SUMMARY AND CONCLUSIONS

5.1 Megantereon problematicus is re-named Homotherium c.f. nestianus.

5.2 Some new machaerodont material from Makapansgat Limeworks is described. All but one of the cranial specimens are ascribed to Dinofelis barlowi and the two isolated teeth to Homotherium sp.

5.3 The skeletal remains appear to indicate two species of Dinofelis, one of them D. barlowi. The other species, rather more specialized, is at present uncertain, due to the scarcity of previously described material. It compares well, in the degree of machaerodontine specialization, with post-cranial fragments of D. diastemata from Langebaanweg, although this presents a problem regarding the evolutionary trends in the skeletal structure of this genus. It is felt that the large collection of skeletal fragments may belong to D. piveteani. The tooth proportions of the South African D. diastemata seem more comparable with those of D. barlowi and it may be possible that the two types are closely related.

5.4 Two additional canines from Sterkfontein are ascribed to Dinofelis sp. and Megantereon sp.

5.5 The phylogeny and taxonomy of the machaerodonts is discussed and it is seen that during the history of the Felidae there has been repeated divergence and parallel evolution towards the sabre-tooth pattern. The most recent divergence is the "false sabre-tooth" group, represented by Dinofelis. Three groups were present during the late Pliocene and early Pleistocene in Africa.

5.6 It is becoming increasingly evident that Dinofelis was very abundant and that D. barlowi had a long time range.
5.7 The most conclusive age for the Makapansgat deposits is three to four million years. This places it older than the European Villafranchian. In view of the nature of the fauna, it seems that the African "Villafranchian" occurred at an earlier date than the European.

5.8 The behaviour of the sabre-tooths is discussed with particular regard to the function of the canines. It is concluded that they were so adapted as to be able to prey upon the type of herbivore dominant throughout the Tertiary. They were probably the dominant predator until Pleistocene times, each group occupying a different ecological niche.
ACKNOWLEDGMENTS

I wish to thank the following people for their help in the production of this work: Dr. A.R.I. Cruickshank, Dr. J. Kitching and Mr. C. Gow for discussion and for reading the text; Dr. C.K. Brain for the loan of the Bolts Farm specimens; Professor H.B.S. Cooke and Mr. B. Hendey for the use of unpublished manuscripts; Mr. P. Nagel for the photography of the illustrations; and Mr. B. Batalwil for obtaining some of the literature unobtainable in South Africa. I would also like to thank the Council for Scientific and Industrial Research, without whose financial aid the completion of this dissertation would have been impossible.
Key to abbreviations.

c. facet for cuneiform
ma. facet for magnum
mc. II facet for metacarpal II
mc. III facet for metacarpal III
mc. IV facet for metacarpal IV
mc. V facet for metacarpal V
p. facet for pisiform
ses. facet for radial sesamoid
sl. facet for scapholunar
td. facet for trapezoid
tm. facet for trapezium
ul. facet for ulna
um. facet for unciform


<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kurten, B.</td>
<td>1963b</td>
<td>'Notes on some Pleistocene Mammal Migrations from the Palaeartic to the Nearctic.' Eizeitalter Gegenw., 14: 96-103.</td>
</tr>
<tr>
<td>Partridge, T.</td>
<td>1973</td>
<td>Chairmans address to Witwatersrand Centre of Archaeological Society.</td>
</tr>
</tbody>
</table>


