



Laurea Magistrale in QUATERNARIO, PREISTORIA E ARCHEOLOGIA

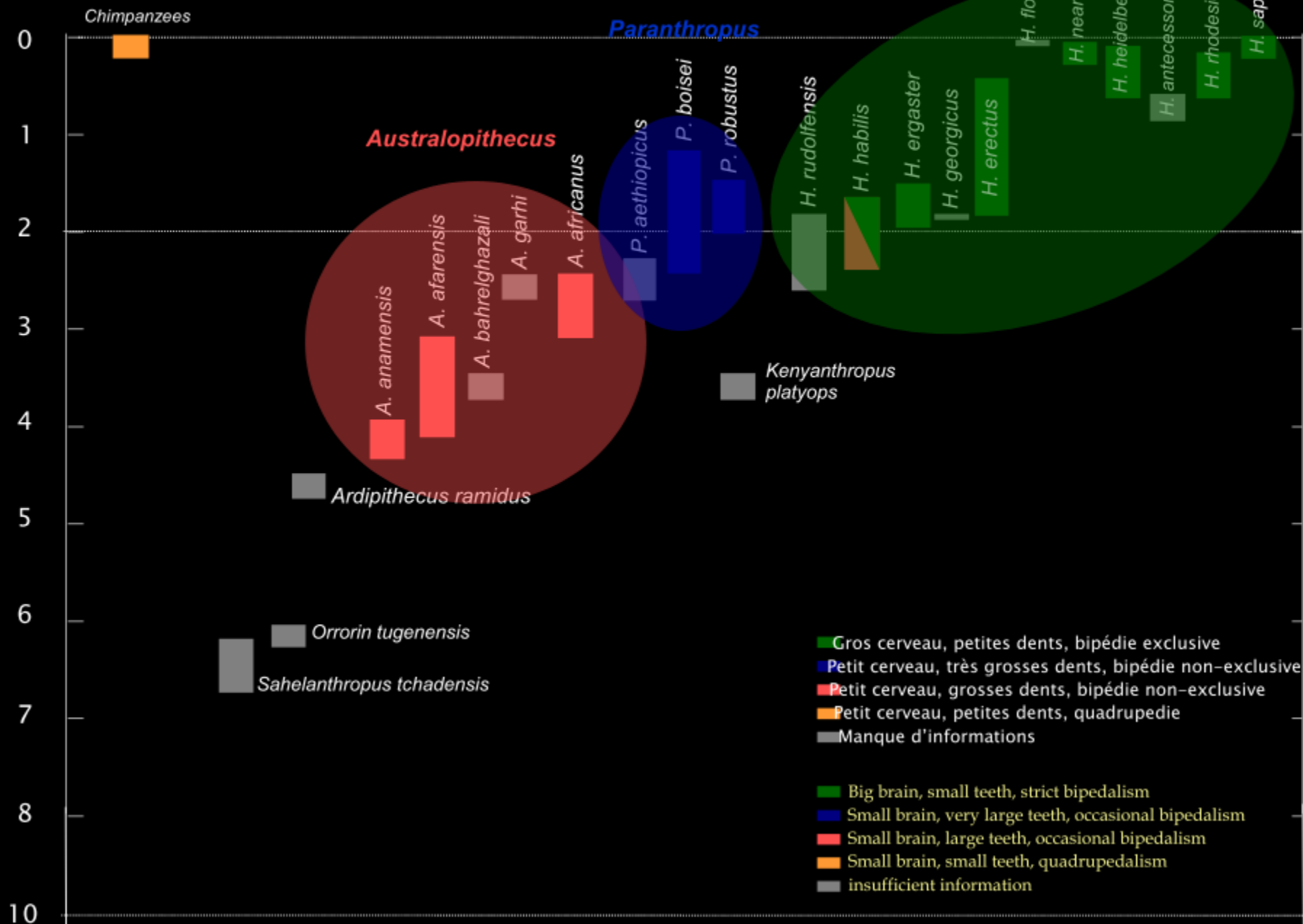
Master in PREISTORIA E QUATERNARIO

