

Hendey, Q.B. 1981

studied in some detail. Previous publications resulting from these studies have included palaeoecological interpretations, and these are either simply referred to, or the information they contain is repeated here, usually in an abbreviated form. In addition, some previously unpublished observations are included. This synthesis is intended only as an interim report, since relevant research is continuing.

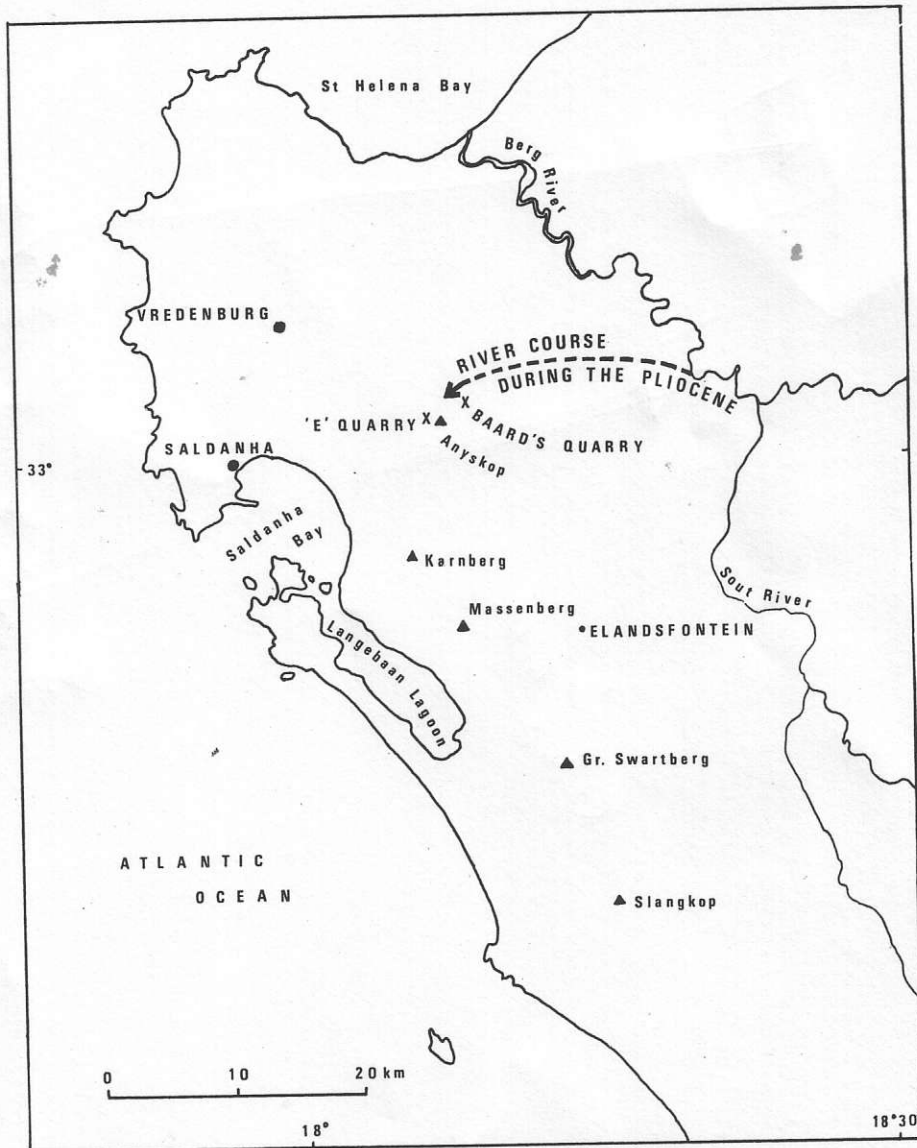


Fig. 2. The Saldanha region of the south-western Cape Province.

