

## ETHIOPIA

## The Site of Medogwe (Axum): New Evidence from Archaeological Surveys

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### Introduction

Reconnaissance conducted near Axum, Ethiopia, in 2012, 2013 and 2014 have revealed previously unrecognized production and use of a wide range of Late Stone Age type lithic artefacts as an integral component of the Aksumite civilization. Evolution in the techniques of lithic tool manufacture demonstrates a local continuity from prehistoric times (Phillipson 1977) and thus the fundamentally indigenous roots of the Aksumite people. Many of the Aksumite lithic assemblages available for study derive from surface collections or archaeological excavations. Knapped stone artifacts are useful to understand the economic activities and the social organizations of the non-elite, which is an important component of the ancient societies (Phillipson 2009a).

The first surveys at Medogwe were conducted by Gezau Hailemaryam and subsequently by Henri de Contesson. The latter had localized a funerary area at the top of a black basalt hill. Reconnaissance at this site was conducted as part of the UNO/AU project. It is aimed at investigating a 100km<sup>2</sup> transect along the Negus/Haselo River valley from Addi Hankara (Medegoy *Woreda*) to Adet (Hawesta *Woreda*) with the territories around the modern villages of Medogwe, Seglamen, Merina and Adet as major foci of investigation in order to provide:

1) a reconstruction of the cultural and environmental history of the region to the southwest of Aksum; and 2) a detailed archaeological map of this region for the cultural heritage management of Central Tigray (Fattovich *et al.* 2011; Fattovich *et al.* 2012). This transect was selected because the Negus/Haselo River valley represented an important traditional exchange route linking Aksum and the Tigrayan highlands to the Takkeze river in the southwest and, through this, to the southern regions of the Ethiopian plateau (Fattovich *et al.* 2011; Fattovich *et al.* 2012; Sernicola and Phillipson 2011). This project is under the direction of Professors R. Fattovich, A. Manzo, Dr. L. Sernicola and Dr. L. Phillipson who are thanked warmly for the opportunity to undertake this study. In 2014a surface lithic workshop was located at the site of Medogwe.

The present author, with the kind help of Dr. L. Phillipson, has started the study of the lithic remains collected from this site. Furthermore, several surveys have been carried out by the present author and Mr. Guish Assefa Aregay to define the extension of the site and to locate possible different activity areas. It has been possible to locate and to record spots with several functions and activity in the Medogwe area. These materials could be useful to better understand the evolution of techniques of lithic tool manufacture in and near Axum, especially in the southwest zone. So far we are at the beginning of the study of these materials, but they may be inserted into the cultural continuity of Aksumite lithic tool production especially for the Classic, Middle and Late Aksumite periods. The chronological framework used in this article is that proposed by Professor Fattovich in several publications (Fattovich *et al.* 2000; Fattovich and Tekle 2005, 2006; Perlingieri 1999). In this paper the terminology used to describe the findings is that used by Dr. L. Phillipson in her publications concerning Pre-Aksumite and Aksumite stone tool production. This paper is a preliminary report of the new discoveries realized in the Medogwe site during the last two years of archaeological survey (2013-2014) and collaboration with Dr. L. Phillipson; I am truly grateful to her because she spent a lot of time teaching me the fundamentals concerning lithic studies.

### The Site of Medogwe

The village of Medogwe (Figure 1) is located between Aksum and Seglamen, in the east side of the road from Axum to Adet. In this area, the first evidence of ancient pottery was recorded by Gezau Hailemaryam, who collected two vessels (Gezau Hailemaryam 1955). Henri de Contenson located the funerary area that is marked by a few stelae remains (de Contenson 1961). The site was located and it was recorded as MDG 1 (N14°08'78.00" E38°66'82.63", 2045masl) by the members of the UNO/AU expedition in 2012 (Sernicola and Phillipson 2014). The funerary area located by de Contenson is on the top of a small terraced hill along the eastern edge of the Haselo river, where it turns west forming a meander. From the eastern river side, with an altitude *ca.* 2025m, the land rises up in height to a maximum elevation of 2045m on the hill top. The area surveyed is about 29ha, and its soil currently is exploited to grow *teff* and is subdivided into several plots of land. The landscape is composed of a fertile plain among terraced hill slopes and crags. The hill surface is characterized by a large quantity of scattered potsherds on the ground. Also at the foot of the hill, scattered potsherds were found that were probably deposited by environmental erosion over the centuries. During the first survey in 2012 it was possible to collect many potsherds. In 2013 a second survey was carried out that continued from the previous one in order to define the site's extent and to locate possible different activity areas. In 2013 lithic materials were collected from MDG 1.1 and MDG 2 (Sernicola *et al.* 2015).

In 2014 the third reconnaissance at the Medogwe site achieved the research aims. It was possible to locate and to record spots with several functions and activities. Eight *loci* were recorded using Garmin GPS 60:

MDG 1.1 is the main hill, where the ancient cemetery was placed; the local name is Koranu. It consists of a natural outcrop of basaltic stone stretching in a north-south direction with scattered

bushes and one euphorbia tree in a central position. During the centuries, the stelae have been re-used by the local people for several purposes. Today only the bases of four broken stelae remain *in situ*.

MDG 1.2 is located east of Koranu Hill with few lithic materials and no pottery sherds. Its location was recorded with GPS (N14°08'79.40" E38°66'88.60", 2036masl). This plain surface was surveyed for the first time in 2013, and in 2014 a second survey was carried out in order to define its extent, which is about 0.70ha. The land owner is Hato Haile Tesfay and currently the area is used for agricultural purposes.

MDG 1.3 is a zone that is located to the southeast of Koranu Hill with widespread presence of lithic remains, but no pottery was found. Its location was recorded with GPS (N14°08'67.70" E38°66'90.77", 2035masl). It covers a surface of approximately 0.88ha. This area is subdivided in four plots of land from north to south, and each one has a different owner. From north to south the first owner is Ato Haile Tesfay, the second is Ato Elyase Hadgu, the third is Ato Belay Brhane and the last is Ato Mekonne Geblihet. Currently the soil is exploited to grow *teff*.

