

TABLE OF CONTENTS

LIST OF TABLES	v
LIST OF FIGURES	vi
LIST OF PLATES	vii
ACKNOWLEDGMENTS	viii
ABSTRACT	ix
FOREWORD	x
 CHAPTER ONE. INTRODUCTION AND METHODS	
Introduction.....	1
Brief Historical Perspective.....	1
Tempo and Mode – Phyletic Gradualism vs. Punctuated Equilibrium	5
Morphological Relationships – Cladistics vs. Phenetics.....	7
Methods and Data.....	12
 CHAPTER TWO. SUB-SAHARAN AFRICA	
Introduction.....	23
Bodo D’Ar	23
Ndutu	27
Saldanha-Elandsfontein-Hopefield.....	29
Kabwe-Broken Hill-Rhodesian Man	30
Eyasi	31
Omo (Kibish).....	32
Florisbad	35
Ileret.....	37
Herto	37
Laetoli-Laetolil (Ngaloba Beds).....	38
Eliye Springs.....	39
Singa	40
Border Cave.....	44
Klasies River Mouth	47
Discussion.....	52
Conclusion.....	59
 CHAPTER THREE. NORTH AFRICA	
Introduction.....	61
Salé	61
Mifsud-Giudice Quarry, Kebibat - Rabat	61
Jebel Irhoud-Djebel Ighoud	61
Haua Fteah	66
Mugharet El-'Aliya-Tangier (High Cave).....	66
Témara	67

Dar-Es-Soltan(e).....	67
Discussion.....	68
Lithic Material.....	69
Conclusion.....	70

CHAPTER FOUR. WESTERN ASIA

Introduction.....	71
Dmanisi.....	71
The Levant.....	72
Galilee-Mugharet el-Zuttiyeh.....	72
Mugharet es-Skhul.....	75
Jebel Qafzeh-Jebel Kafzeh.....	80
Mugharet et-Tabun.....	84
Amud.....	89
Mugharet El-Kebarah-Kebara.....	91
Dederiyeh.....	92
Shanidar.....	93
Central Asia.....	97
Mezmaiskaya Cave.....	97
Teshik-Tash.....	98
Starosel'e-Staroselye-Staroselje.....	99
South Asia.....	100
Narmada.....	100
Discussion.....	102
Lithic Material.....	105
Conclusion.....	106

CHAPTER FIVE. EUROPE

Introduction.....	110
Middle Pleistocene Hominids.....	115
Venta Micena-Orce and Cueva Victoria.....	117
Ceprano.....	117
Atapuerca - Gran Dolina.....	118
Petalona.....	118
Mauer-Heidelberg.....	122
Vértesszöllös.....	123
Caune de L'Arago-Tautavel.....	124
Bilzingsleben.....	126
Montmaurin.....	127
Steinheim.....	128
Swanscombe.....	129
Atapuerca - Sima de los Heusos.....	132
Biache-Saint-Vaast.....	133
La Chaise-L'abri Suard.....	134
Fontéchevade.....	134
Ehringsdorf.....	135
Reilingen.....	137
Upper Pleistocene Hominids.....	137
Alicante.....	137
Krapina.....	138
Saccopastore.....	142
"Classic" Neanderthals.....	144

Vindija	148
Saint-Césaire.....	150
Anatomically Modern Upper Palaeolithic	151
Discussion.....	151
The Replacement Hypothesis and the Multiregional Hypothesis.....	152
The Neanderthals: Where From and Why?	154
Conclusion	161
The Earliest Anatomically Modern Humans In Europe	161
Lithic Material	164
Coexistence and Replacement.....	167
The Neanderthals - Up Close and Personal	168

CHAPTER SIX. AUSTRALASIA

Introduction.....	171
Island Southeast Asia.....	171
Indonesian <i>Homo erectus</i>	171
The Deep Skull of Niah	178
Tabon Cave.....	179
Australia.....	181
Lake Mungo.....	181
Lake Garnpung – WLH 50	185
Discussion.....	187
The Replacement Hypothesis	187
The Regional Continuity or Multiregional Hypothesis	188
Regional Features	189
Conclusion	211

