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PRELUDE TO THE ATLANTIC TRADE:  
NEW PERSPECTIVES ON SOUTHERN GHANA'S  
PRE-ATLANTIC HISTORY (800–1500)

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**ABSTRACT:** The Ghanaian forest was well settled by agricultural communities prior to the opening of the Atlantic trade in the late fifteenth century. The most prominent of these settlements were earthworks sites, construction of which began in the first millennium CE and continued until their abrupt abandonment prior to the mid-fifteenth century. In this article, previous archaeological data are evaluated in light of current research to provide a plausible alternative hypothesis for the history of the Akan, placing that history in a much broader and deeper context.

**KEY WORDS:** West Africa, Ghana, archaeology, black death, earthworks, pre-colonial.

INTRODUCTION

THIS research considers the history and archaeology of southern Ghana, an area now primarily inhabited by Akan-speaking peoples.<sup>1</sup> The most comprehensive model of the pre- and early Atlantic history of the region has been proposed by Ivor Wilks. According to this 'big bang' model of Akan origins, the history of agriculture in the Ghanaian forest and Akan sociopolitical development were the result of a series of transformations that occurred after the advent of European trade at the end of the fifteenth century. These observations and the conclusions they entail have important implications for the understanding of both the Atlantic and the pre-Atlantic past of West Africa, as well as how that past is conceptualized. Current research, including a growing amount of archaeological data from southern Ghana, suggests a substantial settlement of the forest by agricultural populations well before the beginning of European trade.

Analysis of the early history of Atlantic Africa is made particularly difficult because of the extremely fragmentary – and sometimes imagined – knowledge of the continent before the fifteenth century. The lack of early historical data for Africa has contributed to an essentialist view of Africa's involvement in the making of the Atlantic world as mainly that of a passive participant. Although archaeological and historical studies have addressed the role played by the continent in the genesis of the modern world, the relative paucity of

<sup>1</sup> Akan is a linguistic classification referring to several closely related languages extending from south-eastern Côte d'Ivoire to the Volta river in eastern Ghana. Although it is a linguistic classification, a high degree of cultural homogeneity and subsistence practices resulting from shared historical processes characterizes groups within the language family. For further discussion, see for example M. E. K. Dakubu, *The Languages of Ghana* (London, 1988); D. Kiyaga-Mulindwa, 'The "Akan" problem', *Current Anthropology*, 21–4 (1980), 503–6; E. Schildkrout (ed.), *The Golden Stool: Studies of the Asante Center and Periphery* (New York, 1987).

studies of pre-Atlantic Africa makes it difficult to assess the nature of long-term historical forces, particularly those along the West African coasts and in their hinterlands – the new frontiers of the Atlantic world.

A major aspect of West African historical studies has dealt with the ‘origins’ of particular ethnic or cultural groups. In African historiography, the concept of origins often provides a nebulous foundation on which the researcher elevates the narrative walls of the pre-Atlantic past. The reliance on less demanding standards of historical criticism is obscured by the rarity of sources, by the lack of trained scholars able to assess them, and by the Western philosophical inclination to prefer weak arguments to emptiness. The concept of ‘origins’ also exists among African caretakers of various historical legacies. Here, however, it operates quite differently. Although clearly of a historical nature, traditions of origins are also constructed discourses about the past that reflect the contexts that produced them. Turning these traditions of origin into discourses that fit modern standards of scholarship is, therefore, a delicate exercise of historical criticism.

The limitations of these fragmentary sources and the challenges in their interpretation are well illustrated by the interpretation of the pre- and early Atlantic history of southern Ghana. The early political history of the region has received limited attention, with the exception of some of the coastal polities, for which our knowledge extends back into the sixteenth or even the late fifteenth century.<sup>2</sup> Early Portuguese sources indicate that Europeans encountered hierarchical societies, politically organized on a territorial basis. Yet the nature of these early sociopolitical organizations remains unclear.<sup>3</sup> The lack of written sources and the absence of oral traditions – other than potentially helpful myths – about such a remote period of time make historical evaluation difficult. It follows that the scholarly literature about state formation in southern Ghana mainly concerns political entities that arose from the seventeenth century onward.<sup>4</sup>

<sup>2</sup> For review of the early textual sources see P. E. H. Hair, *The Founding of Castelo de São Jorge da Mina: An Analysis of the Sources* (Madison, 1994); and A. Teixeira da Mota and P. E. H. Hair, *East of Mina: Afro-European Relations on the Gold Coast* (Madison, 1988). See also J. B. Ballong-Wen-Mewuda, *La vie d'un comptoir portugais en Afrique Occidentale* (Lisbon, 1993); J. Vogt, *Portuguese Rule on the Gold Coast 1469–1682* (Athens, OH, 1979).

<sup>3</sup> See Hair, *Founding*, pp. 55–6, n. 37. See also C. R. DeCorse, ‘Varied pasts: history, oral tradition, and archaeology on the Mina coast’, in J. F. Brooks, C. R. N. DeCorse, and J. Walton (eds.), *Small Worlds: Method, Meaning, and Narrative in Microhistory* (Santa Fe, 2008), 77–96.

<sup>4</sup> G. L. Chouin, *Eguafo: un royaume africain ‘au cœur français’ (1637–1688)* (Paris, 1998); K. Y. Daaku, *Trade and Politics on the Gold Coast, 1600–1720* (London, 1970); Y. Deffontaine, *Guerre et société au royaume de Fetu, Ghana: 1471–1720* (Ibadan, 1993); H. M. Feinberg, ‘Africans and Europeans in West Africa: Elminans and Dutchmen on the Gold Coast during the eighteenth century’, *Transactions of the American Philosophical Society*, 79: 7 (1989); J. Fynn, *Asante and its Neighbors 1700–1807* (London, 1971); R. Kea, *Settlements, Trade, and Politics in the Seventeenth-century Gold Coast* (Baltimore, 1982); T. Rivière, *Economie et politiques des peuples Ga d’Accra (Ghana) au XVIIe siècle* (unpublished PhD thesis, Centre de Recherche Africaine, Université de Paris I, 1994); E. Terray, *Une histoire du royaume abron du Gyaman* (Paris, 1995); P. Valsecchi, *I Signori di Appolonia: poteri e formazione dello stato in Africa occidentale fra XVI e XVIII secolo* (Rome, 2002).

All of these polities, however, are primarily known through limited European sources associated with a well-established and expanding Atlantic economy. While their emergence is well documented compared with pre-fifteenth-century political entities, they nevertheless cannot serve as pristine models of state formation and analogues for earlier, undocumented, sociopolitical systems. Interpretation is constrained by the sources, both oral and written, which notably do not antedate the 1500s. Nonetheless, the 'origins' of major historical events and processes such as the founding of lineages and settlement histories, as well as the genesis of sociopolitical complexity and the beginnings of agriculture are frequently placed in the fifteenth and sixteenth centuries: that is, at the time written sources first become available. Is this coincidence? We believe that such interpretations are shaped by the (documentary and oral) sources on which they depend.

#### HISTORY BEFORE THE 'BIG BANG'? THE EARTHWORKS OF SOUTHERN GHANA

Archaeological evidence from earthworks, as well as from other sites in southern Ghana, establishes the existence of a sedentary agrarian society well adapted to the forest environment long before the opening of the Atlantic trade.<sup>5</sup> This is in contradistinction to Ivor Wilks's 'big bang' model of the emergence of sociopolitical complexity in southern Ghana in the fifteenth and sixteenth centuries.<sup>6</sup> This theory has remained largely accepted and unchallenged, with the exception of a few archaeologists who have found it difficult to reconcile such a presentation of the past with emerging archaeological data.<sup>7</sup>

<sup>5</sup> The archaeological data referred to includes ongoing work by the Central Region Project. Currently, the project is focusing on the survey of archaeological sites between the Pra River basin in the west and the Kakum River in the east. See C. R. DeCorse, *An Archaeology of Elmina: Africans and Europeans on the Gold Coast, 1400-1900* (Washington, DC, 2001), 4-6; G. L. Chouin, 'Forests of power and memory: an archaeology of sacred groves in the Eguafu polity, southern Ghana, 500-1900 A.D.' (unpublished PhD thesis, Syracuse University, 2009); S. Spiers, 'The Eguafu kingdom: investigating complexity in southern Ghana' (unpublished PhD thesis, Syracuse University, 2007); E. Carr, '"They were looking for white jobs": the archaeology of postcolonial capitalist expansion in coastal Ghana' (unpublished PhD thesis, Syracuse University, 2001); G. L. Chouin, 'Archaeological perspectives on sacred groves in Ghana', in M. J. Sheridan and C. Nyamweru (eds.), *African Sacred Groves: Ecological Dynamics and Social Change* (Oxford, 2008), 178-94; G. Cook and S. Spiers, 'Central Region Project: ongoing research on early contact, trade and politics in coastal Ghana, AD 500-2000', *Nyame Akuma*, 61:1 (2004), 17-28; C. R. DeCorse, G. Cook, R. Horlings, A. Pietruszka, and S. Spiers, 'Transformation in the era of the Atlantic world: the Central Region Project, coastal Ghana 2007-2008', *Nyame Akuma*, 72 (2009), 85-93.

