

## Further Research on the Southern Neolithic and the Ashmound Tradition: The Sanganakallu-Kupgal Archaeological Research Project Interim Report

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### *ABSTRACT*

This paper addresses the findings to date of the Sanganakallu-Kupgal Archaeological Research Project, which is aimed at clarifying the origins and development of the earliest food-producing cultures in south India. The project has focused its efforts on a complex of prehistoric sites in the Bellary District of Karnataka that retain rich evidence for Mesolithic through to Iron Age developments. Many of these sites, which are concentrated around a cluster of granite hills between the modern-day villages of Sanganakallu and Kupgal, are currently being destroyed by large-scale industrial granite quarrying and agricultural development. The project is focused on systematically mapping, recording, and, where possible, test excavating the sites prior to their destruction. This work is being carried out in association with detailed material culture, bioartefactual and environmental studies. While our findings are still preliminary, it is clear that they are providing important insights into key late prehistoric developments that led to the emergence of complex societies and political economies in south India. The late Neolithic seems to have seen important economic, social and ritual transformations that resulted in important shifts in patterns of craft production, trade and exchange, and monument construction. These were likely intimately related to the development of elite groups, regional polities and wider oceanic trade networks. Our project findings allow these crucial developments to be traced back earlier than ever before, demonstrating that they find their origins in changes that took place amongst the earliest agricultural societies in the south.

## Introduction

The Southern Neolithic of the granitic region of the southern Deccan is one of the earliest well-documented food-producing cultures in South Asia (Fuller 2002, 2003a, 2003b; Korisettar et al. 2001a). As elsewhere in the Old World, the Neolithic in south India represents an important period during which sedentary societies became established, and long-lasting cultural traditions, based on village life, cultivation and pastoralism, probably found their origins. Research into understanding these new societies in south India, how they were organised and how they relate to earlier and later societies has in recent years been undertaken by members of our team (Boivin 2004a,b; Boivin et al. 2002, 2003; Fuller 1999; Fuller et al. 2000–01, 2001; Korisettar et al. 2001a,b; Mushrif et al. 2002–03; Korisettar 2004), and others (e.g. Paddayya 1991–92, 1993a,b, 1998, 2000–01; Paddayya et al. 1995; Devaraj et al. 1995; DuFresne et al. 1998). This area of South Asia is also of interest for its unique regional cultural developments, which include the ashmounds, impressive mounds of accumulated and intentionally burnt cattle dung (Allchin 1963; Boivin 2004a; Paddayya 1991–92, 1998; Korisettar et al. 2001a: 205–16), as well as villages located on visually stunning granitic hilltops, some of which bear concentrations of rock art, the core of which is likely to date to the Neolithic (Allchin and Allchin 1994–95; Boivin 2004b; Gordon 1951; Paddayya 1976).

While we have conducted research at various locales in the southern Deccan, our recent efforts have focused in particular on the cluster of sites in the Sanganakallu-Kupgal area.<sup>1</sup> These rich prehistoric sites, the importance of which was earlier recognised by such scholars as Robert Bruce Foote (1887, 1916), H.D. Sankalia (1969), B. Subbarao (1947, 1948), Z.D. Ansari and M.S. Nagaraja Rao (1969), Raymond and Bridget Allchin (Allchin 1963; Allchin & Allchin 1982) and G.G. Mujumdar and S.N. Rajaguru (1966), are currently undergoing unmitigated destruction. Commercial quarrying and agricultural expansion has already erased several important sites, while many of those that remain have been damaged or partially destroyed by such activities. Sites in the area are being destroyed faster than they can be discovered and recorded at even the most basic level. Within 10 years, it is likely that very few of these sites, which represent a key, internationally-recognised heritage resource for India, will remain. It is with this in mind that we have undertaken a program of survey, mapping, recording, and rescue archaeology. This has been directed by Korisettar, and aided by a team of students, and Indian and international specialists who are bringing new scientific methods to bear on this important set of sites.