MDG 1.4 is located on the slope between MDG 1.3 and MDG 1.6, southeast of Koranu Hill. Its location was recorded with GPS (N14°08'66.60" E38°66'96.90", 2045masl). This locus and the funerary area are the most important parts of the site. In MDG 1.4a lithic workshop has been found and it covers an area of approximately 340m<sup>2</sup>. The knapped stones are the product of a protracted local production of stone tools. The materials have been collected with systematic surface collection both inside and outside a sample area of 5m<sup>2</sup>.

MDG 1.5 is characterized by a widespread amount of ceramic potsherds and no lithic remains have been found. It was located between the top of the western slope of Koranu Hill and the Haselo riverside. Its location was recorded with GPS (N14°08'72.70" E38°66'73.60", 2032masl), and it covers an area of about 1.15ha.

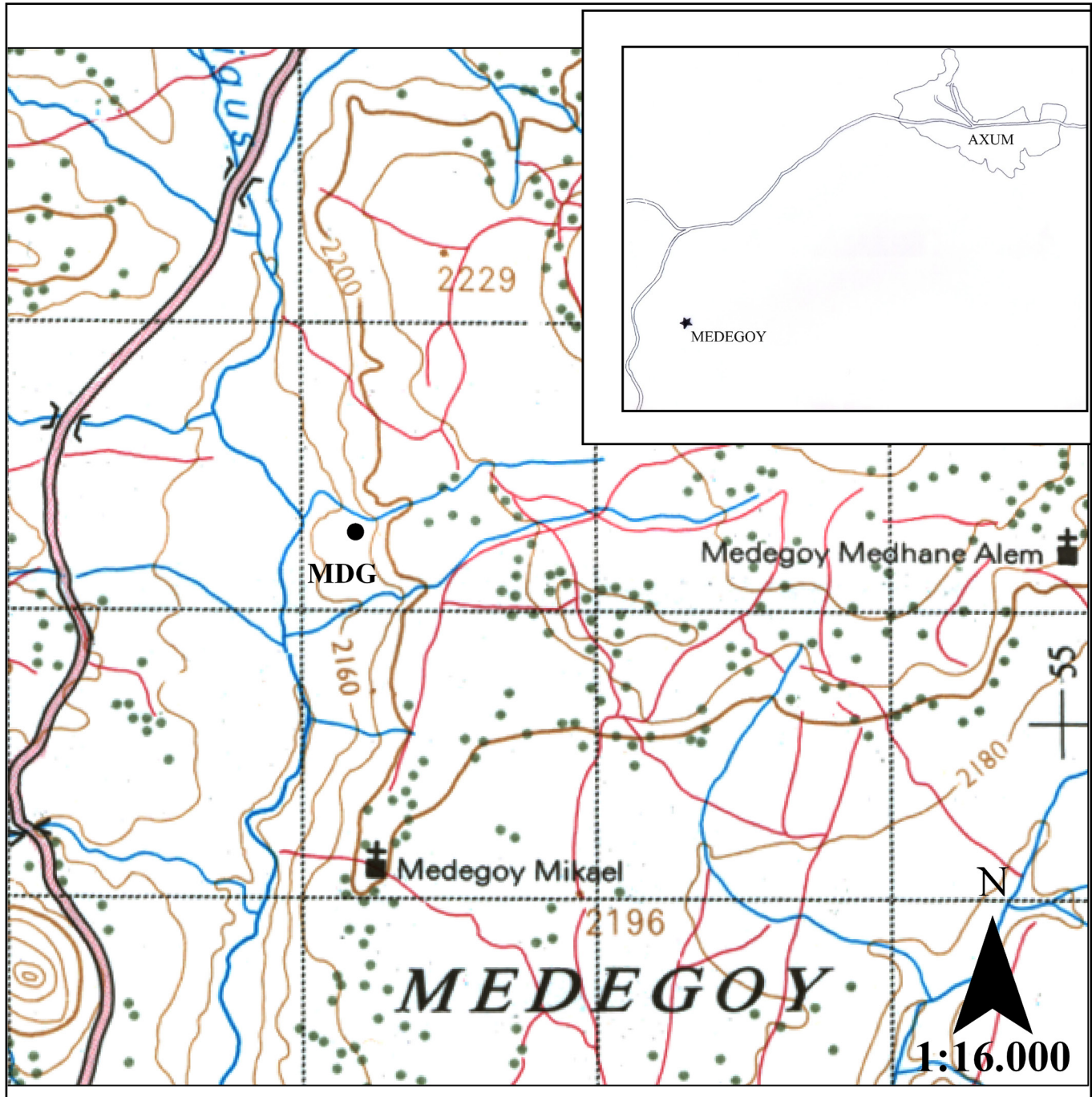


Figure 1: Map scale 1:16000 shows the Medegoy area and its surrounding environs. The image at the top right shows the location of Medegoy and the city of Axum.

MDG 1.6 is a flat terrace of about 2ha, located between the eastern end of the workshop and the slope that gives access to May Dae'ro's hilltop. The collected archaeological materials are knapped stones and small pottery fragments. It could be the secondary settlement of the site, where four possible ancient sub-circular houses were located. For each possible structure GPS points and dimensions were recorded:

- A. N14°08'70.30" E38°67'00.01",  
2062masl, 5.10x4.20m;
- B. N14°08'72.20" E38°66'99.50",  
2056masl, 5.70x6.20m;
- C. N14°08'67.70" E38°67'99.70",  
2053masl, 4.00x3.80m;
- D. N14°08'66.60" E38°66'99.80",  
2051masl, 3.80x4.00m.

Knapped stones and potsherds were found inside each possible structure.

MDG 1.7 is another flat terrace at the same altitude as Locus 6 but separated from it by the dried bed of the seasonal stream May Beles. Its location was recorded with GPS (N14°08'85.50" E38°66'94.50"). No collection was conducted in this zone so far.

MDG 1.8 is an area located north of Koranu Hill between the eastern Haselo riverside and MDG 2. It covers a surface of about 0.34ha. It is used as agricultural land and in the central part there is a water well. Two locations were recorded with GPS because of the presence of potsherds:

- MDG 1.8a N14°08'91.40" E38°66'76.00",  
2019masl;
- MDG 1.8b N14°08'90.00" E38°66'73.40",  
2023masl.

