

## KADERO

## Introduction

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The site at Kadero is situated north of Khartoum, 17 km to the north-east of the junction of the White and Blue Nile and 6 km east of the modern river valley (Fig. 1). Its geographical coordinates are 15°45'28,8" N and 32°35'30,7" E. When the work at the site started, the place was located in the desert (Fig. 2). Today it is surrounded on all sides with the buildings of Kadero village and cultivated fields (Fig. 3). The site discussed in the present volume is numbered Kadero 1 (further in the text mentioned only as Kadero), to distinguish it from site Kadero 2 situated 600 m SE, investigated by Randi Haaland (Haaland 1981b:11).

Kadero site is situated on an alluvial sandy mound ca 4 hectares in area, elevated about 1.5 m above the surrounding area. Its surface is uneven. In its northern part one can distinguish three separate elevation points, and only one in the southern part (Fig. 4). During the research the surface of the site was covered with pottery sherds, stone tools, production waste and animal bones. Some human bones were also found.

Most of the material was concentrated in the northern and southern parts of the site, covering the overall area of ca 0.8 hectares (Krzyżaniak 1975b:187). Krzyżaniak (1991:515-516) defined them as middens which seem to be the result of deliberately accumulated debris which was originally swept from the surface of the habitation area. The northern midden was twice as large (Fig. 5). One of the pinnacles localised there

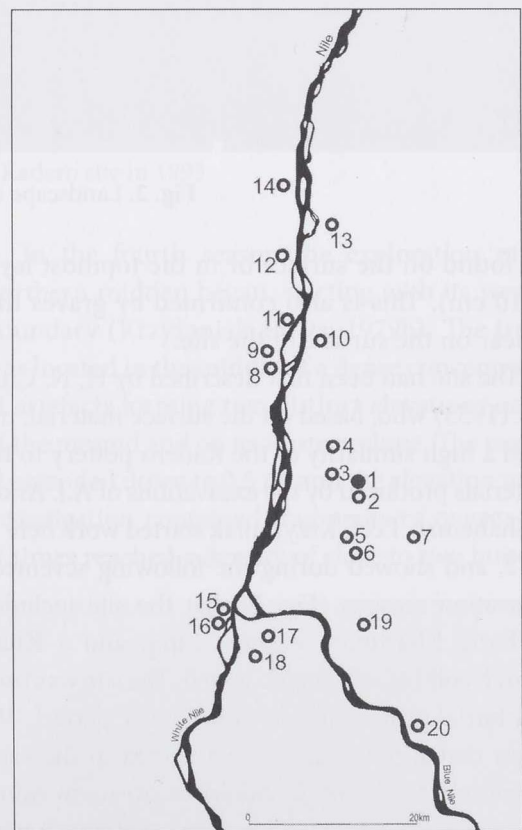


Fig. 1. Kadero and other prehistoric sites in the Central Sudan.

1. Kadero 1; 2. Kadero 2; 3. Zakiyab 1; 4. Zakiyab 2; 5. Umm Direiwa 1; 6. Umm Direiwa 2; 7. Hatab; 8. Nofalab; 9. Islang; 10. Saqqai; 11. Sururab; 12. Umm Marrahi; 13. Geili; 14. Shahnab; 15. Omdurman Bridge; 16. El Salha; 17. Khartoum Hospital; 18. El Qoz; 19. Haj Jousif; 20. Soba.

consisted mostly of worn quern stones. It was confirmed that the middens were the produce of waste accumulation (Krzyżaniak 1991:516). The site however, over time, was subjected to intensive erosion and thus the majority of the artefacts





Fig. 2. Landscape around the Kadero site in 1973

are found on the surface or in the topmost layer (0-10 cm). This is also confirmed by graves that appear on the surface of the site.

The site had been first described by H. N. Chittick (1955) who, based on the surface material, noticed a high similarity of the Kadero pottery to the materials produced by the excavations of A.J. Arkell in Shaheinab. Lech Krzyżaniak started work here in 1972, and showed during the following seventeen excavation seasons (Fig. 5) that the site included an Early Khartoum seasonal camp and a Khartoum Neolithic settlement as well. The site was used as a burial ground for an even longer period. The oldest dated graves can be connected to the early Khartoum Neolithic. It should be borne in mind, however, that a considerable number of graves have no furnishings whatsoever and it cannot be ruled out that older graves are also present. Over recent years the excavation brought to light graves linked to the early phase of the Late Neolithic. The western slope of the site functioned as a necropolis during the Meroitic times whereas Post-Meroitic/Christian graves were found on the northern culmination of

the site (Fig. 6). However, the latter graves are very poorly furnished or lack any offerings. Still, they can be easily distinguished from the Neolithic graves by the position of the body and the state of preservation of the bones (Krzyżaniak 1979a:67-69).

