

floor is solid rock covered with soil a foot deep thickly mixed with cattle manure. This is a cave in which some Nandi took refuge during the expedition and lived for a month with their cattle. They placed a barricade of small boulders at the entrance, and these can still be seen lying where they were when pulled aside. It is said that the Masai levies, who accompanied the forces, advanced behind a wall of shields. The roof and side of the cave, as in all these caves, is smooth and hard, and it was impossible to obtain a specimen of the stone, and digging in the soil produced no results. In the neighbouring hills many small cavities were observed under overhanging rocks, in many cases with small streams running through them.

In general, to the lay mind, these caverns appear to have been caused by a severe earthquake powerful enough to shake together the huge granite boulders, leaving open spaces beneath them. Many of them have been increased by the water action due to streams. The whole country-side is full of these boulders, and presents a rugged appearance as if on the morrow of some huge upheaval.

NOTES ON SALT CAVES IN LUMBWA DISTRICT

BY A. KNIGHT-BRUCE

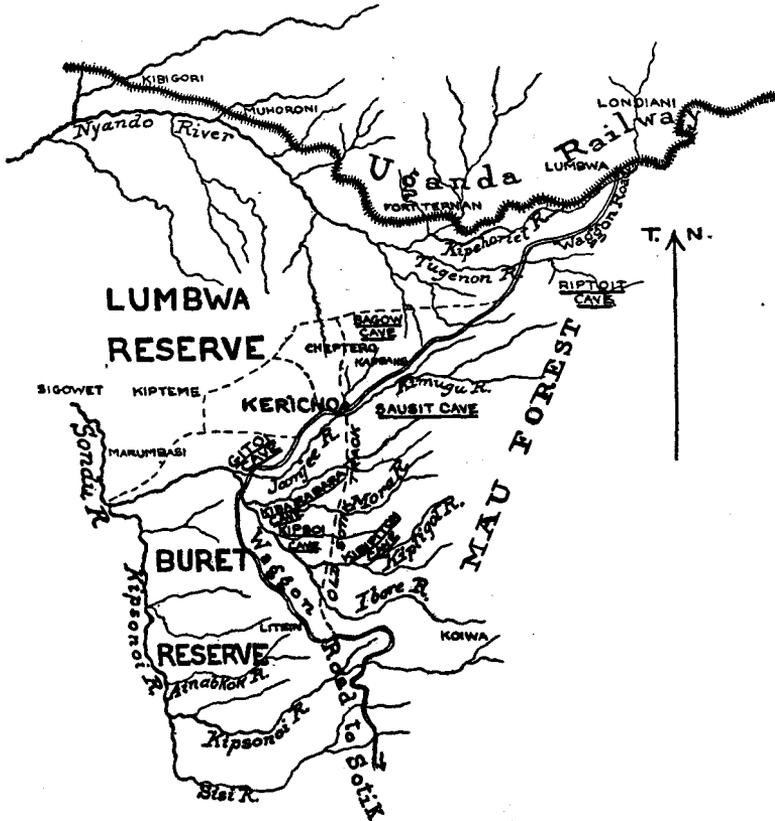
There are, it is believed, some nine caves of considerable size in the above district, and their names are as follows :

- | | | |
|---------------|----------------|-------------|
| 1. Gitoi. | 4. Kibarabara. | 7. Sausit. |
| 2. Kibrisin. | 5. Kiptoi. | 8. Riptoit. |
| 3. Kibipiten. | 6. Choma. | 9. Bagau. |

The approximate altitude of the principal caves above sea-level is as follows :

Gitoi, 6000 ft.	Riptoit, 6900 ft.
Kibipiten, 6500 ft.	Sausit, 6100 ft.

They are used at the present day by the Lumbwa natives, who dig a saline earth in them which they remove in baskets and feed to their cattle and sheep outside the caves.



Sketch Map showing Position of Salt Caves, Lumbwa. *Caves underlined.*
Tracks - - - Scale approximately 13 miles = one inch.