<sup>6</sup> See I. Wilks, *Forests of Gold: Essays on the Akan and the Kingdom of Asante* (Athens, OH, 1993).

<sup>7</sup> For example see C. R. DeCorse, 'Coastal Ghana in the first and second millennia AD: change in settlement patterns, subsistence and technology', *Journal des Africanistes*, 75 (2005), 43-52; P. Shinnie, 'Early Asante: is Wilks right?', in J. Hunwick and N. Lawler (eds.), *The Cloth of Many Colored Silks: Papers on History and Society Ghanaian and Islamic in Honor of Ivor Wilks* (Evanston, IL, 1996).

In the following discussion, the term 'earthwork' is used to designate a monumental trench system: an enclosure – often roughly elliptical – composed of a deep ditch and raised earthen banks.<sup>8</sup> They are believed to have been part of a settlement system. Earthworks are of particular note because of the implications they have for communal labor and long-term settlement.<sup>9</sup> Earthworks sites have been reported in southern Ghana for the past seven decades; and recent archaeological evidence on earthworks can be used to review and reinterpret earlier data.

The earthwork system of the Birim valley was first reported in the early 1930s by N. R. Junner.<sup>10</sup> Test excavations were undertaken at five sites and a short report published. Some of the material excavated was sent to the British Museum and examined by H. J. Braunholtz, who submitted a brief report to the Geological Survey and published a more detailed note.<sup>11</sup> Thurstan Shaw, who also pioneered archaeological work in Ghana, did not excavate any earthworks but made useful notes on their structure and was the first to suggest that they might be related to similar monuments in the region, particularly in Côte d'Ivoire and Nigeria.<sup>12</sup>

In 1953, Oliver Davies excavated the Kokobin earthwork. His report provided a list of all known earthworks, with the comment added that 'other entrenchments exist in the district, but no details are available'.<sup>13</sup> Davies also noted that 'entrenchments seem confined to this district of the forest', but prudently added that such a distribution might be a reflection of the fact that the area had been intensively prospected for diamonds.<sup>14</sup> From the report and the site map, it appears that Davies chose to open a trench in the western rampart and a large test unit in the interior of the

<sup>8</sup> For a review and synthesis, see Chouin, 'Forests', ch. 9.

<sup>9</sup> Features of this kind, as well as hilltop sites, are an ancient settlement form in West Africa and they have wide distribution, including both Atlantic and pre-Atlantic period sites. See C. R. DeCorse, 'Fortified towns of the Koinadugu plateau: northern Sierra Leone in the Atlantic world', in C. Monroe and A. Ogundiran (eds.), *Landscapes of Power: Regional Perspectives on West African Politics in the Atlantic Era* (forthcoming); G. E. Brooks, *Landlords and Strangers: Ecology, Society and Trade in Western Africa, 1000–1630* (Boulder, 1993) 238–9, 246, 250, 255–6; Chouin, 'Forests'; G. L. Chouin, 'Sacred groves as historical and archaeological markers in southern Ghana', *Ghana Studies*, 5 (2002), 177–96; Chouin, 'Archaeological perspectives', 178–94.

<sup>10</sup> N. R. Junner, 'Ancient trenches in the Birim district', in *Report on the Geological Survey Department for the Financial Year 1933–1934* (Accra, 1934), 14. Junner was then director of the Gold Coast Geological Survey. For a review of the initial reports of earthworks and a map of their distribution, see D. Kiyaga-Mulindwa, 'The earthworks of the Birim valley, southern Ghana' (unpublished PhD thesis, Johns Hopkins University, 1979), 19–23; see also F. J. Kense, 'Archaeology in Anglophone West Africa', in P. Robertshaw (ed.), *A History of African Archaeology* (Portsmouth, NH, 1990), 135–54.

<sup>11</sup> H. J. Braunholtz, 'Report by Dr. H. J. Braunholtz on pottery etc., excavated from an ancient entrenched site near Abodum, Birim district', *Report on the Geological Survey Department for the Financial Year 1935–1936* (Accra, 1936), 34–6; idem, 'Archaeology in the Gold Coast', *Antiquity*, 10 (1936), 469–74.

<sup>12</sup> T. Shaw, 'Prehistory and archaeology in the Gold Coast', in *Conférence Internationale des Africainistes de l'Ouest*, II (Dakar, 1951), 467–99.

<sup>13</sup> O. Davies, 'Excavations at Kokobin and the entrenchments in the Oda area', in *Archaeology in Ghana* (London, 1961), 25. See also idem, *West Africa before the Europeans* (London, 1967), 287–90.

<sup>14</sup> Davies, 'Excavations', 25.

earthwork.<sup>15</sup> Importantly, the ditch, which was part of the entrenchment system, was not fully excavated and its stratigraphy remained poorly described.<sup>16</sup>

A more comprehensive study of the Ghanaian earthworks was carried out by David Kiyaga-Mulindwa in the 1970s as part of his doctoral research.<sup>17</sup> He studied a cluster of 21 earthworks in the Birim valley, excavating at two of them. He distinguished two distinct ceramic traditions, associated with different periods of occupation. These were the 'Earthworks Ware', the earlier of the ware types and the one that he associated with the construction of the earthworks, and the 'Atwea Ware', associated with the *Atweafo* and similar in style and manufacture to ethnographically documented ceramics.<sup>18</sup> The *Atweafo* are the current inhabitants of the Birim valley, whose oral traditions claim they have always lived there. However, they have no traditions relating to construction or occupation of the earthworks, which they describe as being made by the *Tetefo*, 'the people of long, long, ago'.<sup>19</sup>

The amount of work that Kiyaga-Mulindwa carried out at the various sites differed significantly. The two earthworks tested archaeologically were the Monsa and Batabi sites. The Monsa earthwork was the most thoroughly excavated and it provided the most significant data.<sup>20</sup> The stratigraphy is briefly described and the only detailed drawings available are sections of the

<sup>15</sup> See *ibid.* 15.

<sup>16</sup> *Ibid.* Areas were also selected and cleared in the southern and eastern ramparts, as Davies looked for evidence of a palisade. These areas, although marked 'excavation' on the site map, seem not to have been excavated. Other stratigraphic information was obtained from two existing surveyors' pits and a cut made for the railway, the latter providing an interesting section of the eastern rampart. See *ibid.* plates 3 and 4.

<sup>17</sup> Kiyaga-Mulindwa, 'Earthworks'; see also *idem*, 'Social and demographic changes in the Birim valley, southern Ghana, c. 1450 to c. 1800', *Journal of African History*, 23 (1982), 63–82. Kiyaga-Mulindwa, a Ugandan, may have been inspired by the research design and approach to the use of oral traditions developed in the framework of previous archaeological research on the earthworks of western Uganda, which had taken place before Idi Amin seized power in 1971. See for instance P. Robertshaw, 'Archaeological survey, ceramic analysis, and state formation in western Uganda', *African Archaeological Review*, 12 (1994), 105–12; P. Robertshaw and D. Taylor, 'Climate change and the rise of political complexity in western Uganda', *Journal of African History*, 41 (2000), 4–5.

<sup>18</sup> Kiyaga-Mulindwa, 'Earthworks', 179–89.

<sup>19</sup> *Ibid.* 31, 186, 228 n. 1. The collection of oral traditions was included in the project's research design. While some traditions were recorded, Kiyaga-Mulindwa was clearly disappointed by 'the quality and utility of tradition' in the Birim valley (*ibid.* 33). He pointed out a variety of problems, including the predominance of traditions belonging to dominant groups and families, as well as the 'compression' of local traditions in a chronology dominated by Asante history. He mainly seems to have overestimated the potential of oral traditions to directly complement archaeological data. Elsewhere, we have noted that the interface between oral historical data and archaeological data can be very narrow: G. L. Chouin and C. R. DeCorse, 'Trouble with siblings: archaeological and historical interpretations of the West African past', in T. Falola and C. Jennings (eds.), *Sources and Methods in African History: Spoken, Written, Unearthed* (Rochester, 2003), 7–15; DeCorse, 'Varied pasts'.

<sup>20</sup> The sites were mainly selected on the basis of their accessibility from Akim Manso. The other sites served to provide comparative data and were used to elaborate the earthwork/Atwea theory of population replacement developed by Kiyaga-Mulindwa: Kiyaga-Mulindwa, 'Earthworks', 78.