The first season of the excavations in 1972 aimed at defining the site. A trench in the site's southern culmination was dug, a place rich in artefact concentration. It produced abundant settlement material, with pottery, stone tools and osteological material. During the detailed survey of the site its north-eastern slope revealed a surprising find - the presence of human burials visible on the surface, equipped with Neolithic pottery (Krzyżaniak 1974).

The second season in Kadero (1973) was preceded by - the establishment of a geodesic axis<sup>1</sup> and a topographical map<sup>2</sup>. The site was divided into segments signed A, B, C, D. The method of artefacts registration was worked out at that time. Originally they were located within a unit covering 1 square metre, later in test pits 2 x 2 m (4 square metres) and, starting with the third season, nearly exclusively within sections of the same size.

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Fig. 3. Landscape around the Kadero site in 1993

Because of the absence of preserved natural layers the site was excavated in layers of 20 cm thickness. Beginning with 1980, in some pits layers 10 cm thickness were applied without the anticipated results for establishing the relative chronology of the artefacts (see Chłodnicki, this volume). During that season excavation works were continued both in the settlement and the cemetery. The area of excavations was extended towards the southern culmination of the site, while the area surrounding the graves discovered in the former season was cleared, resulting in the discovery of a cluster of yet more Neolithic graves (Krzyżaniak 1975b).

The third and fourth seasons (1974 and 1975) focused mainly on the exploration of the Neolithic cemetery on the north-eastern slope, which produced another cluster of graves. The north-western part of the site yielded more graves - here of Meroitic date - just beneath the surface. Work on the southern midden was carried out on a smaller scale. The excavations confirmed the absence of a preserved vertical stratigraphy. First paleobotanical samples were then obtained which contained kernel of the fruit of the *Celtis integrifolia* tree.

In the fourth season the exploration of the northern midden began, starting with its western boundary (Krzyżaniak 1979a; 1979b). The trench was located in the middle of a dense concentration of artefacts forming two distinct elevations on top of the mound and on its western slope. The material extended down to 0.5 m, and the elevation under investigation contained fragments of querns that at times reached a density of close to two hundred

