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Front cover: Rescuing rock art from the Sudan Archaeological Research Society’s concession at the Fourth Nile Cataract. This collaborative project between the British Museum, Iveco and New Holland was undertaken in November 2007 and resulted in the removal, from the SARS concession, of over 50 boulders bearing rock art or used as rock gongs. The pyramid, offering chapel and enclosure wall from site 4-F-71 were also relocated. Here the work is being filmed by a cameraman from the Italian TV news channel Re Di Due (photo D. A. Welsby).
The Northern Dongola Reach Survey. Excavations at Kawa, 2007-8

Derek A. Welsby

The Sudan Archaeological Research Society first began work at Kawa in January 1993 when the environs of the Pharaonic and Kushite town were surveyed in detail revealing a number of Kerma settlements, a Kerma cemetery and another of the Kushite period (Welsby 1993; 2001d). Work was again focussed on Kawa (Figure 1) from 1997 until 2002 (Welsby 1998; 2000; 2001b; 2001c; 2002) when the imminent threat of inundation to the region of the Fourth Cataract led SARS to concentrate its resources in that area. Subsequent to the construction of the dam, it is the intention of the Sudan Government to undertake a massive irrigation project in the Northern Dongola Reach, with the construction of many canals on the east bank of the river, extending to the desert plateau, a maximum distance of about 18km. Potentially, such development will lead to the destruction of all the archaeological sites in the region. In the SARS concession alone, there are over 450, many of them substantial settlements and cemeteries, particularly of the Neolithic and Kerma periods, including the urban centre of Kawa. In the light of this threat, SARS has brought its work at the Fourth Cataract to a close and is now concentrating its activities in its concession in the Northern Dongola Reach in conjunction with the British Museum.

The 2007-8 team was in the field from 19th December until 6th February. Three areas were chosen for excavation, one in the cemetery and two in the Kushite settlement. Two of these had been begun several years ago and had been left unfinished in 2002.

Building A2

Earlier excavations at the southern edge of the settlement revealed the presence of a shrine (A1) containing an altar bearing the name of Taharqo and fine wall paintings (Welsby 2001a). Adjacent to this was a contemporary building (A2), assumed to be domestic in character, while another building (A3) constructed in a very different way had been demolished to make way for the other two. The shrine and the parts of A3 lying to the east of A2 were fully excavated several years ago and a start was made in 2002 on the exca-

1 The core team consisted of Catherine Ambrey (archaeologist), Enas Awadulla Mohammed (NCAM inspector), Iwona Kozieradzka (physical anthropologist), Anna Masrey (archaeologist), Mohammed Ibrahim Mohammed (cook), Julian Newman (archaeologist), Stephen Porter (archaeologist), Alison Tigg (archaeologist), Isabella Welsby Sjöström (assistant director, pottery specialist) and Derek Welsby (director, photographer, surveyor).

Figure 1. Kawa, plan of the Kushite town.
vation of A2. This building is almost identical in size to another which lies several hundred metres to the north (B2) and may represent a standard house plan (Figure 2). The primary building was aligned with its long axis roughly north-south and measured 15 x 10m in size. In the north-east corner the walls survive to a height of 2.05m (Plate 1). Entered via a doorway from the street between it and the shrine to the south, it consisted of a suite of six rooms, rooms I and III only being separated by a mud-brick structure which may not have been carried to the full height of the walls. The walls, built throughout of mud bricks 360-260 x 170-160 x 100-80mm in size, appear to have been constructed, in most places without foundations, on the contemporary ground surface which was gently sloping in places. When it ran over the line of earlier walls these were chopped away where they protruded from the wall line. In rooms V/VI there are indications of a wide shallow construction trench. The doorways have well made jambs suggesting the presence of doors closing from inside the rooms. Only in the north wall of rooms VI and VII is preservation sufficient for windows to survive. These are narrow slots 150mm wide and 220mm in height, two in room VII 170mm apart (Plate 2) and two similar pairs in room VI. Floors throughout were of silt, or sand, consolidated with water, forming a crust on the surface. Internal features were few. There is one slightly tapering, cylindrical oven, made of ceramic in the south-west corner of room III, an adjacent large, round-bottomed pot base again used as an oven, a hearth floored with pot sherds (Plate 3) and a large circular mud oven towards the north-east corner. Elsewhere, there are burnt areas, the heat from which have often fired the adjacent walls bright red. The area in the south-west corner of room III was used for cooking activities over a long period, the oven shown in Plate 4 dated to a later phase.

