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REPORT

Archaeological survey around Lake Beseka (Northern Main Ethiopian Rift)

**Behailu Habte Endalew, Clément Ménard and
François Bon**

*University of Toulouse Jean-Jaures
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Toulouse, France*



Introduction

Here we report the recent archaeological survey around Lake Beseka (Northern Main Ethiopian Rift) conducted between 18th -24th December 2018. The survey is initiated, in the framework of the doctoral research of the first author (BH), to retrace the previous Later Stone Age sites, notably FeJx4, and to help document new archeological context in the surroundings. FeJx4 is one of the earliest Later Stone Age sites in Ethiopia and the Horn which was excavated under the direction of Desmond Clark and Steven Brandt in 1970s.

How the survey starts

We started the survey in the western side of the Lake because we know FeJx4 site is located in this side. To find the site, we rely on the original descriptions made by (Brandt, 1982; Williams et al., 1977). The challenge with this was the morphology of the Lake which have expanded more dramatically than it was in 1970s; its surface area has tripled since then, and quite large landmass are now flooded and becomes part of the Lake. What we learnt from the old map is that the site is located parallel to small Cone that situated approximately 2 km further east of the site. With this in mind, we tried to make interviews of the local elderly persons if they probably knew the whereabouts of the archaeological site. Despite we managed to interview two local elderly persons, unfortunately, they knew nothing about the old archaeological excavations in this area. In fact, the local people who lived in this area back then might possibly be pastoralist who moved seasonally from one place to another so that it could be less probable to expect the same people in this place. Thus, we shifted our plan into what we originally had in mind—using the old map for retracing the FeJx4 site.

Western Lake Beseka sites

We know that the previous archaeological excavation was conducted right between the basalt faults in the western side of the Lake. While we were looking for this fault, in the locally called *Elala Kebele* district, we came across with surface scatter of obsidian artifacts at what we later named WB1 site (GPS Coordinate: N 08.89511°/ E 039.84860°). The site is located further north of the western side of the Lake near water channel which cuts into the land. The water channel was perhaps part of the basalt fault that runs NNE direction (Brandt 1982:55). Here, we notice abundant obsidian lithic occurrences scattered across an area of ~200 square meters on the pumice deposit. To mention, blade, scraper, bladelet cores are dominant technological features in this site (Fig.6&7). Few pottery shreds were also observed on the surface. Provided that the

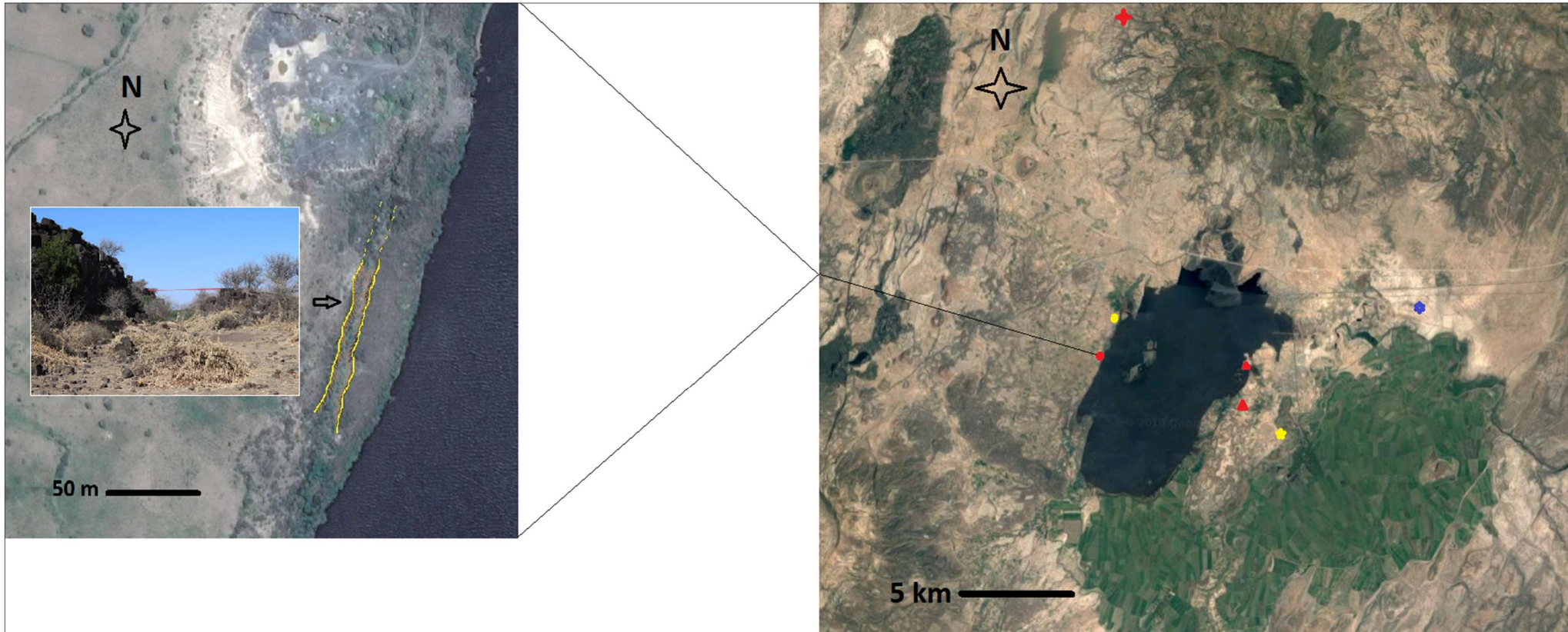
previous description about the locations of the excavated sites is correct (Brandt 1982), we can speculate that this site could correspond either to FeJx2 or FeJx3 site.