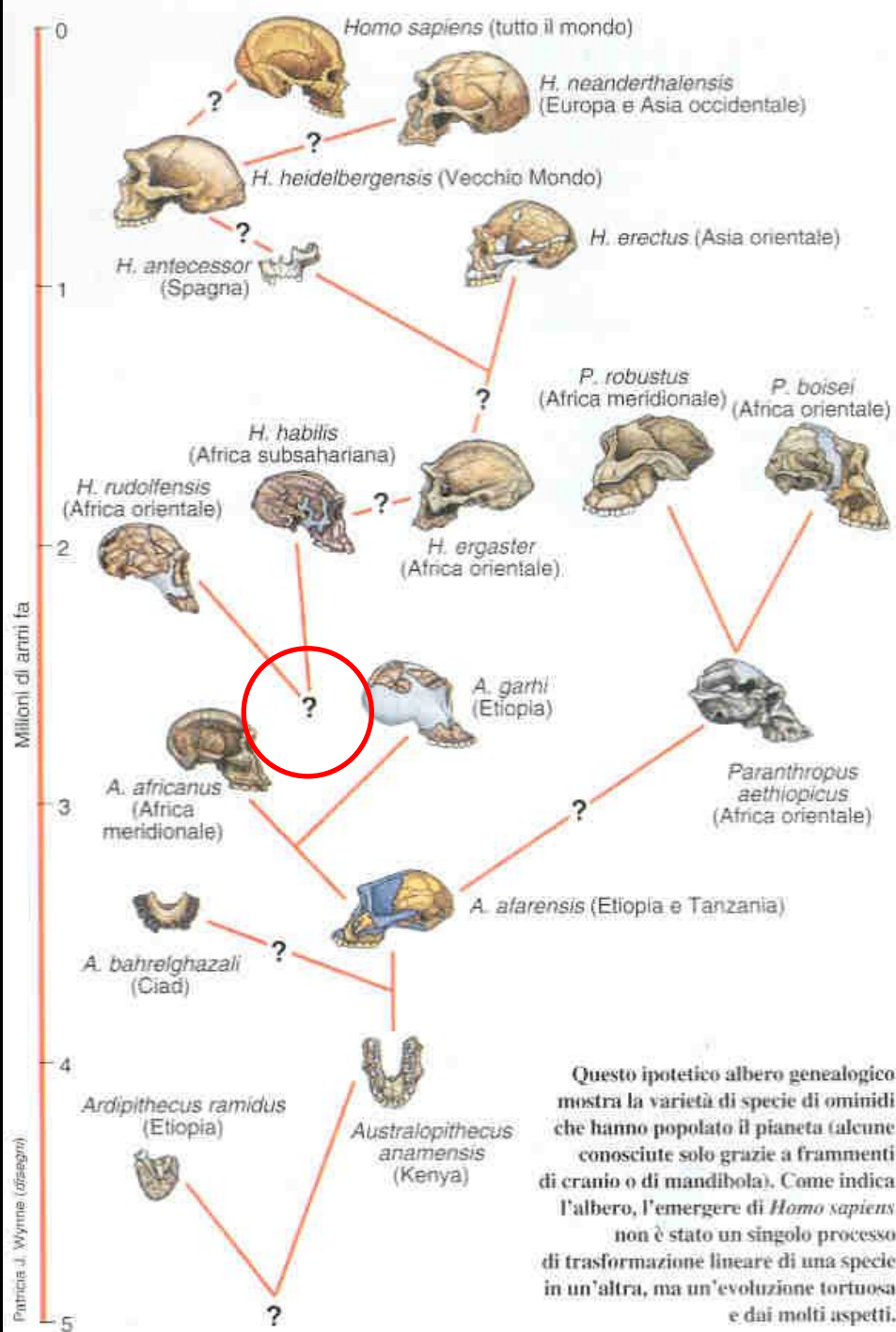
IL GENERE *HOMO*

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(Ma)





Australopiteco o *Homo* ?

