

Of Mice, Men and Elephants - lithic tools and faunal remains at the Late Pleistocene site of Masangano (Rwanda)

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SUMMARY: The deposits at Masangano record sediment accumulation outside the proper rift valley. Their fossil content comprises pollen, indicating a more savannah-type climate as well as molluscs, fish remains, reptiles and small mammals, typical for a tropical mountain forest. In contrast, the taphocoenosis of the hanging layer is dominated by fossils of large animals, preserved by a travertine superposition and accompanied by many Stone Age artefacts of different lithic industries, indicating a butchering place and an artefact site as well. Considering the hydrographic situation, the sediments at Masangano and at a few neighbouring localities are the key to understanding the assumed turnover of the drainage system during the rift shoulder development as well as the climatic situation. For this part of Central Africa, they shed light on the living conditions of the flora and fauna including modern *Homo sapiens* during the late Pleistocene.

1. INTRODUCTION

In the central part of the western branch of the East African Rift system, only the large rift lakes yield larger quantities of Tertiary and Quaternary sediment, which contribute to the reconstruction of the rift's development.

Outside the valley, no such deposits have been reported before. However, the Masangano sediments (re)discovered by the Landessammlung für Naturkunde Rheinland-Pfalz in 1994 do record sediment accumulation within that area during the Late Pleistocene.

2. GEOLOGY

The geology of Rwanda is mainly characterised by two formations of Precambrian rocks. The first of these consists of mostly weakly metamorphically superimposed, folded sediment series running from North to the South, the second of granite complexes with subordinate pegmatites thrust up in two phases (1300 million years and 900 million years BC) during the "Orogenese Kibarienne". The pri-

mary ore deposits of Rwanda are connected with the latter formation.

In the west of Rwanda, subordinate Tertiary rocks occur. They are only found in connection with the western branch of the East African rift system, which is also connected with the rise of the Virunga volcanoes.

In the Masangano region, 45 km south of the volcanoes, this results in the occurrence of Precambrian rocks with thick quartzite veins and a lava stream which runs from the Visoke Volcano almost to the mouth of the Mukungwa.

3. SEDIMENTS

At Masangano, a sediment body of ca. 25 m thickness on the eastern bank of the steep terrace valley has been cut open by the Mukungwa river (Fig. 1).

For the sake of simplicity, the sediments can be organised into two main formations. The first of these, which was most important for the first investigations (Vansina 1958, Bertossa & Neugebauer 1969), is the hanging layer with a travertine superposition of ca. 3.5 m thickness.

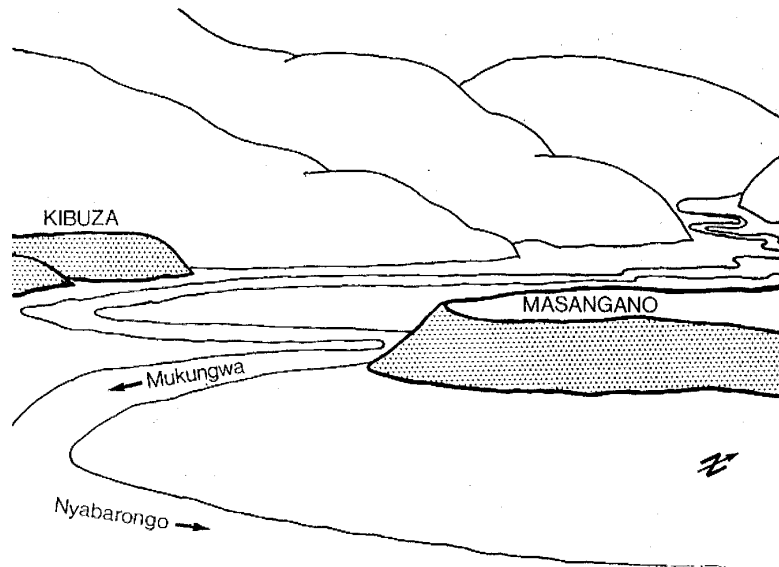


Fig.1 - Masangano and river terraces. View from SE upstream Mukungwa valley.

It is being exploited for the production of lime and contains fossils of large mammals and archaeological objects.