The building was used intensively, with deposits of rubble and/or sand containing large amounts of pottery vessels and animal bone interspersed with hearths right up to the highest surviving sections of wall, in room VII upwards of 1.7m of deposits.

There was a number of structural modifications. After a build-up of 830mm in room V/VI, the room was divided by a north-south wall, with a doorway at its north end. The doorway between rooms VI and VII was blocked and thereafter, although room VII remained in use, no other doorway was provided. The south jamb of the doorway between rooms III and IV was rebuilt and a flight of four steps then gave access down from the partly filled western room into room IV. Why the build-up, visible elsewhere in the building, was arrested in room IV, for some time, is uncertain,
although room IV was unusual in having many small brick features abutting its walls. These were often made of two bricks, side by side, extending to three courses in height. Their function is unclear. Similar features were found, but much more rarely in other rooms. Presumably, to combat the ingress of sand into the building, the windows in the north wall were modified. The western pair in room VI were blocked with bricks, the eastern pair have also been blocked, the partition removed and a niche produced. The build-up of deposits in the building and the clear evidence for continued use must have required the walls to be heightened and the roofs to be rebuilt at a higher level, perhaps, on more than one occasion. No trace of these rebuilding activities survived.\(^3\) The tops of the extant walls lay immediately below the present day ground surface. Any upstanding masonry will have been removed by the gale-force winds and wind-blown sand which are a feature of the site.

In rooms II, IV and VII (Plate 5) are remains of earlier walls, those in room IV certainly a part of Building A3. These mud-plastered mud-brick walls were only discovered towards the close of excavation and remain to be investigated thoroughly.

**Areas (FR3), (FS3) and (FT3)**

Two hundred and fifty metres to the north of Building A2 two kilns were visible on the surface. The northern

\(^3\) Evidence for similar raising of walls and re-roofing at a higher level has been noted at esh-Shaukan in the late Kushite period (Klassens 1967, 82) and Medieval Mennari (Adams 2001, 52, pl. 18 a-d).

ture was excavated within a trench approximately 30 x 10 m in size. The kiln was a rectangular structure measuring 6.63 x 4.2 m externally and divided internally by seven cross-walls, set 300 mm apart (Colour plate XI). These were pierced by wide arches, while the end walls were pierced by much smaller arches (Plate 6). It was constructed throughout of mud brick which had been heavily fired internally. Although surviving to a height, internally, of 1.7 m it was clear that the kiln had been constructed from at, or close to, the present ground level. A massive construction pit had been excavated and the walls of the kiln constructed close to the pit edge. Approximately 310-450 mm separated the outer face of the walls from the edge of the pit, to north and south. Access to the arches in the stoke-holes was via sloping ramps revettted and partly floored with bricks and mud mortar (Plate 7). Some of these were partly fired and had been clearly reused from elsewhere in the structure. Some of the arches had also been strengthened. Three distinct layers, of
Plate 6. Interior of the kiln looking east. Section through the deposits within in the foreground.

a hard white material, were visible on the floor suggesting that the kiln may have been used for the calcination of lime. Thereafter, the building filled with wind-blown sand and rubble, including the specially formed bricks from the floor of the firing chamber, which, when fitted together, left large rectangular holes in order to allow the hot air to circulate from the furnace.

Plate 7. The revetted ramp leading down to the western stoke-hole.

To the south of the kiln were extensive remains of activity. There were innumerable shallow pits filled with vast quantities of bone and pottery, at least three cylindrical ceramic ovens and traces of mud-brick walls. The walls only survived to a height of one or two courses. All these walls and deposits sat on clean sand which in a sondage by the kiln was excavated to a depth of 1.76m.

Cemetery R18, area HA2

In the cemetery the 20m square excavation trench partly excavated in the 2001-2 season (Welsby 2002, 36-7) was reopened and a total of 14 graves were fully excavated to which can be added one grave where only the descendency was cleared and two graves completed in 2002. A range of grave types were noted.

Chamber with stepped descendency - the probable earlier examples have a long gently sloping descendency with wide steps front to back (Plate 8). They attain a maximum depth of 2.8m. Later graves, often inserted presumably to closely associate the deceased with the incumbent of the earlier burials, have much steeper descendencies with very narrow treads front to back. All are aligned roughly east-west with an axial, generally oval, chamber. Graves 94 and 119 form a clearly recognisable type with very well cut rectangular chambers and a bottom step forming a U-shape, facing towards the chamber (Plate 9). Grave 119 is unique in having a double chamber.