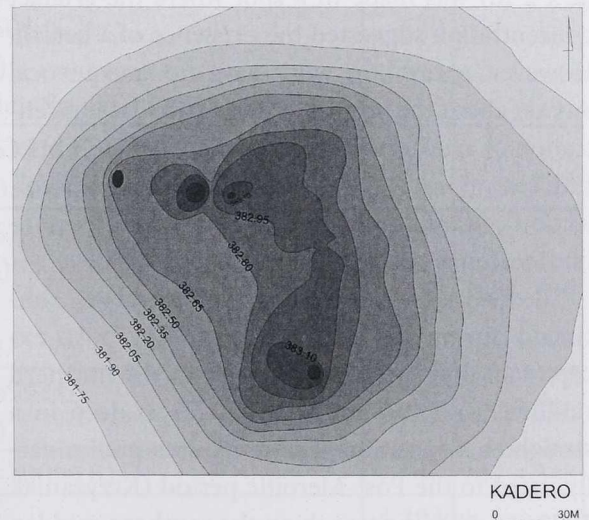


Fig. 4. Kadero. Plan of the site



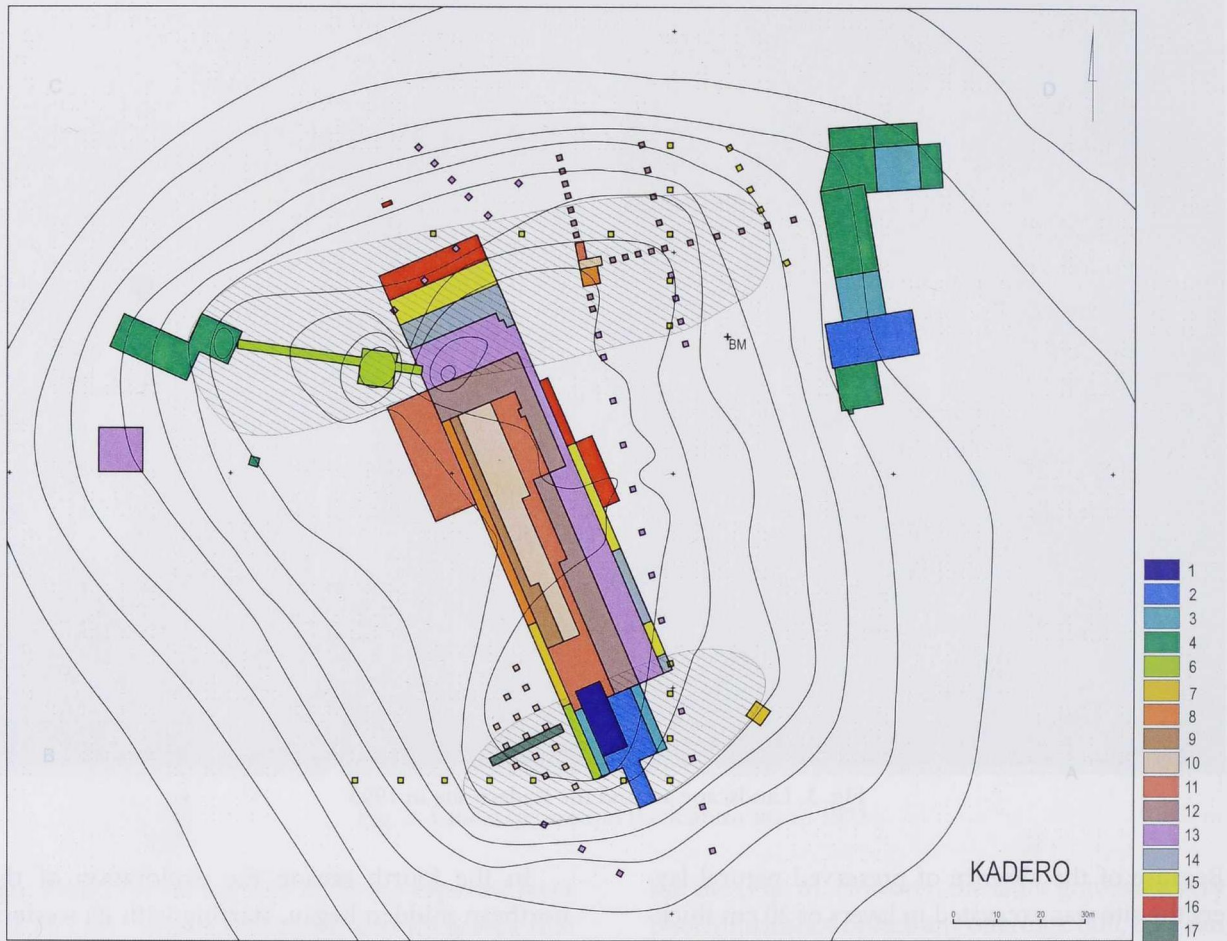


Fig. 5. Plan of the site showing the progress of the excavations.  
1 – 17 seasons of the excavations. BM – bench mark 382,571 m a.s.l.

fragments per square metre. On the other hand, pottery fragments and other settlement remains were much less numerous than in the southern midden (Krzyżaniak 1979a:65). A small test pit (2 x 2 m) was made in a spot where the artefact concentration suggested the existence of a hearth. However, excavation work gave no unequivocal answer about the origins of this particular concentration of artefacts (Krzyżaniak 1979a:65). A brief fifth season in 1976 was confined solely to the collection of samples for carbon dating and thermoluminescence research (Krzyżaniak 1979a).

