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M. D. Leakey
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OLDUVAI GORGE
VOLUME 3

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Aerial view of Olduvai Gorge

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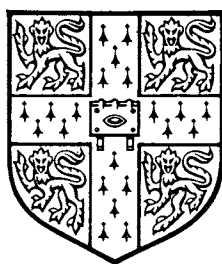
EXCAVATIONS IN BEDS I AND II, 1960-1963

BY

M. D. LEAKEY

WITH A FOREWORD BY

PROFESSOR J. D. CLARK



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OLDUVAI

*For every day there was something new; small things
most of them, but always of surpassing interest.*

– A. TINDELL HOPWOOD

CONTENTS

<i>List of figures</i>	<i>page</i> ix
<i>List of tables</i>	xii
<i>List of plates</i>	xiii
<i>Introductory Note</i>	xv
<i>Foreword by Professor J. D. Clark</i>	xvii
<i>Acknowledgements</i>	xx
<i>Map</i>	xxii
<i>Introduction</i>	1
<i>Geologic Background of Beds I and II: Stratigraphic Summary by Professor R. L. Hay</i>	9
PART I	
I Lower Bed I. Site DK and Site FLK NN: Level 4	21
II Middle Bed I. Site FLK NN: Levels 1–3. Site FLK: the ‘ <i>Zinjanthropus</i> ’ Level and the Upper Levels	40
III Upper Bed I and Lower Bed II. Site FLK North: Levels 1–6, the Clay with root casts and the <i>Deinotherium</i> Level. Site HWK East: Levels 1 and 2	61
IV The lower part of Middle Bed II. Site HWK East: the Sandy Conglomerate: Levels 3–5. Site FLK North: the Sandy Conglomerate. The Skull Site at MNK	96
V The upper part of Middle Bed II. Site EF–HR. The Main Occupation Site at MNK. Sites FC West and FC. Site SHK	124
VI Upper Bed II. Sites TK and BK	172
PART II	
VII The discoveries of hominid remains	225
VIII Mammalian bones from Beds I and II with evidence of hominid modification	235
IX The faunal remains from the living sites in Beds I and II	248
X Summary and discussion	258
<i>Appendix A</i> List of the recorded sites in Olduvai Gorge	282
<i>Appendix B</i> List of identified faunal remains from known stratigraphic horizons in Beds I and II by Margaret Leakey	290
<i>References</i>	295
<i>Index</i>	301

