

COLIN RENFREW
PAUL BAHN

Theories, Methods, and Practice

COLLEGE
EDITION

SEVENTH
EDITION

REVISED &
UPDATED

 **Thames & Hudson**

ology
Archaeology

CONTENTS

Preface to the College Edition 9

Introduction

The Nature and Aims of Archaeology 12

PART I

The Framework of Archaeology 19

1 The Searchers

The History of Archaeology 21

The Speculative Phase 22

The Beginnings of Modern Archaeology 26

Classification and Consolidation 32

A Turning Point in Archaeology 40

World Archaeology 41

Summary 48

Further Reading 48

BOX FEATURES

Digging Pompeii: Past and Present 24

Evolution: Darwin's Great Idea 27

North American Archaeological Pioneers 30

The Development of Field Techniques 33

Pioneering Women in Archaeology 38

Processual Archaeology 41

Interpretive or Postprocessual Archaeologies 44

Çatalhöyük: Interpretive Archaeologies in Action 46

2 What is Left?

The Variety of the Evidence 49

Basic Categories of Archaeological Evidence 49

Formation Processes 52

Cultural Formation Processes – How People
Have Affected What Survives in the
Archaeological Record 54

Natural Formation Processes –
How Nature Affects What Survives
in the Archaeological Record 55

Summary 72

Further Reading 72

BOX FEATURES

Experimental Archaeology 53

Wet Preservation: The Ozette Site 60

Dry Preservation: The Tomb of Tutankhamun 64

Cold Preservation 1: Mountain "Mummies" 67

Cold Preservation 2: Snow Patch Archaeology 68

Cold Preservation 3: The Iceman 70

3 Where?

Survey and Excavation of Sites and Features 73

Discovering Archaeological Sites
and Features 74

Assessing the Layout of Sites and Features 98

Excavation 110

Summary 130

Further Reading 130

BOX FEATURES

The Sydney Cyprus Survey Project 76

Sampling Strategies 79

Identifying Archaeological Features from Above 82

Interpretation and Mapping From Aerial Images 86

Lasers in the Jungle 89

GIS and the Giza Plateau 96

Tell Halula: Multi-period Surface Investigations 100

Geophysical Survey at Roman Wroxeter 106

Measuring Magnetism 108

Underwater Archaeology 113

Excavating the Red Bay Wreck 114

Jamestown Rediscovery: The Excavation Process 117

Excavating the Amesbury Archer 120

Excavating an Urban Site 126

4 When?

Dating Methods and Chronology 131

Relative Dating 132

Stratigraphy 132

Typological Sequences 133

Linguistic Dating 136

Climate and Chronology 136

Absolute Dating 138

Calendars and Historical Chronologies 140

Annual Cycles: Varves, Speleothems, and Tree-Rings	142
Radioactive Clocks	146
Other Absolute Dating Methods	160
Genetic Dating	162
Calibrated Relative Methods	163
Chronological Correlations	164
World Chronology	167
Summary	176
Further Reading	176

BOX FEATURES

The Maya Calendar	140
The Principles of Radioactive Decay	147
How to Calibrate Radiocarbon Dates	150
Bayesian Analysis: Improving the Precision of Radiocarbon Chronologies	152
Dating the Earliest West Europeans	158
Dating the Thera Eruption	164

PART II

Discovering the Variety of Human Experience	177
--	-----

5 How Were Societies Organized?

<i>Social Archaeology</i>	179
Establishing the Nature and Scale of the Society	180
Further Sources of Information for Social Organization	186
Techniques of Study for Mobile Hunter-Gatherer Societies	195
Techniques of Study for Segmentary Societies	198
Techniques of Study for Chiefdoms and States	209
The Archaeology of the Individual and of Identity	222
The Emergence of Identity and Society	225
Investigating Gender and Childhood	225
The Molecular Genetics of Social Groups and Lineages	230
Summary	232
Further Reading	232

BOX FEATURES

Network Analysis	185
Ancient Ethnicity and Language	194
Monuments, Politics, and Territories in Early Wessex	204
Interpreting Stonehenge	206

Investigating Maya Territories	210
Conspicuous Ranking at Mississippian Spiro	218
Conflict Archaeology	220
Early Intermediate Period Peru: Gender Relations	226

6 What Was the Environment?

<i>Environmental Archaeology</i>	233
Investigating Environments on a Global Scale	233
Studying the Landscape: Geoarchaeology	240
Reconstructing the Plant Environment	249
Reconstructing the Animal Environment	256
Reconstructing the Human Environment	264
Summary	272
Further Reading	272

BOX FEATURES

Sea and Ice Cores and Global Warming	235
El Niño and Global Warming	236
Cave Sediments	242
Doggerland	246
Pollen Analysis	250
Elands Bay Cave	262
Mapping the Ancient Environment: Cahokia and GIS	266
Ancient Gardens at Kuk Swamp	268

7 What Did They Eat?

<i>Subsistence and Diet</i>	273
What Can Plant Foods Tell Us About Diet?	274
Information from Animal Resources	278
Investigating Diet, Seasonality, and Domestication from Animal Remains	288
How Were Animal Resources Exploited?	306
Assessing Diet from Human Remains	310
Summary	316
Further Reading	316

BOX FEATURES

Paleoethnobotany: A Case Study	276
Butser Experimental Iron Age Farm	278
Investigating the Rise of Farming in Western Asia	284
Seasonality at Star Carr	290
Taphonomy	292
Quantifying Animal Bones	294
Bison Drive Sites	296
The Study of Animal Teeth	298
Farming Origins: A Case Study	300
Shell Midden Analysis	304