CHAPTER SEVEN. EAST ASIA

Introduction.....	214
<i>Homo erectus</i>	214
Longgupo	214
Lantian	215
Yuanmou.....	216
Yunxian.....	216
Zhoukoudien (Choukoutien) Locality 1	216
Nanjing	217
Hexian.....	218
Archaic <i>Homo sapiens</i>	218
Jinniushan	218
Dali	219
Maba-Mapa.....	220
Xujiayao.....	222
Early <i>Homo sapiens</i>	223
Liujiang.....	223
Zhoukoudian Upper Cave.....	224
Minatogawa	227
Discussion.....	229
The Replacement Hypothesis	229
The Regional Continuity or Multiregional Hypothesis	229
Regional Feature.....	231
Lithic Material	240
Conclusion	241

CHAPTER EIGHT. CONCLUSION

Introduction.....	245
The Regional Continuity or Multiregional Hypothesis	245
The Single Origin and Replacement Hypothesis.....	247
Genetic Data	247
Prehistoric mtDNA.....	253
Discussion.....	254
Sub-Saharan Africa.....	254
North Africa.....	254
Western Asia.....	255
Europe.....	256
Australasia	257
East Asia	258
Conclusion.....	260

BIBLIOGRAPHY	270
---------------------	-----

APPENDIX TABLES	300
------------------------	-----

PLATES

LIST OF TABLES

1:1 Cranial measurements used in analyses, their abbreviations and sources where they are defined.	14
1:2 Crania that formed the basic data set for all metrical analyses and abbreviations for Figures and Tables.	15
1:3 Discontinuous, discrete, epigenetic, or non-metric traits used in analyses.	17
1:4 Discontinuous, discrete, epigenetic, or non-metric mandibular traits used in this study.	18
2:1 Sub-Saharan African crania examined, abbreviations for Figures and Tables, and source of data.	24
2:2 K-means cluster analysis with Ndufu.	27
2:3 K-means cluster analysis with Singa, Omo 1, Omo 2 and Saldanha 1.	29
2:4 K-means cluster analysis with Laetoli H18, Omo 2, Saccopastore 1 and Petralona.	33
2:5 K-means cluster analysis with Eliye Springs KNM-ES 11693.	40
2:6 K-means cluster analysis with Singa.	42
3:1 North African hominids examined, abbreviations for Figures and Tables, and source of data.	62
3:2 K-means cluster analysis with Jebel Irhoud 1.	63
4:1 Western Asian hominids examined, abbreviations for Figures and Tables, and source of data.	71
4:2 K-means cluster analysis with Skhül 4, Skhül 9, Jebel Qafzeh 6, Jebel Qafzeh 9, and Jebel Irhoud 1.	77
4:3 K-means cluster analysis with Skhül 4, Jebel Irhoud 1 and Jebel Qafzeh 6, 9 and 11.	82
4:4 K-means cluster analysis with Tabün C1, Shanidar 1 and Amud 1.	87
4:5 K-means cluster analysis with Shanidar 5.	95
4:6 Measurements used in the Ordered Similarity Matrix for the Levant with Jebel Irhoud 1.	107
4:7 Ordered Similarity Matrix for the Levant with Jebel Irhoud 1.	107
4:8 Brachial and crural indices for Western Asian hominids.	108
5:1 Correlation chart for the European Middle and Upper Pleistocene.	111
5:2 European crania examined, abbreviations for Figures and Tables, and source of data.	112
5:3 K-means cluster analysis with Saccopastore 1 and Petralona.	122
5:4 K-means cluster analysis of European core group.	129
5:5 K-means cluster analysis with Guattari-Monte Circeo 1, Saccopastore 1, Krapina C, La Quina H18 and Teshik-Tash.	140
5:6 Some characteristic features of the cranium and mandible evident on the Neanderthals.	145
5:7 Measurements used in the Ordered Similarity Matrix for Europe.	162
5:8 Ordered Similarity Matrix for Europe.	162
6:1 Australasian crania examined, abbreviations for Figures and Tables, and source of the data.	171
6:2 Measurements used in the Ordered Similarity Matrix for Australasia.	177
6:3 Ordered Similarity Matrix for Australasia.	177
6:4 K-means cluster analysis with some of the Ngandong crania.	178
6:5 The occurrence of "Regional Continuity Features".	193
6:6 Percentages of the occurrence of proposed "Regional Features" on Australian Aboriginal crania.	194
7:1 East Asian crania examined, abbreviations for Figures and Tables, and source of data.	214
7:2 K-means cluster analysis with Dali cranium.	220
7:3 The occurrence of "Regional Continuity Features" for East Asia.	235
7:4 Regional variation of three dental traits used as Regional Continuity Features.	237
7:5 Comparison of facial morphology on early <i>Homo sapiens</i> material from east Asia and Generalised Mongoloid form.	242
8:1 Late Pleistocene and early to mid-Holocene core group of crania studied.	261
8:2 Cranial measurements used in analyses.	261
8:3 Hominid crania compared to Late Pleistocene and early to mid-Holocene core group.	262
8:4 Results of k-means cluster analyses.	262