LIST OF FIGURES

†* These figures are available for download from www.cambridge.org/9780521105187

Sketch map of Olduvai Gorge to show the positions of the sites and geologic localities	pages xx–xxi	
1 Columnar sections on the north side of the Main Gorge	facing page 16†	
2 Columnar sections on the south side of the Main Gorge	32†	
3 Columnar sections in the Side Gorge	48†	
4 Map showing the inferred extent of the southern part of the lake and adjacent stream drainage in the Olduvai basin at different times during the deposition of Bed I. Where documented the shorelines are shown solid. Heavy arrows represent directions of streams entering the lake as indicated by the average orientation of stream channel fillings.	page 16	
5 DK. Sketch map showing the positions of the excavated localities	22	
6 MK and DK. Sections through the deposits above the basalt, showing the occupation surface and the horizon where the teeth of H. 4 were found	23	
7 DK. Plan of the stone circle and the remains on the occupation surface	in pocket*	
8 DK. Side choppers	page 26	
9 DK. Side choppers	27	
10 DK. Three light-duty side choppers and a heavy-duty end chopper	28	
11 DK. A two-edged and a chisel-edged chopper	29	
12 DK. Light-duty pointed choppers and discoids	30	
13 DK. Light-duty polyhedrons	32	
14 DK. Discoids	33	
15 DK. Heavy-duty scrapers	34	
16 DK. Light-duty scrapers, etc.	35	
17 DK. Burins	36	
18 DK. Light-duty utilised flakes	38	
19 FLK NN. Section along the north-east face of the Trial Trench and Trench III	41	
20 FLK NN. Plan of the hominid remains, fossil bones and artefacts found on the occupation floor (Level 3)	in pocket*	
21 FLK NN. End choppers made from lava	page 45	
22 FLK NN. (1) Heavy-duty scraper made on an irregular lava flake; (2) hammerstone of lava	46	
23 FLK. The 'Zinjanthropus' site. Section along the east side of the trial trench	in pocket*	
24 FLK. Plan of finds on the 'Zinjanthropus' floor	in pocket*	
25 FLK. Side choppers made on weathered lava nodules, from the 'Zinjanthropus' level	page 51	
26 FLK. A quartz and a lava side chopper from the 'Zinjanthropus' level	page 52	
27 FLK. Two lava end choppers from the 'Zinjanthropus' level	54	
28 FLK. A quartz discoid, heavily chipped and blunted on the circumference, from the 'Zinjanthropus' level	55	
29 FLK. Two heavy-duty scrapers from the 'Zinjanthropus' level	56	
30 FLK. Light-duty quartz and quartzite tools from the 'Zinjanthropus' level	57	
31 FLK North. Section exposed on the south-east face of the excavated area, showing the Marker Tuff I ^F , the upper part of Bed I with the occupation levels and the lower part of Bed II	63	
32 FLK North. Level 6. Plan of the elephant skeleton and associated artefacts	65	
33 FLK North. Plan of finds in Level 5	in pocket*	
34 FLK North. Plan of finds in Level 4	in pocket*	
35 FLK North. Plan of finds in Level 3	in pocket*	
36 FLK North. Plan of finds in Levels 1–2	in pocket*	
37 FLK North. Diagrams of side choppers	page 74	
38 FLK North. Two side choppers made from lava cobbles, from Levels 1–2	75	
39 FLK North. Diagrams of choppers	76	
40 FLK North. Two unifacial choppers from Levels 1–2	77	
41 FLK North. A pointed and a two-edged chopper from Levels 1–2	78	
42 FLK North. Two 'proto-bifaces' from Levels 1–2	79	
43 FLK North. A quartzite 'proto-biface' and a lava hammerstone from Levels 1 and 4 respectively	80	
44 FLK North. Light-duty tools and utilised pieces. The majority are from Levels 1–2	82	
45 HWK East. Composite section of the deposits in the lower part of Bed II exposed in Trenches I and II	88	
46 HWK East. Plan of finds in Level 1.	91	
47 HWK East. Plan of finds in Level 2	94	
48 HWK East. Graph showing the proportions of quartz, lava and chert used for raw materials in Levels 1–5	97	
49 HWK East. Trench II. Plan of finds at the base of Level 3	98	
50 HWK East. Level 3. Two 'proto-bifaces' made on lava cobbles	100	
51 HWK East. Two 'proto-bifaces' from Levels 3 and 4	101	
52 HWK East. Quartz 'proto-biface' from Level 3	102	

