



# Max Planck Institute for Evolutionary Anthropology

## FIGURES

**Figure 1.** Two of the new Jebel Irhoud (Morocco) fossils *in situ* as they were discovered during excavation. In the center of the image, in a slightly more yellow brown tone, is the crushed top of a human skull (Irhoud 10) and visible just above this is a partial femur (Irhoud 13) resting against the back wall. Not visible behind the pointed rock (between the femur and the skull) is the mandible (Irhoud 11). The scale is in centimeters (Picture credit: Steffen Schatz, MPI EVA Leipzig, License: CC-BY-SA 2.0).

**Figure 2.** View looking south of the Jebel Irhoud (Morocco) site. The remaining deposits and several people excavating them are visible in the center. At the time the site was occupied by early hominins, it would have been a cave, but the covering rock and much sediment were removed by work at the site in the 1960s (Picture credit: Shannon McPherron, MPI EVA Leipzig, License: CC-BY-SA 2.0).

**Figure 3.** View looking south of the Jebel Irhoud (Morocco) site. The remaining deposits and several people excavating them are visible in the center. At the time the site was occupied by early hominins, it would have been a cave, but the covering rock and much sediment were removed by work at the site in the 1960s (Picture credit: Shannon McPherron, MPI EVA Leipzig, License: CC-BY-SA 2.0).

**Figure 4.** The Jebel Irhoud (Morocco). The excavation area is visible as a dark notch a little more than half way down the ridge line sloping to the left (Picture credit: Shannon McPherron, MPI EVA Leipzig, License: CC-BY-SA 2.0).

**Figure 5.** Dr. Daniel Richter drilling into the site of Jebel Irhoud (Morocco) as part of his work dating the deposits containing the fossils and stone tools. Richter applied thermoluminescence dating to heated flints coming from the excavations, and demonstrated that the site is about 300 thousand years old. The holes are drilled for dosimeters which measure the background radiation of the sediments for an entire year. Knowing the background radiation and the charge trapped in the heated flints, the age can be determined (Picture credit: Shannon McPherron, MPI EVA Leipzig, License: CC-BY-SA 2.0).

**Figure 6.** Excavators working on the remaining deposits at Jebel Irhoud (Morocco). The new fossils were found in the sediments in front of where the two excavators on the left are working (Picture credit Shannon McPherron, MPI EVA Leipzig, License: CC-BY-SA 2.0).

**Figure 7.** Drs. Shannon McPherron (left) and Abdelouahed Ben-Ncer discussing the new fossils finds from Jebel Irhoud (Morocco). The crushed skull (Irhoud 10) is just barely visible above the blue dustpan (Picture credit: MPI EVA Leipzig, License: CC-BY-SA 2.0).

**Figure 8.** Dr. Jean-Jacques Hublin on first seeing the new finds at Jebel Irhoud (Morocco). He is pointing to the crushed human skull (Irhoud 10) whose orbits are visible just beyond his finger tip (Picture credit: Shannon McPherron, MPI EVA Leipzig, License: CC-BY-SA 2.0).

**Figure 9.** Some of the Middle Stone Age stone tools from Jebel Irhoud (Morocco). Pointed forms such as a-i are common in the assemblage. Also characteristic are the Levellois prepared core flakes (j-k) (Picture credit: Mohammed Kamal, MPI EVA Leipzig, License: CC-BY-SA 2.0).

**Figure 10.** The first of our kind. A composite reconstruction of the earliest known Homo sapiens fossils from Jebel Irhoud (Morocco) based on micro computed tomographic scans of multiple original fossils. Dated to 300 thousand years ago these early Homo sapiens already have a modern-looking face that falls within the variation of humans living today. However, the archaic-looking braincase indicates that brain shape, and possibly brain function, evolved within the Homo sapiens lineage (Picture credit: Philipp Gunz, MPI EVA Leipzig, License: CC-BY-SA 2.0).

**Figure 11.** The first of our kind. Two views of a composite reconstruction of the earliest known Homo sapiens fossils from Jebel Irhoud (Morocco) based on micro computed tomographic scans of multiple original fossils. Dated to 300 thousand years ago these early Homo sapiens already have a modern-looking face that falls within the variation of humans living today. However, the archaic-looking virtual imprint of the braincase (blue) indicates that brain shape, and possibly brain function, evolved within the Homo sapiens lineage (Picture credit: Philipp Gunz, MPI EVA Leipzig, License: CC-BY-SA 2.0).

**Figure 12.** The first of our kind. Two views of the Irhoud 10 face. Several reconstructions of the second hominin face discovered at the Irhoud site can be proposed. All these reconstructions enter the variability of extant, anatomically modern humans within the limits of anatomical constraints. Modern conditions for the facial skeleton were, therefore, already reached 300 thousand years ago in the earliest forms of Homo sapiens known to date (Picture credit: Sarah Freidline, MPI EVA Leipzig).

**Figure 13.** The first of our kind. The mandible Irhoud 11 is the first, almost complete adult mandible discovered at the site of Jebel Irhoud. It is very robust and reminiscent of the smaller Tabun C2 mandible discovered in Israel in a much younger deposit. The bone morphology and the dentition display a mosaic of archaic and evolved features, clearly assigning it to the root of our own lineage (Picture credit: Jean-Jacques Hublin, MPI EVA Leipzig).

**Figure 14.** The first of our kind. Virtual palaeoanthropology is able to correct distortions and fragmentations of fossil specimens. This reconstruction of the Irhoud 11 mandible allows its comparison with archaic hominins, such as Neandertals, as well as with early forms of anatomically modern Humans (Picture credit: Jean-Jacques Hublin, MPI EVA Leipzig).

## VIDEOS

### **Homo\_sapiens\_Skull\_Jebel\_Irhoud\_720p.mp4**

The first of our kind. Composite reconstruction of the earliest known Homo sapiens fossils from Jebel Irhoud (Morocco) based on micro computed tomographic scans of multiple original fossils. Dated to 300 thousand years ago these early Homo sapiens already have a modern-looking face that falls within the variation of humans living today. However, the archaic-looking virtual imprint of the braincase (blue) indicates that brain shape, and possibly brain function, evolved within the Homo sapiens lineage (Credit: Philipp Gunz, MPI EVA Leipzig, License: CC-BY-SA 2.0).

### **Irhoud11.mp4**

The first of our kind. Virtual palaeoanthropology is able to correct distortions and fragmentations of fossil specimens. This reconstruction of the Irhoud 11 mandible allows its comparison with archaic hominins, such as Neandertals, as well as with early forms of anatomically modern Humans (Credit: Jean-Jacques Hublin, MPI EVA Leipzig).

### **Jebel\_Irhoud\_Footage.mp4**

Part 1: CT scan of a child's mandible from Jebel Irhoud. Jean-Jacques Hublin explains that the Jebel Irhoud child was approximately 7.5-8 years old, based on dental microstructure analyses. Part 2: Reconstruction of a human skull from Jebel Irhoud. In the MPI EVA's 3 D laboratory Jean-Jacques Hublin and Philipp Gunz discuss the shape of the skull and its brain. The internal cavity of the skull shows that this brain was rather large, but quite different in shape from that of extant humans (Credit: MPI EVA Leipzig).