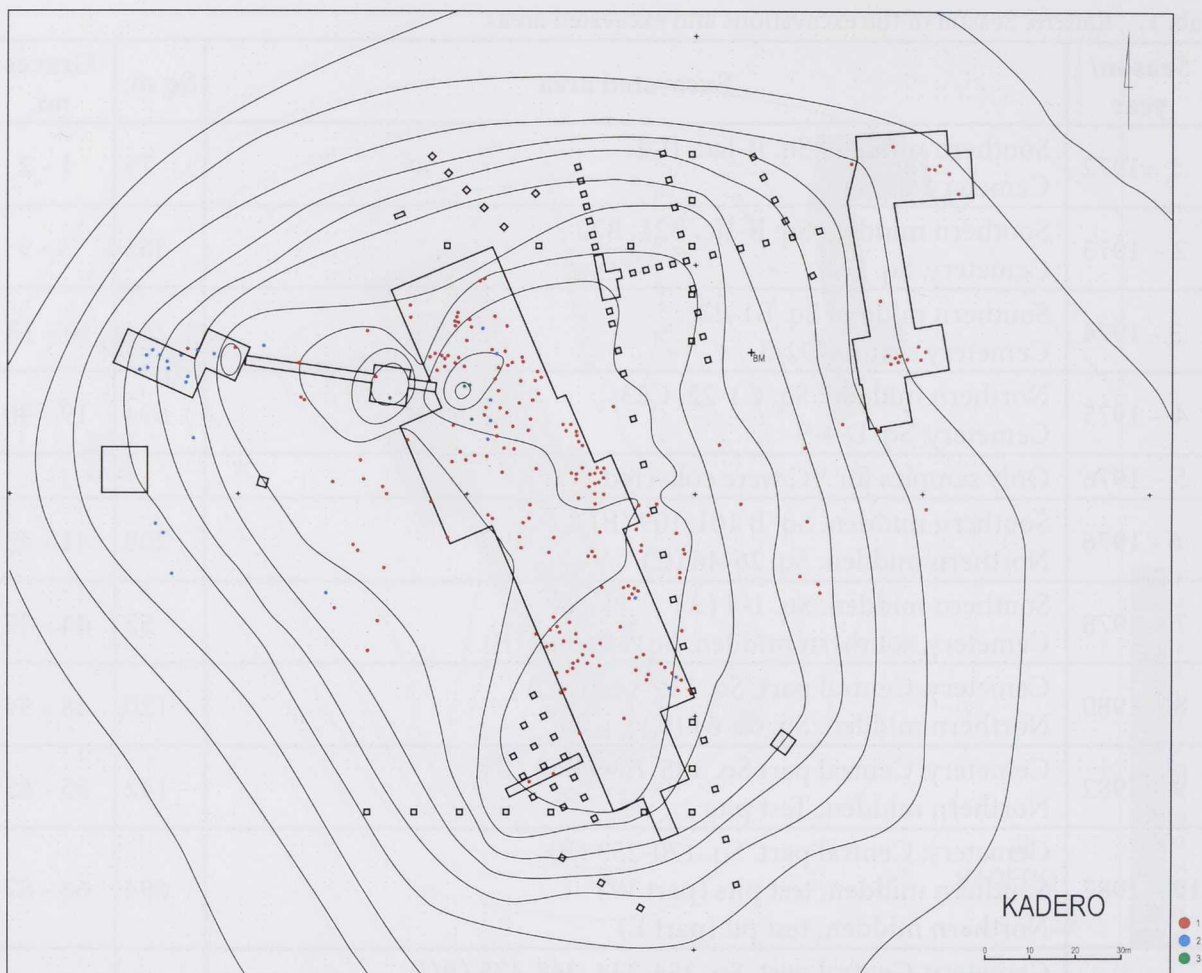
The work in the northern midden was continued during the sixth season in 1977. An exceptional find was a grave dug into the northern midden, with the body buried 1.5 m deep in a straightened position. The grave was preliminarily dated to the Post-Meroitic period (Krzyżaniak 1979a:66-69). The trench on the southern midden was widened during that season. The next, sev-

enth, excavation season (1978) again focused on the southern midden. The first trench was dug in a place of a distinct concentration of pebbles, on the south-eastern boundary of the midden. It seems to have been a deliberate collection of crude stone material (chert and quartz pebbles) for further usage. The second, elongated trench served to check the extent of the cultural layer from the southern midden towards the centre of the site. The cultural layer disappeared quickly northwards. This allowed L. Krzyżaniak to put forward the hypothesis of the existence of a cattle kraal between the northern and southern middens, which might account for the scanty amount of archaeological material there. Surprisingly Neolithic graves were found in that part of the site (Krzyżaniak 1980:66-67). The exploratory trench was continued during the eighth season (1980). As had been expected, no cultural layer was found, but Neolithic burials were revealed. Another exploratory trench was

Tab. 1. Kadero. Season of the excavations and excavated areas.

