Prehistoric Cultures
University of Minnesota Duluth

Tim Roufs' Sections

http://www.d.umn.edu/cla/faculty/troufs/anth1602/
Every ten weeks for the rest of your life one or more significant new discoveries and/or major news items will likely be reported in the area of prehistoric cultures.

The Prehistoric Cultures WebSite and course aim to provide a basic background and conceptual framework so that you may continue to make some sense out of these reported discoveries and of human prehistory for the remainder of your days.

In the first half of the course we will concentrate on the

historical

conceptual

analytical

backgrounds of Prehistoric Cultures
• Recommendations on Studying for this Course

○ Handout: "Times to Remember"

○ How to Study for Quizzes and Exams
  (slides 03B -- these are always available for review on-line at <cla/faculty/troufs/anth1602/Pow...)

  ■ Times to Remember

○ UMD Study Strategies

○ Listening Skills

○ Notetaking
  ■ Taking Notes From Lectures

○ Learning Styles

○ Test Taking Strategies

○ grading
  ■ criteria for grading written works
  ■ "The Strike Zone"
  ■ "The Curve"

○ UMD Grading Policies
studying from the text
studying from the text
1. What is it?
2. Why is it important?
3. When did it happen?

for items from the “Contents”
• Recommendations on Studying for this Course

○ Handout: "Times to Rembember"

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  ■ Times to Remember
  ○ UMD Study Strategies
  ○ Listening Skills
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  ○ Learning Styles
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    ■ criteria for grading written works
    ■ " The Strike Zone "
    ■ " The Curve "
  ○ UMD Grading Policies

www.d.umn.edu/cla/faculty/troufs/anth1602/
### Times to Remember

**bottom of chart**

**other timelines**

<table>
<thead>
<tr>
<th>Dates</th>
<th>Major Events / Groups</th>
<th>Alternate Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.D. 1859</td>
<td>End of the &quot;Prescientific Period&quot; in Prehistoric Cultures Studies</td>
<td></td>
</tr>
<tr>
<td>c. 10,000 B.C.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. 35,000 - 60,000 B.C.</td>
<td><strong>Homo sapiens</strong> (&quot;Early Moderns - Cro-Magnons...&quot;)</td>
<td>&quot;Moderns&quot;</td>
</tr>
<tr>
<td>c. 100,000 ybp</td>
<td>Qafzeh, Israel, <strong>Homo sapiens sapiens</strong></td>
<td>&quot;Anatomically Modern&quot;</td>
</tr>
<tr>
<td>c. 160,000 ybp</td>
<td>Omo I and I; <strong>Homo sapiens sapiens</strong>,</td>
<td></td>
</tr>
<tr>
<td>c. 195,000 ybp</td>
<td><strong>Homo sapiens</strong></td>
<td></td>
</tr>
</tbody>
</table>

5 – 7 mya

http://www.d.umn.edu/cla/faculty/troufs/anth1602/pctimes.html
1. The first of things
2. The last of things
3. The best of things

also keep track of

studying from the text
1. The first of things
2. The last of things
3. The best of things
pay attention to the timelines in the text


224
250
293
313
347
397
409
“robust” Australopithecines

“gracile” Australopithecines

*Sahelanthropus tchadensis

*The earlier Ardipithecus specimens (5.8-5.2 mya) are placed in a separate species.

p. 224 Time line of early African hominins
Time line for *Homo erectus* and contemporaries

- **Europe**
  - De-anisi
  - Sima del Elefante (Atapuerca)
  - Ceprano

- **China**
  - Zhouskoudian
  - Yunxian
  - Hexian

- **Java**
  - Sangiran
  - Mojokerto

- **East Africa**
  - Nariokotome
  - Olduvai
  - East Turkana

- **East Turkana**
  - Bouri
  - Ngandong

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p. 250 Time line for *Homo erectus* and contemporaries
### Key Fossil Discoveries of *Homo Erectus*

<table>
<thead>
<tr>
<th>Dates</th>
<th>Region</th>
<th>Site</th>
<th>The Big Picture</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.6 mya–25,000 ya</td>
<td>Asia (Indonesia)</td>
<td>Java (Sangiran and other sites)</td>
<td>Shows <em>H. erectus</em> early on (by 1.6 mya) in tropical areas of Southeast Asia; <em>H. erectus</em> persisted here for more than 1 million years</td>
</tr>
<tr>
<td>600,000–400,000 ya</td>
<td>China</td>
<td>Zhoukoudian</td>
<td>Largest, most famous sample of <em>H. erectus</em>; shows adaptation to colder environments; conclusions regarding behavior at this site have been exaggerated and are now questioned</td>
</tr>
<tr>
<td>900,000–800,000 ya</td>
<td>Europe (Italy)</td>
<td>Ceprano</td>
<td>Likely best evidence of full-blown <em>H. erectus</em> morphology in Europe</td>
</tr>
<tr>
<td>1.8–1.7 mya</td>
<td>(Republic of Georgia)</td>
<td>Dmanisi</td>
<td>Very early dispersal to southeastern Europe (by 1.8 mya) of small-bodied, small-brained <em>H. erectus</em> population; may represent an earlier dispersal from Africa than one that led to wider occupation of Eurasia</td>
</tr>
<tr>
<td>1.6 mya</td>
<td>Africa (Kenya)</td>
<td>Nariokotome</td>
<td>Beautifully preserved nearly complete skeleton; best postcranial evidence of <em>H. erectus</em> from anywhere</td>
</tr>
<tr>
<td>1.8 mya</td>
<td>East Turkana</td>
<td></td>
<td>Earliest <em>H. erectus</em> from Africa; some individuals more robust, others smaller and more gracile; variation suggested to represent sexual dimorphism</td>
</tr>
</tbody>
</table>

**p. 254 Key Fossil Discoveries of *Homo erectus***
<table>
<thead>
<tr>
<th>Dates</th>
<th>Region</th>
<th>Site</th>
<th>Hominin</th>
<th>The Big Picture</th>
</tr>
</thead>
<tbody>
<tr>
<td>50,000 ya</td>
<td>Western Europe</td>
<td>La Chapelle (France)</td>
<td>Neandertal</td>
<td>Most famous Neandertal discovery; led to false interpretation of primitive, bent-over creature</td>
</tr>
<tr>
<td>110,000 ya</td>
<td>Southwestern Asia</td>
<td>Tabun (Israel)</td>
<td>Neandertal</td>
<td>Best evidence of early Neandertal morphology in S. W. Asia</td>
</tr>
<tr>
<td>130,000 ya</td>
<td>South Africa</td>
<td>Kabwe (Broken Hill, Zambia)</td>
<td><em>H. heidelbergensis</em></td>
<td>Transitional-looking fossil; perhaps a close ancestor of early <em>H. sapiens</em> in Africa</td>
</tr>
<tr>
<td>600,000-530,000 ya</td>
<td>Western Europe</td>
<td>Atapuerca (Sima de los Huesos)</td>
<td><em>H. heidelbergensis</em> (early Neandertal)</td>
<td>Very early evidence of Neandertal ancestry; suggests Neandertals likely are a different species from <em>H. sapiens</em></td>
</tr>
<tr>
<td>600,000 ya</td>
<td>East Africa</td>
<td>Bodo (Ethiopia)</td>
<td><em>H. heidelbergensis</em></td>
<td>Earliest evidence of <em>H. heidelbergensis</em> in Africa—and possibly ancestral to later <em>H. sapiens</em></td>
</tr>
</tbody>
</table>
p. 293 Time line of Modern *Homo sapiens* discoveries.
### What's Important: Key Fossil Discoveries of Early Modern Humans and *Homo floresiensis*