LIST OF FIGURES

53	HWK East. Light-duty chert tools. The majority are from Level 3	page 103	85	TK. Trench I. Plan of finds on the Upper Occupation Floor.	page 185
54	HWK East. Sundry light-duty tools	105	86	TK. Trench II. Plan of finds on the Upper Occupation Floor	186
55	FLK North. The Sandy Conglomerate. Light-duty tools made from chert	113	87	TK. Large biface made of tabular quartzite from the Upper Occupation Floor	188
56	MNK. Sketch plan of the gully, showing the positions of the Skull Site and the Main Occupation Site	116	88	TK. Small bifaces from the Upper Occupation Floor	190
57	MNK. Composite section showing the relative stratigraphic positions of the Skull Site and the Main Occupation Site	117	89	TK. Two heavy-duty scrapers from the Upper Occupation Floor	191
58	MNK Skull Site. Plan of remains on the level of H. 13	119	90	TK. Two heavy-duty scrapers from the Upper Occupation Floor	192
59	MNK Skull Site, Level of H. 13. Diagrams of choppers, a discoid and two subspheroids	120	91	TK. Awls from the Upper and Lower Occupation Floor	195
60	EF-HR. Section and plan	125	92	BK. Sketch map of the site	198
61	EF-HR. Diagrams of bifaces	127	93	BK. Sections exposed in the southern faces of Trenches 1-7 and in part of the area excavated prior to 1963.	201
62	EF-HR. Diagrams of bifaces	128	94	BK. Diagrams of side choppers	202
63	EF-HR. Lava biface with a denticulated edge, made on a side flake struck from a water-worn boulder	129	95	BK. Diagrams of choppers and polyhedrons	203
64	EF-HR. Lava biface made from an end-struck flake	130	96	BK. Diagrams of a cleaver and bifaces	205
65	EF-HR. Two lava bifaces	131	97	BK. Two irregular ovates made from lava	206
66	EF-HR. A cleaver and a biface, both made on lava flakes	133	98	BK. Two lava bifaces	207
67	EF-HR. Oblong pick made from lava	134	99	BK. Crude lava biface	208
68	EF-HR. Two bifaces made on end-struck lava flakes	135	100	BK. Bifaces	209
69	MNK, Main Occupation Site. Plan of remains on the 6th level	139	101	BK. Heavy-duty pick made from quartzite	210
70	MNK, Main Occupation Site. Plan of remains on the 5th level	141	102	BK. Diagrams of discoids	212
71	MNK, Main Occupation Site. Plan of remains on the 4th level	143	103	BK. Light-duty scrapers made from quartz or quartzite	213
72	MNK, Main Occupation Site. Plan of remains on the 3rd level	145	104	BK. Light-duty scrapers made from quartz or quartzite	215
73	MNK, Main Occupation Site. Plan of remains on the 2nd level	147	105	BK. Burins made from quartz or quartzite	216
74	MNK, Main Occupation Site. Plan of remains on the 1st level	149	106	BK. Awls made from quartz and quartzite	217
75	MNK, Main Occupation Site. Lava biface	151	107	BK. <i>Outils écaillés</i> made from quartz and quartzite	219
76	MNK, Main Occupation Site. Quartzite cleaver	152	108	BK. Laterally trimmed flakes made from quartz and quartzite	220
77	FC West. Plan of remains on the Occupation Floor	158	109	The distal end of a hippopotamus tibia in which the broken shaft has been bifacially flaked to a point. From FLK II	237
78	FC West. Lava biface from the re-worked tuff	162	110	Distal ends of a bovid and an equid tibia and a <i>Libytherium</i> humerus. From MNK, Main Occupation Site and FLK II	238
79	TK. Sections along the west and north faces of Trench I, showing the two occupation floors	173	111	Parts of shafts of massive limb bones with utilisation on rounded edges. From BK	241
80	TK. Trench I. Plan of finds in the Channel and on the Lower Occupation Floor	177	112	Fragments of massive limb-bone shafts. From BK and HWK East, Level 2, respectively	242
81	TK. Large biface made of tabular quartzite, from the Lower Occupation Floor	178	113	Parts of limb-bone shafts. (1) and (2) from MNK, Main Occupation Level, and (3) and (4) from SHK	243
82	TK. Chisel-ended biface made from a side-struck lava flake, from the Lower Occupation Floor	179	114	A thin, flat plate of bone, probably derived from an elephant scapula or pelvis, flaked at the lower end and worn smooth at the upper end. From BK	244
83	TK. Light-duty quartz and quartzite scrapers from the Lower Occupation Floor	180	115	Suggested method by which the flake of hippopotamus ivory shown in Plate 39 was detached	245
84	TK. Additional light-duty tools	182			

LIST OF FIGURES

116	A hippopotamus canine; from FLK II	page 247			
117	Histograms of tool percentages in Oldowan, Developed Oldowan and early Acheulean assemblages.	265	120	Width/length ratios of Acheulean bifaces from EF-HR and TK IV, Fish Gully, and of Developed Oldowan bifaces from SHK and BK	page 270
118	Graph to show the weights of spheroids and subspheroids from three sites: HWK East, Levels 3-5; MNK, Main Occupation Site; and BK	267	121	Thickness/length ratios of Acheulean bifaces from EF-HR and TK IV, Fish Gully and of Developed Oldowan bifaces from SHK and BK	271
119	Graphs showing the mean diameters of Acheulean bifaces from EF-HR and				272