Season/ year	Excavated area	Sq m.	Graves no.
1 - 1972	Southern midden, Sq. B-Icd, II d Cemetery. Sq. D 1	75	1 - 2
2 - 1973	Southern midden, Sq. B-IIc, B21, B22 Cemetery. Sq. D 1	361	3 - 9
3 - 1974	Southern midden Sq. B1-22 Cemetery sectors D2-3	264	10 - 18
4 - 1975	Northern midden. Sq. C1-22, C23 Cemetery. Sq. D 4-9	694	19 - 40
5 - 1976	Only samples for <sup>14</sup> C were collected	-	-
6 - 1976	Southern midden. Sq. B 101-109 (B) Northern midden. Sq. 26-46 (C)	208	41 - 43
7 - 1978	Southern midden. Sq. 1-4 (A) Cemetery, southern midden. Sq. 110-118 (B)	52	44 - 47
8 - 1980	Cemetery. Central part. Sq. 119-144 (BC) Northern midden. Sq. 61-64 (C)	120	48 - 54
9 - 1982	Cemetery. Central part Sq. 145-169 (BC) Northern midden. Test pits	142	55 - 65
10 - 1987	Cemetery. Central part. Sq. 170-253 (B) Southern midden, test pits (part W) Northern midden, test pit (part E)	694	66 - 87
11 - 1989	Cemetery. Central part. Sq. 254-334, 345-425 (BC) Northern midden. Test pit (C)	412	88 - 116
12 - 1991	Cemetery, central part. Sq. 335-344 (C), 426-435 (C), 480-547 (B) Cemetery, northern midden. Sq. 436-479 (C) Northern midden. Test pits (C-eastern part)	536	117 - 143
13 - 1993	Western slope. Sq. 700-720 (C) Northern and southern midden, central part. Test pits. Cemetery, northern midden. Sq. 548-601 (C) Cemetery, central part. Sq. 800-851 (B) Cemetery, central part, northern midden Sq. 852-896 (BC)	620	144 - 192
14 - 1997	Cemetery, northern midden. Sq. 602-638, 852-853 (C) Cemetery, central part. Sq. 897-898, 903-912 (B)	204	193 - 222
15 - 1999	Cemetery, northern midden. Sq. 639-674, 913-925 (C) Cemetery. central part. Sq. 899-902 (B) Northern midden, test pits (C) Southern midden, test pits (B)	232	223 - 236
16 - 2001	Cemetery, northern midden. Sq. 675-699 (C) Cemetery, central part. Sq. 926-949 (C)	240	237 - 246
17 - 2003	Cemetery, southern midden. Sq. 1000-1009 (B)	40	247 - 248
<b>Total</b>		<b>4.894</b>	





**Fig. 6 .** Kadero. Distribution of the graves.

1 – Neolithic graves, 2 – Meroitic graves, 3 – Post-Meroitic/Christian graves

made in the eastern part of the northern midden. The concentration of artefact material there was similar to that in the centre of the southern midden (Krzyżaniak 1981). The exploration was submitted to an intensive analysis of the occurrence and frequency of particular pottery types in different stratigraphic levels (Chłodnicki, this volume).

Seasons 9 – 11 (1982, 1987 and 1989) were mostly focused on the exploration of the space between the northern and southern middens in order to reveal the largest possible number of graves from the Neolithic cemetery. About 50 graves were found within the trench and several additional ones on the surface of the site. Many graves contained little or no equipment, but the strongly contracted position of the dead indicated their Neolithic chronology (Krzyżaniak 1990). Richly furnished graves with numerous pottery vessels as well as stone mace heads and personal ornaments

were also discovered (e.g. grave no. 60). Graves listed as 113 and 114, with rich equipment, proved important finds. They were the first graves to contain pottery characteristic of the Late Neolithic, including caliciform beakers. It was notable that the richest graves were concentrated in one cluster whereby grave 60 was located at one end, graves 113 and 114 at the other end. Two graves found in the exploratory trench (nos. 98 and 99) belonged to the Meroitic period (Krzyżaniak 1992b).

During the tenth and eleventh seasons (1987, 1989) small test pits (2 x 2 and 1 x 1 m) were used to investigate the western part of the southern midden and the eastern part of the northern one. The maximum thickness of the layer was 50 cm. The soil from the pits underwent flotation to obtain botanical material. An exploratory survey in the northern midden together with flotation of soil from the pits was continued also in the twelfth season (1991). The



twelfth and thirteenth seasons (1991 and 1993) continued intensive excavations in the cemetery. Test pits were extended eastwards and northwards. In the latter case the graves were covered by the midden, though not as dense as in the places of highest concentrations. Another cluster of graves contained poorly furnished graves. Thus, the cemetery revealed separate clusters of Neolithic graves, containing burials with meagre equipment and richly furnished burials of the elite. The trench in the western slope of the site yielded little result except for a small amount of pottery and flint material. During the season discussed the m.a.s.l. position of the site was established and a benchmark at 382.571 m.a.s.l. was established (Krzyżaniak 1993; 1994b).