MDG 2 is a path that passes through a cultivated plain situated between the Haselo River on the western side and Haddi Hankara on the eastern side. This path stretches from north to south following a small terraced slope that reaches to the top of a cultivated plain, very eroded by both natural elements and human activity. It is located on the way to Me-

dogwe. Here four scattered GPS points were taken to record the presence of lithic remains and pottery:

- MDG 2.1 37P E0464155 UTM N1557766,  
2029masl;
- MDG 2.2 37P E0464203 UTM N1557629,  
2033masl;
- MDG 2.3 37P E0464250 UTM N1557593,  
2033masl;
- MDG 2.4 37P E0464267 UTM N1557537,  
2034masl.

In MDG 2 a non-systematic selective collection of materials was made.

Further, two different locations were recorded near the main area with scattered evidence of lithic and pottery remains. The first one is located on the top of a flat terraced plateau to the northeast of Koranu Hill. The local name is Edaboy Zewely. Its location was recorded with GPS (N14°08'89.10" E38°66'97.00", 2075masl) and it was appointed as MDG 3. The surveyed area is about 1.60ha and is used currently for agricultural purposes. The land owner is Ato Tadis Mulai. Here both pottery and lithic materials were found in large amounts close to the escarpment. Going to the eastern part of the plateau the materials decrease in concentration until they disappear nearby a modern village. Furthermore, we found a collapsed stone building with some walls still visible and a widespread layer of stones that cover almost the entire area surveyed. The vegetation consists of a few *euphorbia*, acacia, Egyptian thorn, eucalyptus trees, some aloe plants and grasses. It is impossible to date the building until archaeological excavation is done.

The second location is the top of a flat terraced plateau at the east of Koranu Hill and south of Edaboy Zewely. The local name is May Da'ero. It was appointed as MDG 4 and its location was recorded with GPS (N14°08'67.30" E38°67'05.40", 2062masl). The surveyed area is about 2.42ha, and is used currently for agricultural purposes. The land owner is Ato Gebre Medhin Abraha. The situation is the same of Edaboy Zewely site, lithic materials and potsherds are widespread and close to the escarpment and going to the east the materials disappear.

At about 300m from the surveyed area there are a few scattered houses of the same village located on Edaboy Zewely plateau top, and they are split into two parts by the Mai Beles seasonal stream. The vegetation consists of a few *euphorbia*, acacia, Egyptian thorn, eucalyptus trees, some aloe plants and grasses. There are remains of two small buildings but we do not know if they are ancient.

An additional area, which consists of chert outcrops on the slope of a low terrace, were located about 610m south of Koranu Hill. It was recorded as MDG 5 and GPS points were taken to define its extent and to record evidence of stone working *in situ*. The area where knapped stones are widespread, is about 0.87ha, irregular in shape and used currently as agricultural land for *teff* growing. Proto-cores and pre-cores are present on the ground together with flakes, cores and working fragments. Big chert blocks are also used in un-mortared stone walls that are used to divide the land in several spots. Noteworthy, three semi-circular stone-working areas were found on the slope. Each stone-working area presents knapped stones in several knapping stages. Their locations were recorded with GPS:

- MDG 5.2 N14°08'24.60" E38°66'91.10",  
2022masl;
- MDG 5.3 N14°08'24.80" E38°66'91.00",  
2028masl;
- MDG 5.4 N14°08'23.60" E38°66'91.10",  
2028masl.

**Lithic Artefacts**

Lithic materials collected in survey derive from surface contexts and are assigned to chronological periods based on associated ceramics. They consist mainly of chert flakes and cores, but also quartz, chalcedony and few obsidian flakes were recorded.

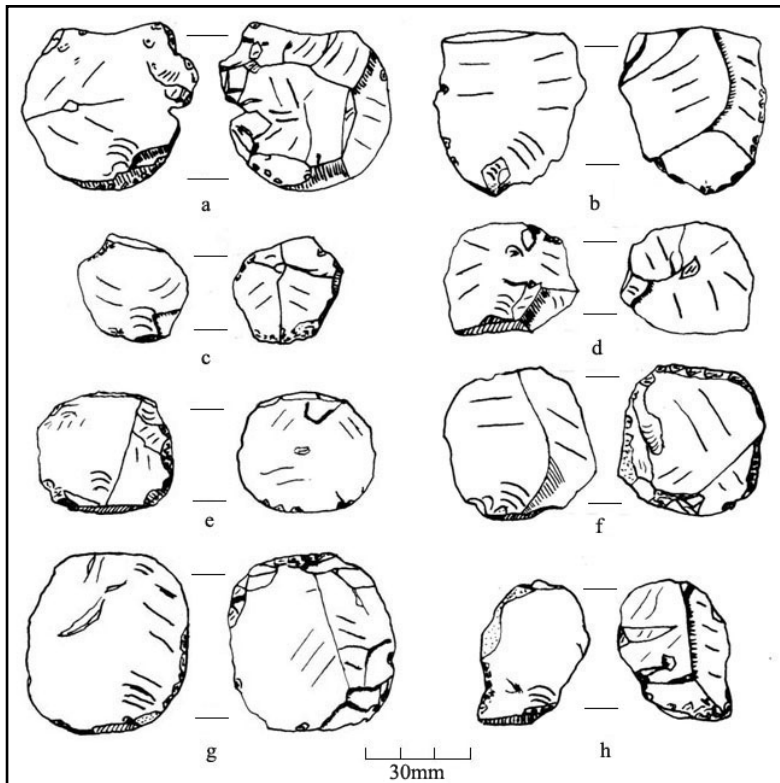
MDG 1.1: materials collected in 2013: 36 yellow chert flake fragments 42-1.2mm; 6 red chert flake fragments 29-19mm; 1 basalt flake fragment 40mm; 1 quartz flake fragment 8mm; 3 chalcedony flake fragments 22-12mm; 21 chalcedony core fragments 32-7mm; 2 chalcedony mixed quartz core

fragments 25-23mm; 12 quartz core fragments 31-12mm; 18 yellow chert core fragments 59-25mm; 2 yellow-red chert core fragments 34-29mm; 1 red chert core fragment 39mm; 1 grey chert core fragment 31mm; 27 chert flakes 41x24x17-15x27x-7mm; 9 chalcedony flakes 36x16x13-14x9x4mm; 3 chert cores 82x45x39-49x32x25mm; 1 brown chert core 28x22x11mm; 3 chalcedony mixed quartz cores 48x30x23-41x29x22mm; 1 quartz core 40x30x-19mm. Furthermore, it was possible to record the presence of a broken stele on the eastern slope, and at the top of the hill some stones with small holes that were artificially made possibly to grind seeds. In 2014 on the northern slope of the hill, a small round steatite bead was found and three broken stelae were located on the southern slope.