LIST OF TABLES

1	The stratigraphic positions of the hominid remains and of the Oldowan, Developed Oldowan and Early Acheulean sites in Beds I and II in relation to the Marker Tuffs	<i>page 3</i>	6	Proportions of faunal remains, artefacts and manuports at living sites in Beds I and II	<i>page 261</i>
2	List of hominid remains found at Olduvai Gorge	234	7	The incidence of the various types of raw materials in the five artefact groups from excavated sites in Beds I and II	264
3	Proportions of identifiable and indeterminate remains of larger mammals and reptiles from excavated sites in Beds I and II	256	8	Faunal remains from excavated sites in Beds I and II: percentages of the various parts of the skull and skeleton of the larger mammals	276
4	Faunal remains from excavated sites in Beds I and II: proportions of whole and broken bones and teeth, etc., of the larger mammals and reptiles identifiable to taxa	257	9	Proportions of preserved parts of bovid limb bones from four Olduvai sites and from the Makapansgat Limeworks compared to those of goat remains from Hottentot middens	278
5	Density of finds at the principal occupation sites in Beds I and II	260	10	Proportionate occurrence of various cranial and skeletal parts of Bovidae from Olduvai, Makapansgat Limeworks and of goats from Hottentot middens	279

LIST OF PLATES

Frontispiece Aerial view of Olduvai Gorge*Between pp. 300 and 301*

- 1 DK. Tuff I^B and the deposits beneath
- 2 DK. The circle of lava blocks
- 3 A rough shelter of branches and grass with stones supporting the bases of the branches, made by the Okombambi people of South West Africa, for comparison with the stone circle at DK
- 4 DK. Polyhedrons made from lava
- 5 FLK NN. General view of the site from the north-west, during the early part of the excavations
- 6 FLK NN. Section through the deposits exposed in the south-west face of Trench VI
- 7 FLK. Excavations in progress during 1960
- 8 FLK. Part of the occupation floor at the '*Zinjanthropus*' level, showing bone splinters, flakes and horn cores of *Parmularius altidens*
- 9 FLK. Close-up view of bone fragments and flakes on part of the occupation floor
- 10 FLK. The mandible of an equid lying on the occupation floor, showing the damage to the lower margin
- 11 FLK North. General view of the excavation during 1960, seen from the north-west
- 12 FLK North. Section exposed in the south-east face of the excavation, showing the five occupation levels, the marker Tuff I^F, the coarse-grained grey tuff and the rootlet clay in lower Bed II
- 13 FLK North. The elephant skeleton in Level 6
- 14 FLK North. Broken bones, artefacts and manuports on the occupation floor of Level I
- 15 FLK North. A group of mammalian bones on the occupation floor of Level 1
- 16 FLK North. Spheroids and subspheroids made from lava
- 17 FLK North. Two pitted anvils. The top specimen is from the chert-bearing Sandy Conglomerate in the lower part of Bed II, and the second is from Level I in Bed I
- 18 FLK North. A grooved and pecked stone
- 19 HWK East, Level 3. Spheroids and subspheroids
- 20 MNK. Main Occupation Level. A large lava biface measuring 297 mm. in length and weighing 6½ lb.
- 21 MNK. Main Occupation Level. A large quartzite subspheroid weighing 14½ lb.
- 22 TK. The channel adjacent to the Lower Occupation Floor after the removal of the silty filling
- 23 BK. Part of the clay-filled channel which yielded many remains of large mammals, including *Pelovis oldowayensis*
- 24 BK. Spheroids
- 25 BK. Subspheroids
- 26 MK. Dr Matthew Stirling of the National Geographic Society points to the level beneath Tuff I^B where the teeth of H. 4 were found
- 27 FLK. July 1959. The writer indicating the position of the skull of H. 5, *Australopithecus (Zinjanthropus) boisei*, before removal
- 28 FLK. Top: the hominid fibula *in situ*. Below: removing the matrix from the palate of '*Zinjanthropus*'
- 29 FLK NN. The mandible of H. 7 *in situ*, lying teeth-downwards
- 30 FLK NN. The left parietal of H. 7 lying *in situ*, at the base of a 6 in. ruler
- 31 FLK NN. The foot-bones of H. 8 *in situ*. Below: the clavicle of H. 8 *in situ*
- 32 MNK, Skull Site. The site where H. 13, 14 and 15 were found, shortly after the discovery
- 33 FLK, Maiko Gully. M. Mutumbo is standing at the site where he found the broken skull of H. 16
- 34 FLK NN. The utilised equid rib from Level 3
- 35 FLK North. Two utilised bones
- 36 Parts of long bones with flaking and chipping at the ends of the broken shafts. From sites in Middle and Upper Bed II
- 37 Giraffid scapulae damaged by use, from sites in Bed II
- 38 An elephant axis in which the surface has been extensively damaged, possibly as a result of use as an anvil, from BK
- 39 SHK. Utilised flake of hippopotamus ivory
- 40 Two hippopotamus incisors damaged by use at the tips and an artefact resembling a biface made from a fragment of a very massive bone. The incisors are from the Main Site at MNK and the specimen on the right is from FC
- 41 FLK North. Two frontlets with horn cores of the antelope *Parmularius altidens* showing depressed fractures

