

Contents

In Memoriam	v
Acknowledgements	xi
WALTER W. BISHOP. Introduction	xii
SIR PETER KENT, F.R.S. Historical background: Early exploration in the East African Rift—The Gregory Rift Valley	i
PART I. FRAMEWORKS: STRUCTURAL—VOLCANIC—GEOPHYSICAL	
1. E. RONALD OXBURGH. Rifting in East Africa and large-scale tectonic processes	7
2. ROBERT M. SHACKLETON. Structural development of the East African Rift System	19
3. BASIL C. KING. Structural and volcanic evolution of the Gregory Rift Valley	29
4. LAURENCE A. J. WILLIAMS. Character of Quaternary volcanism in the Gregory Rift Valley	55
5. M. AFTAB KHAN & CHRISTOPHER J. SWAIN. Geophysical investigations and the Rift Valley geology of Keyna	71
PART II. BACKGROUND: PALAEOONTOLOGICAL AND ARCHAEOLOGICAL PROBLEMS	
6. ANDREW HILL. Taphonomical background to fossil man—problems in palaeoecology	87
7. R. T. SHUEY, FRANK H. BROWN, G. G. ECK & F. CLARKE HOWELL. A statistical approach to temporal biostratigraphy	103
8. BERNARD A. WOOD. Allometry and hominid studies	125
9. GLYNN LL. ISAAC. The first geologists—the archaeology of the original rock breakers	139
PART III. REGIONAL STUDIES IN THE GREGORY RIFT VALLEY	
A. OLDUVAI GORGE AND LAETOLIL, TANZANIA; OLOGESAILIE, KENYA	
10. MARY D. LEAKEY. Olduvai Gorge 1911–1975: a history of the investigations	151
11. MARY D. LEAKEY, R. L. HAY, C. H. CURTIS, R. E. DRAKE, M. K. JACKES, & T. D. WHITE. Fossil hominids from the Laetolil Beds, Tanzania	157
12. ROBERT M. SHACKLETON. Geological Map of the Ologesailie Area, Kenya	171
13. GLYNN LL. ISAAC. The Ologesailie Formation: Stratigraphy, tectonics and the palaeogeographic context of the Middle Pleistocene archaeological sites	173

B. THE LAKE BARINGO BASIN, KENYA

14. GREGORY R. CHAPMAN & MAUREEN BROOK. Chronostratigraphy of the Baringo Basin, Kenya 207
15. PETER DAGLEY, ALAN E. MUSSETT & H. C. PALMER. Preliminary observations on the palaeomagnetic stratigraphy of the area west of Lake Baringo, Kenya 225
16. MARTIN H. L. PICKFORD. Geology, palaeoenvironments and vertebrate faunas of the mid-Miocene Ngorora Formation, Kenya 237
17. MARTIN H. L. PICKFORD. Stratigraphy and mammalian palaeontology of the late-Miocene Lukeino Formation, Kenya 263
18. SHIRLEY CAMERON CORYNDON. Fossil Hippopotamidae from the Baringo Basin and relationships within the Gregory Rift, Kenya 279
19. ALAN W. GENTRY. Fossil Bovidae of the Baringo Area, Kenya 293
20. WILLIAM BISHOP, ANDREW HILL & MARTIN PICKFORD. Chesowanja: A revised geological interpretation 309
- 21 (a) WALTER W. BISHOP. Geological framework of the Kilombe Acheulian archaeological site, Kenya 329
- (b) JOHN A. J. GOWLETT. Kilombe—an Acheulian site complex in Kenya 337
22. PETER W. J. TALLON. Geological setting of the hominid fossils and Acheulian artifacts from the Kapthurin Formation, Baringo District, Kenya 361

C. THE LAKE TURKANA (RUDOLPH) BASIN, KENYA AND ETHIOPIA

23. ROBERT J. G. SAVAGE & PETER G. WILLIAMSON. The early history of the Turkana depression 375
24. CARL F. VONDRA & BRUCE E. BOWEN. Stratigraphy, sedimentary facies and palaeoenvironments, East Lake Turkana, Kenya 395
25. IAN C. FINDLATER. Isochronous surfaces within the Plio-Pleistocene sediments east of Lake Turkana 415
26. ANNA K. BEHRENSMEYER. Correlation of Plio-Pleistocene sequences in the northern Lake Turkana Basin: a summary of evidence and issues 421
27. FRANK J. FITCH, PAUL J. HOOKER & JOHN A. MILLER. Geochronological problems and radioisotopic dating in the Gregory Rift Valley 441
28. G. H. CURTIS, R. E. DRAKE, T. E. CERLING, B. W. CERLING & J. H. HAMPEL. Age of KBS Tuff in Koobi Fora Formation, East Lake Turkana, Kenya 463
29. ANDREW BROCK. Magneto-stratigraphy east of Lake Turkana and at Olduvai Gorge: a brief summary 471
30. F. H. BROWN, F. CLARK HOWELL & G. G. ECK. Observations on problems of correlation of late Cenozoic hominid-bearing formations in the North Lake Turkana Basin 473
31. YVES COPPENS. Evolution of the hominids and of their environment during the Plio-Pleistocene in the lower Omo Valley, Ethiopia 499

Contents

ix

32. PETER G. WILLIAMSON. Evidence for the major features and development of Rift Palaeolakes in the Neogene of East Africa from certain aspects of lacustrine mollusc assemblages	507
33. JOHN W. K. HARRIS & INGRID HERBICH. Aspects of early Pleistocene hominid behaviour east of Lake Turkana, Kenya	529
D. THE AFAR AREA, ETHIOPIA	
34. DON C. JOHANSON, MAURICE TAIEB, B. T. GRAY & YVES COPPENS. Geological framework of the Pliocene Hadar Formation (Afar, Ethiopia) with notes on palaeontology including hominids	549
List of authors and addresses	565
Index of Subjects	569
Index of Authors	579

ENDPAPERS

The locations of the areas discussed and the general geological framework in which they lie are indicated in the endpapers; these areas are numbered the same as the relevant chapters in the book.