gain, spiritual values or awareness of its historical importance) need to be able to express their views on why the site is important to them. For the managers, this translates into a more sensitive and balanced management plan, the preparation of which certainly requires more negotiation and diplomacy than when interest groups are not involved, but one that ultimately should represent and benefit not only the conservation of the site and its effect on tourists, but also the local community.

Although a collective meeting of the stakeholders identified in the process could not be organized during our first field season, several separate meetings were held with groups such as local government representatives, tourist guides, unauthorized guides ("faux guides"), site guards, and owners of businesses around the site. All the groups interviewed were interested in the improvement of visiting conditions, as well as in a more comprehensive conservation programme for the site. It is interesting that all groups spoke freely about the preservation and presentation of the site, but only reluctantly about their own interest in it.

The assessment of administrative conditions and the impact of tourism has included a study of the location of the present information signs and of electric-power distribution boxes, to assess their visual impact on the ruins. Other issues such as site fencing, rubbish collection and the presence of paved roads and parking lots, as well as the impact of the music festival that is held at Volubilis each summer, need to be evaluated in order to assess their impact on the conservation of the site. A visitor centre that will orientate and inform the many people who come to this extensive site is also essential.

Two of our objectives are to improve the conditions for visits to the site and the overall educational experience. By observing the circulation and behaviour of tourists, we studied the nature of the tours and the physical damage they caused. A multi-language questionnaire was also designed, in order to monitor tourists' reactions after their visits. Over 120 interviews were conducted and the results analyzed. A UCL student, Paul Morrison, interviewed many tourists and guides, and followed ten guided tours and several individual tourists to observe circulation, the time spent at each stop, and general behaviour. He subsequently used some of the results for his MA dissertation. Threats to the integrity of the monuments arise from actions such as climbing on the ruins (Fig. 7),



Figure 6 The Roman basilica at Volubilis, viewed from the south.

jumping over fences and into archaeologically sensitive areas, taking shortcuts across walls, and leaving litter. The guides who accompany them could curb such actions by exercising more careful control over tourists' behaviour.

Assessment of the physical conditions of the site has involved us in three tasks: the analysis of olive-oil presses, and the design of strategies to document and monitor the conditions of walls and mosaics (Fig. 8). The need to conserve and explain the oil presses, 55 of which have so far been excavated at Volubilis, is essential for the proper understanding of the site, because they show how important the production of olive oil was at the site during the Roman period.⁵ Our study consisted of a visual survey of the presses, documented by means of a form compiled on site. This helped one of the UCL students, Stephen Gray, to collect data that he later analyzed as part of his MA dissertation. The poor conditions of many of these structures calls for their consolidation and for a strategy for their protection that must include the option of reburial or backfilling if a structure cannot be properly presented to the public.

The second task, to design a system to assess the condition of the ancient walls, was undertaken by Andrew Mayfield, another student at the Institute of Archaeology. He designed a form to record their present condition and to monitor changes in their physical aspects. The form can also be used to develop conservation procedures designed to prevent further deterioration. It was tested in different situations and was coupled with extensive photographic documentation and sampling. We intend to develop an illustrated glossary of wall conditions for use by the site conservators in a maintenance programme.

The fame of Volubilis is largely based on its splendid mosaics, and our third task was to assess and document their condition *in situ* (Fig. 8). The form we used for this purpose is one developed by the Getty Conservation Institute in their conservation and training work at Utica in Tunisia (Fig. 1). Together with digital photography of the mosaics, we developed a simple yet precise system of graphic documentation that could show variation over time in the conditions that damaged the mosaics, as indicated by our survey. These conditions derive from several causes, such as temperature changes, biological attacks, structural problems and subsidence. Samples of lichens and mosses growing on the mosaics were taken for study in London. This work was conducted by Abdessalam Zizouni, the mosaic conservator on site, and by Alasia Vicarelli di Saluzzo, another UCL student, who wrote her MA dissertation on this topic.

Lastly, an assessment of the finds from past excavations now in storage was conducted by Elizabeth Pye of the Institute and Rabiah Bokbot of INSAP. They examined the state of conservation of stone, bronze and ceramic materials and threats derived from inappropriate storage conditions, handling, animals and other biological activity. The site conservators were trained in the use of specially designed forms that will help them to conduct continuing assessments of the condition of the objects in storage.

In future field seasons we intend to continue our investigations of the Islamic town and to integrate them with a study of the conservation and presentation of the remains to the public. In terms of planning, our aim is to assist the site managers to develop conservation and management policies appropriate to this unique site and its magnificent setting.

Notes

1. The project is co-directed by Hassan Limane (Director of Museums for the Moroccan Ministry of Culture), Gaetano Palumbo (senior lecturer in managing archaeological sites at the Institute of Archaeology), and Elizabeth Fentress (visiting professor in North African archaeology at the Institute). Moroccan and UCL students are an integral part of the field team. Funding for the first two seasons (2000 and 2001) has been generously provided by the Institute of Archaeology, the British Museum, Rita Bennis-Palmieri, John McAslan, and the Leica Corporation. Preliminary work on the proposed visitor centre is being undertaken by John McAslan and Partners.
2. A. Akerraz, "Note sur l'enceinte tardive de Volubilis", *Bulletin archéologique du Comité des travaux historiques* (new series) 19, 429-36, 1983.
3. E. Fentress (ed.), "Fouilles de Sétif 1977-1984", *Bulletin d'Archéologie Algérienne*, supplément 5, 1991; N. Benseddik & T. W. Potter "Fouilles du Forum de Cherchel 1977-1981", *Bulletin d'Archéologie Algérienne* supplément 6, 1993.
4. See A. King, "Animal bones", 248-58, and C. Palmer, "The botanical remains", 260-67, in E. Fentress (ed.); see n. 3 above.
5. A. Akerraz & M. Lenoir, "Les huileries de Volubilis", *Bulletin Archéologique Marocaine* 14, 69-101, 1981-82.



Figure 7 A tourist standing on part of a ruined olive press at Volubilis.



Figure 8 Abdessalam Zizouni, a local conservator, assessing the condition of a Roman mosaic at Volubilis.