<table>
<thead>
<tr>
<th>Dates</th>
<th>Region</th>
<th>Site</th>
<th>Hominin</th>
<th>The Big Picture</th>
</tr>
</thead>
<tbody>
<tr>
<td>95,000–13,000 ya</td>
<td>Southeast Asia</td>
<td>Flores (Indonesia)</td>
<td><em>H. floresiensis</em></td>
<td>Late survival of very small-bodied and small-brained hominin on island of Flores; designated as different species (<em>H. floresiensis</em>) from modern humans</td>
</tr>
<tr>
<td>30,000 ya</td>
<td>Europe</td>
<td>Cro-Magnon (France)</td>
<td><em>H. sapiens sapiens</em></td>
<td>Famous site historically; good example of early modern humans from France</td>
</tr>
<tr>
<td>35,000 ya</td>
<td>Europe</td>
<td>Oase Cave (Romania)</td>
<td><em>H. sapiens sapiens</em></td>
<td>Earliest well-dated modern human from Europe</td>
</tr>
<tr>
<td>110,000 ya</td>
<td>Southwest Asia</td>
<td>Qafzeh (Israel)</td>
<td><em>H. sapiens sapiens</em></td>
<td>Early site; shows considerable variation</td>
</tr>
<tr>
<td>115,000 ya</td>
<td>Southwest Asia</td>
<td>Skhul (Israel)</td>
<td><em>H. sapiens sapiens</em></td>
<td>Earliest well-dated modern human outside of Africa; perhaps contemporaneous with neighboring Tabun Neandertal site</td>
</tr>
<tr>
<td>160,000–154,000 ya</td>
<td>Africa</td>
<td>Herto (Ethiopia)</td>
<td><em>H. sapiens idaltu</em></td>
<td>Best-preserved and best-dated early modern human from anywhere; placed in separate subspecies from living <em>H. sapiens</em></td>
</tr>
</tbody>
</table>

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p. 309 Key Fossil Discoveries of Early Modern Humans and *Homo floresiensis*
p. 313 Time line for Ch. 13 “Early Holocene Hunters and Gatherers.”
### What's Important

#### The Most Significant Archaeological Sites Discussed in This Chapter

<table>
<thead>
<tr>
<th>Location</th>
<th>Site</th>
<th>Dates (ya)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>Poverty Point</td>
<td>3,500</td>
<td>A large series of earthworks that covers nearly 1 square mile; the most elaborate example of planned communities built in the Southeast in late Archaic times</td>
</tr>
<tr>
<td></td>
<td>(Louisiana)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Koster</strong></td>
<td>9,000-4,000</td>
<td>Stratified sequence of Archaic campsites that document the changing lifeways of people who lived on the edge of the Illinois River valley throughout most of the Archaic period</td>
</tr>
<tr>
<td></td>
<td>(Illinois)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Kennewick</strong></td>
<td>9,300</td>
<td>One of the few early North American human skeletons; object of a nine-year court battle to decide if scientists would be permitted to study his remains</td>
</tr>
<tr>
<td></td>
<td>(Washington)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Danger Cave</strong></td>
<td>~10,000-historic</td>
<td>Deeply stratified site that contains rich evidence of desert Archaic lifeways</td>
</tr>
<tr>
<td></td>
<td>(Utah)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Meadowcroft</strong></td>
<td>19,000-14,000</td>
<td>North American site that is increasingly accepted as a valid example of the pre-Clovis presence of humans in North America</td>
</tr>
<tr>
<td></td>
<td>(Pennsylvania)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Pendejo Cave</strong></td>
<td>37,000-12,000</td>
<td>North American site for which great antiquity is claimed; as with Pedra Furada in Brazil, the evidence continues to be carefully evaluated but, as yet, not widely accepted by other researchers</td>
</tr>
<tr>
<td></td>
<td>(New Mexico)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**p. 343 The Most Significant Archaeological Site Discussed in Ch. 13, “Early Holocene Hunters and Gatherers.”**

*(top of page)*
<table>
<thead>
<tr>
<th>Region</th>
<th>Site</th>
<th>Age</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>South America</td>
<td>Monte Verde</td>
<td>14,800</td>
<td>Pre-Clovis campsite in southern South America; the evidence is still hotly debated</td>
</tr>
<tr>
<td>Brazil</td>
<td>Pedra Furada</td>
<td>?50,000–?40,000</td>
<td>One of several South American sites for which great antiquity is claimed</td>
</tr>
<tr>
<td>Old World</td>
<td>Star Carr</td>
<td>10,500</td>
<td>Mesolithic campsite excavated by Grahame Clark; greatly influenced how archaeologists still view the Mesolithic in Europe</td>
</tr>
<tr>
<td></td>
<td>Abu Hureyra</td>
<td>13,000–7,800</td>
<td>Natufian and Neolithic site; the Natufian occupation was a sedentary hunter-gatherer village whose members, unlike their predecessors at Ohalo II, harvested mostly wild cereal grasses</td>
</tr>
<tr>
<td>Israel</td>
<td>Ohalo II</td>
<td>23,000</td>
<td>Kebaran or pre-Kebaran campsite; extraordinary preservation of huts, living floors, grass bedding, and plant remains, especially of small-grained grass seeds, which appear to have been a staple food</td>
</tr>
<tr>
<td>Russia</td>
<td>Yana RHS</td>
<td>30,000</td>
<td>Earliest evidence of late Pleistocene hunters beyond the Arctic Circle in northern Siberia; stone tools and horn and ivory spear foreshafts similar to those found much later on North American Paleo-Indian sites</td>
</tr>
</tbody>
</table>
p. 347 Time line for Ch. 14 “Food Production.”
What's Important

The Most Significant Archaeological Sites Discussed in This Chapter

<table>
<thead>
<tr>
<th>Location</th>
<th>Site</th>
<th>Dates (ya)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Old World</td>
<td>Mehrgarh (Pakistan)</td>
<td>8,000–6,000</td>
<td>Early Neolithic community in South Asia that depended on domesticated plants and animals; represents a transition from seminomadic herding to sedentary villages and towns</td>
</tr>
<tr>
<td></td>
<td>Jericho (West Bank)</td>
<td>&lt;11,000–3,500</td>
<td>Early permanent and sedentary community in the Levant that began in Natufian times and was occupied throughout the Neolithic</td>
</tr>
</tbody>
</table>

p. 386 The Most Significant Archaeological Sites Discussed in Ch. 14 “Food Production.”

(top of page)
<table>
<thead>
<tr>
<th>Site</th>
<th>Time Period</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Las Colinas and Snaketown</td>
<td>1,000</td>
<td>Hohokam sites in the American Southwest that show ties to Mexican centers of domestications and culture</td>
</tr>
<tr>
<td>Chaco Canyon (New Mexico)</td>
<td>1,150–750</td>
<td>Region that contains several important Anasazi sites, many of them characterized by monumental public and ceremonial architecture; now part of the Chaco Culture National Historical Park</td>
</tr>
<tr>
<td>Cahokia (Illinois)</td>
<td>1,200–600</td>
<td>Large Mississippian town in the American Bottom, west-central Illinois; Monks Mound is the largest prehistoric earthwork in the United States and a symbol of historic Cahokia</td>
</tr>
<tr>
<td>Mesa Verde (Colorado)</td>
<td>1,400–700</td>
<td>Anasazi sites, most widely known for well-preserved “cliff dwellings”; forms Mesa Verde National Park</td>
</tr>
<tr>
<td>San Andrés (Mexico)</td>
<td>7,100</td>
<td>Soil cores extracted on this site yielded maize pollen, which suggests that early farmers were cultivating fields in the rainforests 10,000 years before maize evidence is known from the highlands of Mexico</td>
</tr>
<tr>
<td>Paloma (Peru)</td>
<td>7,900–5,000</td>
<td>Preceramic village mostly dependent on marine resources; planting of some crops, such as bottle gourds, squashes, and beans</td>
</tr>
<tr>
<td>Guilá Naquitz (Mexico)</td>
<td>10,000–9,200</td>
<td>Small cave in Oaxaca occupied by 4–6 persons; early dated contexts for pumpkin-like squashes and maize cobs</td>
</tr>
<tr>
<td>Guitarrero Cave (Peru)</td>
<td>10,200–9,200</td>
<td>Early evidence of cultivated plants in Andean South America</td>
</tr>
<tr>
<td>Tehuacán Valley (Mexico)</td>
<td>12,000–historic times</td>
<td>Valley in the state of Puebla, Mexico, that was the focus of a major 1960s archaeological field investigation of the origins of agriculture; project results include an excellent stratigraphic sequence of excavated early sites</td>
</tr>
</tbody>
</table>
p. 397 Time line for Old World civilizations.
p. 409 Time line for New World civilizations.
## What's Important