The present report addresses findings made in the 2002–2004 field seasons. Due to the rapidity with which the archaeology of this region is being damaged or

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<sup>1</sup> Note that Kupgal is more accurately Kapgal. The spelling used in previous reports is retained by us to prevent confusion however.

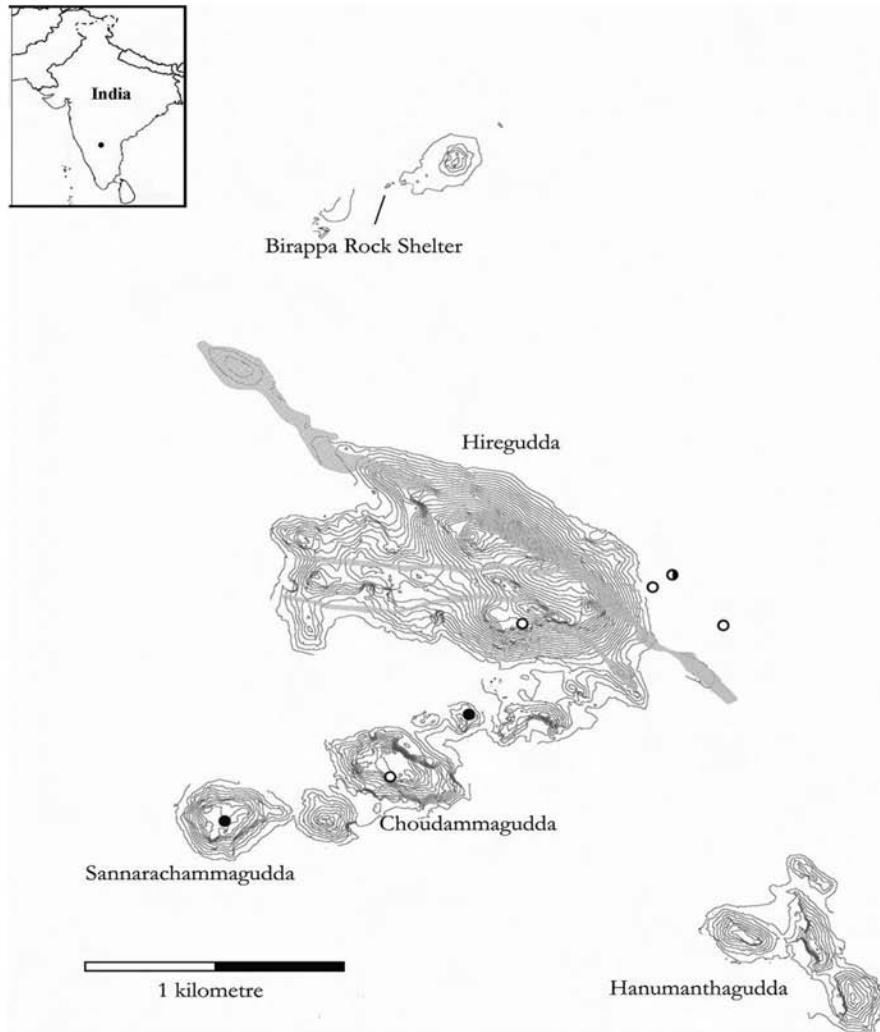
destroyed, much of our research has been 'responsive' in nature, driven by the immediate threat to particular sites and the need to test or excavate them before they disappear. Nonetheless, within the confines of these parameters, and the need to rapidly record and sample threatened sites, an overall research strategy has been implemented. The aims of this have been to collect comparable data from a range of sites and site types in the Sanganakallu-Kupgal area, in order to understand their relationship to one another. Of key interest has been the determination of the chronological relationship between the different types of activities in evidence in the area. Thus, the project has focused on gathering material for scientific dating, and trying to understand the nature of activities through material culture and bioartefactual analyses. Research into prehistoric environments has also been carried out in order to understand the context for cultural developments. This strategy has involved voluminous recording in the field and the study of large assemblages of a wide range of material, as well as detailed scientific sampling. Thus, in the present interim report we can only introduce the basic field evidence, selected sub-samples of the artefactual or other evidence, and preliminary results from a few specialist studies, all of which are prone to revision as further work is completed.

