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Report of Investigations at the Birimi Site in Northern Ghana

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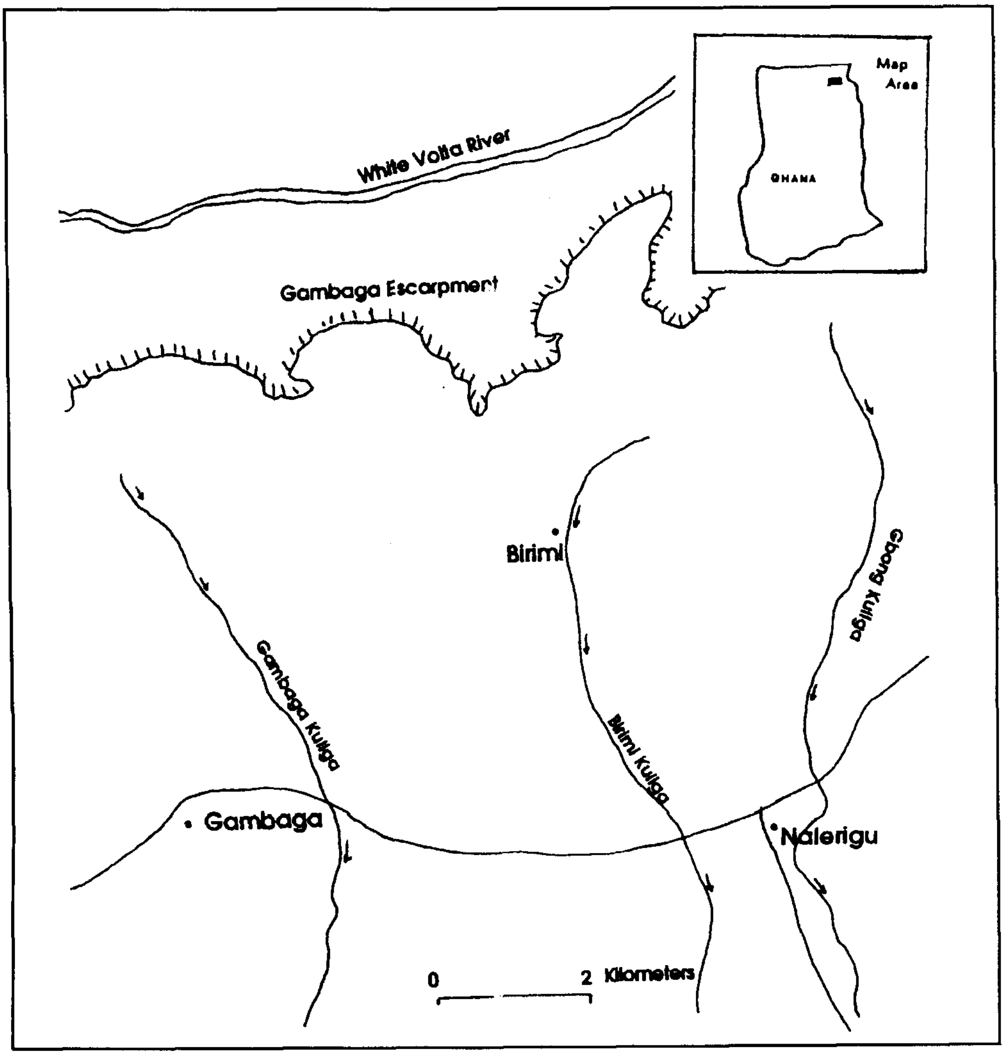
This is a brief report on the past two field seasons' activities at the Birimi Site in Northern Ghana. Analyses are continuing, but this report summarizes our research and our results to date. The Birimi site is located atop the Gambaga Escarpment, between the towns of Gambaga and Nalerigu in the Northern Region of Ghana (Figure 1), on the banks of a seasonal stream (Birimi Kuliga) and its tributaries. The site was found in 1987 by a team led by Francois Kense, during the first archaeological survey and excavations ever carried out in the vicinity (Kense 1992).