### The Most Significant Archaeological Sites Discussed in This Chapter

<table>
<thead>
<tr>
<th>Site</th>
<th>Dates (ya)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vijayanagara (India)</td>
<td>664–435</td>
<td>Capital city of the Vijayanagara empire, which ruled much of South India; located in north-central Karnataka</td>
</tr>
<tr>
<td>C̣atalhöyük (Turkey)</td>
<td>ca. 9,000</td>
<td>A large Neolithic village with 5,000–8,000 inhabitants in south-central Turkey</td>
</tr>
<tr>
<td>Uruk (Iraq)</td>
<td>ca. 5,500–1,800</td>
<td>Earliest true city; associated with the Sumerian civilization of the southern Tigris-Euphrates Valley</td>
</tr>
<tr>
<td>Ur (Iraq)</td>
<td>ca. 4,600–2,500</td>
<td>City in southern Iraq; its cemetery of 31,800 graves includes 16 “royal” tombs</td>
</tr>
<tr>
<td>Memphis (Egypt)</td>
<td>ca. 5,100–3,300</td>
<td>Old Kingdom capital city located about 10 miles south of Cairo; abandoned after A.D. 641</td>
</tr>
<tr>
<td>Giza (Egypt)</td>
<td>ca. 4,500</td>
<td>Old Kingdom pyramid complex and Great Sphinx; located just to the southwest of Cairo</td>
</tr>
<tr>
<td>Mohenjo-Daro (Pakistan)</td>
<td>ca. 4,600–3,900</td>
<td>Most extensively excavated Indus civilization city; located in the Indus Valley of south-central Pakistan</td>
</tr>
<tr>
<td>Harappa (Pakistan)</td>
<td>ca. 4,600–3,900</td>
<td>Indus civilization city in northeastern Pakistan</td>
</tr>
<tr>
<td>Erlitou (China)</td>
<td>ca. 4,000</td>
<td>Elaborate site associated with the earliest phase of civilization in northern China</td>
</tr>
<tr>
<td>Shixianggou, Zhengzhou (China)</td>
<td>3,600–3,046</td>
<td>Early Shang capital cities</td>
</tr>
<tr>
<td>San Lorenzo (Mexico)</td>
<td>3,150–2,900</td>
<td>Olmec civic-ceremonial center in southern Veracruz</td>
</tr>
<tr>
<td>Tikal (Guatemala)</td>
<td>ca. 2,200–1,100</td>
<td>Major Maya center in the Petén region of northern Guatemala</td>
</tr>
<tr>
<td>Teotihuacan (Mexico)</td>
<td>ca. 2,200–1,350</td>
<td>Earliest city-state to dominate the Valley of Mexico, one of the largest urban centers in the New World up to the nineteenth century</td>
</tr>
<tr>
<td>Tula (Mexico)</td>
<td>ca. 1,200–850</td>
<td>Toltec capital in the Valley of Mexico</td>
</tr>
<tr>
<td>Tenochtitlan (Mexico)</td>
<td>675–480</td>
<td>Aztec capital city in the Valley of Mexico</td>
</tr>
<tr>
<td>Chavin de Huantar (Peru)</td>
<td>ca. 2,900–2,500</td>
<td>Chavin civic-ceremonial center in the northern highlands of Peru</td>
</tr>
<tr>
<td>Cuzco (Peru)</td>
<td>ca. 1,000–465</td>
<td>Inka capital in the southern Peruvian highlands</td>
</tr>
</tbody>
</table>
for items from the “Table of Contents”

1. What is it?
2. Why is it important?
3. When did it happen?
Anthropology

Chapter 1
Introduction to Anthropology

The Biocultural Approach 3

Outline

The Biocultural Approach
Cultural Anthropology
Physical Anthropology
Archaeology
Linguistic Anthropology
The Scientific Method
The Anthropological Perspective

Critical Thinking Questions 18
Anthony

CHAPTER 1
Introduction to Anthropology

The Biocultural Approach 3

Cultural Anthropology 5
Physical Anthropology 6
Archaeology 11
Linguistic Anthropology 14
The Scientific Method 15
The Anthropological Perspective 17
Summary 18
Critical Thinking Questions 18

Contents

CHAPTER 1
Historical and Evolutionary

The Biocultural Approach

The concept of biocultural evolution helps give all anthropologists a shared perspective. Humans are the product of the combined influences of biology and culture that have shaped our evolutionary history over the last several million years. It is by tracing the changing interaction between biology and culture and understanding how the process worked in the past and how it continues to work today that we are able to come to grips scientifically with what we are and how we came to be.

As we'll emphasize in this book, humans have occupied center stage in only one short scene of life's evolutionary play. Our role is fascinating; but because of cultural factors, we have also become a threat to many life-forms, including ourselves. Culture is therefore an extremely important concept, not only as it pertains to modern humans but also in terms of its critical role in human evolution.

Viewed in an evolutionary perspective, human culture can be described as the strategy people use in adapting to the natural and social environments in which they live. Culture includes technologies that range from stone tools to computers; subsistence patterns ranging from hunting and gathering to agriscience on a global scale; housing types from thatched huts to skyscrapers; and clothing from animal skins to synthetic fibers (Figs. 1-1 to 1-2). Because religion, values, social organization, language, kinship, marriage rules, gender roles, and so on, are all aspects of culture, each culture shapes people's perceptions of the external environment, or worldview, in particular ways that distinguishes that culture from all others. One fundamental point to remember is that culture is learned and not biologically determined. In other words, we inherit genes that influence our biological characteristics, but those genes have no impact on cultural behavior.

For example, if a young South Indian girl is raised in New Orleans by Italian American parents, she'll acquire, through the process called enculturation, all those aspects

biocultural evolution. The mutual, interactive evolution of human biology and culture: the concept that biology makes culture possible and that developing culture further influences the direction of biological evolution; a basic concept in understanding the unique components of human evolution.

culture. All aspects of human adaptation, including technology, traditions, language, religion, and social roles. Culture is a set of learned behaviors; it is transmitted from one generation to the next through learning and not by biological or genetic means.
enculturation. The process by which individuals, generally as children, learn the values and beliefs of the family, peer groups, and society in which they are raised.

These examples draw upon two very different enculturation experiences to illustrate what enculturation is all about. If, like most seniors, you didn't grow up in either of these cultural worlds, you may find these impossible because you're an outsider. It's okay. The main point here is that enculturation plays an enormous role in shaping who we are. Need a quick guide to some of the terms? In New Orleans (aka the Big Easy), red beans and rice are a traditional Monday dish; a roux is base garnished in oil and used as the base for many South Louisiana dishes; many people view the cajun as a "trash fish" and won't eat it; a court bouillon is a fish stew, often made with redfish. In Mumbai, a city in South India, Kanchana is the local language; "fish rice" is Ilndu for "mixture of fish"; an extremely popular meal grown throughout South Asia and idli are steamed cakes made of fermented rice or urad (lentil) and typically served with onion sambhar, a spicy dal soup.
1. What is it?
2. Why is it important?
3. When did it happen?