MDG 1.2: materials collected in 2013: 13 chert flake fragments 46-16mm; 5 chalcedony flake fragments 38-18mm; 7 chert core fragments 46-16mm; 8 quartz core fragments 53-13mm; 1 geoid core fragment 42mm; 3 chalcedony mixed quartz core fragments 52-42mm; 9 chert flakes 76x57x31 - 24x17x8mm; 1 quartz flake 29x22x8mm; 2 red chert flakes 47x37x16 - 25x19x11mm; 5 chert cores 82x45x39 - 39x38x26mm; 1 chert mixed chalcedony and quartz core 48x30x23mm; 1 chert mixed quartz core 81x62x43mm. Lithic materials were collected in 2014: 4 chert flakes of irregular and rectangular shapes, which dimensions between 48x40x16mm and 26x29x8mm; 1 chalcedony casual core 33x23x-21mm; 1 chert exhausted core 31x24x15mm.

MDG 1.3: 13 chert fragments 35-14mm; 19 chert flakes with Levallois-style, irregular, sub-rectangular, ovate, sub-ovate, circular, sub-circular shapes. Their dimensions range between 50x36x-20mm and 16x25x9mm. Fifteen cores were collected that show Levallois-style, casual, conical, irregular and exhausted shapes with dimensions ranging between 64x43x46mm and 32x28x14mm. Furthermore, at the center of a sample area of 1m<sup>2</sup> 4 chert cores, 3 chert flakes and 4 chert flake fragments were collected.

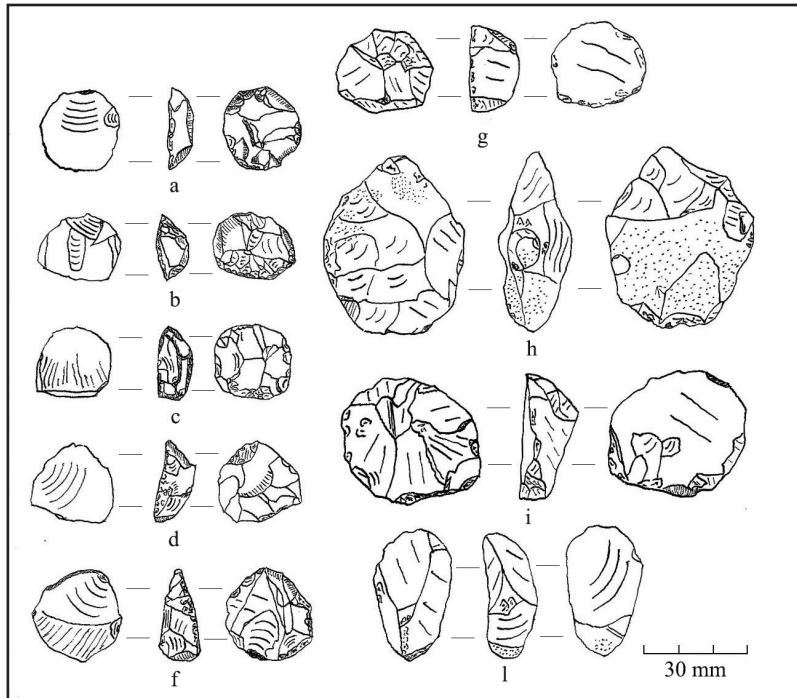
MDG 1.4: the lithic remains collected (see Figures 2-5) collected are listed in Tables 1 and 2.



**Figure 2:** Levallois-style flakes from Medogwe workshop. Drawing by Diego Capra.



**Figure 3:** Selection of flakes from Medogwe workshop.



**Figure 4:** Core samples from the Medogwe workshop. a-f) exhausted cores, g) irregular core, h-i) Levallois-style core, l) sub-ovate core. Drawing by Diego Capra.



**Figure 5:** Sample of cores from the Medogwe workshop.

Quantity	Material	Description	Dimension mm	Shape
266		Flake fragments	< 15	
548		Flake fragments	15 ~ 30	
174		Flake fragments	> 30	
219		Flakes	< 15.0	
194		Flakes	15 ~ 20	
122		Flakes	> 20	
3	Quartzite	Levallois-style flakes	22x26x5 27x27x6 ~ 22x25x9	1 Irregular 2 Sub-circular
5	Quartzite	Flakes	42x45x15 ~ 27x28x12 43x30x12	4 Irregular 1 Sub-ovate
28	Chert	Levallois-style flakes	51x53x12 ~ 30x29x11 35x33x7 ~ 33x34x8 39x43x13 ~ 26x23x6 43x41x13 ~ 38x36x17 38x36x12 ~ 21x21x8 36x35x6 25x23x7 30x34x7	6 Irregular 3 Ovate 5 Sub-ovate 2 Circular 9 Sub-circular 1 Square 1 Sub-square 1 Rectangular
3	Chert	Possible LS-style?	35x38x9 ~ 35x34x7 28x41x12	2 Sub-ovate 1 Ovate
4	Chert	First flake remove to prepare LS core	40x40x14 ~ 36x32x14 29x45x15 43x42x13	2 Circular 1 Sub-ovate 1 Square
250	Chert	Flakes	53x27x10 ~ 15x17x6 49x35x14 ~ 16x11x3 60x28x18 ~ 17x11x3 39x31x13 ~ 18x17x4 35x38x15 ~ 16x20x5 64x20x21 ~ 16x8x4 50x42x20 ~ 16x23x10 22x24x9 45x43x20 ~ 26x28x8 25x26x11 ~ 21x25x12	111 Irregular 27 Ovate 41 Sub-ovate 14 Circular 17 Sub-circular 30 Sub-rect. 5 Triangular 1 Sub-triang. 2 Square 2 Sub-square
39	Yellow/brown Chert	Flakes	33x22x8 ~ 11x12x3 19x14x5 ~ 17x21x6 17x11x3 18x8x4 20x19x6 ~ 12x17x4 17x15x5 ~ 13x13x4 20x20x7 ~ 17x11x3 17x17x5	18 Irregular 6 Ovate 1 Sub-ovate 1 Rectangular 7 Sub-rect. 2 Circular 2 Sub-circular 1 Square
15	Red chert	Flakes	16x17x5 38x39x14 ~ 11x13x3 28x21x10 ~ 20x24x11 40x40x20 ~ 15x14x8 9x9x2 37x39x12 ~ 25x22x8 26x28x8	1 Sub-square 4 Irregular 3 Ovate 3 Sub-ovate 1 Circular 2 Sub-circular 1 Square