Hendey, Q. B. 1981
 Annals of the S. A. Museum 84(1)

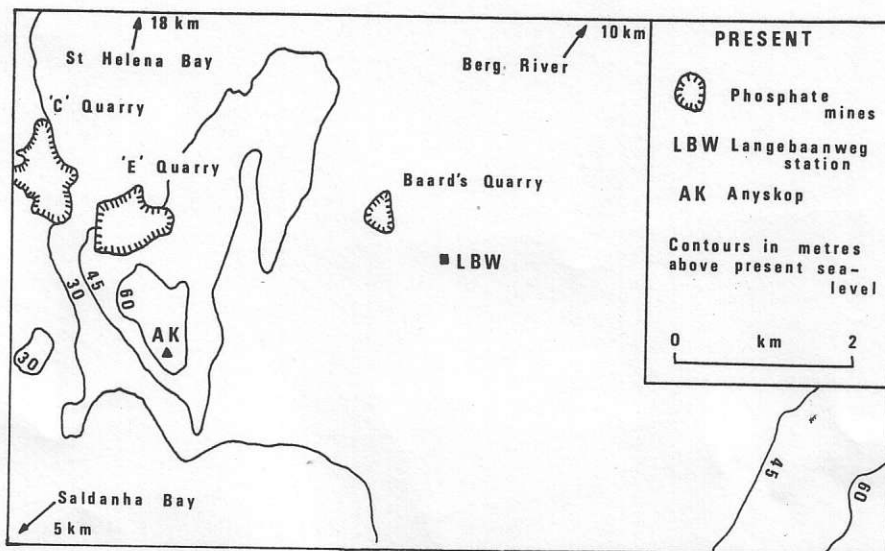


Fig. 4. The Langebaanweg area today.

during this period, one in the late Paleocene/early Eocene and the other in the late Eocene (Siesser & Dingle 1981).

There are records of Eocene marine deposits at 70 and 163 m on the west coast in the southern Namib Desert (Bogenfels and Buntfeldschuh—Siesser & Dingle 1981), as well as possible Eocene deposits at about 140 m at Buffels Bank (Kamaggas) west of Springbok (South African Museum records), and of uncertain elevation at Quaggaskop near Vanrhynsdorp (Lamont 1947). If the latter records are indeed Eocene, then the shorelines of this period must have abutted the western escarpment in Namaqualand, whereas in the downwarped southern Namib they approached the present coast near Bogenfels following the east-west trend of the Klinghardt Mountains in this area (Fig. 1). The implication is that during the Eocene transgressions much of the south-western Cape, including the Langebaanweg area, was below sea-level, the coastline being along higher ground many kilometres east of Langebaanweg.

There was then a major regression spanning the entire Oligocene, and much or all of the early Miocene, when sea-level reached several hundred metres below that of the present (Siesser & Dingle 1981). This is likely to have been the period of major continental erosion during which all traces of early Tertiary sediments in the Langebaanweg area, and elsewhere along the west coast, were removed. It might have been during this period that the bedrock in the Langebaanweg area was eroded down to its present elevation of about -40 m.

The early to middle Miocene transgression

The presence of early Miocene vertebrates in fluvial and lacustrine deposits near the coast of South West Africa between Bogenfels and Lüderitz