CONTENTS

CHAPTER 3
Heredity and Evolution
Introduction 38
The Cell 39
DNA Structure and Function 40
DNA Replication 41
Protein Synthesis 42
Cell Division: Mitosis and Meiosis 44
Mitosis 46
Meiosis 48
The Genetic Principles Discovered by Mendel 50
Mendel's Principle of Segregation 50
Dominance and Recessiveness 52
Mendel's Principle of Independent Assortment 54
Mendelian Inheritance in Humans 54
Misconceptions Regarding Dominance and Recessiveness 56
Polygenic Inheritance 57
AT A GLANCE: A Comparison of Mendelian and Polygenic Traits 59
Genetic and Environmental Factors 59
Mitochondrial Inheritance 60
New Frontiers 60
Modern Evolutionary Theory 62
The Modern Synthesis 62
A Current Definition of Evolution 62
Factors That Produce and Redistribute Variation 65
Mutation 65
Gene Flow 64
Genetic Drift and Founder Effect 64
Sexual Reproduction and Recombination 66
Natural Selection Acts on Variation 66
Summary 69
Critical Thinking Questions 70
1. What is it?
2. Why is it important?
3. When did it happen?
1. What is it?
2. Why is it important?
3. When did it happen?

continue on in a similar manner with the rest of the chapters
1. What is it?
2. Why is it important?
3. When did it happen?

continue on in a similar manner with the rest of the chapters
1. What is it?
2. Why is it important?
3. When did it happen?
1. What is it?
2. Why is it important?
3. When did it happen?
1. What is it?
2. Why is it important?
3. When did it happen?
1. What is it?
2. Why is it important?
3. When did it happen?

continue on in a similar manner with the rest of the chapters

Exam #1 on Chs. 01-07 and other class materials
What about the names of people?
names of people

• know the major figures from Bishop Ussher through the present

• generally these are people whose pictures are in the text chapters, or who are discussed at some length in class
Know the people singled out in the Contents sections
Know the people singled out in the Contents sections
The Genetic Principles Discovered by Mendel

Mendel's Principle of Segregation:

Mendel began by crossing parent (P) plants that produced only tall plants with others that produced only short ones. Blending theories of inheritance would have predicted that the hybrid offspring of the initial crosses (called the F₁ plants) would be intermediate in height, but they weren't. Instead, they were all tall.
important people / works

Charles Darwin
(1809 - 1882)

*Origin of Species*
1859

*Descent of Man*
1871
The theory of uniformitarianism flew in the face of Copernicanism. Additionally, Lyell emphasized the obvious: namely, that for natural causes to produce momentous change, the earth would have to be far older than anyone had previously suspected. By providing an immense time scale and thereby altering perceptions of earth’s history from a few thousand to many millions of years, Lyell changed the framework within which scientists viewed the geological past. Thus, the concept of “deep time” (Coudé, 1897) remains one of Lyell’s most significant contributions to the discovery of evolutionary principles. The immensity of geological time permitted the necessary time depth for the inherently slow process of evolutionary change.

THE DISCOVERY OF NATURAL SELECTION

Charles Darwin: Having already been introduced to Erasmus Darwin, you shouldn’t be surprised that his grandson Charles grew up in an educated family with ties to intellectual circles. Charles Darwin (1809–1882) was one of six children of Dr. Robert and Susanna Darwin (Fig. 2-7). Being the grandson not only of Erasmus Darwin but also of the wealthy Josiah Wedgwood (of Wedgwood china fame), Charles grew up enjoying the comfortable lifestyle of the landed gentry in Shropshire.

As a boy, he had a keen interest in shells, birds’ eggs, rocks, and insects, and the generally held view of fossil and his performance at school.

After the death of his mother, his father and his older sisters, Charles left school and entered the medical profession. It was there that Darwin met Mary Lamerton and others.

During that time (the 1820s and 1830s), anything that did not fit in with the established order was especially challenged by British society. It was also a time of great upheaval which sought to undo many old ways, and like most social movements, the radicals were variously influential, many people, for example, believed in the moral and social reformer to society that some of the most entrenched superstitions persist today.

While at Cambridge, he studied medicine and formedative people.

Even then, he went to Christ Church, his Cambridge science, immersing himself in the scientific revolution that would make him famous.
12. Charles Darwin (1809-1882)

- The Voyage of the Beagle, 1831-1836

- On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life, 1859

    (See 13. below)
Thomas Malthus  

In 1798, Thomas Malthus (1766–1834), an English clergyman and economist, wrote An Essay on the Principle of Population, which inspired both Charles Darwin and Alfred Wallace in their separate discoveries of natural selection (Fig. 2–27). In this essay, Malthus said that human populations could double in size every 25 years if they were kept in check by limited food supplies. That is, population size increases exponentially while food supplies remain relatively stable.

Malthus, who was arguing for limits to population growth, focused on humans because we can increase food supplies artificially and therefore reduce constraints on population size. However, the same logic could be applied to nonhuman organisms, and both Darwin and Wallace later extended Malthus’s principles to all organisms. They did this in recognition of the fact that, in nature, the tendency for populations to increase is always checked by resources available, and this situation results in constant competition for food and other resources.

Charles Lyell  

Charles Lyell (1797–1875), the son of Scottish landowners, is considered the founder of modern geology (Fig. 2–8). He was a barrister, a geologist, and for many years Charles Darwin’s friend and mentor. Before meeting Darwin in 1836, Lyell had vast acceptance in Europe’s most prestigious scientific circles, thanks to his highly praised Principles of Geology, first published during the years 1830–1833.

In this immensely important work, Lyell argued that the geological processes observed at the present are the same as those that occurred in the past. This theory, called uniformitarianism, didn’t originate entirely with Lyell, having been proposed by James Hutton in the 1760s. Even so, it was Lyell who demonstrated that such forces as wind, water erosion, vegetable matter volatilization, earthquakes, and glacial movements had all contributed in the past to produce the geological landscape that exists in the present. What’s more, the fact that these processes still occur indicated that geologic change was still happening and that the forces driving such change were consistent, or in a word, uniform. Over time, in other words, although various aspects of the earth’s surface (for example, climate, plants, animals, and land surfaces) are variable through time, the underlying processes that influence them are constant.

The theory of uniformitarianism flew in the face of Cuvier’s catastrophism. Additional Lyell emphasized the obvious, namely, that for such slow-acting forces to produce meaningful change, the earth would have to be far older than anyone had previously suspected, providing an immense time scale and thereby altering perceptions of earth’s history from few thousand to many millions of years. Lyell changed the framework within which scientists viewed the geological past. Thus, the concept of “deep time” (Gould, 1987) remains an essential portion of Lyell’s most significant contributions to the discovery of evolutionary principles.

The Discovery of Natural Selection  

Charles Darwin  

Having already been introduced to Erasmus Darwin, you shouldn’t be surprised that his grandson, Charles Darwin, grew up in an educated family with ties to intellectual circles. Charles Darwin (1809–1882) was one of six children of Dr. Robert and Susannah Darwin (Fig. 2–9). Being the grandson not only of Erasmus Darwin but also of the wealthy Josiah Wedgwood (of Wedgwood china fame), Charles grew up enjoying the comfortable lifestyle of the landed gentry in rural England.

As a boy, he had a keen interest in nature and spent his days fishing and collecting shells, birds’ eggs, and rocks. However, this interest in natural history didn’t die; he generally held a view of family and friends that he was in no way remarkable. In fact, his performance at school was no more than ordinary.

After the death of his mother when he was eight years old, Darwin was raised by his father and his older sisters. Because he showed little interest in anything except hunting, shooting, and perhaps science, his father sent him to Edinburgh University to study medicine. It was there that Darwin first became acquainted with the evolutionary theories of Lamarck and others.

During that time (the 1820s), notions of evolution were becoming feared in England and elsewhere. Anything identifiable with postrevolutionary France was viewed with suspicion by the established order in England. Lamarck, partly because he was French, was especially vilified by British scientists.
Thomas Malthus
(1766-1834)


1798

10th Ed. p. 25

- Observation 1:

Without environmental pressures, every species tends to multiply in geometric progression ("superfecundity").
(Source: Thomas Malthus, Essay on the Principle of Population, 1789, and others)

- Observation 2:

But under field conditions, although fluctuations occur frequently, the size of a population remains remarkably constant over long periods of time.
(Source: Universal observations)

- Observation 3:

Limits are placed on population expansion by limited environmental resources.
(Source: Observation reinforced by Malthus)

- Conclusion 1:

Therefore not all organisms will survive to adulthood and reproduce, and therefore there must be a "struggle for existence."
6. **Karl von Linné (Linnaeus), 1707-1778**

- Provided a system of biological classification in *Systema Naturae, 1758*

**Related Terms:**
- binomial nomenclature

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Genus</th>
<th>Species</th>
<th>Variety</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animalia</td>
<td>Homo</td>
<td>sapiens</td>
<td>sapiens</td>
<td>&quot;modern&quot; humans</td>
</tr>
<tr>
<td>Animalia</td>
<td>Gorilla</td>
<td>gorilla</td>
<td>gorilla</td>
<td>&quot;gorilla&quot;</td>
</tr>
<tr>
<td>Animalia</td>
<td>Homo</td>
<td>erectus</td>
<td>pekinensis</td>
<td>&quot;Peking Man&quot; / &quot;Peking People&quot;</td>
</tr>
</tbody>
</table>

**Related Terms:**
- taxon
- taxonomy
Lamarck

Believed that species change was influenced by environmental change.