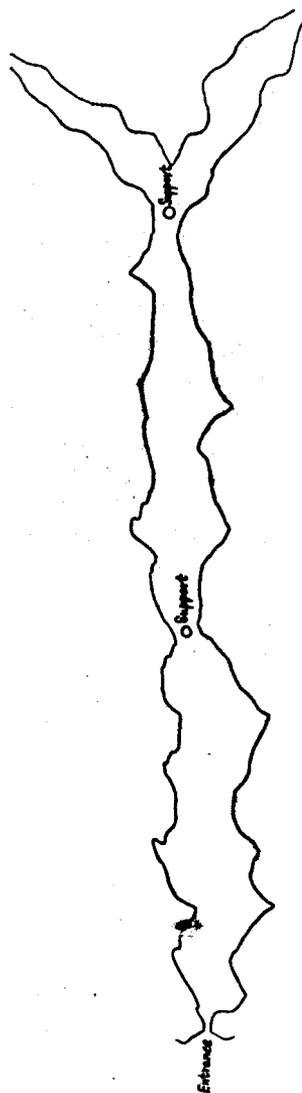
The rock forming the walls and roof is very soft, and frequent falls occur. In some of the caves it is considered safer to dig in them by night.

In one cave in Sotik a stone bowl of Neolithic type was found. No stone implements or bones have been discovered in any of the caves, and the softness of the walls and the continual digging preclude any chance of finding any prehistoric mural decoration.

The rock appears to be a decomposed fine volcanic ash or mud.



Bagan Salt Cave—Elevation. Scale 33 yards to one inch.



Bagan Salt Cave—Plan.

A description of two caves which were explored is now given :

Bagau Salt Cave.

This cave is situated near the top of the escarpment which rises from the Nyando River on its left bank between Lumbwa and Fort Ternan stations.

Its entrance is under a waterfall on the Sambula stream. It is difficult to arrive at even an approximate idea of its age, though the natives agree that it is not of any great antiquity.

Its origin is attributed to game being noticed nibbling at the face of the rock; probably cattle followed their example, until men, realising that they gained some benefit from the practice, began to dig the stuff and to feed their stock with it.

Till some four years ago, the cave was free from rocks falling; now, owing to the number of fatal accidents which have occurred, digging is confined to the entrance only.

The accompanying diagram will probably give a clearer idea of the formation of the cave than a description.

The tree near the entrance should be noticed—it is evidently of no great age yet, as evidently since it was of mature growth the action of the waterfall has removed all the soil from its base which was *above* the level of the roof of the entrance to the cave.

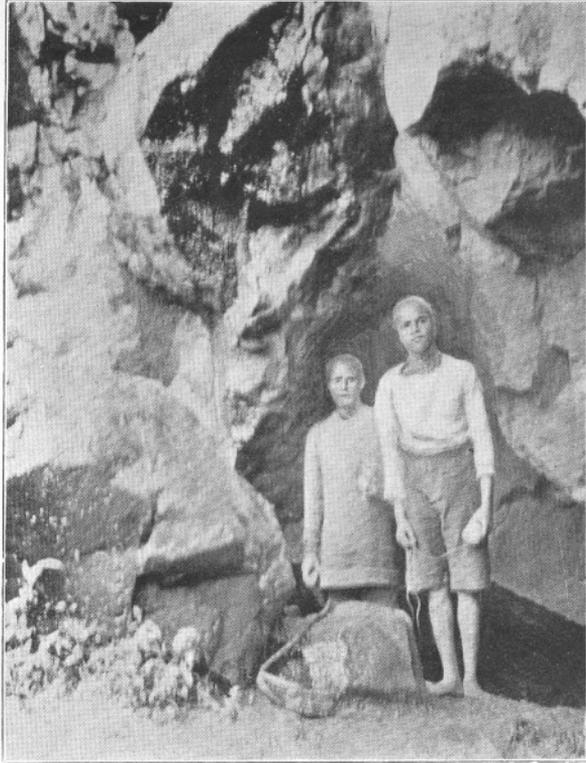
The height of the entrance is only 4 feet, but rises to over 8 feet almost at once, and a cave of very irregular shape, of an average width of about 40 feet, is disclosed. This continues for 150 yards, when the floor suddenly rises, and the cave bifurcates into two branches.