Further south of WB1, we continued surveying on the shore of the lake in quest of the basalt fault described above. To begin with, we initially observed white sedimentary deposits on Google satellite image (GPS coordinate: N 08.88104°/ E 039.84105°). When we reached this deposition, it was in fact a huge modern sediment being accumulated by modern stone quarry work (the stone is being extracted for road construction). In this area, we observe a lot of obsidian artifacts scattered upon the pile of the sediments, and of course might come from the digging of the modern quarry (Fig.8). Unfortunately, we could not notice any obsidian artifacts present in the parts of excavated section (Fig.12). Hence, we suspect these lithic artifacts could have either been removed from the thin upper surface of the modern quarry or it was just on surface occurrence before it moved away to the modern pile. We cannot assign this area to the level of site for it has already been destroyed.

The Fault: FeJx4?

Further southwest of this modern quarry site (WB2 area), some ~250 m away, we reached to the geological fault (GPS Coordinate: N 08.87853 / E 039.84215). The fault, which measures ~278 m long, and ~15-20 m wide, is running in NNE direction. To access the fault, it is easier to pass through its northern part, and the sides of the faults are less gentle to step down otherwise (Fig.1). Here, we see sediments formed on the floor, which at the moment are partly covered by shrub trees (locally dubbed as *Woyane* tree). We cannot tell how thick this sedimentary formation would be but considering the depth of the fault, and its lesser susceptibility to erosional events, we can imagine that it is thicker deposit. Moreover, despite the lake margin is quite close (only ~10 meter away), it is fortunate that the fault does not get flooded yet largely because the sides of the fault are still higher up of the lake. In view of the position of the fault which overlooks the then Cone in the east (possibly this Cone has become an Island currently), therefore, it is reasonable to imagine that this fault could likely be where the FeJx4 site was situated. To argue for, we learn that the nearest neighboring fault other than this is located 3 km further south, which is way farthest away from the corresponding Cone.

Fig.1 Lake Beseka and its surroundings, showing the locations of the archaeological occurrences and geological events



Legend

- Basalt fault (pictured also in the left) where the FeJx4 site could have been located
- Western Beseka 1 site (WB1)
- ★ Fentale area site
- ★ Metahara flood plain
- ▲ Eastern Beseka sites (EB1, EB2, and EB3)
- ★ Awash-Beseka site (AB1)

Eastern Lake Beseka sites

After we passed through the town called Haro Adi, some 6 km south of Metahara town, we reached to the eastern side of the lake. Unlike the western side of the Lake, this part is largely covered by sugar plantation farm. Despite this, we learnt that there are still reasonable sizes of areas that worth making archaeological exploration, and of course, no archaeological survey has ever been conducted in this side before.

Here, we locate three surfaces lithic scatter areas what we name Eastern Beseka 1, 2 and 3 sites (EB1, EB2 and EB3 sites).



Fig.2 pumice fragments in EB1 site

EB1 is located near the small peninsula in the eastern side of the Lake (GPS Coordinate: N 08.87711° / E039.89935°). In this site, obsidian artifacts are scattered on pumiceous surface, underneath is a sedimentary deposit. The lithic artifacts are mainly blade based industries (Fig.9). The pumice is deposited in the form of fragments near the lake shores, some of which have been reworked by the action of water. Whereas, the pumice deposit further away from the shore is more like in the form of capping than fragments. A little east of this area, we spotted a section of tephra being exposed; we are not sure if this tephra could spread all the way to EB sites (Fig.13). On the other hand, in the area EB2 (GPS coordinate: N 08.88020° / E 039.89915°), further northern extreme of the same peninsula, we observe similar lithic surface occurrences of blade

based components (Fig.10). However, the density is patchier compare to that of EB1 site. Further east of EB1 and 2 (~2 km further west), we reach an area (EB3) where we observe minimal obsidian surface scatters (GPS coordinate: N 08.86020° / E 039.89835°). Here, the deposit is more of sandy soil mixed with brown-reddish basaltic cobbles; no section is exposed either. Perhaps, the interesting part of this area is that, much of the lithic artifacts we observe are notches and scrapers, and wonder if this area can particularly be related to prehistoric wood or hide working area (Fig.11). Generally, the suspicion in these sites is that the context may be deposited in secondary position since we could not see the geological profile to cross-check the deposit underneath.