#### **Survey and mapping: Recording sites and their destruction in the Sanganakallu-Kupgal area**

One of the main aims of the Sanganakallu-Kupgal Project is to carry out detailed, systematic survey and mapping of the Sanganakallu-Kupgal sites, since such work has not previously been undertaken. We have collaborated with a Bangalore-based survey company, KPS Geosystems, which has carried out detailed topographic and geological mapping in the area. This work has been accompanied by systematic archaeological, geological and geomorphological survey and mapping, in order to produce detailed maps of the natural and cultural features in the Sanganakallu-Kupgal area (see figures 1 and 2). Information about modern features and heritage destruction is also included on these maps. These maps will serve as an important record of these important sites once they are destroyed. Together with the detailed artefactual and bioarchaeological analyses that are being carried out, they will constitute an important resource for future study of a disappearing resource.

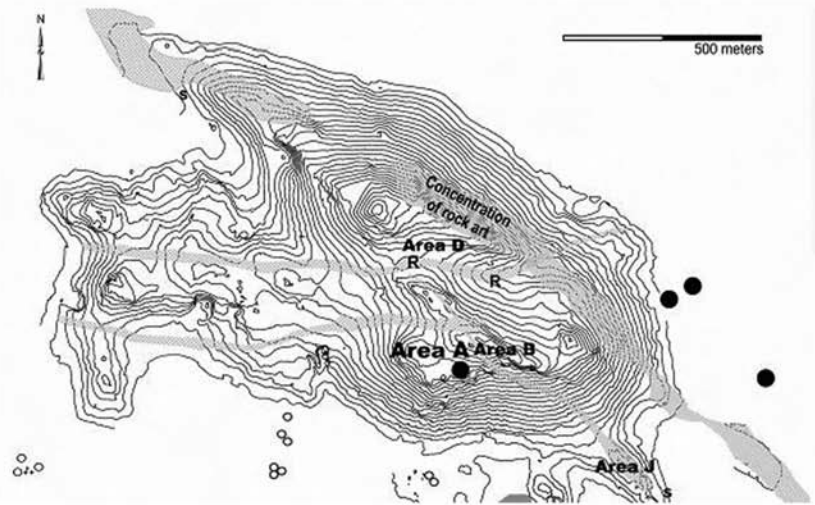
As shown in the maps, the well-known cluster of Neolithic sites at Sanganakallu-Kupgal is located around a series of castellated granite peaks north of the modern village of Sanganakallu (figure 3). Sannarachamma hill, the south-westernmost peak, is the best known to archaeology (Ansari and Nagaraja Rao 1969; Fuller 2001; Fuller et al. 2001; Korisettar et al. 2001a: 48–52; Subbarao 1948). Samples taken from the site in 1998 provided an important archaeobotanical sequence for this region (see discussion below; Fuller 1999; Fuller et al. 2004). To the east of Sannarachamma is a conical hill, Murkalgudda, without apparent archaeology. The next peak to the east, Choudammagudda, had a small ashmound (now destroyed) on the southwest side of

its summit, associated with non-dense occupation, as well as artificially aligned granite boulders and some rock-art (bruising on granite, and drawings in red pigment).



*Figure 1* Map showing the Sanganakallu-Kupgal area, and its location within the Indian subcontinent. Grey shaded areas represent dolerite dykes, which focus in particular on Hiregudda. Various types of maps have been produced; this one depicts the distribution of ashmounds. Extant ashmounds are depicted as black dots, destroyed ones as empty circles. The half filled circle indicates a partially destroyed ashmound. Note that only 2 relatively complete ashmounds remain out of a minimum of 7 original ashmounds in the area.