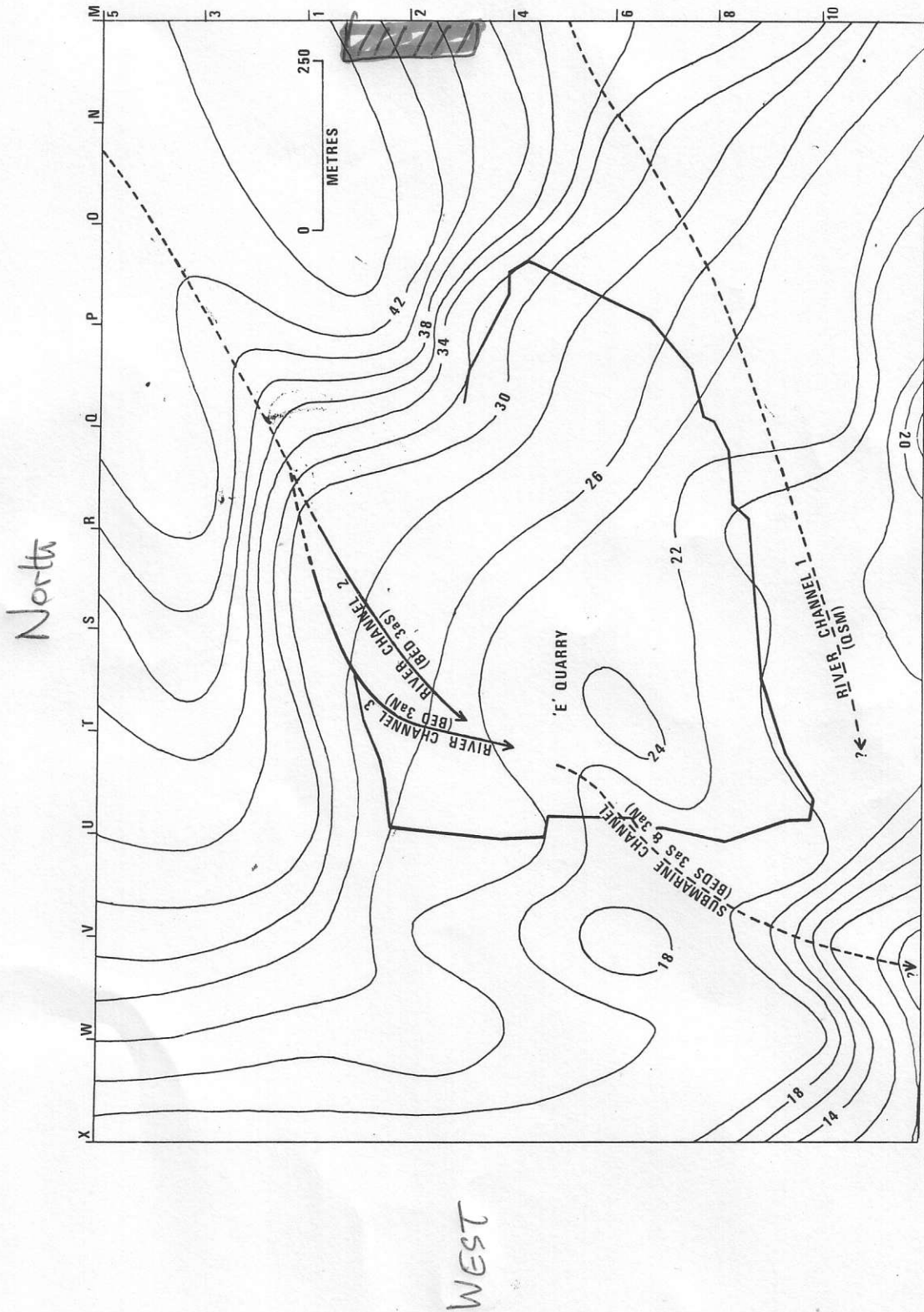


Fig. 6. Structure contour map of the base of the Pelletal Phosphorite Member (PPM). Arrowed lines indicate inferred positions of the river channels and a submarine channel at the times when the Quartzose Sand Member (OSM), PPM 3aS, and PPM 3aM were laid down. (Adapted from Tankard 1974a, Fig. 3.)

hatched block = approximate position of site 'D'