LIST OF FIGURES

1:1 Cranial non-metric traits used in this study.	16
1:2 Mandibular non-metric traits used in this study.	18
2:1 Map showing Sub-Saharan African sites mentioned in text.	25
2:2 The chronological position of the Sub-Saharan African hominid sample.	26
2:3 Dendrogram from sum of squares cluster analysis with the Ndutu cranium.	28
2:4 Correspondence analysis with Ndutu.	28
2:5 Dendrogram from sum of squares cluster analysis with Omo 2 and Laetoli H18.	34
2:6 Correspondence analysis with Omo 2 and Laetoli H18.	34
2:7 Dendrogram from sum of squares cluster analysis with Eliye Springs 11693.	41
2:8 Correspondence analysis with Eliye Springs 11693.	41
2:9 Dendrogram from sum of squares cluster analysis with the Singa calvaria.	43
2:10 Correspondence analysis with the Singa calvaria.	43
3:1 Map showing North African sites mentioned in text.	62
3:2 Dendrogram from sum of squares cluster analysis with Jebel Irhoud 1.	64
3:3 Correspondence analysis with Jebel Irhoud 1.	64
4:1 Map showing the Levantine sites mentioned in the text.	72
4:2 The probable chronological position of the Western Asian hominid sample.	73
4:3 Dendrogram from sum of squares cluster analysis with Skhül 4, 5 and 9, Jebel Qafzeh 6 and 9 and Jebel Irhoud 1.	78
4:4 Correspondence analysis with Skhül 4, 5 and 9, Jebel Qafzeh 6 and 9 and Jebel Irhoud 1.	78
4:5 Dendrogram from sum of squares cluster analysis with Skhül 4 and 5, Jebel Irhoud 1 and Jebel Qafzeh 6, 9 and 11.	83
4:6 Correspondence analysis with Skhül 4 and 5, Jebel Irhoud 1 and Jebel Qafzeh 6, 9 and 11.	83
4:7 Dendrogram from sum of squares cluster analysis with Tabün C1, Amud 1 and Shanidar 1.	88
4:8 Correspondence analysis with Tabün C1, Amud 1 and Shanidar 1.	88
4:9 Map showing western and central Asian sites mentioned in text.	93
4:10 Dendrogram from sum of squares cluster analysis with Shanidar 5.	96
4:11 Correspondence analysis with Shanidar 5.	96
4:12 Map showing Indian sites mentioned in text.	101
4:13 Correspondence analysis with Narmada and <i>Homo erectus</i> material.	101
5:1 Map showing some European sites mentioned in text.	110
5:2 Map showing additional French sites mentioned in text.	113
5:3 Map showing German sites mentioned in text.	114
5:4 Map showing Czech Republic, Slovak Republic and Austrian sites mentioned in text.	114
5:5 Map showing Hungarian and Croatian sites mentioned in text.	115
5:6 The probable chronological position of the European hominid sample.	116
5:7 Dendrogram from sum of squares cluster analysis with Petralona and Saccopastore 1.	121
5:8 Correspondence analysis with Petralona and Saccopastore 1.	121
5:9 Scatter diagram from principal components analysis of core group of crania.	130
5:10 Dendrogram from sum of squares cluster analysis of core group of crania.	130
5:11 Correspondence analysis of core group of crania.	131
5:12 Dendrogram of sum of squares cluster analysis with Guattari-Monte Circeo 1, Krapina C, La Quina H18, Teshik-Tash and Saccopastore 1.	141
5:13 Correspondence analysis with Guattari-Monte Circeo 1, Krapina C, La Quina H18, Teshik-Tash and Saccopastore 1.	141
5:14 Correspondence analysis of the occipital squama.	143
5:15 Correspondence analysis of cranial non-metric traits.	146
5:16 Correspondence analysis of mandibular non-metric traits.	146
6:1 Map showing Southeast Asian sites mentioned in the text.	172
6:2 Dendrogram from sum of squares cluster analysis with calvaria from Ngandong.	178
6:3 Map showing Australian sites mentioned in the text.	182
7:1 Map showing Chinese sites mentioned in the text.	215
7:2 Dendrogram from sum of squares cluster analysis with the Dali cranium.	221
7:3 Correspondence analysis with the Dali cranium.	221
7:4. The chronological position of the East Asian hominid sample.	228
8:1 Map showing early archaic <i>Homo sapiens</i> material that displays grade similarities.	255
8:2 Dendrogram from group average cluster analysis of Late Pleistocene and early to mid-Holocene core group.	263
8:3 Dendrogram from group average cluster analysis of core group with Skhül 4 & 5, Jebel Qafzeh 6 & Jebel Irhoud 1.	265
8:4 Dendrogram from group average cluster analysis of core group with European Upper Palaeolithic crania.	265
8:5 Dual Source Model.	268
8:6 Assimilation and Replacement Model.	269