Birimi was an attractive site for investigations because of the size and richness of its Kintampo (ceramic Late Stone Age, ca. 3000 - 3500 B.P.) component. More than 30 Kintampo sites are known from all over Ghana (Anquandah 1993:256; Stahl 1994:73) and about 15 of these have been excavated. Kintampo artifacts have been found in the Ivory Coast (Chenorkian 1983) and Togo (DeBarros 1983) but true Kintampo sites have never been found outside of the country. The characteristic features of Kintampo sites are well known: pottery bearing comb-stamped designs, ground stone axes, grinding stones, small chipped and ground projectile points, a large, informal tool assemblage consisting mostly of chipped quartz, stone arm bands, beads, piles of burned daub indicating the presence of structures, and the most diagnostic Kintampo artifacts, "terra-cotta cigars" - elliptical objects of fine sedimentary rock, often scored on both sides and usually broken - the purpose of which has never been determined. Kintampo sites often show regional variation and may contain geometric microliths, clay figurines and bone harpoons.

Although Kintampo sites are well known and easily recognized, many questions remain about them. Known dates for Kintampo spread between 3000 and 4000 years B.P., but cluster in a 500 year period suggesting that this complex was of relatively short duration. The origins of Kintampo are not well understood. Similarities in projectile point styles and ceramics suggest a Saharan origin for Kintampo (Davies 1962), an idea which is supported by the apparent coincident timing of the appearance of Kintampo in Ghana with the desiccation of the Sahara. Little is known about the peoples who inhabited Ghana prior to Kintampo; however where evidence exists, Stahl (1985b) notes continuity between the two, suggesting indigenous development. Kintampo peoples appear to have been a relatively sedentary, but their subsistence base is not well understood. Organic remains have been found only at Ntereso and K6 and analyzed only at K6 (Carter and Flight 1972; Stahl 1985a,b). Domestic ovicaprids have been confirmed at K6 (Stahl 1985b), although the degree to which these animals contribute to the subsistence regime is unknown. Paleobotanical remains have consisted primarily of wild species, with the best candidates for domestication being questionable at best. Furthermore, although there is evidence for trade in ground stone axes and marine shells, degree to which Kintampo peoples interact is unknown. Also unknown is anything about the structure of the Kintampo community.

The Birimi Site appeared to present an opportunity to address some of these questions. Birimi contains charred plant remains which would allow us to investigate the subsistence base of the Kintampo people. The main part of the Birimi site sits in a system of seasonal stream channels, the banks of which are littered with small scatters of Kintampo lithics which probably indicate loci of extractive activities. Numerous other Kintampo sites both large and small are known within a few