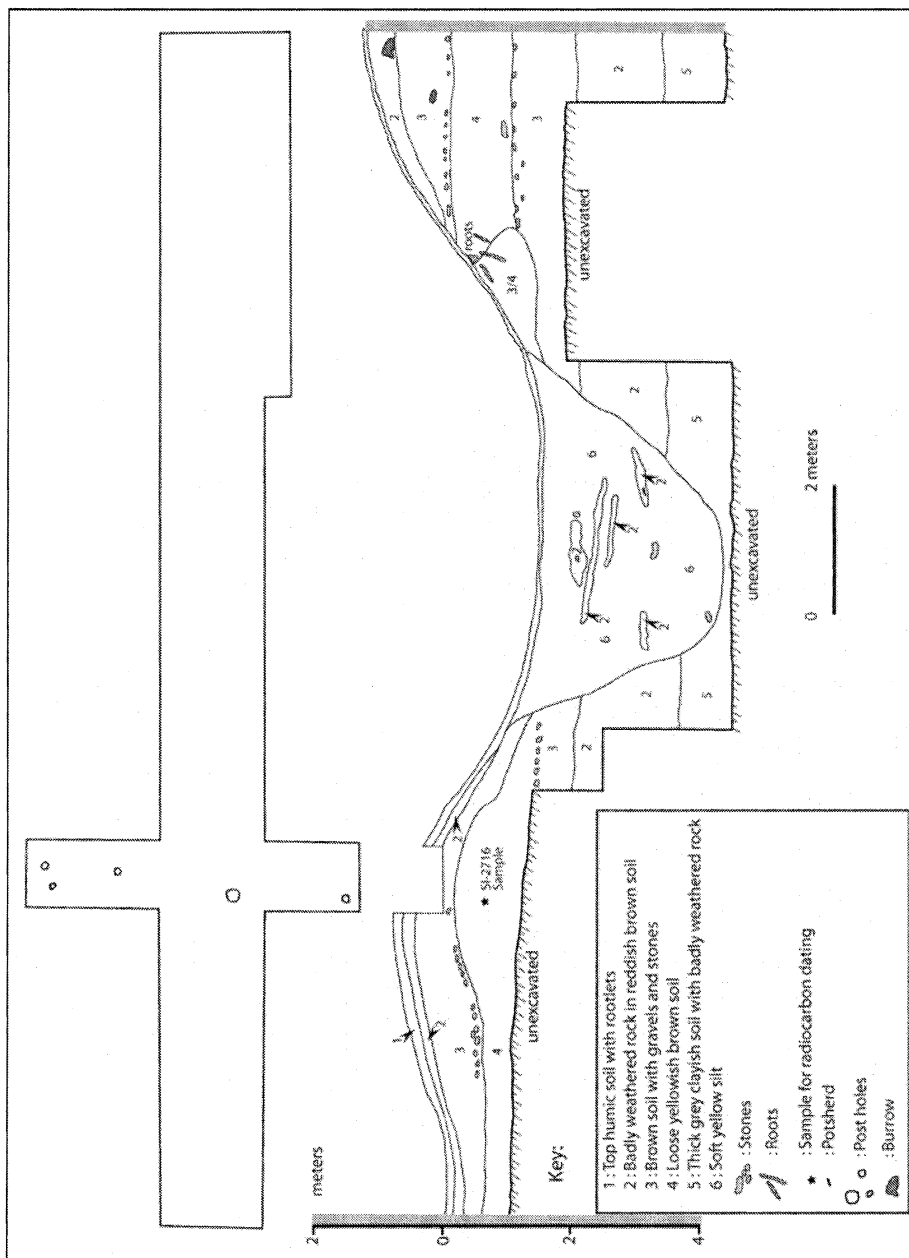


Fig. 1. Section of the Monsa earthwork, Birim valley. Original drawing from Kiyaga-Mulindwa, 'Earthworks', 95-6, redrawn by Gérard Chouin.

cutting across the ditch (see Fig. 1).<sup>21</sup> Kiyaga-Mulindwa was able to obtain six radiocarbon dates, including four directly related to the occupation of the earthworks. Before work conducted by Gérard Chouin at Akrokrowa, these

<sup>21</sup> *Ibid.* 95-6.

were the only available dates related to earthworks.<sup>22</sup> Overall, while an important pioneering study, Kiyaga-Mulindwa's research offers a preliminary assessment of a problem that appears much more complex. The limited information on the contexts of the radiocarbon dates and the uncritical interpretation of oral historical data contributed to a series of misrepresentations of the chronology, structure, and function of the earthworks. The interpretation of the Monsa radiocarbon dates is of particular importance because it is inconsistent with more recent data. For this reason, the earthworks chronology is examined in detail below.

#### A REVISED CHRONOLOGY: A PRE-ATLANTIC AGRARIAN SOCIETY

Archaeological data has provided increasing evidence that the Ghanaian forest was well occupied by settled agricultural communities prior to the advent of the Atlantic trade. In particular, Brian Vivian's and Peter Shinnie's data from Asante indicate the existence of stable village communities as early as 800 CE.<sup>23</sup> Additional data emerging from the Central Region suggests a pre-Atlantic settlement density greater than the post-1500 period. These settlements include hilltop and lowland sites of various sizes as well as entrenchments, all with substantial evidence for iron production. Sites with entrenchments are the most visible of these pre-Atlantic settlements. Their chronology is therefore of particular significance.

The main challenge is to determine whether earthworks belong to the pre- or post-Atlantic period; if they were built before or after the opening of the Atlantic trade. The amount of work involved in their construction suggests a social organization capable of mobilizing, controlling, and co-ordinating labor, and relatively sedentary settlement over long periods of time.

Unfortunately, sites excavated before the 1970s were poorly dated, mainly because radiometric dating was not yet available. Chronologies were posited on the basis of the relative depth of the archaeological deposits, the weathered nature of some of the ceramics, and the presence/absence of European trade materials. Prior to Kiyaga-Mulindwa's excavations in the Birim valley, most authors agreed – not without some doubt – that earthworks were ancient but belonged to the Atlantic period or to the immediate pre-Atlantic period.<sup>24</sup> Kiyaga-Mulindwa did not dispute this assessment and he provided

<sup>22</sup> Two new series of dates were obtained by James Boachie-Ansah in 2009 from a test excavation outside and inside the enclosure of a newly documented earthwork at Ngyeduam. Dates obtained outside the enclosure suggest a possible reoccupation of the earthwork in the second half of the fifteenth century, while dates obtained from trenches excavated within the enclosure belong to both the first and second millennia CE. See J. Boachie-Ansah, 'Who were the builders of the earthworks in the forests of southern Ghana?', *Studies in the African Past*, 8 (forthcoming). Future archaeological investigations of the ditch are planned to provide comparative data with that of Akrokrowa (personal communication from James Boachie-Ansah, 2009).

<sup>23</sup> B. C. Vivian, 'Recent excavations of Adansemanso', *Nyame Akuma*, 46 (1996), 37–42; P. Shinnie, 'Early Asante and European contacts', *Journal des Africanistes*, 75 (2005), 25–42.

<sup>24</sup> In 1936, Braunholtz pointed to the absence of European imports – tobacco pipes in particular – in the assemblage excavated by Junner (see above) and suggested 'an antiquity of at least three or four centuries'. Braunholtz further remarked that 'the weathered condition of many of the sherds, and the silting up of trenches also suggest some



a more substantive chronology by obtaining radiocarbon dates. His interpretation was that the period of earthwork construction coincided with an 'ethnocide' and period of population replacement, the latter being the direct explanation for the shift in pottery traditions observable archaeologically.<sup>25</sup> Kiyaga-Mulindwa published six radiocarbon dates; four of them came from the Monsa Earthworks, and more precisely from two units: MN<sub>4</sub> (date N-2208) and MN<sub>5</sub> (date SI-2716, SI-2717, SI-2718).<sup>26</sup> Table 1 summarizes Kiyaga-Mulindwa's interpretation of the occupational history of the Monsa earthwork site, while Table 2 presents the details available for the four dates.<sup>27</sup> These results are very heterogeneous: two mid-second millennium dates, one from the first millennium CE, and one with an unknown, and therefore invalid, standard deviation.<sup>28</sup>

SI-2717 is an intriguing date because it is very early, and because we do not know at what depth it was found. There is some confusion over the origin of the sample.<sup>29</sup> From Kiyaga-Mulindwa's brief description, it is clear that this sample was found in the ditch. If the date is not contaminated and

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age', before concluding that all evidence pointed 'to the sites having been deserted by the 16th century, if not earlier, and the accumulation of material suggests a lengthy period of occupation previous to this'. In his study of Kokobin, Davies did not go much further than Braunholtz, even judging 'hazardous' the latter's suggestion of 'an antiquity of at least three or four centuries' (Davies, 'Excavations', 25). He only noted that the earthworks were 'likely to be roughly contemporary' and that they belonged 'to the same cultural stage' (*ibid.* 26). Finally, he seems to have accepted Wilks's suggestion that 'the entrenchments are fortified settlements built by the Akwamu in the second half of the seventeenth century to resist pressure from Akim to the west'. This comment was added to the paper in the form of a *nota bene* and Davies did not provide any specific comment on Wilks's suggestion. He later revised his position, however, and considered the earthworks as dating to 'pre-European times' and as 'proto-Akan' (Davies, *West Africa*, 289-90).

<sup>25</sup> Kiyaga-Mulindwa, 'Social and demographic changes', 73-7. Bellis criticized Kiyaga-Mulindwa's interpretation, pointing out that the transition in pottery tradition, as noted above, was not a phenomenon limited to the Birim valley but is observable throughout the forest area of Ghana. See J. O. Bellis, 'A late archaeological horizon in Ghana: proto-Akan or pre-Akan', in E. Schildkrout (ed.), *The Golden Stool: Studies of the Asante Center and Periphery* (New York, 1987), 47; DeCorse, *Archaeology*, 118. I. Wilks, 'The forest and the Twis', *Transactions of the Historical Society of Ghana*, new series, 8 (2004), 50-1.