He is known for his theory of the inheritance of acquired characteristics.

10th Ed. p. 23
The father of geology, Charles Lyell, stated that the theory of uniformitarianism in his *Principles of Geology*. 
10. Charles Lyell (1797-1875)

- *Principles of Geology, 1830*

- Related Terms:
  - uniformitarianism

11. Jacques Boucher de Perthes (1788-1868)

- "Chipped stone tools are human artifacts" (1838-1839)

- “And the tools may be as old as a million years.”
important people / works

Alfred Russel Wallace

Independently uncovered the key to the evolutionary process.
14. **Alfred Russel Wallace (1823-1913)**

- Working separately from Darwin, arrived at the same generalizations at the same time

![Alfred Russel Wallace](image)

Source: Tumбаugh et al. (2002), p. 33

15. **Both Darwin and Wallace Knew:** Principle *cause* of natural selection is the *environment*

16. **Problem:** Neither Darwin nor Wallace Knew *The Source* of individuals variation

- Answer eventually was in the modern study of genetics
REM:
pay special attention
to the definitions
in the margins of the text
Introduction

A trip along the northern coast of New Guinea would be high adventure for most of us. We'd be treated to great natural beauty, welcoming people, and at least one remarkable observation that we probably wouldn't anticipate—the northern coast holds an extraordinary diversity of local languages. The inhabitants of villages separated by only a few miles may speak different languages. Language diversity is nearly as great in the rest of New Guinea on an island only a little bigger than the state of Texas, more than 800 languages are spoken—or roughly 15 percent of the world's languages (Wurm, 1994, p. 93).

But why should anyone care how many languages are spoken on the island of New Guinea? Mostly because language diversity is a good rough measure of cultural diversity, and humans exhibit an enormous range of cultural diversity. But biologically, human populations from around the world are very similar to each other. In fact, regardless of their extraordinary cultural diversity, humans show less genetic variation than can be found in a group of wild chimpanzees (Pelage and Magee, 2004).

The main points of this example are, first, that modern humans are cultural and biological organisms, and they cannot be adequately understood without examining them from both perspectives. Second, human beings are probably unique among other animals because they alone have the capacity to ask the question, "Why?" These points illustrate fundamental motivations for the field of anthropology and for this book as an introduction to the biocultural perspective of human evolution.

Anthropology addresses the entire scope of the human experience, past and present, and deliberately brings multiple perspectives to bear on research. Such a broad focus encompasses all topics related to behavior, including social relationships (for example, kinship and marriage patterns), religion, ritual, technology, subsistence techniques, and economic and political systems. Anthropology is also concerned with the numerous biological and evolutionary dimensions of our species, such as genetics, anatomy, skeletal structures, adaptation to disease and other environmental factors, growth, nutrition, and ultimately, if the evolutionary processes that have resulted in the development of modern humans. In short, then, anthropology is a holistic discipline that studies all aspects of what it is to be human.

In contrast, an economist, for example, might study market systems—the production, distribution, and consumption of goods—and only rarely, if ever, consider the effects of genetic, evolutionary factors, religion, or kinship on economic systems. But anthropological's holistic approach recognizes that many factors contribute to whatever we humans do, even including economic transactions. Indeed, anthropologists incorporate findings from many academic fields (for example, psychology, biology, history) and religious studies in their work to understand and explain what being human is all about. In a practical sense, however, no single anthropologist can hope to encompass the entire discipline.

In keeping with anthropology's commitment to a holistic perspective, the aspects of this discipline come firmly both in science, because anthropologists answer many questions by applying the scientific method in their research, and in the humanities, because they also apply interpretive methods to achieve an understanding of such human qualities as love, individual or group identity, comparison, and ethnicity.
have a look

at

the Glossary items

on pp. 441-450
glossary

... and other terms introduced in class

biospecies

paleospecies
terms / concepts

- Related terms:
  - biospecies (pp. 71, 197-198)
  - paleospecies (p. 197)
  - chronospecies
  - phenotype (p. 55)
  - genotype (pp. 52, 53, 55)

from class handout –

“History of Thought: ‘The Search for Human Origins’”

14. **Alfred Russel Wallace** (1823-1913)

- Working separately from Darwin, arrived at the same generalizations at the same time
Anthropology World News

Displaying 1 - 51 out of 758 News Stories

Displaying Newest | Older

- In Tiny 'Tuk,' They Man Climate's Front Line - ABC News (2009-09-08)
- Easter Island Red Hat Mystery Revealed - Discovery News (2009-09-08)
- Infant Chimps 'Better Behaved' Than Human Counterparts - Telegraph (2009-09-08)
- Egyptian Temples Followed Heavenly Plans - New Scientist (2009-09-08)
- Colossal Apollo Statue Unearthed in Turkey - Discovery News (2009-09-08)
- Colossal Apollo Statue Unearthed in Turkey - MSNBC (2009-09-08)
- Chinese, U.S. Scientists 'Heat Up' DNA - Telegraph (2009-09-07)

http://anthropology.tamu.edu/news/
Welcome to the Prehistoric Cultures Forum

This discussion forum supplements the classroom work for Anth 1602 Prehistoric Cultures. It primarily provides an interactive discussion bulletin board for students registered for this course at The University of Minnesota, Duluth, but visitors are more than welcome to join in the discussions.

Have a look at the responses posted Spring Quarter '98 in a similar forum discussion, "The Revolutions and the Humanities Forum," in Tom Bacig’s Revolutions and the Humanities course.

This forum is moderated by Tim Roufs.

www.d.umn.edu/~troufs/PCforum/
individual fossils

know major finds, according to group type

– early on that means the basic type of find

  – e.g., Australopithecus (“South African ape”)
5 – 7 mya

Australopithecus
(“South African Ape”)
• “robust”
• “gracile”

5 – 7 mya

c. 2.4 mya...

Early Homo
(Homo habilis...)

5.5 mya...

Australopithecines
(Australopithecus... and, later,
Paranthropus aka Australopithecus robustus...)

Orrorin tugenensis
(“Millennium Man” [sic.])

5.8 mya (5.2+)

Ardipithecus ramidus kadabba
"Toumai" (Sahelanthropus tchadensis) ["Dental hominid"]
[Nature article]

6 – 7 mya

6.8 mya...

Hesperopithecus catalaunicus

17 mya...

Sivapithecus
(Ramapithecus / Kenyapithecus /
Ouranopithecus)

Dryopithecus
Proconsul

33 mya...

"Dental Apes"
(Aegyptopithecus, Apidium...)

65 mya...

Primates

*mya = million years ago
C. = circa = about
B.C. = "before Christ," or "before common era"
ybp = "years before present"
individual fossils

know major finds, according to group type

– early on that means the basic type of find
  – e.g., Australopithecus ("South African ape")

– later it means keeping track of the genus
  – e.g., "Australopithecus"
c. 200,000 B.P. . . .
[or c. 300,000 ybp?]
"Homo sapiens neandertalensis"
(= Neandertals = special case "Archaic"
or separate species?)
Archaic Homo sapiens

\/

c. 0.4 mya . . .
Homo sapiens steinheimensis
\/

\/

c. 1.8 mya . . .
Homo erectus
\/

\/

c. 2.4 mya . . .
Early Homo
(Homo habilis . . .)
\/

\/

c. 5.5 mya . . .
Australopithecines
(Australopithecus . . . and later,
Paranthropus aka Australopithecus robustus . . .)