Below that, there is an alternate stratification of cross-bedded lacustrine-fluviatile sands and silt, which continue below the modern water level of the Mukungwa, which today flows from the N to S. From these sediments, a former

direction of flow from S to N can be determined.

The portion of silty and clayish layers increases markedly towards the subjacent bed. Coarse, nearly pure quartz sands, dark mica-ceous fine sands and silts with some brown and blue-grey clay layers alternate; a pattern of coarse and fine layers (coarse sands at the base, silt at the top) can be observed.

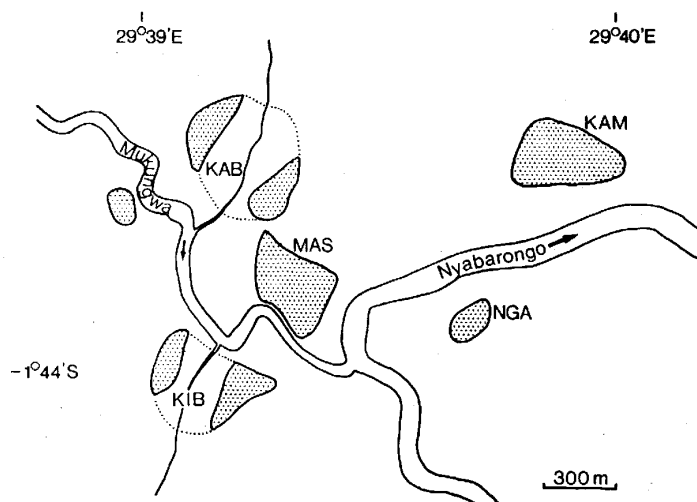


Fig.2 - Sediments in the Masangano area (MAS = Masangano).

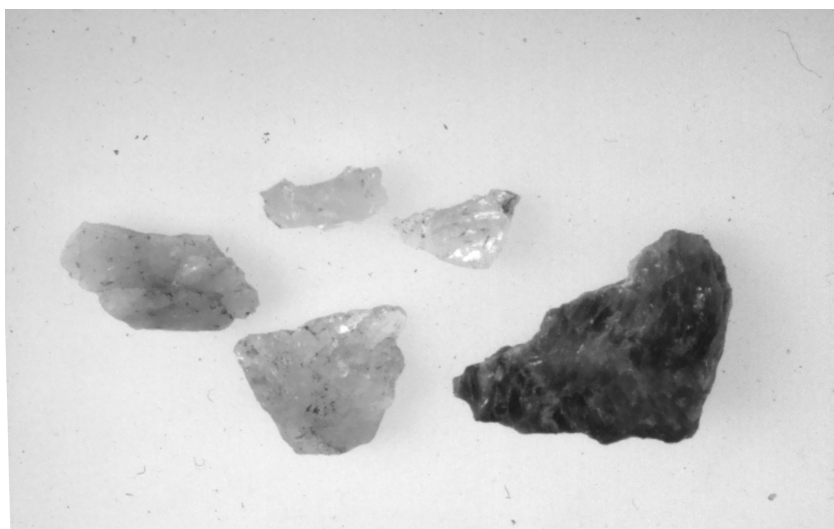


Fig.3 - Flakes and Tools.

Prospecting in the region led to the discovery of further sediment bodies (Fig. 2). However, these, lacking an travertine superposition, are not as well preserved as those of Masangano (Schmidt 1996).

4. MASANGANO FOSSILS AND ARTEFACTS

In the lower stratigraphic sequence with a thickness of ca. 20 m, which continues under the water level of the Mukungwa river, pollen could be found indicating a savannah-type climate. The mollusc finds include remains of Ancyliidae and Sphaeriidae among others. Numerous remains of fishes, reptiles and small mammals prove the changing velocity of flow in a lacustrine-fluviatile state. The teeth and jaw fragments indicate the existence of at least three Muridae. Specifically, remains of *Otomys* sp. and *Thamnomys* sp., both indicating a tropical mountain forest or mountain savannah, as well as remains of cf. *Mastomys* sp. have been discovered. The exact species determination is in process.