<sup>26</sup> Kiyaga-Mulindwa, 'Earthworks', 91, 97, 100-2.

<sup>27</sup> The information given by Kiyaga-Mulindwa has been recalibrated using the online version of the program CALIB Rev.5.0.1, written at the Quaternary Isotope Lab of the University of Washington and maintained by Paula and Ron Reimer. The program is based on calibration datasets ratified at the 18th International Radiocarbon Conference. See P. J. Reimer *et al.*, 'IntCal04 terrestrial radiocarbon age calibration, 26 - 0 ka BP', *Radiocarbon*, 46 (2004), 1029-58. We thank Jean Polet for calling our attention to the program.

<sup>28</sup> Kiyaga-Mulindwa, 'Earthworks', 97. Unfortunately, Kiyaga-Mulindwa did not provide us with much stratigraphic detail regarding the samples on which these radiocarbon dates are based. SI-2717 and SI-2718 for example, were collected 'from the middle of the ditch'.

<sup>29</sup> James Bellis expressed reservations about the sample's context, noting that 'this date was derived from a carbon sample stratigraphically located on an old surface below the earliest construction of the earthwork. It is apparently associated in no specific way with earlier cultural material (e.g., a clearly defined hearth or rubbish pit containing cultural association)' (Bellis, 'Late archaeological horizon', 45; personal communication 2009).

Table 1. *Summary of Kiyaga-Mulindwa's chronology for the Monsa earthwork. The 1550-1740 range is given in Kiyaga-Mulindwa, 'Earthworks', 191*

First millennium CE-c. 1550	Continuous occupation of a settlement site by Group A ('earthwork people').
After 1550-before 1740	Transitional period. Construction of the entrenchment system by Group A to defend themselves against Group B ('Atwea people'). Gradual ethnocide of Group A; replaced by Group B, who reoccupy the earthworks, as well as establishing new settlements.
After c. 1700	Group A now entirely displaced. Domination of Group B in the Birim valley.

Table 2. *Recalibrated radiocarbon dates from the Monsa earthwork, Birim valley. The most probable age ranges (i.e. age ranges with the largest areas under distribution) are shown in bold italics*

Lab Code	<sup>14</sup> C age yr BP	68% (1σ) calibrated age ranges	Relative area under distribution	95.4% (2σ) calibrated age ranges	Relative area under distribution
<b>N-2208</b>	<b>485 ± 65 BP</b>	1325-1344 CE	0.110859	1301-1367 CE	0.176642
Id.	Id.	<b><i>1394-1470 CE</i></b>	<b><i>0.889141</i></b>	<b><i>1382-1522 CE</i></b>	<b><i>0.758857</i></b>
Id.	Id.	Nil	Nil	1574-1626 CE	0.0645
<b>SI-2716</b>	<b>410 ± 80 BP</b>	<b><i>1430-1522 CE</i></b>	<b><i>0.667858</i></b>	1331-1338 CE	0.0051
Id.	Id.	1573-1628 CE	0.332142	<b><i>1397-1654 CE</i></b>	<b><i>0.9949</i></b>
<b>SI-2717</b>	<b>1935 ± 90 BP</b>	<b><i>43 BC-140 CE</i></b>	<b><i>0.88757</i></b>	<b><i>170 BC-257 CE</i></b>	<b><i>0.988814</i></b>
Id.	Id.	150-170 CE	0.060403	299-318 CE	0.011186
Id.	Id.	194-210 CE	0.052028	Nil	Nil
<b>SI-2718</b>	<b>1105 ± (none given) BP</b>	Invalid standard deviation		Invalid standard deviation	

incorrect, which is always a possibility, two interpretations of SI-2717 are possible: either the sample was found in the ditch, in deposits associated with the occupation of the earthworks, and is evidence that the construction of earthworks started at the beginning of the first millennium CE; or the sample was found just below the bottom of the ditch, in which case it is unrelated to the earthworks. Further evaluation can only be assessed on the basis of additional work at the site.

Sample SI-2718 was also taken from the ditch. Unfortunately, the fact that the standard deviation is unknown makes its interpretation difficult. Recalibrating the date using standard deviation ranging from 50 to 90 yielded 2σ age ranges clustered between 782 and 1151 CE, strongly suggesting that this sample dates between the eighth and the twelfth centuries CE. Kiyaga-Mulindwa, however, suggests that this sample has 'nothing to do with the construction of the earthworks having been carried into the ditch by erosion

and subsequently buried in the silt'.<sup>30</sup> Yet this conclusion merits further consideration. The content of a pit or ditch is usually considered to be more recent than the making of the depression, unless specific depositional features suggest a different conclusion. In the case of the Monsa earthworks such indices are missing. On the contrary, Kiyaga-Mulindwa notes that 'most of the bank soil appears to have been washed away from the ditch and not the reverse'.<sup>31</sup> In addition, he found a later date (SI-2716) for the bank. Evaluating the dates, John Sutton rightly noted: 'since the silting of the ditch could not have begun until after the bank (with its sixteenth-century date [*sic*]) was built, there is something wrong here'.<sup>32</sup> Kiyaga-Mulindwa's assessment of the date appears to have been derived from his own conviction that although 'this valley has been inhabited continuously from the beginning of the first millennium A.D.', the ditch was a 'post-settlement phenomenon' post-dating the fifteenth century.<sup>33</sup> On the basis of the information provided, SI-2718 suggests, in fact, that the Monsa ditch is a first-millennium or early second-millennium feature, an age consistent with the new earthwork dates presented below.

The interpretation of SI-2716 date also requires careful assessment. The sample is located in layer 4 in the drawing of the south-east section of the ditch and banks.<sup>34</sup> Based on its shape, that layer appears to be the original outer bank of the entrenchment, although the author describes it as 'the layer representing the original ground level before the construction of the Monsa earthworks'.<sup>35</sup> Based on the available drawing, however, layer 3 – located stratigraphically beneath layer 4 – seems to be the original ground level (see the plan redrawn in Fig. 1). It is also notable that the SI-2716 sample appears to have been located beneath the post-holes found 'at almost equal intervals along the top of the outer bank at Monsa' and interpreted as the remains of a 'barricade made of posts of about 15 centimeters in diameter spaced out at intervals of about 2 to 3 meters' (see Fig. 1).<sup>36</sup> The presence of intrusive features such as post-holes may suggest that this sample was from a disturbed context. It is even possible that the organic sample from which the date was obtained relates to the inferred palisade. The palisade, however, was probably not part of the original earthwork. In other contexts, palisades have only been noted in earthworks assemblages that include Akan ware, indicating that these features were added during more recent occupations. The possibility that SI-2716 is related to the palisade could explain its closeness in age to N-2208, another radiocarbon date clearly associated with a later occupation of the site.<sup>37</sup> It follows that SI-2716 is not associated with the original construction of the banks and ditch system.

An alternative chronology emerges from this critical assessment of the Monsa data (summarized in Table 3). This chronology enables us to explain the seemingly brutal transition from the early ware to the Akan ware

<sup>30</sup> Kiyaga-Mulindwa, 'Earthworks', 97.

<sup>31</sup> *Ibid.* 93.

<sup>32</sup> J. Sutton, 'Akim Kotoku', *Archaeology in Ghana*, 2 (1981), 6.

<sup>33</sup> Kiyaga-Mulindwa, 'Earthworks', 188.

<sup>34</sup> See *ibid.* 96–7. This stratigraphic section is redrawn in Fig. 1 of this article.

<sup>35</sup> Kiyaga-Mulindwa, 'Earthworks', 188.

<sup>36</sup> Kiyaga-Mulindwa provides no detailed information about the nature of the material culture associated with SI-2716: *ibid.* 92, 196.

<sup>37</sup> *Ibid.* 188.

Table 3. *Revised chronology for the Monsa earthwork*

First millennium CE	Occupation of a settlement site by Group A ('earthwork people') and construction of the entrenched system.
Before 1400 CE	Abandonment of Monsa earthworks.
After c. 1500 CE	Reoccupation of Monsa earthworks by Group B ('Atwea people'). Group B could be descendants of Group A.
After c. 1600 CE	Second abandonment of Monsa site.

observed in the archaeological record. In fact, according to our interpretation, this transition does not indicate a replacement of population but could rather hide a gap in occupation. Some of the sites were abandoned and reoccupied after a century or two. Some were never resettled. During such a gap, the society experienced drastic changes that have yet to be understood but which had a deep impact on its material culture.<sup>38</sup>

#### NEW CHRONOLOGICAL EVIDENCE FROM THE AKROKROWA EARTHWORKS

Archaeological research undertaken as part of the Central Region Project was specifically aimed at evaluating the age of the earthworks. Although some sites, such as the Monsa earthwork excavated by Kiyaga-Mulindwa, were reoccupied during historic times, others are only associated with early ceramics and, therefore, appear not to have been reoccupied after their abandonment. To avoid archaeological disturbances associated with settlement reoccupations, entrenchment sites only showing evidence of a single occupation were considered to be the best sites from which to obtain radiocarbon chronologies. The Akrokrowa earthworks site, identified near Abrem Berase by Gérard Chouin in 2002, produced only early ceramics and no evidence of reoccupation after its abandonment.<sup>39</sup> It was therefore an ideal site from which to collect samples for radiocarbon dating and to compare results with Kiyaga-Mulindwa's.