Plate 8. The stepped descendency of grave (HA2)39.

Chamber with sloping descendency - the descendencies are sloping sometimes with rudimentary steps in places. Although some have an axial chamber, in grave 229, on the south side, two have side niches (Colour plate XII). Grave 31 had a chamber on its north side, which appeared to be an opportunistic reuse of the chamber of an adjacent grave accidentally revealed during the digging of the new grave.

Pit grave - several graves were simple, sub-rectangular pits, approximately the same size as the interment.

All the bodies were aligned west-east, apart from that in grave 229, where the alignment was reversed. Of the extended burials most were supine but one was placed on its front. Several individuals were laid on their sides and flexed. Many bodies were placed in caronage coffins (Plate
10), bearing traces of red, yellow, black and blue painted designs. Grave goods were rare. A few graves contained pottery vessels, a few others beads and faience plaques. Two graves had no traces of either grave goods or a body containing a totally sterile fill, although well-constructed and completed. Another contained only a small ceramic vessel, but with no accompanying body. Graves were frequently reused. The most extreme case was grave 94 in which the three primary interments (Plate 11) had been succeeded by two later individuals, which in turn were succeeded by a further two. Occasionally secondary burials were placed in the descenacies (Colour plate XII). What dating evidence was available suggests that the graves date to the later Kus- hite period.

A very large amount of pottery was recovered from within Building A2 and south of the kiln. The material from A2 was almost invariably of two basic forms, beakers (Plate 12) and shallow dishes (Plate 13). More unusual was half of a basin with a crocodile in relief on the rim; the other half of the same vessel was discovered in 2002 (Welsby 2002, pl. 10). Amongst the pottery were several shallow dishes, bearing traces of red, blue and red pigment (Colour plate XIII). No evidence for painted plaster was found in the building but the proximity of the painted shrine in which such colours were used suggest that these palettes were connected with the decoration of that building. A vast amount of animal bone was also recovered, which awaits study.

Plate 9. Grave (H A2)119 with blocking wall.


Plate 11. Multiple burials in grave (H A2)94.

Plate 12. One of the innumerable beakers from deposits within Building A2.
Remote sensing

Tomasc Herbich and David Swiech undertook a magnetometer survey of 5ha in the southern part of the Kawa settlement using a fluxgate gradiometer. This revealed a large number of mud-brick buildings, many of which were not visible on the surface (Figure 3). Of special interest were two parallel lines consisting of small circular features about 4m apart, in an area devoid of buildings. These are reminiscent of the tree pits lining the streets in the Royal City at Meroc (Török 1997, Part 2, fig. 3). A similar line of features within a large courtyard building may again be tree pits or conceivably the columns of a portico.

Geomorphology

Two geomorphologists, Mark Macklin from the University of Aberystwyth and Jamie Woodward from the University of Manchester, joined the team for a period of a week. They took samples of sediments from the Alfreda and Hawawiile Nile palaeochannels in the vicinity of site P17 as well as from the alluvium visible in the graves in site R18. These were collected both for OSL, dating and strontium isotope analysis, which will contribute to an understanding of the fluvial history of the palaeo-channels, the nature of their flow, and the relative contributions of the White Nile and the Blue Nile/Arbara to the Nile flow in the past.

Acknowledgements

The team would like to thank our ghaffir Selim Abdel Magid and his family for all their help and hospitality and the 25 workmen from Kasura, without whom we could have achieved very little. Thanks are also extended to the National Corporation for Antiquities and Museums, to the British Council and to the Pagoulatos family of the Acropole Hotel in Khartoum.

The project was financed by SARS from grants made by its patrons, the Institute for Bioarchaeology and the British Museum. The magnetometer survey was funded by a grant from a very generous member of the Society.

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Figure 3. Plan of the remains revealed by the magnetometer survey.
Colour plate XI. Excavations at Kawa. The kiln, looking west.

Colour plate XII. Excavations at Kawa. Blocking wall and pottery vessel associated with the side-niche grave (H-A2)229. A secondary burial is visible in the foreground.

Colour plate XIII. Excavations at Kawa. Pottery sherds used as palettes from Building A2.