Orrorin tugenesis
("Millennium Man " [sic.])
"Early Hominids"

5.8 mya (5.2+)
Ardipithecus ramidus kadabba
"Toumai" (Sahelanthropus tchadensis) ["Dental hominid"]
[Nature article]

\/

c. 6 mya
\/

\/

c. 13 mya . . .
Plerolapithecus catalaunicus
\/

\/

c. 17 mya . . .
Sivapithecus
individual fossils

know major finds, according to group type

- early on that means the basic type of find
  - e.g., *Australopithecus* (“South African ape”)

- later it means keeping track of the genus
  - e.g., “Early *Homo*”

- toward the end (Chs. 10 - 16) that means keeping track of the species
  - e.g., *Homo habilis, Homo erectus, Homo sapiens*
Early Civilizations

(agriculture and village life begin...)
dates vary regionally

/
"Hobbit"
? - 18,000 [13,000?] ybp

<table>
<thead>
<tr>
<th>c. 35,000 - 40,000 B.C.</th>
<th>Homo sapiens sapiens</th>
</tr>
</thead>
</table>

("Early Moderns" = Cro-Magnons...)

<table>
<thead>
<tr>
<th>c. 100,000 ybp</th>
<th>Qafzeh, Israel, Homo sapiens sapiens</th>
</tr>
</thead>
<tbody>
<tr>
<td>c. 160,000 ybp</td>
<td>Herto, Ethiopia, Homo sapiens idaltu</td>
</tr>
<tr>
<td></td>
<td>[BBC article]</td>
</tr>
</tbody>
</table>

| c. 195,000 ybp         | Omo I and II, Homo sapiens sapiens,  |
|                        | [BBC article]                         |

| c. 200,000 B.P. ...    | Homo sapiens neanderthalensis        |
| (Neandertals = special case "Archaic" or separate species?) |
| [or c. 300,000 ybp?]   | Archaic Homo sapiens                 |

| c. 0.4 mya ...         | Homo sapiens steinheimensis          |

| c. 1.8 mya ...         | Homo erectus                         |

| c. 2.4 mya ...         | Early Homo (Homo habilis...)         |
important individual fossils will be discussed in class
throughout the semester keep track of the major areas of change

- **bipedal walking**
- **stereoscopic vision**
- **grasping hand**
- **brain development** . . .
major areas of change

- tool manufacture
- hunting
- art and ritual
- agriculture
- language and speech
major areas of change

- other cultural adaptations
  - development of civilization
  - ...
archaeological sites?

- names . . .
- locations . . .
- contents . . .
know major archaeological sites

- Olduvai . . .
- Laetoli . . .
- Hadar . . .
- Sterkfontein . . .
- Afar . . .
<table>
<thead>
<tr>
<th>Region</th>
<th>Site</th>
<th>Dates (mya)</th>
<th>Hominids</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Africa</td>
<td>Middle Awash (Ethiopia; five localities)</td>
<td>5.8–5.2</td>
<td><em>Ardipithecus</em></td>
</tr>
<tr>
<td></td>
<td>Aramis (Ethiopia)</td>
<td>4.4</td>
<td><em>Ardipithecus ramidus</em></td>
</tr>
<tr>
<td></td>
<td>Tugen Hills</td>
<td>~6.0</td>
<td><em>Orrorin tugenensis</em></td>
</tr>
<tr>
<td>Central Africa</td>
<td>Toros-Menalla</td>
<td>~7.0</td>
<td><em>Sahelanthropus tchadensis</em></td>
</tr>
</tbody>
</table>
### Key Middle Pleistocene Premodern Human (*H. heidelbergensis*)

#### Fossils from Europe

<table>
<thead>
<tr>
<th>Site</th>
<th>Dates (ya)</th>
<th>Human Remains</th>
</tr>
</thead>
</table>
| **Arago**
(Tautavel)
(France)       | 400,000–300,000; date uncertain                  | Face; parietal perhaps from same person; many cranial fragments; up to 23 individuals represented |
| **Atapuerca**
(Sima de los Huesos, northern Spain) | 320,000–190,000, probably 300,000 | Minimum of 28 individuals, including some nearly complete crania             |
| **Steinheim**
(Germany)       | 300,000–250,000; date uncertain                  | Nearly complete skull, lacking mandible                                        |
| **Swanscombe**
(England)        | 300,000–250,000; date uncertain                  | Occipital and parietals                                                      |
<table>
<thead>
<tr>
<th>Site</th>
<th>Dates (ya)</th>
<th>Human Remains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vindija (Croatia)</td>
<td>42,000–28,000</td>
<td>35 specimens; almost entirely cranial fragments</td>
</tr>
<tr>
<td>La Chapelle (France)</td>
<td>50,000</td>
<td>Nearly complete adult male skeleton</td>
</tr>
<tr>
<td>Shanidar (Iraq)</td>
<td>70,000–60,000</td>
<td>9 individuals (partial skeletons)</td>
</tr>
<tr>
<td>Tabun (Israel)</td>
<td>110,000 date uncertain</td>
<td>2 (perhaps 3) individuals, including almost complete skeleton of adult female</td>
</tr>
<tr>
<td>Krapina (Croatia)</td>
<td>125,000–120,000</td>
<td>Up to 40 individuals, but very fragmentary</td>
</tr>
</tbody>
</table>
### At a Glance

<table>
<thead>
<tr>
<th>Site</th>
<th>Dates (ya)</th>
<th>Human Remains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qafzeh (Israel)</td>
<td>110,000</td>
<td>Minimum of 20 individuals <em>(H. sapiens sapiens)</em></td>
</tr>
<tr>
<td>Skhūl (Israel)</td>
<td>115,000</td>
<td>Minimum of 10 individuals <em>(H. sapiens sapiens)</em></td>
</tr>
<tr>
<td>Klasies River Mouth (South Africa)</td>
<td>120,000?</td>
<td>Several individuals; highly fragmentary <em>(H. sapiens sapiens)</em></td>
</tr>
<tr>
<td>Herto (Ethiopia)</td>
<td>160,000–154,000</td>
<td>Dental and cranial remains of 4 individuals <em>(H. sapiens idaltu)</em></td>
</tr>
<tr>
<td>Site</td>
<td>Dates (ya)</td>
<td>Comments</td>
</tr>
<tr>
<td>----------</td>
<td>------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Clovis</td>
<td>13,500–13,000</td>
<td>Earliest universally acknowledged Late Pleistocene hunter-gatherers who occupied much of North America below the glacial ice masses of the northern latitudes; used distinctive fluted spear or dart projectile points</td>
</tr>
<tr>
<td>Folsom</td>
<td>c. 12,000</td>
<td>Late Pleistocene hunter-gatherers who hunted now-extinct giant long-horned bison in the American Southwest</td>
</tr>
<tr>
<td>Plano</td>
<td>11,000–9,000</td>
<td>Hunter-gatherers of the Great Plains; their unfluted spear or dart points are associated only with modern fauna</td>
</tr>
</tbody>
</table>
## AT A GLANCE

**Important Near Eastern Sites and Regions**

<table>
<thead>
<tr>
<th>Site</th>
<th>Dates (ya)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abu Hureya (Syria)</td>
<td>11,500–11,000</td>
<td>Hunter-gatherer settlement in which the economy was supplemented by domesticated plants, especially rye</td>
</tr>
<tr>
<td>Kebara &amp; El Wad (Israel)</td>
<td>c. 10,000</td>
<td>Sites where hunter-gatherers supplemented their diet by harvesting the wild ancestral varieties of wheat and barley</td>
</tr>
<tr>
<td>Jericho (West Bank)</td>
<td>&lt;11,000–3,500</td>
<td>Early permanent and sedentary community in the Levant that began in Natufian times and was occupied throughout the Neolithic</td>
</tr>
</tbody>
</table>
### AT A GLANCE