3	Glassy chert	Flakes	15x15x7 25x22x10 ~ 19x22x7 23x16x8	1 Sub-square 2 Sub-circular 1 Sub-rect.
17	Grey/black chert	Flakes	18x17x4 ~ 12x6x2 17x10x3 28x17x4 ~ 17x9x2 12x9x3 8x8x2 20x18x7 ~ 13x11x5 7x8x2 20x9x3	7 Irregular 1 Rectangular 3 Sub-rect. 1 Ovate 1 Square 2 Sub-square 1 Sub-triang. 1 Pointed
5	Green chert	Flakes	18x21x8 ~ 11x15x4 23x9x6 18x15x4 15x9x3	2 Sub-circular 1 Triangular 1 Irregular 1 Ovate
1	Colored chert	Flake	28x32x17	Irregular
1	Chalcedony	Flake	17x22x5	Irregular
1	Quartz	Flake	40x42x15	Irregular

**Table 1:** Whole flakes and fragments.

Quantity	Material	Description	Dimension mm	Shape
6		Core fragments	< 30	
26			30 ~ 40	
26			> 40	
4	Chert	Levallois-style cores	59x44x44 45x39x35 45x36x19 45x36x23	Phase intermediate
42	Chert	Levallois-style cores	82x72x47 ~ 40x31x22 71x61x34 ~ 35x35x22 72x69x25 ~ 48x55x16 61x47x27 ~ 39x29x18 57x48x19 ~ 37x30x14 52x41x36	Exhausted 3 Irregular 6 Circular 2 Sub-circular 17 Ovate 10 Sub-ovate 2 Sub-rectangular
2	Red chert	Levallois-style cores	61x33x17 ~ 40x38x31	2 Irregular
1	Brown chert	Levallois-style cores	54x51x31	1 Circular
2	Glassy chert	Levallois-style cores	45x40x19 43x29x21	1 Circular 1 Irregular
1	Quartzite	Levallois-style cores	47x26x18	Sub-ovate
214	Chert	Cores	44x36x20 ~ 27x29x15 60x35x20 ~ 28x25x14 60x31x26 ~ 26x20x11 40x37x17 ~ 26x24x16 44x38x22 ~ 29x25x14 43x37x22 ~ 30x36x13 32x20x12 38x27x17 ~ 29x20x14 37x37x14 ~ 25x24x12	20 Irregular 87 Ovate 76 Sub-ovate 6 Circular 8 Sub-circular 8 Sub-square 1 Rectangular 4 Sub-rectangular 4 Triangular
21	Chert	Casual Cores	80x62x28 ~ 33x31x14	
5	Chert	Cores	49x33x21 ~ 26x20x15	5 Irregular
17	Chert	Cores	56x40x31 ~ 42x34x14	17 Multiplatform
5	Chert	Plano-convex Cores	49x39x16 ~ 38x31x17 45x38x20 ~ 43x41x20 39x38x16	2 Sub-ovate 2 Sub-circular 1 Square
47	Yellow/brown Chert	Casual Cores with little retouched area	62x33x20 ~ 33x28x17	47 Irregular
12	Red Chert	Cores	30x22x14 45x28x14 ~ 30x25x12 35x32x14 29x24x9	1 Ovate 9 Sub-ovate 1 Sub-square 1 Sub-rectangular
6	Glassy chert	Cores	63x35x20 ~ 27x23x13 51x30x21 ~ 42x29x19	4 Irregular 2 Sub-ovate
6	Quartzite	Cores	37x25x15 ~ 32x30x16 48x30x22 ~ 35x21x10 46x30x25	2 Irregular 3 Ovate 1 Sub-ovate
1	Quartz	Core	40x28x12	Sub-ovate
3	Black chert	Cores	43x34x15 ~ 42x27x17 43x30x20	2 Irregular 1 Ovate
1	Yellow/brown	Core	42x41x22	1 Circular

4	Chert Chalcedony	Cores	48x35x24 ~ 24x17x12 25x22x13	3 Multiplatform 1 Casual
36	Yellow/brown Chert	Exhausted Cores	30x22x13 ~ 18x26x14 25x22x15 ~ 24x18x7 28x24x15 ~ 21x22x15 25x20x13 ~ 21x21x11 25x27x11 ~ 20x21x10 26x23x10 ~ 25x21x15 27x30x11 ~ 22x23x10	8 Irregular 3 Ovate 11 Sub-ovate 2 Circular 7 Sub-circular 3 Triangular 2 Sub-triangular
12	Chert	Exhausted Cores	29x22x8 ~ 20x21x9 28x28x13 ~ 20x22x8 32x29x14 ~ 20x19x11 22x15x9 23x19x10 ~ 21x20x13	3 Irregular 3 Sub-circular 3 Sub-ovate 1 Ovate 2 Sub-triangular
2	Sandy chert	Exhausted Cores	27x23x10 20x20x10	Irregular Circular
1	White chert	Exhausted Core	21x23x13	Circular
2	Quartzite	Exhausted Cores	26x28x18 ~ 18x20x8	Sub-circular
5	Red chert	Exhausted Cores	28x28x16 ~ 21x24x11 21x17x6	4 Sub-circular 1 Sub-ovate

**Table 2:** Whole cores and core-fragments.

MDG 1.6: materials collected on the surface are: 4 chert flakes showing irregular shape and their dimensions range between 40x40x23mm and 50x59x14mm, 2 red chert cores 40x19x14 - 37x30x22mm; 4 chert cores 75x52x44 - 26x24x12mm; 1 chalcedony core 50x45x27mm; 1 quartz core 41x34x30mm. The cores have ovate, casual, irregular and exhausted shapes.