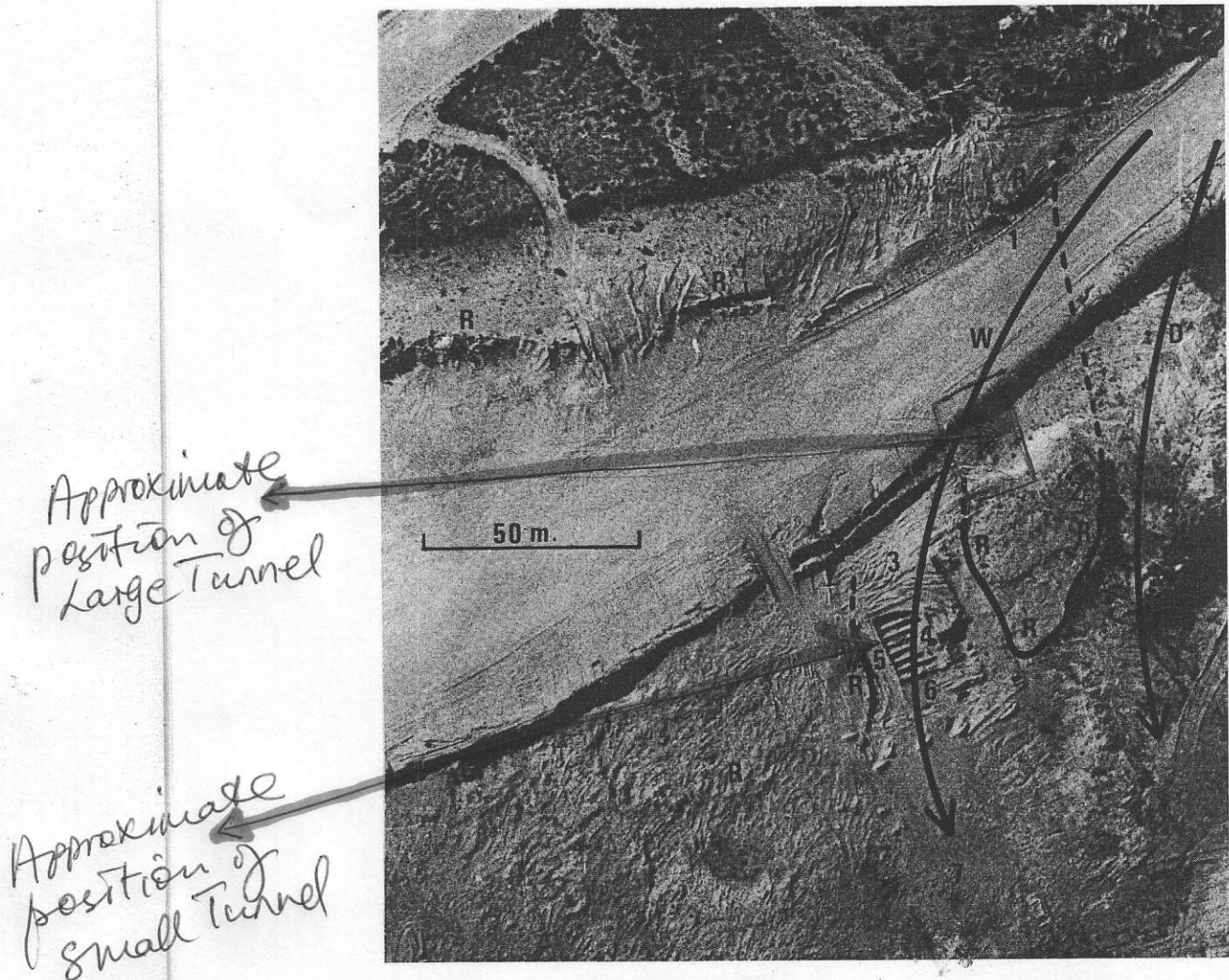


Fig. 26. Aerial view of past and present areas of exposure of bed 3aN in 'E' Quarry, Langebaanweg. 1—LBW-E 1975/1; 2—LBW-E 1976/1; 3—Dump 10; 4—LBW-E 1976/2; 5—Dump 9; 6—Dump 8; 7—Carbonaceous deposits; R—Phosphate rock outcrops; W—Wet season river channel; D—Dry season river channel.

sandy substratum. What abrasion there is may have developed after deposition rather than during transport (see below). This suggests that many of the fossils reached the vicinity of 'E' Quarry still protected by soft tissue, perhaps even as floating carcasses, and that disarticulation and dispersal of skeletal elements took place locally.