After a four-year break the fourteenth season began in 1997. The exploration of the cemetery was continued both westwards and northwards. Excavation continued to a depth of 1.1 m since not graves were expected below this depth. The work resulted in the discovery of 31 more graves, 28 of them apparently linked with the Neolithic and the remaining 3 with the Late Meroitic-period. One of the finds (grave 194) was a burial of an adult dog (Krzyżaniak 1998).

The following, fifteenth, season (1999) saw the enlargement of the trench northwards and eastwards where 12 Neolithic graves were discovered. Two further graves were found on the surface of the site. Geological research of the site were also initiated at the time. The southern and northern middens were covered with a network of 20 test pits 1 x 1 m explored down to virgin soil (from a few to 45 cm) to collect samples for archaeobotanical studies (Krzyżaniak 2000).

Ten more Neolithic graves were discovered during the sixteenth season (2001). Grave no. 244 merits special attention in that next to typical Khartoum Neolithic pottery it also contained a unique set of bone objects, tentatively interpreted by Lech Krzyżaniak as a rasp – a musical instrument (Krzyżaniak 2002:321; see Kabacińska, this volume). Geological studies of the site were also continued. The last, seventeen season was in late autumn of 2003. It was brief, since immediately after the work in Kadero the expedition participate in the rescue research on the 4th cataract of the Nile. In Kadero the work was concentrated on

the western part of the southern midden. In the 20 m-long trench the settlement material clearly decreased in westerly direction. The thickness of artefact occurrence dropped as well, from 20 to 10 cm. The discovery of two graves below the midden – thus probably older than the midden itself – was rather unexpected (Krzyżaniak 2004b). Also a field school for students from the Department of Archaeology of the University of Juba was conducted during the final research season.

Many scholars representing different disciplines participated in the research in Kadero. The artefact material yielded during the excavations was analysed on the site or after its transport to Poznań, especially after the first seasons when Lech Krzyżaniak was the only archaeologist present on the site. Discovery of graves meant that anthropologists accompanied the research. Initially they were Elżbieta Promińska and Tadeusz Dzierzykray-Rogalski, and starting in the tenth season (1987) Maria Kaczmarek. Animal bones were brought to Poznań. The first four seasons material was analysed by Marian Sobociński, thereafter by Achilles Gautier.

Obtaining botanical material proved to be immensely difficult. The first analyses were made by Melania Klichowska on the basis of imprints of plants found on pottery (Klichowska 1984). Beginning with 1987, the flotation method was used to try to obtain botanical material but with little success. The work of the paleobotanists Hala N. Barakat (1993) and Lucyna Kubiak-Martens (1999) did not produce completely satisfactory results.

The pottery material from the settlement of the first seven seasons was brought to Poland where it was analysed by Marek Chłodnicki who took part in the excavations and continued work on the material on the site from the 8th to the 13th season. Flints were also initially analysed by Jacek Nowakowski in Poznań, in seasons 7 – 8 in Kadero in the field (Nowakowski 1984), and starting with the 9th season by Michał Kobusiewicz (Kobusiewicz 1996). During the last three seasons complex geological investigations were carried out by Wojciech Stankowski.

Other persons who greatly contributed to the work of the expedition were: Krzysztof Ciałowicz, Jacek Kabaciński, Przemysław Bobrowski and Maciej Jórdeczka. One cannot overestimate the role

of Karla Kroeper, Lech Krzyżaniak's wife, who was responsible for the exploration of the Neolithic graves over nine seasons from 1980 onwards. The full list of the members of the expedition can be found at the end of this volume.

Following the death of Professor Lech Krzyżaniak the mission of the Centre of Mediterranean Archaeology, Warsaw University, and of the Archaeological Museum, Poznań, terminated the investigations of the Kadero site. The present volume is a summary of the work done. Nearly 0.5 hectares of the surface have been studied and several tens of graves were revealed on the surface between the trenches.

The data at our disposal allows to project an estimated size of the original site of close to 3 hectares. In other words, one sixth of the surface has been studied. The last seasons indicate that the site has not as yet disclosed all its secrets. This holds true, in particular, for the cemetery. Successive years of research verified the hypotheses concerning the time-span of the use of the site as a necropolis and also brought new information about the burial ritual, customs and social diversity of the Neolithic people. Progressing urbanisation highly jeopardizes the site, and shows that a continuation of work in Kadero is expedient.