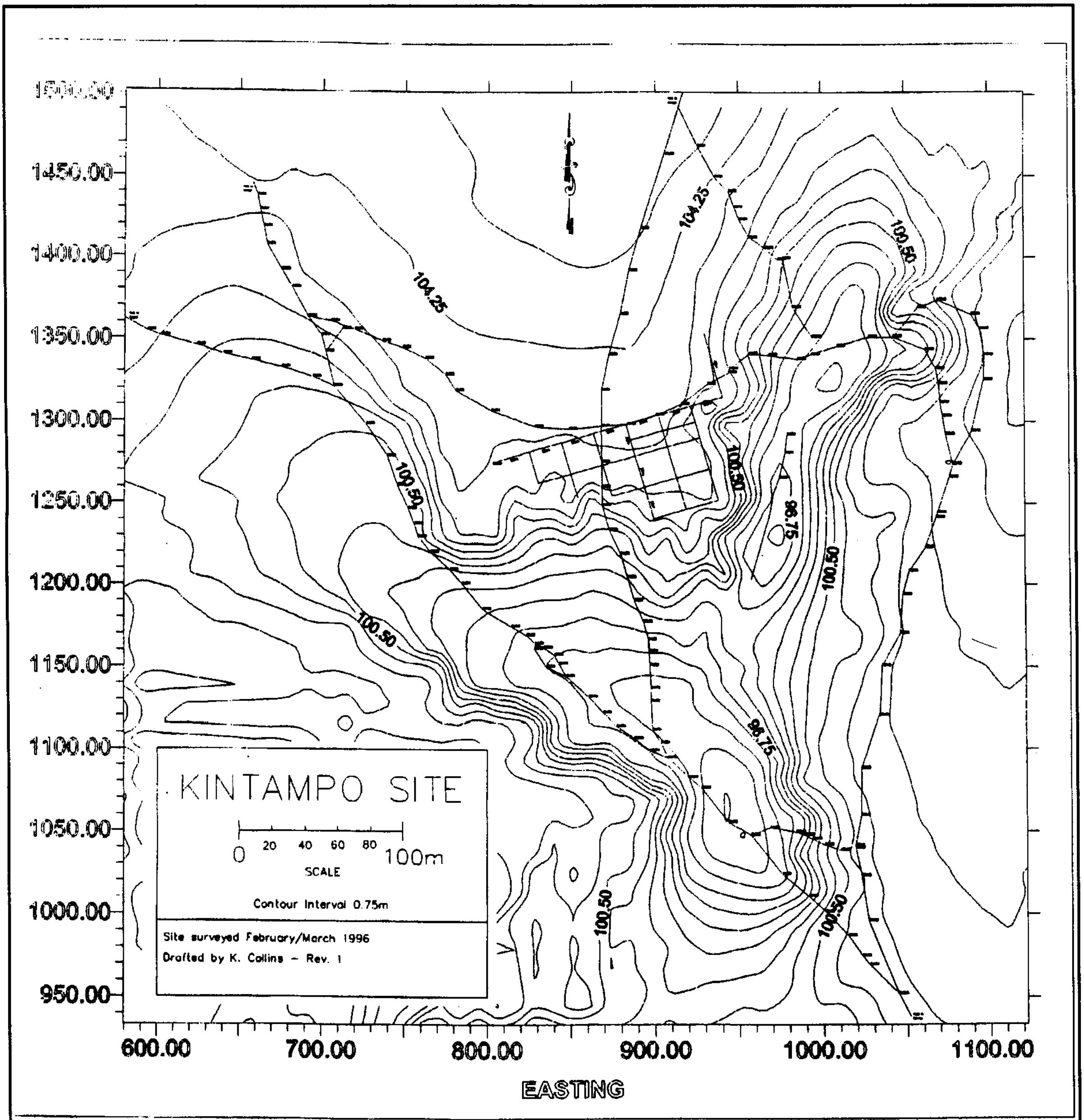
Figure 1: Map of the Study Area.



kilometers of the site, and several of these sites were investigated in 1987 and 1988 (Casey 1993). One of the objectives of the most recent investigations is to understand the relationships between the sites and therefore the Kintampo settlement system. In 1996 and 1997 we returned to the area to carry out investigations at the site.

We mapped the site during the dry season in February and March of 1996 (Figure 2). The site is a virtually continuous scatter of Kintampo materials for about a kilometer on both sides of the main channel of the gully system. The edges of the gully are eroding and, on the north side have exposed a portion of a Kintampo hamlet with the remains of 34 structural features visible on the surface amid a dense scatter of Kintampo artifacts. We set up a grid system on the northern bank of the gully, over the part of the site that had the densest cluster of features and artifacts. We decided to devote our efforts to looking only at the eastern part of this, in order to keep much of the site intact for future investigations. During our first season we systematically collected all material exposed on the surface of the site, and made detailed maps of the remains of ensample of the structural features. Over the two field seasons we excavated some 14 units varying in size from 1 square meter to 18 square meters and in depth from 25 cm to 1.7 m. We also cut back one of

Figure 2: Contour Map of the Birimi Site.



the walls of one of the gullies which had bisected a structure and exposed a pit. Some of the excavation units were in the exposed portions of the site where visible structural features overlay deeper deposits or, in one case, a pit. Other units were placed farther up the hill where grasses and shrubs had protected the soil and archaeological materials had not yet been exposed. Test units were placed at random, but virtually everywhere we broke the soil, we found Kintampo materials underneath.

Stratigraphically, the site is fairly uniform. Unexposed areas of the site have an A horizon to a depth of 5-15 cm, followed by a uniform red sandy silt which becomes mottled with yellow-buff clay-rich sandy silt at about 1 m below surface and gradually becomes more yellow as depth increases. The picture is complicated in virtually every unit by the presence of pits, and dense lenses of burned daub. A test pit up the hill and far to the north of the site produced a thick layer of laterite pebbles, suggesting a different set of post depositional circumstance at higher elevations where the land is flatter and possibly less subject to erosion.