North of these three hills is the large Hiregudda (Kuppal Hill, or “Peacock Hill” of Foote 1887), through which run a number of dolerite dykes (see figure 2). As will be discussed below, evidence for the utilization of some of these dykes for the manufacture of flaked and groundstone axes is extensive. This groundstone axe industry is associated with an area that includes some thick, dense occupational evidence (Area A), located on a natural plateau on the south side of this hill towards its highest eastern peak. In addition, one of the most visible dolerite dykes, which runs in a northwest-southeast direction through the length of Hiregudda and extrudes from the surface for much of this distance, is covered in rock bruising, especially on its upper reaches (see figures 2 and 4). These are of various styles and probably represent numerous periods, although a focus on bull motifs suggests links of some at least to the Neolithic period (Boivin 2004b). Rock gongs are also found here and at several other localities on the hill (ibid.). On the eastern side of the hill, towards its northern face, is the Kuppal ashmound site, located directly south of Sirivaram village (Mujumdar and Rajaguru 1966). On the south and eastern slopes of Hiregudda, numerous terrace-like features built in stone have also been noted. These have previously been interpreted by us as seasonal occupation localities (see Fuller 2001; Fuller et al. 2001; Korisettar et al. 2001b) due to the association of quernstones and their proximity to the ashmounds.



*Figure 2* Map showing Hiregudda, and some of the main archaeological areas noted. Grey shading indicates dolerite dykes. Area A is the richest archaeological locality on the hill, and contains abundant evidence for domestic occupation followed by specialised axe production. Area B includes evidence for stone walls, rock art production, dolerite quarrying, granite quern and chert tool production. Area D is a terraced area where several infant urn burials were exposed. Area J contains abundant evidence for Neolithic dolerite mining activity, including well-preserved quarry pits. Other features: S: spring; R: reservoir; large filled dots: ashmounds; small open dots: megalithic stone circles; plus (+) signs: cairns or dolmens.

Additional archaeology comes from the plains around the Sanganakallu-Kupgal hills. A little over a kilometre north of Hiregudda hill, and west of the village of Sirivaram lies a cluster of large granite boulders that enclose a rock shelter with prehistoric remains (Boivin et al. 2002). The locality serves as a shrine to the god Birappa, who is worshipped by a local pastoral community. The shelter and surrounding area are associated with a concentration of microlithic debris, and microlith-bearing deposits have been exposed by recent quarrying activity. Pictographs in red paint are found on the shelter walls, both inside and outside, and some appear to be of great antiquity. Other sites on the plain include a small cemetery of megalithic stone circle graves, located between the hills of Hiregudda and Choudammagudda. Other megaliths, alone or in small groups, are scattered elsewhere in the area.

As indicated, the archaeology of this region is currently under severe threat and undergoing continued attrition. It is therefore worth describing briefly the state of these sites as observed over recent years. On Sannarachamma hill, granite quarrying has taken place on all sides, and continues at selected locations (see figure 5). This has led to the removal or erosion of prehistoric deposits on the hill slopes and from the main hilltop settlement. A road has recently been carved into the hillside, allowing quarryers easy access to the top of the hill and speeding up destruction of the deeply stratified deposits on the plateau. Surface stone features, rock art, extensive grinding features and rock shelters bearing prehistoric remains have all been destroyed in recent years. Meanwhile, quarrying of Choudammagudda is taking place on an industrial scale, and is leading to the gradual removal of the entire hill (see figure 6). An ashmound on the hilltop has already been destroyed (figure 7), as have several rock art sites (figure 8), while erosion is affecting numerous deposits bearing cultural material. The largest hill, Hiregudda, has perhaps seen the most extensive destruction. Here, the entire hill is covered in quarry tracks and scars from the removal of boulders and granite bedrock. Culturally rich deposits spill down the hillside, and are crushed under the weight of passing vehicles. Lack of planning is leading to severe erosion, and erosion gullies cover the hillsides, particularly on the steep southern slopes of the hill. Due to the extensive nature of the quarrying being carried out on this large hill, there is hardly a site or cultural deposit that has not been disturbed and partially destroyed. The extensive prehistoric stone features (walls, structures and terrace-like features) that cover much of the hill have been severely impacted, while many cultural deposits have suffered from erosion. A prehistoric quarry site discovered at the southeast base of the hill has suffered from quarrying of the neighbouring granite, and deep sections preserving intact prehistoric mining features are likely to collapse within a short period.

