This chapter focuses on extremely important periods in human history: the Upper Paleolithic and the New Stone Age (Neolithic).

It is at this time that we see in the archaeological record evidence of what appears to be the flowering of the human mind in antiquity.

We see the roots of these changes and hints of the development of what we might consider the modern human mind as many as 100,000 years ago in caves like Blombos in South Africa, where archaeologists have found the use of the mineral ochre to make paint, in the production of shell beads, and even the creation of tally marks on stone.

A key question is why humans produce art.

For child development researcher Jean Piaget, the first scribblings of young children are pure play, a stage in development.

Others suggest art is about sensory pleasure, about being “universally satisfying”.

The Upper Paleolithic/Neolithic

What made these periods different from the Middle Paleolithic and Old Stone Age (Lower Paleolithic)?

Features that distinguish this period from the previous times are numerous.

1. The reliance on new and improved stone tool technologies.

When blade technologies were found in Africa at 500 kya, it was only after 52 kya that they spread to Asia and Europe.

Also one sees the refinement of a more efficient blade technology.

- Elongated blades appear in both Israel (45 kya) and Lebanon (53 kya).
- This shift appears a bit later in Africa (40 kya).
- In Europe (38 kya)
1. The reliance on new and improved stone tool technologies (continued)
   • Tool traditions in Europe:
     • **Aurignacian** (34-27 kya): Characterized by retouched blades, engraving tools, scrapers, and *burins* (Small, chisel-like tools with a pointed end; thought to have been used to engrave bone, antler, ivory, or wood).
       • In order to make blades a new technique was invented: **Punch blade technique** (the method for driving off blades and flakes from a prepared core using bone or antler punch to press off a thin flake using a punch technique).
       • A second new technique, **pressure flaking**, is performed by taking small bits off a tool by pushing them off the edge.
     • **Gravettian** (27-21 kya): Smaller blades and denticulate knives
     • **Solutrean** (21-16 kya): bifacially, flaked, symmetrical leaf-shaped projectile points.
     • **Magdalenian** (16-11 kya): Use of bone and antlers, and *microblades* (also called *microliths* are small stone tools).
   • Two observations stand out:
     • Tool traditions are getting more complex: more types and more materials.
     • Tool making traditions diversified, as compared to the more homogeneous earlier traditions.
2. New hunting and weapons technologies
   • At Sibudu Cave, South Africa:
     • There is evidence of the bow and arrow at 64 kya.
     • Earlier, at 70 kya, archaeologists also found stone tool-making supplies: *Acacia* gum, beeswax, and ochre.
   • In the Upper Paleolithic/Neolithic the *atlatl* appears in Europe around 30 kya.
     • This spear thrower allows for the elongation of the throwing arm.
     • As a result, distance, accuracy and power were enhanced.

3. Broadened the subsistence base (called the *broad-spectrum adaptation*)
   • In the Upper Paleolithic and Late Stone Ages, the subsistence base broadened to include a greater range of plants and animals.
     • In central and eastern Europe between 28-10 kya, megafauna hunting was of great importance. At Dolni Věstonice, Czech Republic, more than 100 wooly mammoth were harvested along with horses and reindeer.
     • If Africa and western Europe other local animals were targeted.
       • Mal’ta, Siberia: Wooly mammoth and reindeer.
       • South Africa (Die Kelders Cave and Eland’s Bay Cave): Elands (large antelopes) and Cape buffalo.
       • Western Europe (Abri Pataud, France): Wooly rhinoceros, wooly mammoths, reindeer, and wild horses were hunted.
       • Great Britain (Gould’s Cave): Wild horses and red deer were excavated.
3. Broadened the subsistence base (continued)
   • Small mammals are also found in the fossil records.
     • Evidence for the net hunting of small mammals during the Upper Paleolithic has been found at Dolni Věstonice and nearby Pavlov (around 29-22 kya).
     • These nets were too fine to be used on larger animals.
   • Plant foods such as taproots and berries are found.
   • Evidence for a significant focus on marine resources during the Late Stone Age has been found at Die Kelders Cave.

4. Branching out in raw materials and developing new technologies
   • Along with stone, the Upper Paleolithic and New Stone Age are marked by the presence of artifacts made of bone, antler, ivory, and shell.
     • The use of new materials began in the African Middle Stone Age; at 77 kya we see incised ocher in Blombos Cave, South Africa.
     • At Katanda, DRC (Congo) (90-79 kya) we see use of bone and antler to make barbs (harpoons).
     • Diepkloof Rock Shelter, South Africa, 270 fragments of ostrich shell containers date to 66 kya.
     • Eyed needles appear that allow for greater control over clothing. Breaking news: Denisovans used eyed needles at 50 kya.
     • Oldest pottery cooking vessel from Xianrendong, China about 20 kya is evidence of the use of clay as a new material and a new technology.