Pro-Australopitico:

- Piccolo cervello / *small brain*
- Bracci lunghi / *long arms*

Pro-*Homo*:

- Forma del bacino
- Articolazione dell'anca
- Pollice lungo e dita corte = mani con una manipolazione precisa
- *Shape of the pelvis and ankle joint*
- *long thumb and short finger = hands capable of precise manipulation*

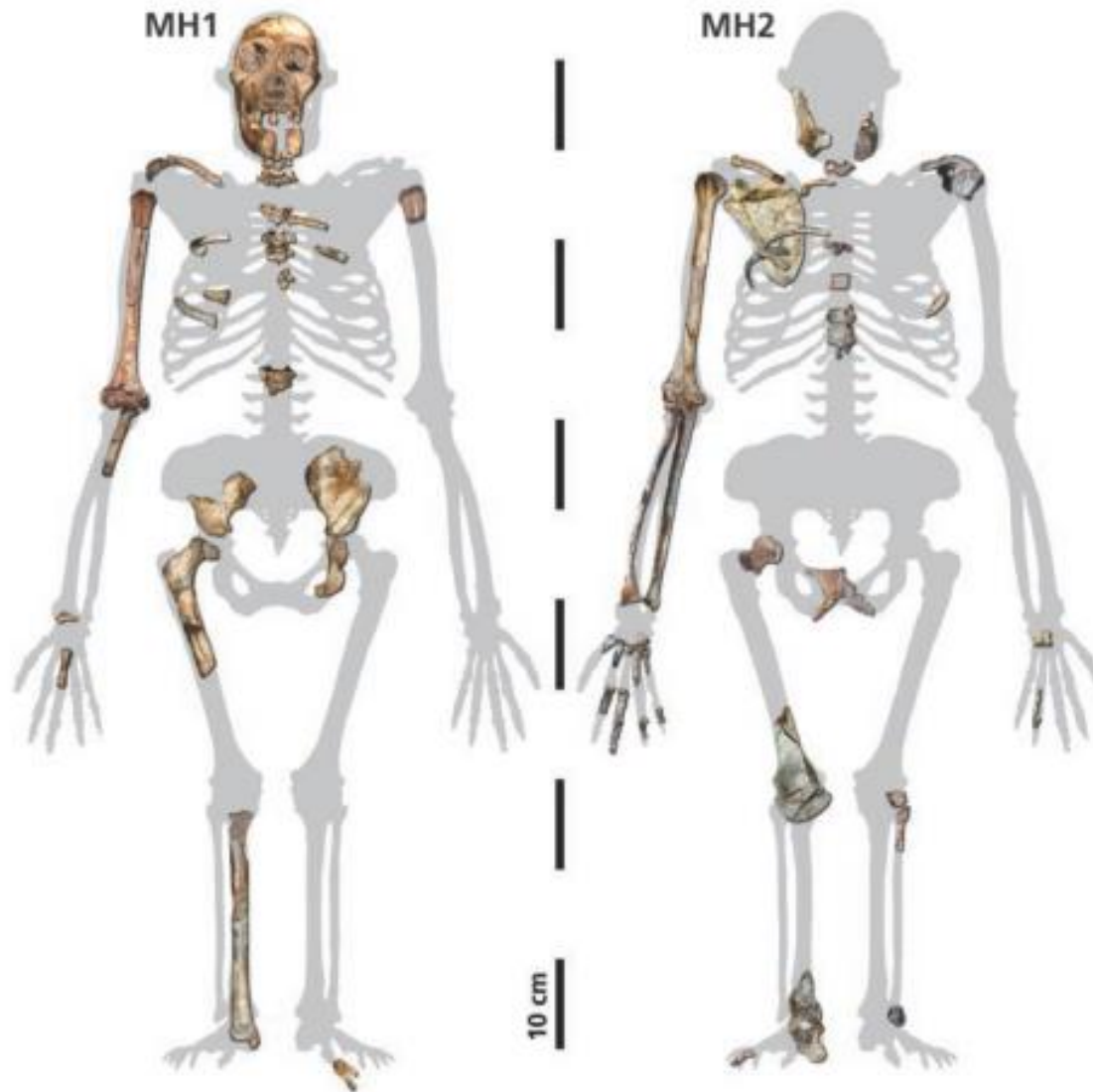
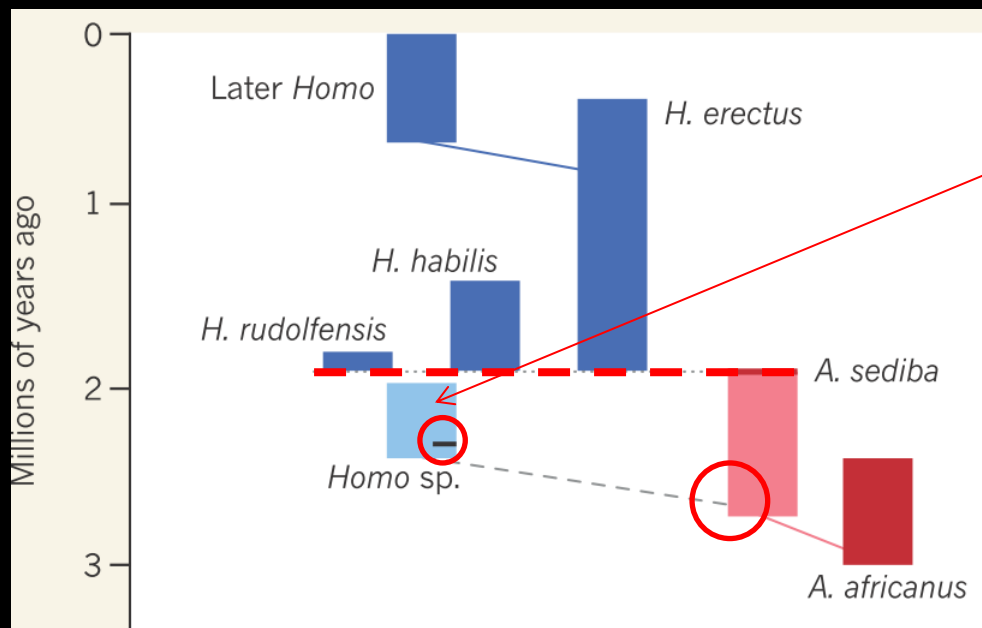