The Akrokrowa site was subsequently excavated by Chouin and six samples sent for radiocarbon dating (see Figs. 2 and 3). The ditch is the only place within the earthwork to allow archaeological access to the 260 cm deep, well-stratified layers that testify to the very long occupation of these settlements. To compare the Akrokrowa data with those of Kiyaga-Mulindwa's, samples were collected from the inner bank (Unit K), the ditch (Unit L), and the outer bank (Unit M). They included four samples collected at different depths in the ditch as shown in Figure 4 (Unit L: Beta-184397, Beta-184398,

<sup>38</sup> The abandonment of the earthworks is discussed below. For a more detailed discussion on the reoccupation of earthworks in the historic period, see Chouin, 'Forests', ch. 9.

<sup>39</sup> Chouin, 'Forests'. Abrem Berase is the capital of the Abrem Traditional Area, located in the Komenda-Edina-Eguafo-Abrem district of the Central Region of Ghana.

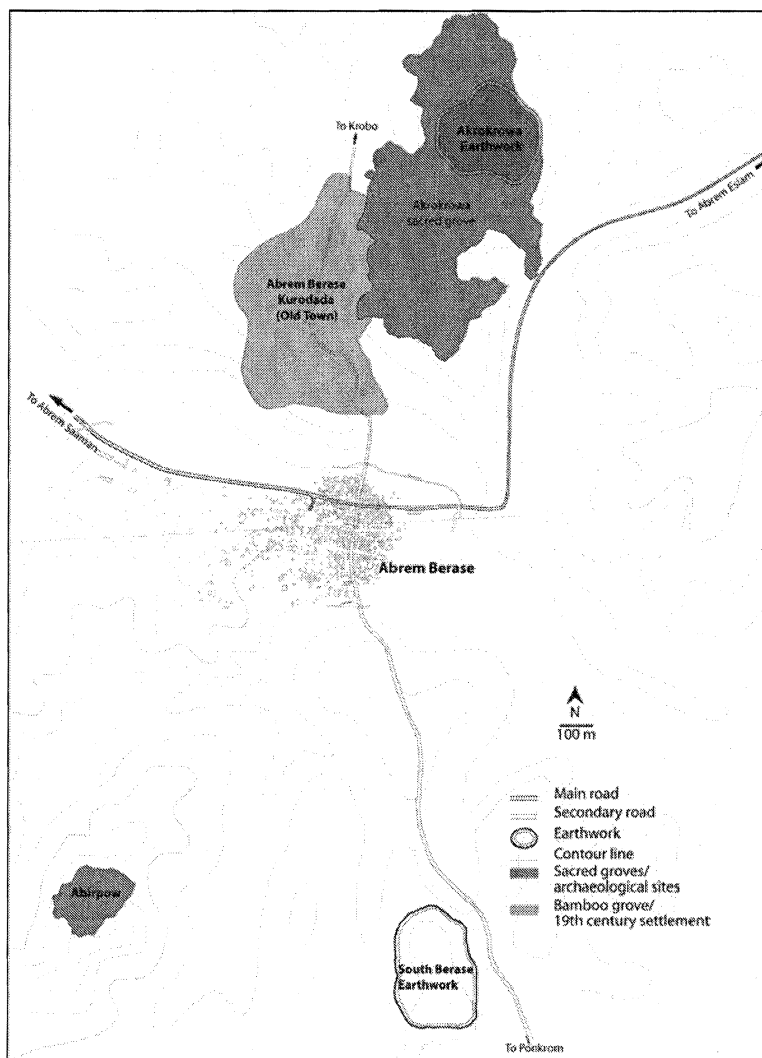


Fig. 2. Earthworks and other known settlement sites in the area around Abrem Berase. Drawn by Gérard Chouin.

Beta-184399, Beta-216471). Two samples were collected from the banks (Unit M: Beta-184396 and Unit K: Beta-216826). The dates provide a very homogeneous grouping, with the exception of Beta-184399. These results are summarized in Table 4.

Beta-184397 and Beta-216471 were obtained from charred palm kernels found in Unit L, respectively in Level 6 (50–60 cm below the surface) and Level 19 (180–190 cm below the surface). Beta-184398 was obtained from a piece of charred wood found in the same unit, in Level 10, at 100 cm below the surface. From their relative stratigraphic positions, we expected Beta-184397 to be more recent than Beta-184398, and Beta-216471 to be the oldest of the three. This relative chronology was confirmed by the radiocarbon

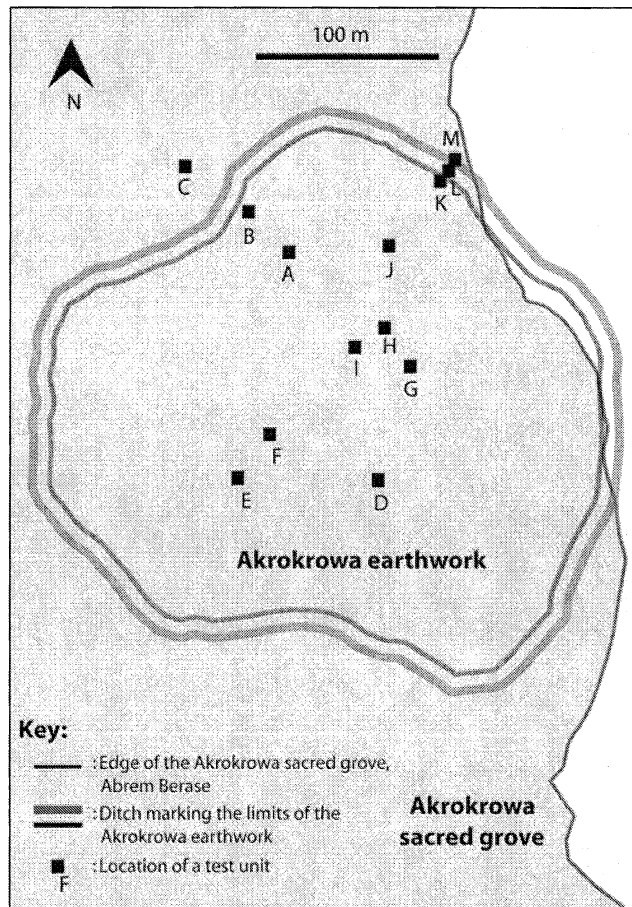


Fig. 3. Location of units A to M at Akrokrowa, Abrem Berase. Drawn by Gérard Chouin, 2009.

results. The fact that the radiocarbon dates are consistent with the stratigraphic position of the three samples demonstrates that the deposits are relatively undisturbed.

Beta-184396 was obtained from a palm kernel found within the outer bank, in Unit M, Level 4, between 30 and 40 cm below the top of the bank. The bank is a by-product of the ditch and, logically, by dating the bank one dates the construction of the earthworks. Interpretively, this is somewhat simplistic, as it is likely that the banks – the portions of the earthworks most susceptible to erosion – were reworked regularly over the centuries and may have included older material. Nevertheless, comparison of Beta-184396 and Beta-216471 seems to strengthen such reasoning.

Beta-216826 was derived from a fragment of palm kernel found in the inner bank, in Unit K, Level 11, between 107 and 110 cm below the surface. This fragment was associated with an occupation layer that seems to have been cut by the ditch. We might expect the date to be anterior to the construction of the ditch, roughly contemporary with Beta-184396, and