5. New uses for plant materials
   • At Sibudu Cave the inhabitants started laying fibers on floor of cave (70 kya).
   • Some of the plants were natural insecticides and may have been used to ward out the abundance of mosquitoes.
6. The acquisition of raw materials from a great distance
   • People during the Upper Paleolithic and New Stone Age sometimes obtained favored raw materials for making tools—for example, lithic material like obsidian—only available hundreds of kilometers from their home territories either through trade or traveling to the geographical sources for those raw materials.
   • At Kosteni-Borshevo, Russia, there is evidence of obsidian from a source 300 km away.
   • Morovia, central Europe, flint was traded 100 km.
   • Hungarian obsidian is found 500 km away for its source.
   • It is suggested it was the relationships, even more than the goods, that were of importance.
7. Larger sites of population aggregation
   • Middle Paleolithic people were opportunistic foragers (followed the food as it appeared).
   • Upper Paleolithic people were logistical collectors (followed the food systematically).
8. Abundance of non-utilitarian objects
   • Some of which served as items of personal adornment.
   • Premodern: Present but rare previously, except at Neanderthal site of Arc-sur-Cure.
   • African Middle Stone Age:
     • One of oldest sites is Grotte des Pigeons, Morocco where 13 perforated shells ornaments date to 82 kya.
     • More than 75,000 years ago, the inhabitants of Blombos Cave made beads of perforated mollusk shells.
   • Upper Paleolithic: Begin to see a fast rise in the number of these labor-expensive objects.
9. **More elaborate burials**
   - In the vast majority of the instances where grave goods were found in association with Neandertal burials, such goods were small tools and animal bones.
   - During the Upper Paleolithic, we see the regular placement of elaborate grave goods in burials.
   - Compared to Neanderthal burials, the earliest burials of anatomically modern human beings:
     - are more elaborate in the kinds of grave goods.
     - show a higher proportion with grave goods.
     - are more likely to show items of personal adornment.
   - Your book mentions an urban myth of a woman being buried in car; in 2009 a man did this.

10. **Symbolic expression through the production of art**
    - At Pinnacle Point, South Africa, dating to 164-75 kya we see a blast of new behaviors indicating a “complex cognition” which includes the use of microliths, red ocher, use of shellfish as food.
    - Incised artifacts recovered at Blombos Cave in South Africa appear to be about 100 ky and also 2 shell/quartzite cobble sets for grinding ocher.
    - Klasies River Cave in South Africa has a similar incised ocher engraving.
    - Why the earlier dates are particularly important is that they challenge the concept of a “Great Leap Forward” dating to only 50 kya.
      - This is the idea that our brains rewired at this late date based on explosion of technology and art.
      - But these earlier dates so the cognitive changes were earlier.
In their use of symbol, whether realistic or abstract, the artists of the Upper Paleolithic and Late Stone Age were practicing a behavior that is one of the hallmarks of the modern human intellect.

The period between 35-10 kya was an artistic explosion. During the Upper Paleolithic.

There was much development of "art" in the form of both mobiliary art (portable art) and in parietal art (cave art).

**MAJOR breaking news:** Neanderthal cave art was confirmed in 2018, dating to ~65 kya, in three caves in Spain. Also, at Cueva de los Aviones, southeastern Spain, 115 kya, found perforated shells.

The earliest art: Australia and Africa

**Breaking news:** Sulawesi, Indonesia is location of one of oldest known cave art sites (~ 40 kya)
- Animal images were found.
- Also 12 stencils of hands were identified.

Wharton Hill, Australia (36 kya) one find of an etching of an oval shape is one of first petroglyphs (rock etchings).

Apollo 11 Cave, Namibia we see cave art, at ~30 kya, we see naturalistic drawings of animals.

Upper Paleolithic art in Europe

**Cave art**
- The oldest date obtained for the cave paintings of the European Upper Paleolithic is about 40 kya.
- The most common images in the cave paintings of the European Upper Paleolithic are of animals.
- Among the famous cave art sites are Lascaux, Altamira, and Grotte Chauvet, but literally, hundreds of cave art sites have been found in Europe.
• Upper Paleolithic art in Europe (continued)
  • **Figurines**
    • Most famous sculptures are the “Venus figurines” that probably served many symbolic functions, not just as fertility figures. Found during the Aurignacian or Gravettian periods.
    • The oldest Venus figurine dates to about 35 kya.
    • Detailed analyses of the so-called Venus figurines shows that they depict a wide range of women, similar to the range of women in a living population.
  • **The sound of music**
    • **Update (2015):** The Neanderthal flute (43 kya) at Divje Babe, Slovenia isn’t. It looks like a flute but is the result of carnivores, not human production.
    • The oldest musical instruments made were flutes and were found at Geissenklösterle Cave, Germany (40 kya)
    • More than 30,000 years ago, the inhabitants of Hohle Fels Cave, in Germany, 1) produced small sculptures of a waterfowl and horse; 2) the first Venus figurines; and 3) flutes.
  • **What does art mean?**
    • Archaeologist Michael Jochim views the cave art of the Upper Paleolithic as a means of marking territory.
    • Others suggest the painting of animals is sympathetic magic, a way to capture one’s prey.
    • Lewis-Williams and Dowson explain the geometric depictions in Upper Paleolithic art (lines, zigzags, grids, and concentric circles) as trance-induced hallucinations. They suggest that Upper Paleolithic shamans painted them while in a trance-like state.
    • A statistical analysis conducted by Patricia Rice and Ann Paterson of Upper Paleolithic cave art indicates there is a correlation between the percentages of animals depicted in the artwork and the frequency of animals represented in the faunal assemblages of nearby habitation sites.
Grandmother Effect

- Start with the biology:
  - **Menopause** refers to the permanent cessation of menstrual cycles.
  - Other animals decrease reproductive productivity but do not enter true menopause. Why do humans?
    - Hypothesis 1: **Mother hypothesis (effect)** is that, later in life, it is more adaptive to focus on the children you have, rather than producing more.
    - Hypothesis 2: **Grandmother hypothesis (effect)** is that women can help their daughters, which is more adaptive than having their own.
    - Hypothesis 3: One other suggestion is that we simply outlive our egg supply.
- Now culture:
  - One researcher referred to the elderly as “walking encyclopedias”. This has been one of my favorite phrases ever since I first heard it.
  - The grandmother effect appears to be dated to around 30 kya. At that point, more older adults were living than ever before.
  - Interested in a podcast about the British Museum? Visit this link. Here is my favorite example, [Swimming reindeer](13 kya).