The stratigraphic sequence of the hanging layer following above is characterised by the massive travertine superposition. On the surface, Vansina (1958) found fairly recent, "modern" pottery remains with an age of ca. 2000 years. Directly below, he discovered sherds and

quartz microliths of the Wilton industry, typical of savannah environments. Finally, there is a further horizon, containing lithic tools of quartzite, quartz and slaty material, which he identified as belonging to an earlier culture, the Tshitoli culture of the forests of Zaire and Angola (Fig. 3). These are accompanied by tools and flakes of Later Stone Age industries, which Vansina describes as recalling the Levallois and Acheulean techniques. One spectacular archaeological find of Vansina was a polished piece of quartz from a stone bowl. It is unknown if or where this piece is preserved.

In this horizon, there are also numerous fragments of large mammals, partly embedded in the travertine, partly deposited directly below it. These remains include *Hippopotamus* sp., *Syncerus* sp., *Hylochoerus* sp., *Lutra* sp., *Tragelaphus* sp. and *Loxodonta* sp. (Fig. 4). The composition of these fossils leads to the supposition that the Masangano region was a transition area between savannah and forest (Schmidt & Neuffer 1995).

5. CONCLUSION

The tools and flakes from the upper layer of the Masangano sediment body, produced out of the local quartz, which was not very suitable, but readily available, point to an artefact site.

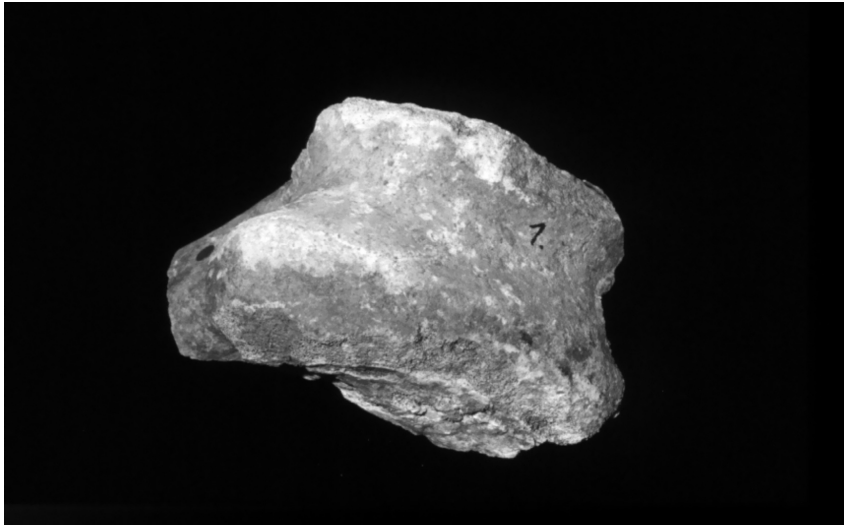


Fig.4 - *Loxodonta* sp. (femur fragment)

At the same time, the abundance of remains of large mammals suggest that it could have been a butchering site as well. It is the fact that both archaeological and palaeontological finds can be made side by side that makes the Masangano sediment such an important site for both disciplines.

The results of Vansina and our own research (Schmidt 2001, in press) illustrate the climate and the living conditions at this place in the Pleistocene.

Considering the hydrographic situation, the sands can be attributed to a relatively short-termed local depocentre in the drowned “Paleo”-Nyabarongo (and modern Mukungwa) valley. Therefore, they are the key to understanding the assumed turnover of the drainage system during the rift shoulder developments (Holzförster, Schmidt & Neuffer, in press).

Further sediment bodies in the region and the terrace formations of the Mukungwa valley will play an important role in the interpretation of the rift shoulder development.

6. OUTLOOK

Further in-depth research at the fossil site, the terraces and the sediments is planned. In cooperation with our partners from the rwandese Geological Service, the National Museum

Butare / Rwanda and with F. Holzförster from the Rhodes University Grahamstown / South Africa, detailed sedimentological and petrographic analyses, further extrication, identification and dating of archaeological and palaeontological material as well as geomorphological research on valley formation will continue.

In this, the goal is not only to increase knowledge of the Masangano region itself, but to gain more information about the rift formation, the rise of the Virunga volcanoes and the living conditions of the flora and fauna in Central Africa during the Pleistocene.

7. REFERENCES

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