Out on the plain, much of the damage to sites has occurred as a result of agricultural expansion (as also described in Paddayya 1996). Previous workers describe a complex of 3 ashmounds east of Hiregudda (these are known as the Kupgal



ashmounds, due to their proximity to Hiregudda, or 'Kupgal Hill' as it is known in the earlier literature). In 1998, two of these ashmounds were extant, while a third had recently been destroyed by the development of a small road, quarrying and ploughing. Since that time, a second ashmound has been levelled and converted into a ploughed field (figure 9), and thus only one of the three Kupgal ashmounds remained extant as of 2004. This remaining ashmound has seen extensive damage due to apparent mining of its deposits, and only half or less of it remains. Its preservation even to this degree might be attributed to the presence on its summit of a shrine to Shiva, though during a 2004 visit this was recorded as severely damaged due to unknown causes (but possibly treasure hunting). It is worth noting that there appear to be habitation remains, perhaps ca. 50 cm thick, located west of the remaining ashmound (designated Ashmound 1 and excavated by Mujumdar and Rajaguru (1966)) and therefore towards the extinct Ashmound 3. A small remnant of an ashmound was also located on the north-east facing slope of Hiregudda hill, west of these ashmounds. In this same area are also located numerous artificial 'terraces' that are likely to represent some form of occupation rather than agricultural use.

Agricultural expansion has also destroyed many of the megaliths recorded by Subbarao on the surrounding plains (Subbarao 1948). We estimate that only 25% of the megaliths originally recorded in the Sanganakallu-Kupgal area still remain (see figure 10). It is quarrying, however that is to blame for the destruction of sites around the Birappa rockshelter to the north-east. These have led to the removal of numerous granite rock shelters, also apparently associated with microlithic debris and representing a different kind and/or period of occupation than seen in association with the hills themselves. The Birappa shelter itself has suffered from damage due to quarrying (see figure 11), which has destroyed rock art (see figure 12) and disturbed archaeological deposits. Use of the site appears to be a source of dispute between quarriers and the local community (Boivin 2004b).

### **Investigations at Sannarachamma**

Sannarachamma is the classic hilltop site excavated by Deccan College (Subbarao 1948; Ansari and Nagaraja Rao 1969). While referred to in some archaeological reports as Sanganakallu (after the neighbouring village), the hill is known locally as Sannarachamma-gudda. The site is located on the level summit of a castellated peak of archaean granite, rising some 50 metres above the surrounding plain. On the north slope of the hill, below the site, is a natural water reservoir contained by granite. The water is captured rain water and seepage in an eroded vein of dolerite between blocks of granite, and probably served as a perennial water source. There was at one time a spring arising from the neighbouring peak to the east, Murkalgudda (Mujumdar and Rajaguru 1966) although it is no longer apparent due to development and quarrying.

Renewed work at Sannarachamma has primarily involved the excavation of small test trenches in combination with section cleaning and the opening up of some of the

earlier trenches of Subbarao and of Ansari and Nagaraja Rao in order to correlate stratigraphic findings and undertake more detailed stratigraphic recording. This work has focused mainly on the centre area of the site, where the most deeply stratified deposits appear to be located. As at all sites excavated by the project at Sanganakallu-Kupgal, all sediment, whether from primary or earlier trench fill contexts, was sieved, and all artefacts recorded. Sediment samples were collected for flotation, and for phytolith, bulk soil and soil micromorphological analyses. Radiocarbon samples were taken from charcoal and flotation samples.