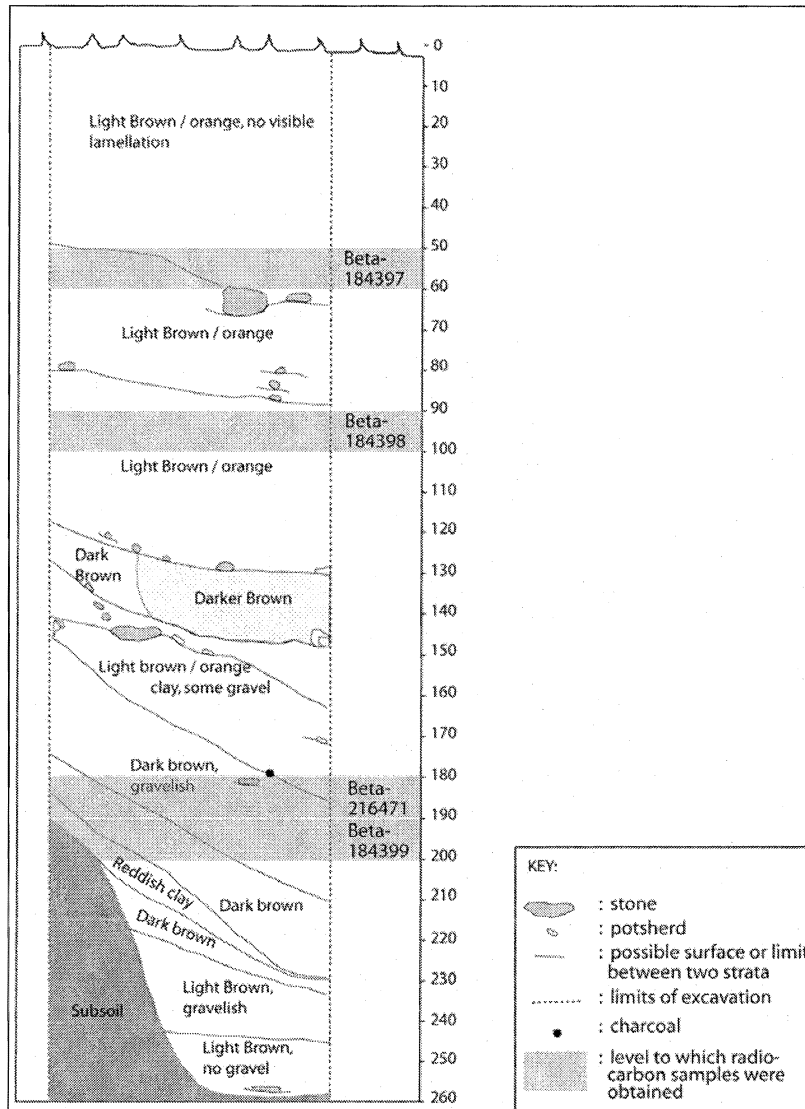


Fig. 4. Stratigraphy of unit L at Akrokrowa. Drawn by Gérard Chouin, 2009.

older than the deposits found in the ditch. In fact, the results seem to show that the level of occupation found in Unit K is contemporaneous with the construction of the ditch that cuts it. They also help definitively place the construction of the Akrokrowa earthworks in the eighth or ninth century CE, which is consistent with the radiocarbon dates obtained for the deposits found in the ditch.

The single outlier in the series is Beta-184399, a sample collected from Unit L at the bottom of the ditch, 198 cm below the surface. It yielded a 2-sigma calibrated age of 5310–5060 BCE, which clearly lies outside the

Table 4. Radiocarbon dating of samples collected at Akrokrowa. The most probable age ranges (i.e. age ranges with the largest areas under distribution) are indicated in bold italics

Lab Code (stratigraphic position)	<sup>14</sup> C age yr BP	68% (1σ) calibrated age ranges	Relative area under distribution	95.4% (2σ) calibrated age ranges	Relative area under distribution
<b>Beta-216826</b> (Unit K/lev. 11)	<b>1180 ± 40 BP</b>	779–794 CE	0.140935	717–743 CE	0.039723
Id.	Id.	<b>799–891 CE</b>	<b>0.859065</b>	<b>768–907 CE</b>	<b>0.805398</b>
Id.	Id.	Nil	Nil	911–971 CE	0.154879
<b>Beta-184396</b> (Unit M/lev. 4)	<b>1220 ± 60 BP</b>	711–746 CE	0.207175	<b>669–899 CE</b>	<b>0.937566</b>
Id.	Id.	<b>766–884 CE</b>	<b>0.492825</b>	918–954 CE	0.056492
Id.	Id.	Nil	Nil	957–961 CE	0.005942
<b>Beta-184397</b> (Unit L/lev. 6)	<b>590 ± 60 BP</b>	<b>1304–1365 CE</b>	<b>0.711009</b>	<b>1287–1428 CE</b>	<b>I</b>
Id.	Id.	1384–1409 CE	0.288991	Nil	Nil
<b>Beta-184398</b> (Unit L/lev. 10)	<b>1140 ± 40 BP</b>	831–836 CE	0.028364	779–794 CE	0.043589
Id.	Id.	<b>869–975 CE</b>	<b>0.971636</b>	<b>800–987 CE</b>	<b>0.956411</b>
<b>Beta-216471</b> (Unit L/lev. 19)	<b>1270 ± 40 BP</b>	<b>684–773 CE</b>	<b>I</b>	<b>662–828 CE</b>	<b>0.946549</b>
Id.	Id.	Nil	Nil	838–866 CE	0.053451
<b>Beta-184399</b> (Unit L/lev. 20)	<b>6240 ± 40 BP</b>	<b>5303–5207 BC</b>	<b>0.887109</b>	<b>5310–5199 BC</b>	<b>0.662978</b>
Id.	Id.	5145–5138 BC	0.0030814	5178–5066 BC	0.337022
Id.	Id.	5127–5121 BC	0.024627	Nil	Nil
Id.	Id.	5092–5081 BC	0.05745	Nil	Nil



earthwork's occupation. The sample probably represents an old surface or organic material buried in subsoil.<sup>40</sup>

The Akrokrowa radiocarbon dates point to the construction of the entrenchment system in the second half of the first millennium CE, most likely during the eighth century, long before the arrival of the first Europeans on the *Costa da Mina*.<sup>41</sup> Notably, these results coincide nicely with SI-2718 collected by Kiyaga-Mulindwa in the ditch at Monsa. The radiocarbon results from the Akrokrowa earthworks provide the first series of radiocarbon dates undoubtedly entirely related to the construction and occupation of earthworks by the makers of the *Atetefo* pottery. The fact that the site is located far away from the Birim valley, but seems to belong to the same historical period, radically changes our perception of sociopolitical and economic life in the forests of southern Ghana before the opening of the Atlantic trade. In the forest area that Wilks envisioned as being sparsely populated by bands of hunter-gatherers,<sup>42</sup> a network of fully formed agrarian settlements now comes to light.

#### STRUCTURE AND FUNCTIONS OF EARTHWORKS

At this stage, it is too early to make broad generalizations about the nature of the earthwork societies. A large quantity of fragments of palm-nut shells was found during excavations, suggesting large-scale cultivation of palm trees. Fragments of oil lamps were found. The inhabitants of the earthworks also made iron tools. Fragments of slag as well as pieces of iron objects were found at the Akrokrowa site, together with possible quartz tools, polished axes, and stone beads. No bone, shells, or macrobotanical remains were found on the site to provide more information about the earthwork builders. There is therefore a need for further archaeological investigation, incorporating specific strategies to gather botanical evidence from archaeological deposits.

In the same vein, we do not have the proper data or epistemological tools to infer from the excavations the nature of the political system of which the earthworks were a part. We can only notice that their construction suggests a type of social organization capable of mobilizing material and human resources to build the huge embankments. On the basis of available data, however, we cannot be more precise about the character of the political organization or forms of authority.

The function of earthworks has been debated by both archaeologists and historians, most of the times in relation to their structural features, but

<sup>40</sup> This sample was recovered from the north-west part of Unit L, embedded in reddish-gray clay characteristic of the culturally sterile subsoil. It is worth noting that cultural material was found in the southern part of the unit to a depth of 260 cm below the surface. Beta-184399 was given in the Report of Radiocarbon Dating Analyses submitted 12 November 2003 by Beta Analytic Inc. Conventional Radiocarbon Age was  $6240 \pm 40$  BP,  $^{13}\text{C}/^{12}\text{C}$  ratio used was  $-26.25\text{‰}$ .

<sup>41</sup> A probable abandonment in the fourteenth century is based on our interpretation of Beta-184397 at a  $1\sigma$  calibrated age that offers a more precise dating interval (c. 1304–65 CE). Chouin, 'Forests', ch. 9, notes the need for a more detailed study of the stratigraphy of the Akrokrowa earthwork.

<sup>42</sup> Wilks, 'Forest', 48–52.

the relatively poor description of earthworks in Ghana did not allow for a detailed understanding of the nature and functions of these sites.<sup>43</sup> The interpretation of earthworks as defensive sites is based on common-sense observations as well as on comparative data from other parts of the world. As early as 1932, comparisons were made with Iron Age entrenchments found in Great Britain.<sup>44</sup> In his paper on the Kokobin earthwork, Davies did not discuss the issue of the function of the entrenchments, but it is clear from his use of words such as 'rampart' or 'fosse' that he did not doubt that they were defensive features.<sup>45</sup> In 1967, he called these sites 'entrenched forts', although noting that 'the fortifications do not follow strategic contours' and even spread 'across small valleys'.<sup>46</sup> Clearly, he doubted the military value of these sites.<sup>47</sup> In his 1957 study on the rise of the Akwamu polity in the seventeenth century, Ivor Wilks suggested that they were fortifications that may have represented 'Akwamu attempts to strengthen its western frontier against Akim aggression'.<sup>48</sup>

Kiyaga-Mulindwa also suggested that earthworks were fortifications that evolved as the result of the military pressure of the 'Atwea' against the 'Tetefo': 'earthworks were constructed so as to be used as community defenses. ... They were a response to small, intermittent attacks. ... they seem to be responses to intermittent, low-level pressure from the outside rather than to large-scale invasion'.<sup>49</sup> The long-term occupation of the earthworks and the extensive spread of earthworks throughout the forest zone of West Africa do not seem to support such a hypothesis.