The bed 3aN *Agriotherium* specimens were recovered from deposits laid down in three distinct micro-environments. Those deposits exposed in the

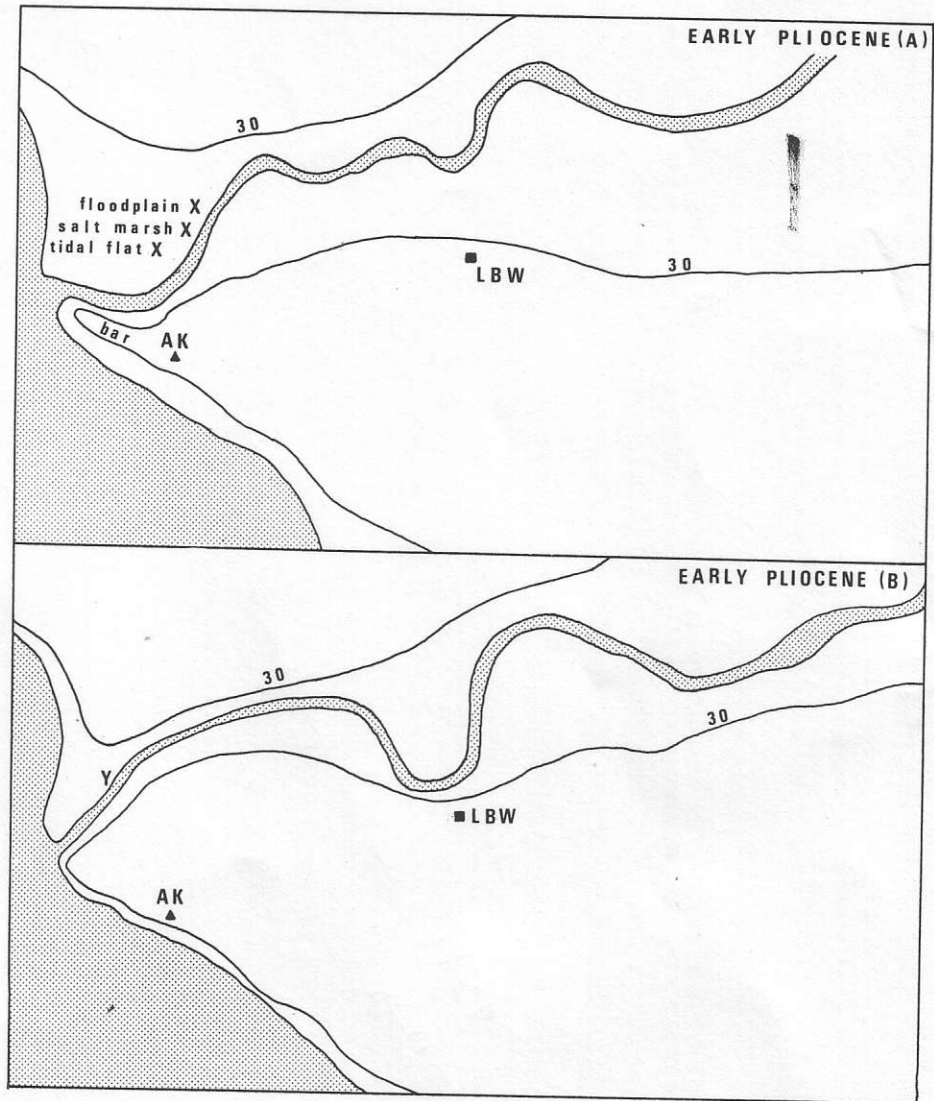


Fig. 7. The Langebaanweg area during the early Pliocene (sea-level cycle TP1). A. Period of deposition of the QSM (X-'E' Quarry exposures of the QSM). B. Period of deposition of the PPM 3aN (Y-'E' Quarry exposures of the PPM 3aN). (See Fig. 4 for key.)

Immediately adjacent to the mud-flats bed, largely in a north-easterly direction, is the more extensive 'peat' bed of the QSM (QSM II of this paper, or Layer E2 of Dingle *et al.* 1979). These black, carbonaceous sands and clays represent a marsh deposit. Their fossil content has yet to be analysed in detail, but they are rich in both pollens and vertebrate fossils. They were briefly discussed by Hendey (1976a: 225-226) and Rich (1980).