A preliminary set of dates is now available from Sannarachamma (see Table 1), indicating occupation from the Neolithic through to Iron Age periods. One of the main findings of our renewed investigations has been the discovery of a buried ashmound. Although an ashy 'layer' was reported by Ansari and Nagaraja Rao at Sannarachamma, its significance was not clearly recognised by these researchers. The so-called ash 'layer' is interpreted in their report variously as the burnt debris of a structure of some sort (Ansari & Nagaraja Rao 1969: 6), or 'possibly' an ashmound (ibid.: 14). What is not apparent in the report is the extensive nature of the ash deposits, and their importance for understanding Neolithic occupation at the site. These deposits are thickest towards the centre of the plateau, becoming gradually thinner as one moves towards the periphery. While the exact size and shape of the deposits remains to be determined, it is clear that they form a mounded deposit. The character of the layers making up the deposit closely resembles that from other known ashmounds, although vitrified layers are absent. Preliminary dates situate the ashmound between 1900 and 1750 BC. It is now clear that some of the earliest Neolithic activities at Sannarachamma involved the creation of an ashmound in the centre of the hilltop plateau. This new finding indicates the importance of returning to sites excavated many decades previous, when understanding of Southern Neolithic societies was only just developing, and many of today's scientific methods were unavailable.

There is also evidence to suggest that the ashmound was surrounded by some sort of post-trench feature, which was subsequently burnt, creating a charcoal-rich deposit. Prehistoric erosion of this deposit and the ashmound itself is in evidence in the form of size-sorted ashy and charcoal-rich deposits in the outer ashmound area. While evidence for structures is apparent in the form of post-holes and stone walls, the relationship between the growing ashmound and this habitation activity is presently unclear. Clarifying this would require large-scale excavations rather than the limited test-trenching and reanalysis of earlier trenches (re-exposed by modern day quarrying of soil by local villagers and scraping by us) that we have undertaken so far. It is, however, clear that much of the evidence for habitation post-dates the ashmound, and indicates occupation of the site into the Megalithic period. Many post-ashmound stone courses were encountered during the renewed investigations. In addition, later occupation is also characterised by multiple round and flat-bottomed pits that feature



multiple white organic linings. These are concentrated in particular on the ashmound itself, and appear to represent some sort of storage activity, perhaps in cow dung-lined pits.

### **The initiation of investigations on Hiregudda**

The Sanganakallu-Kupgal Project has also carried out the first-ever systematic investigations at Hiregudda, the largest of the cluster of hills at Sanganakallu-Kupgal. While the hill is described as an important Neolithic site in some of the earliest reports on the archaeology of the area (for example, Foote 1916: 82), its significance has generally been overlooked by subsequent workers, who have focused excavation efforts on the Sannarachamma and Kupgal ashmound sites. Our investigations suggest that Hiregudda is probably the most important zone of interest within the Sanganakallu-Kupgal area, and crucial to understanding the prehistoric developments that took place here. Surface finds and exposed sections across the hill indicate that it played an important role as a dolerite axe production site. Indeed, Foote described it in the early 1900s as “the largest neolithic manufacturing industry as yet met with in any part of India” (Foote 1916: 82), and there is little to suggest that his assessment would be any different today.