MDG 1.6a: 3 chert fragments 49-33mm; 1 irregular chert flake 31x19x13mm; 1 chert casual core 31x21x22mm.

MDG 1.6b: 1 chert flake fragment 27mm; 1 chalcedony flake fragment 25x18x11mm, 1 quartz core fragment 22mm; 3 chert flakes 35x43x14 - 21x27x7 mm; 2 chalcedony flakes 31x24x11 - 16x13x9mm; 1 quartz flake 35x30x15mm. The flakes have irregular and circular shapes. Two chert cores 37x30x23 - 34x28x15mm and 1 chalcedony core 49x34x33mm have ovate and multiplatform shapes.

MDG 1.6c: 2 chert flake fragments 25-22mm; 4 chalcedony flake fragments 22-14mm; 5 chert cores 58x44x35 - 52x35x22mm; 2 chalcedony cores 32x25x32 - 23x16x16mm. The cores show casual, ovate, multiplatform and irregular shapes. One chalcedony handstone 61x34x19mm, oval in plan with plano-convex profile. It perhaps was used as a tool to scrub the skin; 1 rounded granite pebble 51x53x19mm circular in plan and with convex profile. It may have been used during the working of fresh clay.

MDG 1.6d: 1 chert flake fragment 28mm; 1 chert core fragment 43mm; 1 chalcedony irregular flake 19x14x8mm; 1 grey/black chert core 57x48x20mm; 1 red chert core 41x40x26mm, 1 chert core 46x41x16 mm. The cores show casual shape.

MDG 1.8: 4 chert flakes of irregular and rectangular shapes, which dimensions range between 28x22x08mm and 48x40x16mm; 1 chalcedony casual core measures 33x23x21mm and 1 exhausted chert core which dimensions are 31x24x15mm; 1

granitic handstone 90x63x46mm, sub-rectangular in plan with triangular profile and smooth base; 1 possible chert scraper 70x46x23mm with an oval plan, convex profile and one long side presents some retouches; 1 sandstone handstone 124x123x39mm, round in plan with plano-convex profile; 1 broken basalt grindstone 210x120x100mm, oval in plan with concave-convex profile. On the obverse the surface is smooth with some marks suggesting its use. On the reverse the surface is natural.

MDG 2.1: no lithic remains have been found.

MDG 2.2: 2 chert flake fragments 47-29mm.

MDG 2.3: 2 chert flake fragments 49-3mm; 1 basalt top stone fragment 81x49x23mm.

MDG 2.4: 2 chert flake fragments 37-36mm.

MDG 3 (Edeboy Zewely): lithic remains are represented by 5 chert fragments 36-14 mm; 4 chalcedony fragments 21-10 mm; 5 chalcedony core fragments 33x6 mm; 14 chert flakes 65x26x10 - 16x18x5 mm; 19 chalcedony flakes 34x22x7 - 13x19x5mm, 1 obsidian flake 10x12x4mm; 1 glassy chert flake 35x3x6mm; 1 black chert flake 27x19x6mm; 1 quartz flake 29x29x10mm; 1 red chert flake 25x14x7mm; 2 obsidian cores 26x22x14 - 22x14x7mm; 1 glassy chert core 54x40x26mm; 7 chalcedony cores 40x36x26 - 23x22x13mm; 2 chert cores 58x50x35 - 56x45x35mm; 1 quartz core 31x27x14mm and 1 quartzite core 23x22x9mm. The flakes show irregular, sub-rectangular, rectangular, ovate, circular, square, triangular shapes, while the cores are irregular, exhausted, casual in shapes. One has been obtained using Levallois-style technique.

Other lithic remains include: 1 broken chalcedony handstone 82x70x62mm, probably oval in plan, with plano-convex profile. It is flat and rough on the plano surface, rounded and the convex surface is slightly smooth; 1 chalcedony handstone 41x39x25mm, with rounded plan and plano-convex profile. It is smooth on the convex surface and rough on the plano one; 1 chert handstone 83x81x71mm, sub-square in plan with cuboid profile. Two sides have flat surfaces and the other ones have irregular sur-

faces; 1 chert handstone 70x69x56mm sub-square in plan with cuboid profile. The sides show an irregular surface even if three sides are rough and flattened; 1 basalt handstone 138x62x28mm, rectangular in plan with slightly convex profile. The surface on the convex part is smooth. Furthermore 5 broken stele, not *in situ*, were photographed.

MDG 4 (May Dae'ro): knapped stones consist in 9 chalcedony flake fragments 29-9mm; 6 chert flake fragments 61-19mm; 1 geoid fragment 62mm; 1 chalcedony core fragment 78mm; 14 chalcedony flakes 49x29x14 - 10x17x4mm; 15 red chert flakes 50x38x11 - 20x25x4mm; 4 chert flakes 75x65x2 - 43x40x14mm; 1 quartzite flake; 1 chert casual core 58x43x29mm and 1 chalcedony casual core 73x54x40mm. The flakes show irregular, circular, sub-circular, rectangular, sub-rectangular, ovate, square shapes. From 1m<sup>2</sup>sample were collected: 2 chert flake fragments 46-26mm; 1 chalcedony flake 10x12x2mm and 2 chalcedony cores 35x34x20 - 28x23x16mm casual and irregular in shapes.

Other lithic remains include 1 broken granitic top stone 180x140x58mm, oval in shape with plano-convex profile. The obverse is flat and the reverse shows a natural surface with damaged edges; 1 broken granitic grindstone 210x145x79mm, oval in plan with concave-convex profile. The obverse is curved with smooth surface and the reverse shows a natural surface with trimmed edges; 1 stone used in the early stages of preparation of a mortar 125x100x90mm; it is irregular in both plan and profile. The obverse is concave in the central part and the reverse shows an irregular surface; 1 chert hammerstone 75x77x60mm rounded in plan with plano-convex profile; 1 granitic handstone 109x109x53mm, rounded in plan with oval profile.