8 How Did They Make and Use Tools?

<i>Technology</i>	317
Unaltered Materials: Stone	319
Other Unaltered Materials	334
Synthetic Materials	342
Archaeometallurgy	347
Summary	356
Further Reading	356

BOX FEATURES

Artifacts or "Geofacts" at Pedra Furada?	320
How Were Large Stones Raised?	324
Refitting and Microwear Studies at Rekem	330
Woodworking in the Somerset Levels	336
Metallographic Examination	348
Copper Production in Ancient Peru	350
Early Steelmaking: An Ethnoarchaeological Experiment	355

9 What Contact Did They Have?

<i>Trade and Exchange</i>	357
The Study of Interaction	357
Finding the Sources of Traded Goods: Characterization	365
The Study of Distribution	374
The Study of Production	372
The Study of Consumption	382
Exchange and Interaction: The Complete System	384
Summary	390
Further Reading	390

BOX FEATURES

Modes of Exchange	361
Materials of Prestige Value	362
Analyzing Artifact Composition	368
Glassware from the Roman Mediterranean in Japan	372
Amber From the Baltic in the Levant	373
Fall-off Analysis	377
Distribution: The Uluburun Wreck	380
Production: Greenstone Artifacts in Australia	383
Interaction Spheres: Hopewell	389

10 What Did They Think?

<i>Cognitive Archaeology, Art, and Religion</i>	391
Investigating How Human Symbolizing Faculties Evolved	393
Working with Symbols	400

From Written Source to Cognitive Map	401
Establishing Place: The Location of Memory	403
Measuring the World	405
Planning: Maps for the Future	409
Symbols of Organization and Power	411
Symbols for the Other World: The Archaeology of Religion	413
Depiction: Art and Representation	422
Music and Cognition	428
Mind and Material Engagement	430
Summary	432
Further Reading	432

BOX FEATURES

Clues to Early Thought	396
Paleolithic Art	398
The Ness of Brodgar: At the Heart of Ceremonial Orkney	406
Maya Symbols of Power	414
The World's Oldest Sanctuary	418
Recognizing Cult Activity at Chavín	420
Identifying Individual Artists in Ancient Greece	424
Sacrifice and Symbol in Mesoamerica	426
Early Musical Behavior	428
Cognition and Neuroscience	431

11 Who Were They? What Were They Like?

<i>The Bioarchaeology of People</i>	433
Identifying Physical Attributes	435
Assessing Human Abilities	445
Disease, Deformity, and Death	453
Assessing Nutrition	466
Population Studies	467
Diversity and Evolution	469
Identity and Personhood	475
Summary	475
Further Reading	476

BOX FEATURES

Spitalfields: Determining Biological Age at Death	438
Facial Reconstructions	442
Finding a Neolithic Family	444
Ancient Cannibals?	450
Examining Bodies	454
Grauballe Man: The Body in the Bog	456
Life and Death Among the Inuit	460
Richard III	462
Genetics and Language Histories	471
Studying the Origins of New World and Australian Populations	473

12 Why Did Things Change?

<i>Explanation in Archaeology</i>	477
Migrationist and Diffusionist Explanations	477
The Processual Approach	481
Applications	483
The Form of Explanation: General or Particular	489
Attempts at Explanation: One Cause or Several?	491
Postprocessual or Interpretive Explanation	498
Cognitive Archaeology	501
Agency and Material Engagement	503
Summary	506
Further Reading	506

BOX FEATURES

Diffusionist Explanation Rejected: Great Zimbabwe	480
Molecular Genetics, Population Dynamics and Climate Change: Europe	482
The Origins of Farming: A Processual Explanation	484
Marxist Archaeology: Key Features	486
Language Families and Language Change	488
Origins of the State: Peru	492
The Classic Maya Collapse	496
Explaining the European Megaliths	500
The Individual as an Agent of Change	504

PART III

<i>The World of Archaeology</i>	507
---------------------------------	-----

13 Archaeology in Action

<i>Five Case Studies</i>	509
Oaxaca: The Origins and Rise of the Zapotec State	510
The Calusa of Florida: A Complex Hunter-Gatherer Society	519
Research Among Hunter-Gatherers: Upper Mangrove Creek, Australia	525
Khok Phanom Di: Rice Farming in Southeast Asia	531
York and the Public Presentation of Archaeology	538
Further Reading	548

14 Whose Past?

<i>Archaeology and the Public</i>	549
The Meaning of the Past: The Archaeology of Identity	549

Archaeological Ethics	551
Popular Archaeology Versus Pseudoarchaeology	551
Who Owns the Past?	556
The Responsibility of Collectors and Museums	560
Summary	564
Further Reading	564

BOX FEATURES

The Politics of Destruction	552
Destruction and Response: Mimbres	561

15 The Future of the Past

<i>How to Manage the Heritage?</i>	565
The Destruction of the Past	565
The Response: Survey, Conservation, and Mitigation	568
Heritage Management, Display, and Tourism	580
Who Interprets and Presents the Past?	581
The Past for All People and All Peoples	583
What Use is the Past?	583
Summary	584
Further Reading	584

BOX FEATURES

Conservation in Mexico City: The Great Temple of the Aztecs	570
CRM in Practice: The Metro Rail Project	574
Portable Antiquities and the UK "Portable Antiquities Scheme"	576

16 The New Searchers

<i>Building a Career in Archaeology</i>	585
Lisa J. Lucero: University Professor, USA	586
Gill Hey: Contract Archaeologist, UK	587
Rasmi Shoocongdej: University Professor, Thailand	589
Douglas C. Comer: CRM Archaeologist, USA	591
Shadreck Chirikure: Archaeometallurgist, South Africa	593
Jonathan N. Tubb: Museum Curator, UK	594
Glossary	596
Notes and Bibliography	605
Acknowledgments	651
Index	654