Awash-Beseka 1 (AB1)

In around 2.4 km further south of Haro Adi town, we went to Awash river bank in search of ancient sedimentary deposits. The river in this side has largely been in use for irrigation, and much of the area along the river bank is irrigated for farming. Luckily, we spotted a portion of sedimentary section exposed close to the river at what we designate AB1 site (GPS Coordinate: N 08.85026° / E 039.91167°). Here, the section is a slit deposit as thick as 1-2 meters overlaying volcanic ashes layer (Fig.3). Few obsidian and shell artifacts are scattered all the way down to the bottom of the profile (Fig. 15 &16). These scatters mostly appear in the bottom of the section, likely coming out of the sedimentary deposit.



Fig.3 the section of sedimentary deposit in Awash-Beseka (AB1) site (Clement Menard pictured showing the volcanic ash layer)

Metahara Flood plain

In around 5 km east of Metahara town, we explored the flood plain area located further north of Awash River. We went this area following the information we got from Google satellite images which showed the deposition of sediments in quite large area. As we reached there, it turned out that the sediments seem to be largely modern one perhaps created by perennial flood events (Fig.4). Here, we observed very few artifacts, certainly transported by the running water. Attempts to find sedimentary section to see the profile of the flood plain was not successful, partly because it is quite a large area to reach out all in limited time.



Fig.4 Metehara Flood Plain

Fentale area

We know, from previous literatures, that the Fentale Mountain is one of the possible obsidian sources for Later Stone Age stone tools makers (e.g., Negash *et al.* 2007). The Mountain, located some 5 km north of Lake Beseka, is a volcanic caldera that has an elevation of ~2007 meters above sea level. Our exploration in this area is aimed at searching for possible traces of prehistoric human occupation sites. To this end, we merely navigated to the western lower ridge of the mountain.



Fig.5 Fentale Tumulus (?)

Here, we learnt that the ridges are basaltic lava in origin, in most cases, has reddish-brown and deep black colors. Indeed, a larger part of the ridges has rather reddish-brown basaltic rock than black one. In the area we name Fentale site (Fs1) [GPS Coordinate: N 09.01561°/ E 039.85225°], we observe few lithic artifacts, scattered on sediments whose origin is not clear, and many of the samples are side scrapers (Fig.19).

Further down south of Fs1 site, we come across with huge pile of cobble stones (perhaps tumulus?), of different stone sizes and types, formed on an area of ~40 square meters (Fig.5) We see sediment being formed on it, but lithic artifacts are very rare. On the sides of the site are two seasonal river channels flowing southward direction, which at the moment are dried out. We cannot totally be sure whether this occurrence is a recent or ancient one. The local people whom we interviewed are not sure about this formation either. What is clear is that, the larger rocks, all along the lower circle of the tumulus, are erected systematically, which perhaps can give us an indication of certain anthropogenic intervention at some point in the past.

Conclusion

Generally, this survey work has brought renewed data on the archaeological and geological contexts of Lake Beseka area, more significantly in relocating the geological fault where the *proverbial* FeJx4 was excavated. Particularly, we are lucky enough to find this area remained unflooded considering the magnitude of the lake expansion since 1970s. Furthermore, the exploration around eastern Lake Beseka and Fentale areas has provided first-hand contextual information about the possible traces of prehistoric human occupations in the sites.

Future direction

We urge to make test excavation along the basalt fault of FeJx4 for two reasons. On one hand, the fact that FeJx4 is one of the few late Pleistocene in Ethiopia and the Horn, we need to confirm the stratigraphic integrity, and establish new radiocarbon dates for its archeological sequence. These will allow us to bring new archaeological information into regional perspective, especially to compare lithic technologies of both Ziway-Shala and Beseka basins. Second, we do not know when, but we should be aware that FeJx4 fault will get be flooded anytime in the future. This test excavation, therefore, acts as “salvage mission” to recover archaeological information before we lose it. Thus, below we propose budget request for the test excavation mission tentatively scheduled in the coming October 2019.

Acknowledgement

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Photos of the survey work (some of them discussed in the report)



Fig. 6 Cores from WB1 surface #1001



Fig. 7. Blades from WB1 #1001



Fig.8 Blade and cores from #1002 WB2 area



Fig.9 Blade and cores from #1003 EB1 site



Fig.10 Blade from EB2 site (#1004)



Fig.11 Scrapers and Notches from EB3 site (#1005)



Fig.12 The profile of WB2 area opened by excavator machine (CM pictured looking the section)



Fig.13 Tephra section exposed around the eastern Beseka sites.



Fig.14. Modern animal carcasses being accumulated, perhaps by dogs



Fig.15. gastropode shells eroded out of the Awash-Beseka (AB1) site.



Fig.16. obsidian artifact in the section of AB1 site



Fig.17. the close-up views of the Fentale tumulus (?).



Fig.18. Close-up view of the Fentale site (Fs1)



Fig.19. lithic scraper from Fs1 site



Fig.20. A row of basalt blocks being erected around Western Beseka sites (we do not know why it is built).