As indicated, our survey efforts have shown that a plateau on the southern side of the southern peak of Hiregudda is home to some of its richest archaeological remains. This area has been catalogued as Area A, and it is characterised by a dense surface scatter of dolerite lithic debitage. Recent mining and quarrying activity have greatly disturbed the area, leading to the exposure of many sections that reveal, along with deposits of lithic material, grey habitation deposits and cultural material. Numerous stone features and walls can be seen on the surface, including the terrace-like features seen elsewhere. As Foote does not comment on the area in his detailed 1916 report, it seems likely that he either did not visit it, or that it was overgrown and hence not accessible, or perhaps visible, in the late 19<sup>th</sup> century (when vegetation seems to have been more abundant on the hill, though Foote’s description makes it clear that its removal was already underway then (Foote 1916). Certainly modern mining and quarrying have made the deposits much more apparent, and exposed material that up until now has remained below the surface.

Most of our work in Area A has focused on the recording and sampling of sections exposed by a large (approximately 20m x 15m) pit excavated into the plateau for the removal of commercially useful archaeological deposits (figure 13). This modern pit has exposed archaeological deposits over a wide area of the site. These deposits reveal two main stages of prehistoric activity at the site. The lower deposits are grey and silty, and contain abundant ceramic, bone and lithic remains, indicating a habitation phase. Above this, however, the deposits become brown and richer in clay, and contain primarily dolerite artefacts. They appear to indicate use of the site primarily for the production of edge-ground axes. Preliminary dates (see Table 2)

indicate that this intensive axe-production phase took place in the late Neolithic and/or early Megalithic, from 1400–1250 BC. The main part of the earlier habitation phase dates from 1700 BC to 1500 BC, after which there may have been an abandonment of up to a century prior to the axe production phase.

Of substantial interest is the fact that at this site as well, there is evidence for an ashmound. It is these ashmound deposits that appear to have been targeted by the miners who created the large pit where we have focused our investigations. While most of these deposits have thus been removed, remnant ashmound deposits were found during section cleanings and test-trenching (these had also been noted in previous studies; see Layer 7 in section HGD.98A in Korisettar et al. 2001b). Their location at the base of section profiles would seem to indicate that the ashmound was an early feature of the site, as at Sannarachamma. The ashmound appears to have been located on the southeastern part of the plateau, overtop of a rock shelter that may have delivered gusts of air up to the dung fires above. The ashmound in Area A at Hiregudda appears to have a similar chronology to that at Sannarachamma (it relates to the earliest part of the occupation in Area A, and dates to ca. 1700 BC or earlier), suggesting that they may represent synchronous developments.

Investigations in Area A have also focused on a stone circle visible on the surface, just to the north of the modern mining pit (see figure 14). The circle, described as Feature 1, is approximately 7 metres in diameter, and is made up of boulders 0.2–1 metre in size. It is associated with a particularly dense surface scatter of dolerite debitage. Given the threat of destruction faced by this well-preserved feature, it was decided that total excavation should be carried out. The feature was thus excavated to bedrock, though baulks were left through the middle to preserve a stratigraphic record of its deposits. These divided the circle into quadrants, and enabled spatial analysis of artefactual and bioarchaeological material. Archaeological deposits and artefactual remains have indicated that the structure originally served as a habitation enclosure (at least part of the structure appears to have been roofed, as indicated by preserved post-holes in the northeast quadrant). During this period, which spanned 1750 to 1500 BC or later, axe production was carried out, but other types of lithic tools were also produced. Densities of lithic working debris were significantly lower than in the later phase of use. After 1500 BC, it is possible that the structure was abandoned, as there is a gap of a century or more between the radiocarbon dates in adjacent layers. This proposed hiatus needs to be tested further through dating of additional samples. Then the structure was re-occupied, and was used as an axe production workshop. As already indicated, this intensive axe production phase dates between 1400 and 1250 BC. In later deposits, axe production debitage overwhelmingly dominates the lithic assemblage, while evidence for the more varied types of stone tools used in more domestic contexts is absent (see Brumm et al. forthcoming, for details).

Investigations in other areas of Hiregudda have also provided evidence for axe production. Several dolerite quarry localities, in Areas B (Upper Quarry) and J (Lower