Chapter 11: The Origins and Evolution of Early Homo

1. Homo habilis: The First Species of the Genus Homo
   a. The Path to Humanness: Bigger Brains, Tool Use, and Adaptive Flexibility
      i. First discovered by Louis Leakey at Olduvai Gorge
      ii. Change took place 3.0–2.5 mya
      iii. Found in Tanzania, Kenya, Ethiopia, Malawi, South Africa
   b. Homo habilis and Australopithecus: Similar in Body Plan
      i. Immediate ancestor unconfirmed (Tim White suggests A. garhi)
      ii. Bigger brain, smaller chewing complex
      iii. Body plan similar to that of australopithecines
1. *Homo habilis*: The First Species of the Genus *Homo*
   
   c. *Homo habilis'* Adaptation: Intelligence and Tool Use Become Important
      
      i. Anatomical evidence from the hand bones suggests precision grip.
      
      ii. Tools becoming fundamental to survival, unlike for *australopithecines*

   d. Habitat Changes and Increasing Adaptive Flexibility
      
      i. Spread of warm season grasses and increasing habitat diversity.
      
      ii. Skull and tooth morphology suggest dietary variability in *Homo habilis*.
      
      iii. Stone tools important for obtaining food resources as well as for processing foods.
2. *Homo erectus: Early Homo Goes Global*
   a. First discovered by Eugène Dubois in Java
   b. Fossils date from 1.8–0.3 mya
   c. *Homo erectus* in Africa (1.8–3 mya)
      i. African fossils dated to 1.8–0.3 mya
      ii. Nariokotome skeleton
         1) An 80 percent complete skeleton
         2) Short arms, long legs
         3) Likely a young male
         4) Would have stood 6 feet tall in adulthood
         5) Cranial capacity over 900 cc
      iii. Bodo skull
         1) Stone tool marks on the left cheek, eye orbit, and nasal bones
         2) Ritual or cannibalism?
2. *Homo erectus*: Early *Homo* Goes Global (cont’d)

**d. Homo erectus in Asia (1.8–3 mya)**
   - ii. Earliest evidence found in Dmanisi, dated to 1.7 mya
     1) Resemblance to East African *Homo erectus*
   - iii. Also found in Indonesia, Sangiran, and China, indicating a rapid spread through Asia

**e. Fire: Expanding the Human World**
   - Zhoukoudian cave site in China provided important evidence for *Homo erectus* development dated to 600,000–400,000 yBP.
     1) Evidence for controlled fire usage
     2) Burned stone tools, plants, charcoal, etc.
2. *Homo erectus*: Early *Homo* Goes Global (cont’d)
   f. *Homo erectus* in Europe (800,000–400,000 yBP)
      i. Fossils dated to 800,000–400,000 yBP
      ii. Earliest evidence from Gran Dolina, dated to 800,000 yBP
         1) Stone tools, animal remains, hominid fossils
         2) Stone-tool cut marks on animal and hominid fossils
2. *Homo erectus*: Early *Homo* Goes Global (cont’d)
   g. Evolution of *Homo erectus*: Biological Change, Adaptation, and Improved Nutrition
      i. Increase in body size is one main difference between *H. erectus* and *H. habilis*.
      ii. The increase took place rapidly, perhaps in as little time as 2.6–1.7 mya.
      iii. Climate change and its impact on the food supply may be one reason for the change.
      iv. Most significant impact was likely increased access to animal food sources (protein) from hunting.
      v. Not limited to genus *Homo*: dating of stone tools indicates *australopithecines* may have been able to butcher animals as well.

g. Evolution of *Homo erectus*: Biological Change, Adaptation, and Improved Nutrition
   vi. Tool manufacture and the development of social structures to facilitate group cooperation in hunting were critical.
      1) *Acheulian* tool complex is represented by a variety of tools and tool materials.
      2) *Acheulian* tools are more refined than the *Oldowan* tools.
2. *Homo erectus*: Early *Homo* Goes Global (cont’d)
   h. Patterns of Evolution
      i. African fossils are the most robust and are similar to Dmanisi forms.
      ii. Earlier forms have smaller brains than forms dated later.
         1) Cranial capacity ranges from 650 cc to 1200 cc.
         2) Skull robusticity declined.
      iii. Reliance on tools and tool use changed structure of face and jaws as a result of food processing.
      iv. Changes in social structure and dispersal patterns, and increasing reliance on culture for survival.
This concludes the Norton Media Library Slide Set for Chapter 10

Our Origins
Discovering Physical Anthropology

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