The most significant discovery of the 1996 field season was an *in situ* Middle Stone Age site directly underlying the Kintampo component. MSA materials were found in redeposited contexts and also in place, approximately one meter below the surface in the yellow-buff matrix. The material consists of a variety of forms including Levallois flakes and cores, disk cores, blades, bifaces, notches, denticulates and retouched flakes and blades (Hawkins et al. 1996:35).

In addition to the Kintampo and MSA components, Birimi also has an Iron age component. During investigations in the area in 1987 and 1988, we noted that virtually everywhere we found a Kintampo occupation, we would also find iron working sites. Interestingly, we do not find Iron Age habitations anywhere near the smelters. Birimi is the location of intensive iron working activity, with 3 slag mounds and their furnaces visible on the surface of the main part of the site, a very large ridge of slag with numerous furnaces in the western part of the main site (Fig. 2: on the ridge to the south of where the westernmost path branches), and numerous smaller slag mounds and furnaces dotting the edges of the gully system. Some of the iron furnaces in the area have been investigated (Okoro 1989).

The concentrations of impressed daub at Birimi indicate the presence of wattle and daub structural features. Recognizable at the site are several techniques of building including some structures built of tightly spaced poles and plastered with a fine protective coating of clay. There is also a variety of sizes of structures, something that has been noted at other Kintampo sites. It is likely that this variation in size represents habitation and storage structures. At other Kintampo sites, square or rectangular structures were recognizable often by linear arrangements of stone blocks (Anquandah 1982; Davies 1967a; Dombrowski 1976), but no such foundations were evident at any of the structures at Birimi.

Numerous samples of pottery, burned daub, sediments and charcoal were taken for dating by thermoluminescence (TL), optically stimulated luminescence (OSL) and radiocarbon methods. Four radiocarbon dates have been estimated for the Kintampo component at Birimi: Beta 099306 at 3460 ± 100 cal B.P.; Beta 099377 AMS at 3830 +50 -100 cal B.P.; Beta 099308 at 3520 +160 -130 cal B.P.; and Beta 104756 AMS at 3710 +120 -130 cal B.P. The first three of these samples came from the gully profile, and the fourth comes from 120-130 cm below surface in a pit feature associated with Kintampo materials in an excavation unit.

Burned daubs from Kintampo contexts were dated with thermoluminescence at the Dalhousie TOSL/ESR lab (Godfrey-Smith et.al. 1997). Twelve samples from a variety of contexts have produced what appear to be three clusters of dates for Kintampo. These clusters are: 3800-4500 ± 200 years, 2800-3300 ± 150 years, and 2300-2500 ± 100 years. These dates need to be corroborated with dates using other methods and with more detailed analysis of strata; however our initial impression is that in several units at least 2 Kintampo components are visible. The picture is complicated by a Kintampo predilection for digging pits. If these dates turn out to be accurate, it is likely that the Kintampo Complex was of much longer duration than previously suspected. Those who support the idea of a Kintampo migration from the Sahara have argued that the earliest dates for Kintampo should be found in the northern part of the country. This seems a particularly futile direction of inquiry given the relatively short distances involved. Furthermore, scientific dates are expressed as a range and therefore lack the precision necessary to pinpoint the "oldest" date in a relatively short time period such as that occupied by the Kintampo complex. The earliest dates noted here are within range of the earliest ceramic LSA dates known from Ghana and therefore could be used to argue for the indigenous development of Kintampo. The fact that Kintampo peoples engaged in trade has been established, so influences from the north are certainly a possibility. Again, the dates must be approached with caution until fully corroborated.

Three of the iron furnaces at Birimi were dated at Dalhousie by TL (Godfrey-Smith and Casey 1997) and yielded dates as follows: 1020 ± 60 years (BRSM 1); 1550 ± 80 years (BRSM 4); and 1050 ± 70 years (BRSM 5). Although we seem to be getting some very young dates for Kintampo at Birimi, and although there is consistent association between Kintampo habitation sites and iron smelting sites, the dates for iron working presented here clearly indicate that there is no overlap between Kintampo and the Iron Age. Evidently the Kintampo and Iron Age people were interested in similar kinds of resources. Most of the large Kintampo sites and smelting sites are located near seasonal streams suggesting both peoples were primarily interested in wood and water.