Introductory Note to the 50th Anniversary of the Discovery of 'Zinjanthropus'

The Olduvai Gorge in the Republic of Tanzania came to the attention of the world shortly after my mother Mary discovered the 'Zinjanthropus boisei' skull on July 17th 1959. The field of African prehistory, and in particular the study of human evolution, has changed and developed dramatically over the past 50 years. I am particularly pleased that Cambridge University Press have decided to republish the 5 monographs that comprehensively cover the many scientific studies that have been undertaken on the Olduvai material collected by my parents, Louis and Mary, working with a number of colleagues. As the Golden Anniversary of the discovery approaches, it is timely to reflect on the importance of that find.

I was lucky to arrive at Olduvai two days after the discovery and I well recall the excitement of the occasion. My parents were operating on a very tight budget and the field season was short. Fortunately, on hand was world-renowned photographer Des Bartlett who, aided by his wife Jen, fully recorded on film the first few days of excavations and reassembly of bone fragments back in camp. As pieces were glued back together, and the shape of the skull and its morphology became clear, my parents showed uncharacteristic and unrestrained emotion! At the time, ages for fossils were wild guesses and radiometric dating had not been done anywhere in Africa. The best, guessed age for Zinj was a little more than 500,000 years. Some months later, a real Potassium/Argon date was obtained by Jack Evenden and Garniss Curtis, and the 1,750,000 age was announced. This ignited huge excitement worldwide and for the first time my father was able to raise financial support for extended field work at Olduvai. Everything changed. The unqualified enthusiasm and support of the National Geographic Society from 1960 onwards had a major impact on the later work at Olduvai, and indeed on the growing international interest of Africa as the cradle of humanity.

Since those first exciting years at Olduvai, the investigation of human origins has gone forward and extended to many other sites in Africa. The age of hominins has been taken back to beyond five million years and the collected fossils and lithic records are now numerous. International multi-disciplinary teams are working in many parts of the world and, with the exception of a few fundamentalist 'flat earth' types, the acceptance of the fossil record of our past is widely accepted. Much of this has come about because of the initial Olduvai finds.

The pioneering work at Olduvai was the launch of this fantastic 50-year period when we as a species have come to realize and appreciate our common evolutionary past. Olduvai, conserved and protected by the Republic of Tanzania, remains as a landmark in the epic story of humanity, and these monographs are a wonderful testimony to that landmark.

Richard Leakey, FRS

FOREWORD

J. DESMOND CLARK, C.B.E., F.B.A.

This is the book that archaeologists and anthropologists the world over have been waiting for—and they will not be disappointed. Here, exactly set out, is the description of the cultural record contained within the lower half of the sequence at Olduvai Gorge—that unique result of the Rift Valley faulting, cut through the game-covered grasslands of the Serengeti Plains in northern Tanzania. Nowhere else in the world have such outstandingly significant finds been made as those that have come from these 350 feet of stratified lacustrine and volcanic sediments. The land surfaces they contain have preserved some of the richest assemblages of fossil fauna from the African continent and some of the most exciting evidence of the activities of early man that has contributed immensely to improved understanding of our own human origins and the evolving record of inventive ability and manual skills that are the sole prerogative of man.