About 50 yards further along each of these branches the passage was stopped by huge slabs of rocks which had fallen down from above.

A considerable fall of rock had occurred the night before I entered, and many more slabs appeared to be on the verge of falling, and as a space of only some 18 inches was left, further progress was impossible.

The nature of the walls varies—at the entrance the rock strata are not well defined, and fine-grained white and red ash, called Ngelel and Ngebirir by the Lumbwa, is found in patches.

Further on, however, the strata become uniform—there are thin bands of black basalt lying in horizontal lines with Ngebirir between each strata at distances of about a foot.



BAGAU SALT CAVE.

Another variety of ash called Ngetoi by the Lumbwa is found in patches.

The roof is formed of rock lying in strata all the way. Two supports have been left.

No water was noticed in this cave. To reach the end is a reputed journey of two to three hours.

Kibipiten Salt Cave

This cave is situated on the Kiptiget River, about five miles upstream from the bridge over which the old bridle-path to Kericho crosses—and is about 6500 feet above sea-level.

Its situation is practically the same as Bagau, but the waterfall is higher.

The entrance is also low, but inside the height rises to about 12 feet, with an average width of over 60 feet. After running for 60 yards, this cave also forms into two branches, and the height decreases to about 3 feet; after following these for about 30 yards I was in each case stopped by deep pools which had been formed in pits formed by digging for salt.

No regular strata are found here as in Bagau. The rocks in this cave are more indurated, which is either due to heat or the infiltration of water charged with silica. One of the specimens from this cave is a typical agglomerate.

I was able to obtain more definite information as to the age of this cave. Elders I questioned stated that within their memory it only entered the rock for a distance of 25 yards—their grandfathers started the excavation when they first came to that district.

Now it is supposed to take two hours to reach the end, but it should be remembered that progress is very slow, especially as the native only sees his way by lighting torches of twigs, and most of the way it is necessary to crawl on hands and knees.

General Notes.

Both the other caves visited (Gitoi and Riptoit) present almost similar features as those described above. (The former has already been described by Mr. C. M. Dobbs in the *Journal of the E.A.N.H.S.*, vol. No. 10, p. 125.)

From inquiries made, the same remark appears to be true of those which I have been unable to visit.

In absence of expert investigation I formed the following conclusions :

These caves have, at any rate, been mainly formed by the labour of man, and, though resulting from an industry somewhat alien to the Lumbwa character, do not represent such a heavy task as might be imagined. For instance, Kibipiten, say fifty years ago, was only 25 yards long, now it is reported to take two and a half hours to search the end, though I was unable to verify this fact. I should say, however, that this represents a mile at the outside—this therefore means a progress of about 35 yards a year, but personally I should not think it likely that this cave is a mile long, since the task of removing a basket filled with rock this distance would occupy nearly a day.

While crawling about in caves like these without any means of measurement one naturally forms totally erroneous ideas of distance—apart from the usual exaggeration of native reports.

Again, the fact that these caves appear to be universally suffering from their roofs falling in, in the absence of any marked disturbance, hardly seems to point to their being of any great antiquity.

It was most unfortunate that these phenomena coincided with the investigation.

NOTE ON THE FORMER LEVEL OF THE VICTORIA NYANZA

BY FELIX OSWALD, D.Sc., F.G.S.

In compliance with the Editor's request, I am appending to his article the results of my observations indicating a higher level of the Victoria Nyanza within a recent geological period, together with their effect upon the question of the origin of the caves on Mount Elgon.