The efficiency of entrenchment as defensive works is difficult to evaluate because we are far from understanding what these sites would have originally looked like and what the usages were in warfare. Once again, there is need to strengthen our understanding of the archaeological record. It could be that entrenchments were part of a more complex system of fortification combining fosse, banks, and vegetal defensive rings not unlike those documented by European explorers in nineteenth-century Sierra Leone.<sup>50</sup>

Earthworks may also have been used as barriers to keep elephants away from settlements. The protection of communities against the threat posed by elephants should probably be studied very seriously, especially considering the fact that pre-Atlantic earthworks do not seem to have had any permanent causeways. The presence of defensive forest belts added to the earthworks

<sup>43</sup> We note similar discussions concerning the earthworks of western Uganda. See, for instance, P. Robertshaw, 'The age and function of ancient earthworks of western Uganda', *Uganda Journal*, 47 (2001).

<sup>44</sup> N. R. Junner, 'Archaeological notes: ancient fortified settlements', *Annual Report of the Geological Survey, 1931-1932* (Accra, 1932), 16. <sup>45</sup> Davies, 'Excavations', 15.

<sup>46</sup> Davies, *West Africa*, 287-8.

<sup>47</sup> *Ibid.* 289.

<sup>48</sup> I. Wilks, 'The rise of the Akwamu empire, 1650-1710', *Transactions of the Historical Society of Ghana*, 3 (1957), quoted in Kiyaga-Mulindwa, 'Earthworks', 27.

<sup>49</sup> Kiyaga-Mulindwa, 'Earthworks', 196.

<sup>50</sup> D. J. Siddle, 'The evolution of rural settlement forms in Sierra Leone circa 1400 to 1968', *Sierra Leone Geographical Journal*, 13 (1969), 34; the author quotes several nineteenth-century European sources. On Sierra Leone, see also C. R. DeCorse, 'An archaeological survey of protohistoric defensive sites in Sierra Leone', *Nyame Akuma*, 19 (1980), 14-17; C. R. DeCorse, 'Fortified towns'.

could have represented a form of fortification strong enough for the type of warfare practiced at the time or to keep away dangerous animals. At the same time, forest belts would have protected the village from bushfires, a strategy well known in Guinea.<sup>51</sup>

As early as 1964, in an unpublished paper, another theory emerged that suggested earthwork systems were made 'to prevent exit and not entry'.<sup>52</sup> This theory, which held that earthworks might have been used as camps for gold miners, was part of Ozanne's 1971 review of the state of archaeology in Ghana and captivated for some time the attention of Marxist historians.<sup>53</sup> Ozanne never excavated an earthwork. His argument was based on the mistaken impression that earthworks would have served as a rampart to forcibly retain laborers inside the camp. He noted that they were 'defined by a deep ditch with a bank on either side – the outer one usually being the higher'.<sup>54</sup> The argument did not stand up to new evidence brought forward by Kiyaga-Mulindwa, who demonstrated that the distribution of earthworks did not coincide with that of ancient placers.<sup>55</sup> After 1978, to our knowledge, only Wilks continued to regard them as possible work camps.<sup>56</sup>

This theory still subtly persists in the historiography, however, although all archaeologists with a practical knowledge of earthworks agree on the relative profile of the embankments. In 1951, Shaw could write that 'it is usually higher on the inner side than on the outer'.<sup>57</sup> His view is supported by the profile of the Kokobin entrenchment published by Davies.<sup>58</sup> The profile of the Manso earthwork published by Kiyaga-Mulindwa also shows that the inner part is higher than the outer bank.<sup>59</sup>

Yet the profile of any entrenchment varies from one segment of an earthwork to another. At Akrokrowa, we took measurements at three different places along the entrenchment and observed important variations depending on the position of the entrenchment vis-à-vis the existing slopes. Where the fosse was dug halfway down a slope, outer banks are naturally positioned below the inner bank, but where the trench is sunk on leveled ground, the outer banks are usually of greater height than their inner corollary. Looking at the general profile and commenting upon the relative height of banks is not enough. It is also necessary to study the structure of the banks and their stratigraphy, to understand when and how they were constructed.

In fact, we may have stratigraphic evidence from Akrokrowa that what we consider today as an inner bank might actually be the melted remains of a clay wall that defended access to the settlement behind the ditch. Such a wall, if confirmed, would reinforce the military function of the early earthworks.

<sup>51</sup> See J. Fairhead and M. Leach, *Misreading the African Landscape: Society and Ecology in a Forest-Savanna Mosaic* (Cambridge, 1996).

<sup>52</sup> P. Ozanne, quoted in Kiyaga-Mulindwa, 'Earthworks', 27.

<sup>53</sup> See for instance Ray A. Kea, 'Trade, state formation, and warfare on the Gold Coast, 1600-1826' (unpublished PhD thesis, University of London, 1974), 91.

<sup>54</sup> P. Ozanne, 'Ghana', in P. Shinnie (ed.), *The African Iron Age* (London, 1971), 48-9.

<sup>55</sup> Sutton, 'Akim', 7-8.

<sup>56</sup> Wilks, *Forests*, 95.

<sup>57</sup> Shaw, 'Prehistory', 496.

<sup>58</sup> Davies, 'Excavations', 16, Fig. 2.

<sup>59</sup> Kiyaga-Mulindwa, 'Earthworks', 95-6.

Earthworks were settlements, and trenches marked the limit of these settlements. This was clear at Akrokrowa, where we found no evidence of archaeological deposits outside the area delimited by the ditch. This latter, we believe, did not fulfill a single, unique function but played a multifunctional role in the life of the people who lived there. For instance, the fact that entrenchments were used for waste disposal is clearly demonstrated by the nature of the material found in the ditches, as well as their stratigraphy, which illustrates the slow accumulation of refuse throughout centuries. There is a parallel to be drawn between the ditches used as rubbish dumps and midden deposits that form a belt of small mounds around historic and contemporary settlements. This area forms the *kurotia*: that is, the 'border, outskirts ... of a town'.<sup>60</sup> Pescheux suggested that the *kurotia* was 'the borderline located at the edge of a ... settlement (cultural space) and, more exactly, the area where settlement (the cultural space) and forest (the natural space or world) interact'.<sup>61</sup> Entrenchments might have been a form of *kurotia*, an area where everything broken, useless, or considered as dirty was deposited.

Pescheux also reminds us that the *kurotia* was mainly a liminal area, where rituals aimed at protecting the community against social disorder, diseases, and attacks were conducted. Indeed, the use of the trenches as sites for mundane waste disposal could have been extended to include 'spiritual' waste disposal. By strongly marking the border between the settlement and the forest, the ditch formed a physical separation between the mundane and spiritual worlds. As a liminal space, it must also have been the ideal place to carry on rituals and sacrifices. Traces of such ritual activities may be found in the archaeological record in the form of objects or features that would not be expected in an ordinary waste disposal site. In the case of Akrokrowa, the test unit was far too narrow to enable us to examine this hypothesis. It is clear that further excavations of earthworks should be planned, on a larger scale, with the trenches as a particular focus.

At this stage of the research, many other potential functions could be suggested. We can only point out the fact that available data are not sufficient to allow us to state what the actual functions of earthworks were, and if they evolved through time. Consequently, a multifunctional approach to these structures is recommended, to embrace a larger perspective and to fuel and orient further research.

Polet and Saison noted that the earthwork they excavated in Côte d'Ivoire was located away from main water bodies and that there was no ground water available up to 20 meters below the surface.<sup>62</sup> Getting water would have been a tedious task for a community living in such an environment. The situation might have been different for each earthwork, but the fact remains that, being most often constructed on hills and raised grounds, they tend to be away from main river courses. Large quantities of shards may testify to the

<sup>60</sup> J. G. R. Christaller, *A Dictionary of the Asante and Fante Language Called Tshi (Chwee, Twi)* (Basel, 1881), 266.

<sup>61</sup> G. Pescheux, 'Centre, limite, frontière dans le royaume Asante précolonial', *Journal des Africanistes*, 74 (2004), 191, our translation.

<sup>62</sup> J. Polet and B. Saison, 'Enceintes fortifiées de la Séguié (Côte d'Ivoire)', *Recherche, Pédagogie et Culture*, 55 (1981), 55.

necessity to store water in the entrenched settlements. Trenches might also have been used to retain water during the dry season, in the same way that artificial ponds are dug in contemporary villages to cope with the chronic lack of water. If this is the case, we could better understand why trenches are often built half-way down slopes, since there would be no better way to collect runoff. Possibly the shade provided by the surrounding forest cover would have prevented quick evaporation. Water would probably not have filled the trench but would form a series of small ponds all around the earthwork, in depressions. Such reservoirs of stagnant water would have been fairly similar to those observed near Nsadwer, along the course of the Hua river, during the rainy season. They would also have resembled the small ponds of standing water observed by Kelly and Norman at Savi, and Connah at Benin City, albeit only during the rainy season.<sup>63</sup>

Iron and iron technology were crucial factors in the process of digging earthworks, the latter being tangible evidence of the working power of this metal and, at the same time, a display of prestige for the elite who could demonstrate their ability to accumulate and control kin and followers. Indeed, to build earthworks, two major things were needed: iron excavation tools and human resources. In fact, evidence of iron smelting and smithing were found on all excavated earthworks in the form of slag and fragments of iron. Akrokrowa was no exception, although we did not find any fragments of furnace. The presence of slag suggests that iron was smelted locally. The dialectic relationship between iron production, earthworks, and prestige/demography is yet to be explored in Ghana. One of the functions of earthworks could have been to raise a community and/or elite groups to a higher status position in a larger sociopolitical system. To achieve such a 'rite of passage', communities would have had to acquire the requisite technological knowledge and the adequate number of tools. In addition, they would have been demographically strong enough to carry on large-scale excavation works. In this case, the ditch would also play the role of a social boundary. Such a process of social differentiation could explain the presence, during the same period, of smaller settlements without earthworks.