The concentrations of tools, food waste and other indications of hominid activity now being uncovered on the buried surfaces of the occupation sites of Olduvai form the very basis for understanding the way of life and capabilities of the hominids, once we are able to interpret the evidence correctly. And, as if this *embarras de richesse* were not sufficient, the list of finds of the hominids themselves is unique in the number, biological variability and range of time they cover.

The knowledge of these we possess today we owe to Louis and Mary Leakey and others associated with them in their systematic exploration of the Gorge. The thoroughness and the perseverance over many years with which this investigation has been carried out has resulted in the discovery of no less than seventy-two archaeological sites and has rightly earned for the Leakeys the admiration and thanks of scientists and laymen

alike. Indeed, there can be very few instances where the dedicated research of some thirty-nine years has been so spectacularly rewarded.

Up to 1960 most of the work carried out at Olduvai was necessarily on a small scale, but in that year, and subsequently, the National Geographic Society provided financial support of an order that gave the Leakeys the opportunity for the larger, more intensive operations that they had always hoped for and which have now been so amply justified.

Some of these specialist results have already appeared in the first two of the new series of volumes devoted to Olduvai which, when complete, will ensure that this is—and rightly—one of the best documented of any of the localities where early man has been found. The present volume, the third in the series, is by Mary Leakey and describes the cultural remains contained within Beds I and II of the sequence and shows the relationship of these to the various human fossils.

I have had the privilege of knowing Mary Leakey and her work for twenty-nine years and it gives me very great satisfaction to pay tribute here to her fine record of meticulous research and reporting. Her earlier excavations at the 'Neolithic' sites of Hyrax Hill and Njoro River Cave set a standard for Africa that has never been surpassed and she has applied these same methods, working backward in time, at sites of Lower Palaeolithic age and so at Olduvai. In doing so she pioneered a new dimension in Palaeolithic research, making possible the study of human behaviour from the distributed remains on *living floors* of this remote period at a time when it was generally believed that such occupation sites had almost all been destroyed by natural agencies.

Today such methods are *de rigueur* for all investigations of Palaeolithic living sites, but in the

FOREWORD

1940s when Mary Leakey was digging Olorgesailie and Kariandusi, they were unheard of, and even the very existence of such sites was unsuspected. In the hard, compacted and consolidated sediments of the East African Rift, the uncovering of a living horizon and the fossils upon it is accomplished only by prolonged patience and most careful and tedious work with the smallest and most delicate of tools. When there is added to this the glaring, shadeless heat of a summer's day at Olduvai, it is possible to appreciate just a little of what we owe to Mary Leakey and her team of skilled and dedicated assistants.

Although the stone artefacts from the bottom of the Olduvai sequence are not the oldest known, they provide the only complete and undisturbed evidence of the range of tool forms in use and the kinds of occupation sites with which they are associated from about two million years ago, through the earlier part of the Middle Pleistocene. The sequence is all the more impressive since it is securely placed both in relation to the geological and palaeo-geographical evidence obtained by Dr Richard L. Hay, who has been able to correlate the stratigraphy at the main and side gorges, but also within the chronological framework established by the potassium/argon method of radiometric dating. Indeed, the potassium/argon programme for Bed I is 'one of the most comprehensive ever undertaken for a single stratigraphic unit' and now establishes the rate of human biological and cultural change in the earlier Pleistocene.

The Oldowan Industry has for many become identified with the manufacture of 'pebble choppers', so that the record of forms from the excavations described in this volume will come as a revelation of the greatest significance for taxonomic studies. Here are artefacts that conventional usage associates typologically with much later times (the late Palaeolithic or even later)—diminutive scraper forms, awls, burins (even on truncations), *ouils écaillés*, and a grooved and pecked cobble.

The slow but growing complexity of the Oldowan tool-kits and the sudden appearance of the early Acheulian is superbly documented by

records of excavations carried out over a period of two and a half years at some ten occupation sites, two kill sites, twenty-seven sites where the material is diffused through clays or tuffs and three sites associated with stream channels.