MDG 5 (chert outcrop): The materials collected along the slope near the chert outcrop are: 3 chert flake fragments 42-28mm, 3 chert core fragments 85-43mm; 2 chert Levallois-style flakes 85x81x27 - 63x60x18mm; 1 irregular chert flake 59x31x6mm; 1 chert pre-core 115x115x66mm; 1 chert proto-core 76x 67x56mm; 4 chert cores 71x68x34 - 59x43x38mm, casual and irregular in shapes.

MDG 5.1 GPS point N14°08'26.50" E38°66'90.10": 53 chert flake fragments 70-10mm; 15 chert core fragments 77-17mm; 17 chert flakes; 1 chert pre-core 110x110x55mm, 2 proto-cores 115x75x66 - 79x79x54mm, 9 cores. The flakes are of several types including irregular, sub-rectangular, circular, sub-circular and ovate shapes which dimensions range between 20x18x5mm and 50x32x12mm. The cores present different types including irregular, casual, plano-convex shapes and they have measurements ranging between 38x35x18mm and 54x51x30mm.

MDG 5.2 GPS point N14°08'24.60" E38°66'91.10": 69 chert flake fragments 67-17mm; chert core fragments 64-33mm; 1 red chert core fragment 30x28x16mm; 1 chalcedony core fragment 27x25x15mm; 30 chert flakes; 8 chert cores; 1 proto-core 110x95x52mm. The flakes are mostly irregular, but a few samples of rectangular, sub-circular and ovate shapes are present. Sizes range between 78x33x14mm and 11x15x4mm. The cores have multiplatform, irregular and casual shapes and their dimensions range between 85x52x20mm and 48x44x16mm in size.

MDG 5.3 GPS point N14°08'24.80" E38°66'91.00": 40 chert flake fragments 69-16mm; 14 chert core fragments 71-24mm; 22 chert flakes; 1 chert pre-core 95x90x65mm; 1 chert proto-core 90x55x50mm; 12 chert cores. The flakes are mainly irregular in shape but also sub-rectangular and sub-ovate ones are present. There are also 3 Levallois-style flakes. The sizes range between 53x50x09mm and 15x13x3mm. The cores include irregular, casual, multiplatform and four Levallois-style shapes. Their size range between 89x64x50mm and 27x26x18mm.

MDG 5.4 GPS point N14°08'23.60" E38°66'91.10": 35 chert flake fragments 63-13mm; 7 chert core fragments 54-18mm; 17 chert flakes, 1 chert pre-core 93x87x65mm and 9 chert cores. The flakes are all irregular in shape and the size ranges between 50x36x14 and 11x14x3mm. The cores are casual, irregular and multiplatform in shape, with size ranges between 81x58x45 and 35x27x16mm.

### Ceramic Artefacts

Ceramics collected do not represent the main aim of these surveys but they are useful in establishing site chronology and to determine the function of several areas recorded in the Medogwe site. In general, the potsherds collected consist of fragments of handles, walls, bases, rims and grips. So far, a complete study of the ceramics has not been carried out. A preliminary study was conducted by Sernicola and Phillipson (2014) of the pottery collected on the top of Koranu Hill.

MDG 1.1: ceramics include red, orange, pink coarse and fine ware fragments and one fragment of Black Topped Red Ware (BTRW). Their main forms are: cups, beakers and bowls with rounded base, straight or slightly everted profile, rounded or slightly flaring rim; pots with rounded base with ring-foot, straight or slightly everted profile, flattened or rounded rim; jars with rounded or flattened base, globular body and everted rim; bottles with rounded base, globular body, short cylindrical neck, rounded rim and vertical handle between the neck and the shoulder; circular basins with slightly everted profile, flattened rim and decorated foot-rest; quadrangular basins; fragments of strainer vessels. Decorations are incised, impressed, molded and painted. Incisions include: one or more horizontal lines running below the rim, lines and triangles on flattened rim, circles on the internal and external surface of bases of open cups, various patterns of oblique and vertical lines on foot-rests. Impressions include: dots, circles and notches combined in various patterns on the internal and external surface of open cups. Molded decoration mainly consists of a single short, horizontal strip below the shoulder of globular bottles or below the rim of cups, beakers and bowls. White painted decoration is present only on the internal surface of the fragment of a quadrangular basin (Sernicola and Phillipson 2014).

The collected pottery in the other *loci* of the site are listed below:

MDG 1.2: no pottery was found.

MDG 1.3: collected potsherds are: 1 rim, 1 handle, 4 walls.

MDG 1.4: several potsherds, all very small in size, were collected and they do not have diagnostic features. They are not useful in dating the workshop.

MDG 1.5: collected potsherds are: 5 handles, 1 rim fragment, 12 decorated walls fragments, 1 base fragment.

MDG 1.6: among the collected potsherds (Figure 6): 1 wall fragment that is possibly Pre-Aksumite; 17 wall fragments; 1 neck, 1 handle, 3 rims, 1 base fragment.

MDG 1.6a: potsherds consist of 8 wall fragments, 7 Aksumite and 1 possibly Pre-Aksumite.

MDG 1.6b: collected potsherds are: 1 handle fragment possibly Pre-Aksumite and 10 Aksumite wall fragments.

MDG 1.6c: no pottery was found.

MDG 1.6d: collected potsherds are 7 Aksumite wall fragments.

MDG 1.8: pottery was found in two different places recorded with GPS points. The first one is MDG 1.8a N14°08'91.40" E38°66'76.00", 2019masl and the collected pottery sherds are: 3 handle fragments; 6 walls; 1 decorated rim. The second one is MDG 1.8b GPS point N14°08'90.00" E38°66'73.40", 2023masl and the collected potsherds are: 15 wall fragments; 2 handle fragments; 2 rims; 1 thick wall; 1 grip; 1 base fragment.

MDG 2: 14 potsherds were collected, but only one is diagnostic.

Edeboy Zewely (MDG3): collected potsherds are: 13 handles; 12 walls with rim; 29 wall fragments (3 with incisions on the internal surface, 1 decorated on external surface); 4 rims; 2 bases.



