

## Letters to the Editor.

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## East African Archæology.

IN view of the various references to the work of the East African Archæological Expedition which have appeared from time to time in the News and Views columns of NATURE during the past few months, and with special reference to Mr. E. J. Wayland's letter in the issue of April 20, p. 607, we would be grateful for the opportunity of briefly outlining our results and conclusions up-to-date.

While definitely holding that there is a direct correlation between the glacial phases of Europe and the Pluvials of the equatorial belt, we consider that in view of the divergencies of scientific opinion concerning the number and sequence of European glaciations, a complete correlation is at present premature.

Although preliminary work in the Nakuru-Elmenteita basin suggested that there had been five distinct wet periods (which we provisionally termed 0th, 1st, 2nd, and 3rd Pluvials, with a Post-pluvial wet phase) more detailed investigation in this and other basins has led to the conclusion that there are only two Pluvials of the first magnitude. The first of these is our original '0th Pluvial' and seems to have antedated much of the faulting in this part of the Great Rift Valley. The deposits of this Pluvial belong to the series which Prof. J. W. Gregory includes in his Nyasan series (see "The Rift Valley and Geology of East Africa", p. 171) which he dates—we think on insufficient evidence—as lower Miocene. The second major pluviation is subdivided by a dry period of only short duration and comprises our original 1st and 2nd Pluvials. At the close of this Pluvial there was a period of great aridity which was followed by a renewal of pluvial conditions for a short time. This is our original 3rd Pluvial. Another and still smaller wet period is recorded by a fresh rise in the lakes at a comparatively recent date.

In order to avoid the use of ordinals in referring to the Pluvial periods, we have proposed the following nomenclature for the Pluvial periods which we have so far recognised:

Old Name.	New Name.
0th Pluvial.	Eburrian, 1st major Pluvial.
1st Pluvial.	Enderian } 2nd major
2nd Pluvial.	Gamblian } Pluvial.
3rd Pluvial.	Makalian.
Post-pluvial wet period.	Nakuran.

While avoiding for the present a more complete glacial-pluvial correlation, we suggest that our second major Pluvial—the Enderio-Gamblian—can be correlated with the Würm (or Riss and Würm) glaciations, or preferably with the 'Newer Drift' of northern Europe. We agree with Mr. Wayland in regarding the Makalian as probably the equivalent of the Bühl stadium. Many implementiferous horizons have been established in the Pluvial deposits and we append a table setting out the relation of the various cultures to the changes of climate. In view of the great similarity of certain of our cultures to those of

Europe, we have ventured to employ the accepted European terminology while *emphasising* that by so doing we do not in any way suggest that the cultures in Kenya were necessarily contemporaneous with

Period.	Culture.
Nakuran	Contemporary { (a) A culture which is comparable to the Wilton of South Africa. (b) A culture which consists of a degenerate Aurignacian type of tool associated with pottery, agriculture, and also beads of a type which suggest a contact with one of the early civilisations. (Human type, Nakuru man.)
Makalian	A specialised form of Aurignacian culture associated with pottery. (Human type, Elmenteita man.)
Gamblian : (2) Closing stages .	Contemporary { (a) Upper Aurignacian. (b) Highly specialised Mousterian, probably due to Aurignacian influence.
(1) Rise and maximum.	Contemporary { (a) Lower Aurignacian gradually developing into Upper Aurignacian. (Human type, Gamble's cave man.) (b) Upper Mousterian with a marked tendency to trimming of both flake-surfaces towards the close of the period.
Enderian	Contemporary { (a) Crude lower Aurignacian. (b) Lower Mousterian.
Eburrian-Enderian Interpluvial.	A single culture comprising large degenerate forms of ovate, very small, well-made <i>coups-de-poing</i> and flake tools with a distinct Mousterian tendency.
Eburrian : (2) Closing stages .	A very fine Acheulean industry with the S-twist a common feature.
(1) Rise and maximum.	?

their European homologues. A large mammalian fauna has been collected from the deposits of the various Pluvials with the exception of the Eburrian, but pending investigation by a competent specialist, it is impossible to use them for correlation purposes.

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