Sediment for dating by optically stimulated luminescence was taken from around a patinated mudstone blade with a facetted butt (Hawkins et.al. 1996:36, Fig. A). It was found at 113 cm below surface in the yellow-buff sediment. A date of 30,000 - 35,000 B.P. was obtained on the sediment. This date must be considered preliminary and we are undertaking to date the MSA component at the site further.

The Middle Stone Age in West Africa is neither well understood, nor well dated. Most reported MSA materials are thought to show Sangoan or Lupemban affinities (Davies 1967b; Soper 1965), suggesting a relationship to complexes in East and Central Africa. The MSA at Birimi, however, lacks a heavy-duty component and we have not recovered any large lanceolates typical of the Lupemban. Davies' (1967b:140) description of the "Ultimate MSA" collection from a site at Nakpanduri, also in northern Ghana, bears striking similarity to the material from Birimi.

Dating of the West African MSA is still in extremely prelminary stages. Two Sangoan occurrences have been found at Asokrochona (Nygaard and Talbot 1976) and Tema II (Nygaard and Talbot 1984) in southern Ghana. The MSA layer at Asokrochona is reported to overlie Acheulean materials and to underlie mesoneolithic ones. A laterite gravel layer at both sites is thought to have been laid down during the arid period in Africa brought on by the glacial maximum at 20,000 B.P. The Sangoan material at Tema II is located in the basal layers of this deposit and given a date of 25,000-20,000 B.P. (Nygaard and Talbot 1984:32). At Asokrochona, Sangoan artifacts are found in the upper part of the laterite and the date given is 13,000-20,000 (Nygaard and Talbot 1984:34). Shaw (1981) has suggested that the MSA in West Africa dates to between 35,000 - 15,000 B.P. Given recent dating of the MSA elsewhere in Africa, these dates seem to be extremely late. However, Early and Middle Stone Age sites in West Africa are often ambiguous and difficult to date, and the few available dates for both time periods are consistently late (Allsworth-Jones 1986, 1987). There may, therefore, be some basis for regarding these late dates as legitimate.

Despite intensive investigations, we have been able to locate only one source for the siliceous mudstone which is the lithic raw material from which all the MSA and many of the Kintampo tools are made. Chris DeCorse located this source in 1987 while visiting our project. On that occasion we were directed to a hill that is an outcrop of mudstone that is still quarried today by people who make gun flints and strike-a-lights. Samples from the quarry were tested against samples from the Kintampo sites, using neutron activation analysis (Pavlish, Hancock and Casey 1989). It was found that the materials came from the same beds, though not necessarily from the same outcrop. The MSA material is heavily patinated and generally of a different color from the material that is found in Kintampo sites. This year we relocated the quarry. The hill we visited in 1987 is only one of a series of hills where material outcrops in the same area. That hill appears to be the largest and is the most easily accessible by road, but future investigations will include sampling from as many sources as we can find. We collected more samples from the quarry and are preparing to do a much more intensive analysis of both MSA and Kintampo materials.

Birimi was also sampled extensively for paleobotanical remains. Sediment samples were taken from all pit features, all locations bearing charcoal and at all soil color changes. A total of 120 flotation samples have been processed amounting to 492.5 liters of sediment. We were able to process a representative sample of most cultural contexts, but only a fraction of the samples we collected. Sediments were processed by using manual flotation. Samples were placed in buckets filled with water and the materials that floated to the top (the light fraction) were poured slowly through two nested sieves of 2.0 and .4 mm mesh (a .212 mm mesh screen was added during the second field season). The heavy fraction was then water screened through a 1.18 mm mesh sieve. Recovered macroscopic charred plant remains to date include wood charcoal fragments and seeds. Seed identifications are in progress but several grains belonging to the Paniceae group of grasses as well as a possible Cucurbitaceae (gourd family) seed have been recovered. The Paniceae grains are being further investigated in order to obtain a more precise determination. Paniceae includes both domesticated and wild forms of millet.

Our preliminary results suggest that Birimi has the potential to add significantly to our understanding of West African prehistory. Additional samples of sediments, ceramics, daubs and charcoal await processing over the coming year, and artifact analyses are under way.

Acknowledgements

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