LIST OF PLATES

- Plate 1.** (casts) Top: Bodo (left) and Petralona (right)
Bottom: Petralona (left) and Bodo (right)
- Plate 2.** (cast) Laetoli H 18
- Plate 3.** (casts) Top: Florisbad (old reconstruction)
Bottom: Jebel Irhoud 1
- Plate 4.** (casts) Amud 1 (left) and Skhūl 5 (right)
- Plate 5.** (casts) Top and Middle: Amud 1 (left) and Jebel Qafzeh 9 (right)
Bottom: Tabūn C1 (left) and Jebel Qafzeh 9 (right)
- Plate 6.** (casts) Skhūl 5 (left) and Jebel Qafzeh 9 (right)
- Plate 7.** (casts) Amud 1 (left) and La Ferrassie 1 (right)
- Plate 8.** (casts) Top: Mandibles of Skhūl 5, Amud 1 and Jebel Qafzeh 9
Bottom: Petralona (left) and Arago 21 (right)
- Plate 9.** (cast) Arago reconstruction, comprising Arago 21 and Arago 47
- Plate 10.** (casts) Top: La Ferrassie 1 (left) and Krapina C (right)
Bottom: Gibraltar 1 (left) and Krapina C (right)
- Plate 11.** (casts) Top: Gibraltar 1 (left) and La Ferrassie 1 (right)
Bottom: La Quina H5 (left) and Gibraltar 1 (right)
- Plate 12.** (cast) Saint-Césaire
- Plate 13.** (cast) La Ferrassie 1 (left) and Cro-Magnon 1 (right)
- Plate 14.** (casts) Top: Sangiran 17 (left) and Kow Swamp 1 (right)
Middle: Lake Mungo 3
Bottom: Kow Swamp 15 (left) and Kabwe 1 (right)
- Plate 15.** (casts) Close-up of the splanchnocranium
Top: Kow Swamp 15
Bottom: Kow Swamp 15 (left) and Sangiran 17 (right)