Hendey, Q.B. 1981

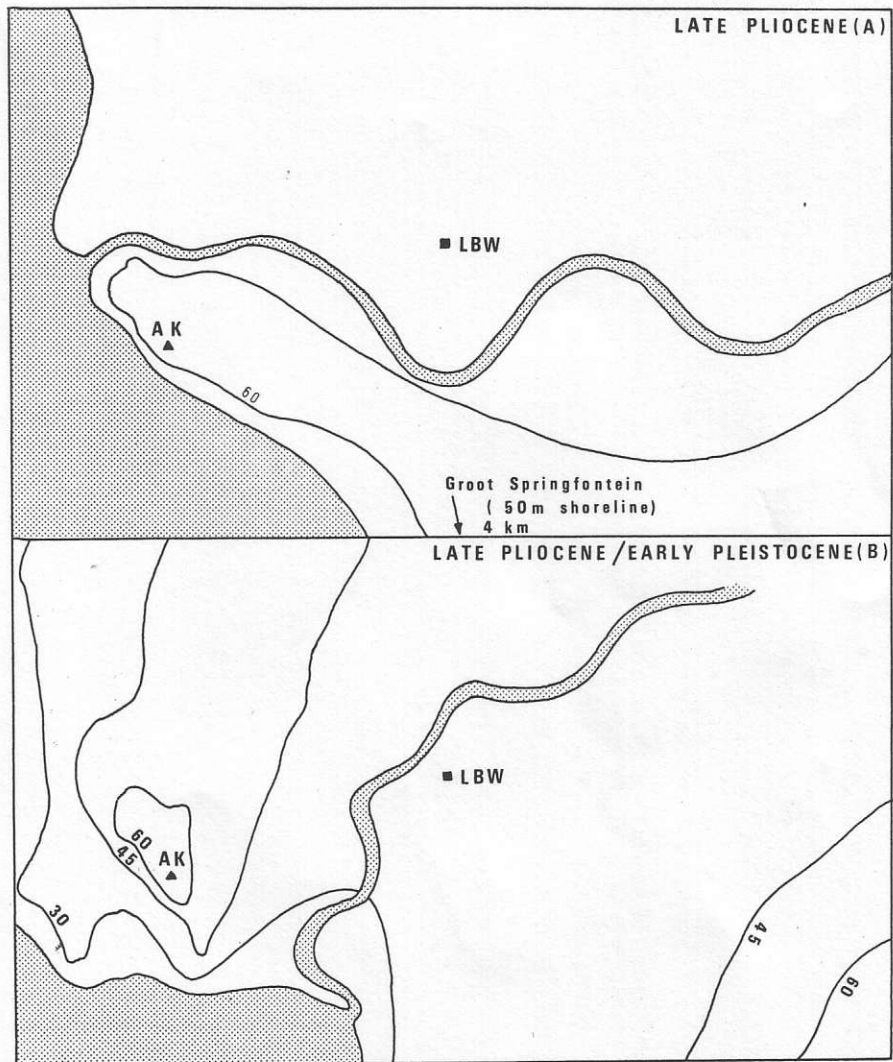


Fig. 11. The Langebaanweg area during the late Pliocene (sea-level cycle TP2) and the late Pliocene or early Pleistocene (sea-level cycle TP3 or Q1). A. Period of deposition of the Anyskop terrestrial deposits. B. Period of deposition of the Beard's Quarry fluvatile deposits. (See Fig. 4 for key.)

the PPM recorded by Tankard (1974a) are 53–54 m near 'E' Quarry, 54 m on the farm Witteklip and at Paternoster, and 47–50 m at Duiker Eiland. Tankard also records a marine horizon at 50 m on the farm Groot Springfontein, south-east of Anyskop, the nature of the deposits and associated fossils indicating a shoreline situation.