#### Important North American Sites and Regions

<table>
<thead>
<tr>
<th>Site</th>
<th>Dates (ya)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Las Colinas and Snaketown (Arizona)</td>
<td>1,000</td>
<td>Hohokam sites in the American Southwest that show ties to Mexican centers of domestications and culture</td>
</tr>
<tr>
<td>Chaco Canyon (New Mexico)</td>
<td>1,150–750</td>
<td>Region that contains several important Anasazi sites, many of which are characterized by monumental public and ceremonial architecture; now part of the Chaco Culture National Historical Park</td>
</tr>
<tr>
<td>Pueblo Bonito (New Mexico)</td>
<td>1050–825</td>
<td>This multistory building comprised approximately 600 rooms and was the primary town of Chaco Canyon</td>
</tr>
<tr>
<td>Cowboy Wash (Colorado)</td>
<td>c. 800</td>
<td>Recent excavations at this small village in the Four Corners region revealed possible evidence of cannibalism in human coprolites (preserved feces).</td>
</tr>
<tr>
<td>Mesa Verde (Colorado)</td>
<td>1,400–700</td>
<td>Anasazi sites, most widely known for their well-preserved “cliff dwellings”; forms Mesa Verde National Park</td>
</tr>
<tr>
<td>Cahokia (Illinois)</td>
<td>1,200–600</td>
<td>Large Mississippian town in the American Bottom region of west-central Illinois; Monks Mound is the largest prehistoric earthwork in the United States and Canada</td>
</tr>
</tbody>
</table>

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### AT A GLANCE

#### Important Near Eastern Sites and Regions

<table>
<thead>
<tr>
<th>Site</th>
<th>Dates (ya)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Çatalhöyük</td>
<td>c. 9,000</td>
<td>A large Neolithic village with 5,000–8,000 inhabitants in south-central Turkey</td>
</tr>
<tr>
<td>(Turkey)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uruk</td>
<td>c. 5,500–1,800</td>
<td>Earliest true city; associated with the Sumerian civilization of the southern Tigris-Euphrates valleys</td>
</tr>
<tr>
<td>(Iraq)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ur</td>
<td>c. 4,600–2,500</td>
<td>City in southern Iraq; its cemetery of &gt;1,800 graves includes 16 “royal” tombs</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Site</th>
<th>Dates (ya)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mohenjo-Daro</td>
<td>c. 4,600–3,900</td>
<td>Most extensively excavated Indus civilization city, located in the Indus Valley of south-central Pakistan</td>
</tr>
<tr>
<td>Harappa</td>
<td>c. 4,600–3,90</td>
<td>Indus civilization city in northeastern Pakistan</td>
</tr>
<tr>
<td>Erlitou</td>
<td>c. 4,000</td>
<td>Elaborate site in northern China associated with the earliest phase of civilization</td>
</tr>
<tr>
<td>Shixianggou</td>
<td>3,600–3,046</td>
<td>Capital city of the early Shang dynasty</td>
</tr>
<tr>
<td>Zhengzhou</td>
<td>3,600–3,046</td>
<td>Early Shang capital city near the modern city of the same name</td>
</tr>
<tr>
<td>Shi Huangdi Tomb</td>
<td>2,200</td>
<td>The Qin ruler Shi Huangdi was the first emperor of China. His mausoleum, which includes an entire terracotta army, is at Mount Li, which lies about 15 miles east of the city of Xian.</td>
</tr>
</tbody>
</table>
### Important Lowland Mesoamerica Sites and Regions

<table>
<thead>
<tr>
<th>Site</th>
<th>Dates (ya)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palenque</td>
<td>c. 1,300–1,100</td>
<td>Classic Maya center located on the edge of the Gulf Coast lowlands in Chiapas</td>
</tr>
<tr>
<td>(Mexico)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>San Lorenzo</td>
<td>3,150–2,900</td>
<td>Olmec civic-ceremonial center in southern Veracruz</td>
</tr>
<tr>
<td>(Mexico)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>La Venta</td>
<td>c. 2,800–2,400</td>
<td>Large Olmec civic-ceremonial center in the coastal lowlands of Tabasco</td>
</tr>
<tr>
<td>(Mexico)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>San Andrés</td>
<td>2,650</td>
<td>Olmec site near La Venta that recently yielded a cylinder seal with early evidence of writing in the Gulf Coast Lowlands. (San Andrés was also cited in Chapter 14 for the discovery of ancient maize pollen in a soil core pulled from pre-Olmec contexts.)</td>
</tr>
<tr>
<td>(Mexico)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uaxactún</td>
<td>1,500–1,000</td>
<td>Occupied for a long time, this Maya center in the Petén region flourished during the Classic period.</td>
</tr>
<tr>
<td>(Guatemala)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cerén</td>
<td>c. 1,400</td>
<td>Maya village buried by the eruption of a volcano; provides a Pompeii-like snapshot of Classic period Maya life</td>
</tr>
<tr>
<td>(El Salvador)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copán</td>
<td>c. 1,600–1,200</td>
<td>Major Maya city in western Honduras with an estimated population of around 27,000 at its peak</td>
</tr>
<tr>
<td>(Honduras)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Naj Tunich</td>
<td>c. 1,750–1,450</td>
<td>A sacred cave in the Petén region that has furnished invaluable new information about Maya art, writing, and religious life</td>
</tr>
<tr>
<td>(Guatemala)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tikal</td>
<td>c. 2,200–1,100</td>
<td>Major Maya center in the Petén of northern Guatemala</td>
</tr>
<tr>
<td>(Guatemala)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Site</th>
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<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teotihuacán (Mexico)</td>
<td>c. 2,200–1,350</td>
<td>Earliest city-state to dominate the Valley of Mexico, it became one of the largest urban centers in the New World up to the nineteenth century.</td>
</tr>
<tr>
<td>Cuicuilco (Mexico)</td>
<td>c. 2,300–2,000</td>
<td>Important early center in the Valley of Mexico; its destruction by a lava flow made it easier for Teotihuacán to take control of the Valley</td>
</tr>
<tr>
<td>Kaminaljuyú (Guatemala)</td>
<td>c. 3,000–1,100</td>
<td>Major Maya site located on the outskirts of Guatemala City; similarities of its elaborate tombs and architecture are often cited as evidence of the far-flung influence of Teotihuacán</td>
</tr>
<tr>
<td>Tula (Mexico)</td>
<td>c. 1,200–850</td>
<td>Toltec capital in the Valley of Mexico</td>
</tr>
<tr>
<td>Chichén Itzá and Mayapán (Mexico)</td>
<td>c. 1,100–600</td>
<td>Postclassic Maya centers in the lowlands of northern Yucatán</td>
</tr>
<tr>
<td>Tenochtitlán (Mexico)</td>
<td>c. 675–480</td>
<td>Aztec capital city in the Valley of Mexico</td>
</tr>
</tbody>
</table>
sample exam questions

Exam Information

Exam I
- The first DAY exam is scheduled for Week 06 Day 12, Thursday, 15 October 2009 (on chs. 01-07)
- The first CEE exam is scheduled for Week 07, Monday, 26 October 2009 (on chs. 01-07)
- multiple choice
  - sample questions
- optional essay
- Text Resources

Exam II
- The second DAY exam Week 11 Day 21, Tuesday, 17 November 2009, on Chs. 8-12
- The second CEE exam is scheduled for Week 11, Monday, 23 November 2009
- multiple choice
  - sample questions
- optional essay
- Text Resources

Final Exam
- The f2009 DAY Final Prehistoric Cultures Exam will be on Saturday, 19 December, 2:00 - 3:55. in Cina 214
- The f2009 CEE Final Prehistoric Cultures Exam will be Monday, 21 December, 06:00 - 07:55 p.m. in Cina 214 (n.b. not 5:00)
- multiple choice
  - sample questions
- optional essay
- Text Resources

General Recommendations for Studying for Prehistoric Cultures Exams

slides
are available online at
<cla/faculty/troufs/anth1602/PowerPoint/pcpp-03/pc-03B.ppt>

Times to Remember

video viewing guides

http://www.d.umn.edu/cla/faculty/troufs/anth1602/pce exams.html
Sample Questions: Quiz #1

Quiz #1 - 01. The word "brachiate" is most closely associated with:

- A. breathing apparatus
- B. structure of the spinal column
- C. reproduction
- D. ability to use arms to swing and hang on trees
- E. none of the above

Answer:

Quiz #1 - 02. Old world monkeys:

- A. are all basically adapted to the same leafy diet
- B. are, unlike the apes, incapable of learning and rely on genetic modes of adaptation
- C. except for a few groups, are mostly arboreal
- D. rely on brachiation for their prime mode of locomotion
- E. none of the above

Answer:

Quiz #1 - 03. Evidence for including us within the order primates is provided by:

- A. anatomy
## in-class videos and films -- CEE

<table>
<thead>
<tr>
<th>Week</th>
<th>Day</th>
<th>No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Monday 14 Sept. 2009</td>
<td>VC 1290</td>
<td><strong>Yanomamö: A Multidisciplinary Study</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(45 min., 1970)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Controversy: Darkness in El Dorado</strong></td>
</tr>
<tr>
<td>02</td>
<td>Monday 21 Sept. 2009</td>
<td>DVD 1015</td>
<td><strong>The Search for Adam</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(51 min., 2005)</td>
</tr>
<tr>
<td>03</td>
<td>Monday 28 Sept. 2009</td>
<td>DVD 742</td>
<td><strong>Journey of Man . . .</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(120 min., 2008)</td>
</tr>
<tr>
<td>04</td>
<td>Monday 5 Oct. 2009</td>
<td>VC 802</td>
<td><strong>Monkey, Ape and Man</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(49 min., 1971)</td>
</tr>
<tr>
<td>05</td>
<td>Monday 12 Oct. 2009</td>
<td>VC 806</td>
<td><strong>Among the Wild Chimpanzees</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(58 min., 1984)</td>
</tr>
<tr>
<td>06</td>
<td>Monday 19 Oct. 2009</td>
<td>DVD 1150</td>
<td><strong>The Last Great Ape</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(56 min., 2007)</td>
</tr>
</tbody>
</table>
in-class videos and films

Yanomamö: A Multidisciplinary Study

(45 min., 1970, VC 1290)

"A film study showing a multi-disciplinary research team doing field work in human population genetics among the Yanomamo Indians in Southern Venezuela. One half of the film is purely ethnographic; the other half of the film records the scientific research undertaking." -- DER

"Darkness in El Dorado"

http://www.d.umn.edu/cla/faculty/troufs/anth1602/pcvideo_schedule.html
in-class videos and films

(45 min., 1970, VC 1290)

"A film study showing a multi-disciplinary research team doing field work in human population genetics among the Yanomamo Indians in Southern Venezuela. One half of the film is purely ethnographic; the other half of the film records the scientific research undertaking." -- DER

"Darkness in El Dorado"

Search for Yanomamò on JSTOR

http://www.d.umn.edu/cla/faculty/troufs/anth1602/pcvideo_schedule.html
in-class videos and films

Terms / Concepts

- ethnographic analogy
- interdisciplinary research
  - ethnomologist, dentist, linguist, cook, two genecists, an ethnophotographer and a young missionary
  - genes, language, culture: Do they agree?
- *hukura* = spirits
- anthropometric measurements
- *slash and burn* ("swidden") agriculture
- population structure (birth rates, death rates. . .
  - including kinship systems
  - "The totality of factors which determine how genes get transmitted from generation to generation."
- cultural practices related to the population structure (female infanticide, the amount of cousin marriage, male warfare, *nomohoni* [raids/warfare to capture women]. . .
- invention, migration, diffusion (including "stimulus diffusion")
- trade / trade routes, reciprocity

Notes

- *N.B.* what geneticist James V. Neel says when they're loading the boats.
- *N.B.* importance of kinship, child spacing, fertility differences, village fission / fusion, "disease pressures" (measles, malaria, yellow fever), "stress," polygamy.

http://www.d.umn.edu/cla/faculty/troufs/anth1602/pvideo_schedule.html
Glossary

acclimatization Physical responses to changes in the environment that occur during an individual's lifetime. Such responses may be temporary or permanent, depending on the duration of the environmental change and when in the individual's life it occurs. The capacity for acclimatization may allow an entire species or population, and because it is under genetic influence, it is subject to evolutionary factors such as natural selection or genetic drift.

Achéan (ah-cho-an) Pertaining to a stone tool industry from the Lower and Middle Pleistocene characterized by a large proportion of bifacial tools (bladed on both sides). Achean tool kits are very common in Africa, Southwest Asia, and Western Europe, but they're thought to be less common elsewhere. Also spelled Achean.

adaptation Functional response of organisms to populations in the environment. Adaptations result from evolutionary change specifically, as a result of natural selection.

adaptive niche The entire way of life of an organism where it lives, what it eats, how it gets food, how it avoids predators, and so on.

adaptive radiation The relatively rapid expansion and diversification of life forms into new ecological niches.

affiliative Pertaining to amicable associations between individuals. Affiliative behaviors, such as grooming, reinforce social bonds and promote group cohesion.

agriculture Cultural activities associated with planting, hedging, and processing domesticated species farming.

allele frequency In a population, the percentage of all the alleles at a locus accounted for by a single specific allele.

alleles Alternate forms of a gene. Alleles occur at the same locus on paired chromosomes and thus govern the same trait. However, because they are different, their action may result in different expressions of that trait. The term allele is often used synonymously with gene.

alluvial Depicted by streams, usually during flood stages.

altruism Behavior that benefits another individual but at some potential risk or cost to oneself.

amino acids Small molecules that are the components of proteins.

analogue Similie between organisms based strictly on common function, with no assumed common evolutionary descent.

Arawak (a-ray-awk) Ancient culture of the southeastern United States, associated with preserved cliff dwellings and masonry pueblo sites.

ancestral (primitive) Referring to characters inherited by a group of organisms from a remote ancestor and thus not diagnostic of groups (lineages) that diverged after the character first appeared.

anthropoids Members of a suborder of Primates, the Anthropoids (pronounced "an-thro-poid"). Traditionally, the suborder includes monkeys, apes, and humans.

anthropology The field of inquiry that studies human culture and evolutionary aspects of human biology: includes cultural anthropology, archaeological linguistics, and physical anthropology.

anthropometry Measurement of human body parts. When osteologists measure skeletal elements, the term osteometry is often used.

anthropomorphic (an-thro-mor-fic) Having or being given humanlike characteristics.

antigens Large molecules found on the surface of cells. Several different loci producing antigens on red and white blood cells are known. (Foreign antigens provoke an immune response in individuals.)

antiguan Relating to an interest in things and arts of the past.

arboreal "Tree-living adapted to life in the trees.

archaeology The traditional view that primates can be explained as a consequence of primate diversification into arboreal habitats.

dactylogy The analysis and interpretation of the remains of ancient plants recovered from the archaeological record.

archaic North American archaeological period that followed the end of the last Ice Age and traditionally ends with the beginning of the use of ceramics equivalent to the Mesolithic in the Old World.

argon-argon (Ar/Ar) method Working on a similar basis as the potassium-argon method, this approach uses the ratio of argon-40 to argon-39 for dating igneous and metamorphic rocks. It offers precision and temporal range advantages for dating some early hominid sites.

architects Objects or materials made or modified for use by hominids. The earliest artifacts tend to be tools made of stone or occasionally bone.

Athabascan (ah-tha-bas-kan) Linke leader defeated by Puesaro.

Aurignacian Pertaining to an Upper Paleolithic stone tool industry in Europe beginning at about 40,000 yr.

australopithecine (au-stral-o-pith-ek) The colloquial name for members of the genus Australopithecus. The term was first used as a subfamily designation, but it's now mostly commonly used informally.

autonomic Pertaining to physiological responses not under voluntary control. An example in chimpanzees would be the erection of body hair during excitement. Blushing is a human example. Both responses convey information regarding emotional status, but neither is deliberate and communication isn't intended.

autosomes All chromosomes except the sex chromosomes.

Aztecs Military people who dominated the Valley of Mexico and surrounding area at the time of the European conquest.

bandkeramik Literally, "lined pottery" refers to a Neolithic ceramic ware widely encountered in central Europe and to the culture that produced it.

behavior Anything organisms do that involves action in response to internal or external stimuli; the response of an individual, group, or species to its environment. Such responses may or may not be deliberate.
also have a look at the Index, pp. 475-489
and have a look at the Bibliography, pp. 451-472