**Figure 6:** Potsherd samples from MDG 1.6.

May Dae'ro (MDG4): collected ceramics from 1m<sup>2</sup> sample are: 1 handle, 2 walls and 23 wall fragments. Others potsherds in this locus are 2 neck fragments, 2 handle fragments, 1 decorated base fragment, 16 wall fragment, 1 base fragment, 1 wall with rim. Most of the pottery fragments collected during the surveys are badly preserved, which makes it difficult to date them, even if the most conserved pieces can clearly be attributed to the Aksumite period.

### Conclusions

From the reconnaissance carried out in the Medogwe area we can define the following outline. The site probably was exploited for several centuries ranging from Proto-Aksumite to the Aksumite period as the collected potsherds confirm (Sernicola and Phillipson 2012). The use of the site probably started with Koranu Hill as a funerary area where the collect-

ed potsherds range from the Proto-Aksumite period (ca. 400-50 BC) to the Middle Aksumite phase (ca. AD 400/450-550). De Contesson, on the basis of his studies on the ceramics, suggests that the end of its exploitation is at the end of the 3<sup>rd</sup> century AD. The pottery that was collected from MDG 1.3, 1.4, 1.6 (Figure 6), 1.6a, b, c, d confirm a date ranging from Classic Aksumite phase (ca. AD 150-400/450) to the Middle Aksumite phase (ca. AD 400/450-500). The standardization of collected lithic materials in the workshop suggests lithic production also during the Late Aksumite phase (ca. 550-700 AD) (Fattovich *et al.* 2000; Fattovich and Tekle 2005, 2006; Perlingieri 1999).

MDG 1.6, where four possible house remains were located, was probably exploited from the Classic Aksumite phase to the Late Aksumite phase similar to MDG 1.3. The flakes and cores which were collected from the workshop are similar, both in shapes and working techniques, to those found in MDG 1.3 and MDG 1.6, 16a, 16b, 16c, 16d. In these loci we

found lithic materials similar to those collected in MDG 3 and MDG4 that are completely different in both raw materials and shape. These lithic remains probably were transported here by erosion from the plateau where MDG3 and MDG4 were located. As confirmed by L. Phillipson (2009a), the standardization of lithic production in Axum's area started during the Early and Classic Aksumite periods. The same trend continued until the end of the Middle Aksumite phase, when the development of lithic knapping was a restricted skill. Lithic production decreased in both quantities and varieties because of the increase of Aksum's external trade. Because of this increase in trade, several materials were available and in the urban area they were replaced by metal tools. Stone tool production was continued by a few specialists, so the suburban and rural areas became dependent on these stone workers. From the standardization of the lithic remains we can suppose flake production (Figures 2-3) in repetitive shapes (irregular, ovate, sub-ovate, circular, sub-circular, sub-rectangular).

A comparison with Gudit scrapers (Phillipson 2009b) and with the cores from Mai Agam's stage-three (Phillipson and Sulas 2005) is possible. The difference between the cores found in Medogwe workshop, which show a minute denticulated configuration, and the Gudit scrapers consist of the different ways of exploitation and in their function. The Medogwe cores (Figures 4-5) were not used like scrapers but they were exploited only to produce flakes until it was no longer possible to flake them. Cores were found in several phases from the big ones to the exhausted ones. At Mai Agam the cores were chipped to obtain triangular flakes while in Medogwe workshop triangular shapes are very rare.

Medogwe workshop is another element to confirm the continuity of stone tool production in Axum's area during Aksumite times. From MDG 3 and MDG 4 lithic materials are completely different. The chert-like material to produce stone tools is less used than in the workshop. The flakes and the cores are obtained by working chalcedony in large amounts but glassy chert, red chert, black chert, quartz, quartzite and obsidian were chipped also.

MDG 5 seems to be a separated zone inside the Medogwe area because lithic materials are different in shapes and the exploited chert is completely different from the kinds of chert worked in MDG1. The area could be more ancient than the Medogwe site because there is no standardization in stone working but, without some evidence for definitive dates it is impossible for the moment to confirm this supposition. The raw materials exploited in the workshop, in MDG3 and MDG4 are not the same as those used in MDG5. At the workshop several kinds of chert, quartz, quartzite and chalcedony were collected. We can suppose, because of the absence of raw material sources in the Medogwe area, similar to the collected knapped stones in MDG3 and MDG4 that they may have been transported to Medogwe using the trade route which followed the natural corridor of the Mai Negus River. This road linked Aksum to the southern lands, leading to Medogwe, Seglamen, Takkeze River and westward to the Shire region (Sernicola and Phillipson 2011).

We can summarize the arrangement of the several zones in Medogwe in the following way. One funerary area MDG 1 (Koranu Hill); MDG 1.2 and MDG 1.3 could be the agricultural area of the site; MDG 1.5 could be the extent of the funerary area because of the presence of both pottery, probably carried down by erosion from the top of Koranu Hill, and by the few broken stele; MDG 1.6 is the housing area with the remains of probably ancient houses; MDG 1.8 because of the few remains it is impossible to define the use of this locus.

In conclusion, we can hypothesize an earlier exploitation of Koranu Hill (MDG 1.1) as a funerary area, from the Proto-Aksumite period (ca. 400-50 BC) to the introduction of Christianity during the Classic Aksumite (ca. AD 150- 400/450) period. Probably the surrounding MDG 1.5 and MDG 1.8 could date to the same period on the basis of pottery findings. Instead MDG 1.2, 1.3, 1.4, 1.6 could date between the Middle Aksumite (ca. AD 400/450-550) and the Late Aksumite (ca. AD 550-700) periods, while MDG 3 and MDG 4 could date from the Proto-Aksumite period to the Classic Aksumite period. So far it is impossible to date MDG 5 because of the



lack of pottery or other data. By the lithic materials we can assume hypothetically that these ones could be more ancient than the other ones. This hypothesis is suggested only on the basis of the lithic typology. There are several zones in which a trench could be opened: for example, in the workshop area, in MDG 1.6, in MDG 3, in MDG 4, in MDG 5, probably in the lower part of MDG 1.5 and MDG 1.8. The site needs archaeological excavations in order to collect, if it is possible, new data for a better understanding of the exploitation of the areas during the centuries and also to have an absolute chronology of the site.

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