#### ABANDONMENT OF THE EARTHWORKS

Excavations at Akrokrowa and associated sites afford a glimpse of a well-settled landscape predating initial European contact in the fifteenth century. The chronology of Akrokrowa is in agreement with an abandonment of the site by the mid-fourteenth century. This in turn is amplified by data coming from other earthworks in southern Ghana suggesting a major change in settlement pattern before the opening of the Atlantic trade, characterized by the abandonment of earthworks. This remains a working hypothesis that

<sup>63</sup> G. Connah, 'Archaeological research in Benin City, 1961-1964', *Journal of the Historical Society of Nigeria*, 2 (1963), 473; N. Norman and K. Kelly, 'Landscape politics: the serpent ditch and the rainbow in West Africa', *American Anthropologist*, 106 (2004), 102.

needs to be tested on a larger number of entrenchment sites. If the hypothesis is confirmed, why were they abandoned? Whatever happened must have been quite sudden, able to affect a vast area, and traumatic enough to dramatically alter people's way of life within a generation, wiping out the structures of a centuries-old agrarian order.

Looking at world history during this period, it seems that only one event can possibly explain such a large-scale phenomenon: the occurrence of the Black Death or Great Plague.<sup>64</sup> Well documented in Europe,<sup>65</sup> as well as in North Africa, where it may have killed a third or more of the total population between 1346 and 1352, for lack of direct evidence, the Great Plague is often believed to have spared sub-Saharan Africa.<sup>66</sup> Looking at the highly infectious nature of this disease and the dense network of links between West Africa and North Africa, as well as between eastern Africa and the Arab world and Asia during this period, this seems highly improbable. The Plague reached the Maghrib in 1348<sup>67</sup> and it is plausible that it reached the forests of West Africa in the mid-fourteenth century. In affecting societies living in forest areas of southern Ghana, the Plague would have had exactly the same effect as in other parts of the world: it would have destroyed a large portion of the population living in densely populated settlements, resulting in their abandonment—a well-documented phenomenon in many other contexts.

Here it is useful to quote Merrick Posnansky, one of the few researchers to have considered the Plague as an unknown component of West African history: 'We have no idea if the plague spread across the Sahara in the 14th century but we should not discount its possibility'.<sup>68</sup> We believe the widespread abandonment of earthworks in the fourteenth century is an indirect indication that Posnansky might have been right. While the only consideration here is the abandonment of the earthworks of southern Ghana, it may be more than coincidental that other abandonments and transformations in

<sup>64</sup> The Plague was probably caused by the gram-negative coccobacillus, *Yersinia pestis*. *Y. pestis* (bubonic plague) is transmitted to humans through flea bites. It affects the lymphatic system, engendering a strong immune reaction that causes extensive inflammation, resulting in swelling and internal bleeding. The Plague was referred to as the 'Black Death' because accumulated blood under the skin and in the extremities of the body dries and turns black. Victims die from septicemia or organ failure caused by the drop in blood pressure and the lack of circulating oxygen. The disease can also establish itself in the lungs, becoming highly contagious in the form of pneumonic plague. In pre-antibiotic times, pneumonic plague killed in a maximum of three days. For more information, see for instance <http://www.immunoblogging.blogspot.com/2006/03/history-of-plague.html> (last visited 31 July 2010).

<sup>65</sup> See, for example, S. Cohn, *The Black Death Transformed: Disease and Culture in Early Renaissance Europe* (London, 2002); F. Cartwright, *Disease and History* (New York, 1991).

<sup>66</sup> For example, see J. Iliffe, *Africans: The History of a Continent* (Cambridge, 1995), 47–8, 67.

<sup>67</sup> *Ibid.* 47.

<sup>68</sup> M. Posnansky, 'Prelude to Akan civilization', in E. Schildkrout (ed.), *The Golden Stool: Studies of the Asante Center and Periphery* (New York, 1987), 17. Cartwright notes that the Black Death spread 'southward into Africa, eastward into China, and northward to Russia and the Scandinavian countries', describing it as a 'world-wide pandemic' (Cartwright, *Disease*, 32).

settlement organization appear to have occurred in other parts of sub-Saharan Africa during the same period.<sup>69</sup>

#### CONCLUSION

Compared with America and Europe we know very little about the forest zone of West Africa at the opening of the Atlantic trade. Past and present scholarship has been insufficient to evaluate the pre-Atlantic past and previous reconstructions require critical reassessment. Limitations in our knowledge have had a direct impact on the perception of Africa's role in the Atlantic revolution. We should now conclusively admit that the Atlantic trade did not bring agrarian order to the peoples of the West African forest. In the first millennium CE, a sociopolitical order that was well adapted to the forest environment probably extended across the whole of the Gulf of Guinea. Iron tools were used to modify the forest environment, to farm, and to dig entrenched settlements. Palm oil and yam may have formed an important part of the subsistence base. This pre-Atlantic agrarian order is coming to light as a growing number of sites and earthworks are discovered in the forest zone of West Africa.<sup>70</sup>

There is a growing body of evidence suggesting that this pre-Atlantic settlement pattern collapsed rapidly, possibly following a deadly plague. People abandoned their settlements and dispersed across the farmlands, before reorganizing themselves according to new patterns. This hypothesis cannot be ignored, and we need to revisit the available data pertaining to the archaeology of Africa along these new lines. The advent of people from the Atlantic world may have coincided with the aftermath of this epidemic. The first Europeans arriving on the West African coast in the late fifteenth century may have viewed a region still emerging from the demographic and social impacts of the Plague. As in other world areas, forests may have reconquered previously farmed lands and dramatically altered the landscape. It was this landscape – largely reforested and evocative of wilderness – that early Europeans met as they arrived on the West African coast. The Atlantic market may have become central to a restructuring of society, a means of empowering a new generation of West Africans seizing new opportunities.

<sup>69</sup> Chouin initially provided a brief review of possible supportive evidence ('Forests', ch. 9), but there is a need for a complete re-evaluation of the archaeological dataset in Africa. In West Africa, Jenne Jené and the associated sites in the inland Niger delta were abandoned prior to the beginning of the fifteenth century (see R. J. McIntosh, *The Peoples of the Middle Niger* (Oxford, 1988), 203). Settlement occupations in Sierra Leone may show a similar break in occupation (DeCorse, 'Fortified towns'). With regard to other parts of Africa, it is perhaps worthy of note that Zimbabwe complex sites were also abandoned before the mid-fifteenth century (I. Pikirayi, *The Zimbabwe Culture: Origins and Decline of Southern Zambezi States* (New York, 2001), 150–1).

<sup>70</sup> Entrenchment sites have also been found in south-eastern Côte d'Ivoire. A cluster of more than a dozen earthworks, similar to those in the Birim valley, were discovered at La Ségué in the late 1960s during forest clearance. In 1969 and 1971, Jean Polet conducted excavations at Enceinte n° 2. In the absence of radiocarbon dates and data on the age of the entrenchments, he has recently suggested that these sites may need reassessment (J. Polet, personal communication, 2009).

The Atlantic factor in African history, as well as Africa's role in the Atlantic past, are essential themes in the study of the modern world. Yet examination of the myriad of intersections represented have often been conducted from the perspective of a history of impact – sometimes coupled with an archaeology of impact – that looks at change in the later part of the second millennium CE as a process primarily resulting from the irresistible spread of capitalism outside its European cradle. The history of the Atlantic world was transformative in terms of the ways in which people (particularly aspiring elites from different continents) manipulated new opportunities in exchanging their goods, genes, germs, and values on an unprecedented scale. Yet such a Eurocentric view of Atlantic history is not consistent with historical realities.<sup>71</sup> We prefer to conceptualize Atlantic history as one aspect of a complex past that encompasses interactions both within and without Africa. This is a provocative way of rethinking Africa's integration into the Atlantic space.

<sup>71</sup> While there is no question that the European capitalist economy and its associated technologies had dramatic consequences, these were nonetheless articulated within the framework of local responses and cultural traditions. For example, see DeCorse, *Archaeology*, 175–92. See also A. B. Stahl, *Making History in Banda: Anthropological Visions of Africa's Past* (New York, 2001), 12–15.