The precise meaning behind the presence in the middle of Bed II of two parallel-evolving traditions—the Acheulian and the Developed Oldowan—is, perhaps, one of the most important of the many problems facing students of the Lower Palaeolithic today and more than one explanation is possible for the results of the work so far carried out at Olduvai. We may hope that the discovery of more culturally associated hominid fossils at the Gorge will show whether the primary cause of this was due to biological differences or cultural behaviour.

Besides the stone artefacts a number of tools of bone and ivory showing evidence of percussion flaking and usage have also been identified. A study of the chipping on the utilised stone flakes and fragments provides, in addition, fascinating evidence for several different patterns of wear due to use. The book gives the complete composition of all the archaeological horizons and discusses the significance of the differences revealed by the preliminary comparative work. At the same time it provides the basis for further comparative studies in the future.

No less important than the descriptions and analytical tables are the superb illustrations of the stone and bone implements. There are very few illustrators of archaeological material who can approach the standard set by Mary Leakey and in the present instance these drawings are especially valuable because it is not easy for anyone not accustomed to working with quartz and some of the lavas readily to discern the flaking patterns.

If the composition of the tool-kits is likely to give rise to no small measure of surprise, this will be even more the case when the associated evidence is studied and the distribution of all of this on the living floors is taken into account. A study of the plots of some of these occupation areas cannot fail to arouse respect and admiration for the nicety with which everything is precisely located and identified. This is uniquely important

FOREWORD

material and the most exciting available anywhere to archaeology for understanding the behaviour of the early hominids. The stone circle and smaller associated concentrations on the DK living-floor; or the relationship of the inner concentration to the peripheral scatter on the FLK ('*Zinjanthropus*') floor; the butchery kit associated with the channel and swamp clays with elephant, *Deinotherium*, *Pelorovis* and *Equus* carcasses; and the groups of bifaces in pairs at site TK are only *some* of the many intriguing and intensely interesting patterns shown by these plots.

The magnitude of the work involved in the analysis can in part be appreciated by realising that there were often more than 1,000 artefacts associated with each archaeological level—the '*Zinjanthropus*' floor had 2,275 artefacts; there were 3,510 bone specimens from this horizon and FLK North produced over 14,000 rodent remains from levels 1 and 2 alone.

All the bone has been identified down to Order and Family level; the percentages of the various parts of the animals represented have been calculated and these remains are demonstrated to be the food waste of the hominids.

Of equal interest is the description of the stratigraphic and cultural associations of the thirty-four hominid fossils found in the Gorge, many of which have previously received only brief or, as yet, no mention in print. *Homo habilis* is now definitely associated with six occupation sites with stone tools of the Oldowan Industry and it would, indeed, appear that he was the maker of these tools.

The fact that so much hominid material has

been collected is again the direct outcome of the energy and patience that Louis and Mary Leakey bring to bear. Few would have thought it worth while to excavate and sieve an area 300 × 40 sq. ft. at the site of the *H. erectus*? fossil eroded from VEK in Bed IV, but by so doing Mary recovered a significant part of the skull. Similarly, few would have had the patience to set about the reconstruction of the Hominid 16 skull lying in over 1,500 fragments down the slope of Maiko Gully.

Mary is a direct descendant of John Frere, whose discovery at Hoxne in 1797 can be said to have begun the study of Palaeolithic archaeology. Whether she derives therefrom some of her interest in archaeology, her eminence in the field today is directly the result of her own painstaking thoroughness, long experience and the significant contributions she has made to the archaeology of Africa. Recognition has been accorded her in many ways and, most fittingly so, in an honorary doctorate from the University of the Witwatersrand.

Here in this book one is made to realise the essential unity of early man and his culture and the reader finds himself face to face with a record of events which, although incomplete, is the clue, once we can read it aright, to the changing patterns of behaviour that made possible the cultural progress that leads up to modern man. So unexpected have been many of the discoveries at Olduvai that we very confidently expect there will be many more. Dr Mary Leakey's subsequent work on Beds III and IV will help to make even more complete this unsurpassed record of humanity's beginnings.

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Frontmatter

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M.D.L.