Fig. 2. Associated skeletal elements of MH1 (left) and MH2 (right), in approximate anatomical position, superimposed over an illustration of an idealized *Au. africanus* skeleton (with some adjustment for differences in body proportions). The proximal right tibia of MH1 has been reconstructed from a natural cast of the proximal metaphysis.

A. sediba (Malapa, South Africa)



(Nature 478, 6 october 2011)

Fossili frammentari generalmente attribuiti ai primi *Homo*

Fragmentary fossils that are generally thought to come from early Homo



AL 666-1 (2.35 Ma, Hadar)

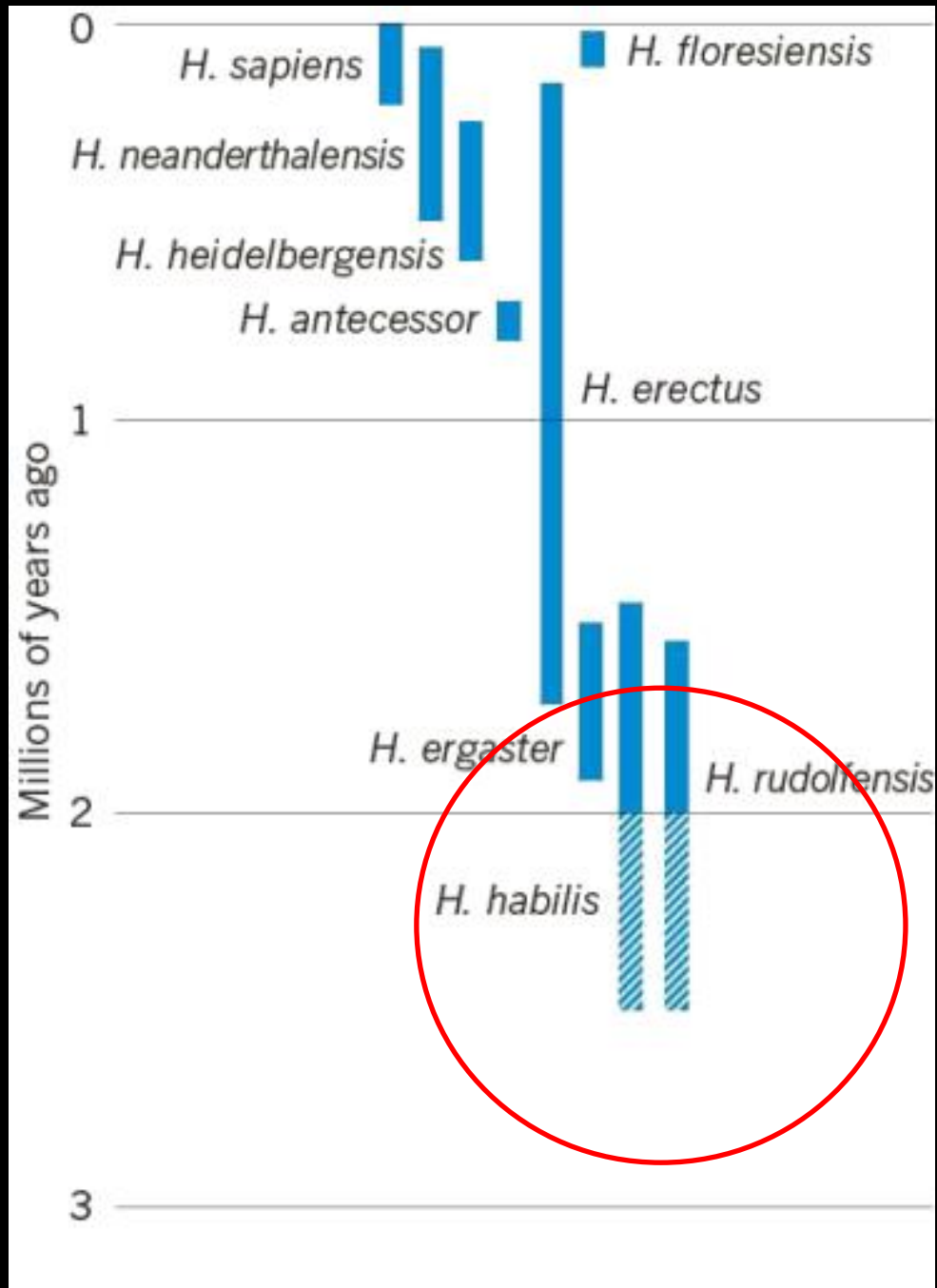
2 scenari in cui *A. sediba* è l'antenato del genere *Homo*

Scenario 1: I fossili di Malapa sono i ultimi rappresentanti della popolazione di *A. sediba* di cui i primi rappresentanti erano ancestrali a *Homo*

Scenario 1: Fossils at Malapa come from a late-surviving population of A. sediba, whose earlier representatives were ancestral to Homo

Scenario 2: La popolazione di *A. sediba* a Malapa era ancestrale ai primi *Homo*, implicando che i fossili datati prima di 2 Ma non possono essere attribuiti a *Homo*

Scenario 2: the A. sediba population at Malapa was itself ancestral to early Homo which means that fossils pre-dating 2 My ago cannot be attributed to Homo

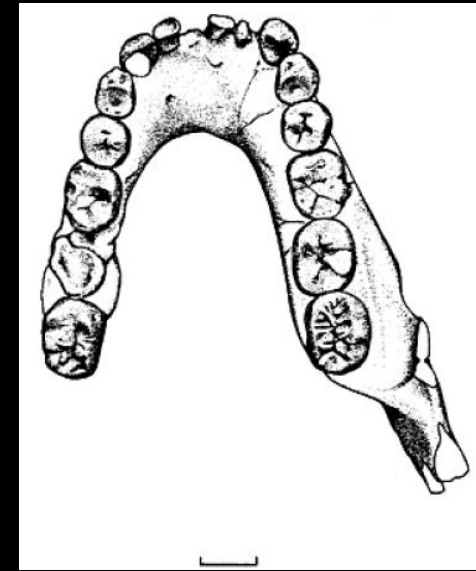
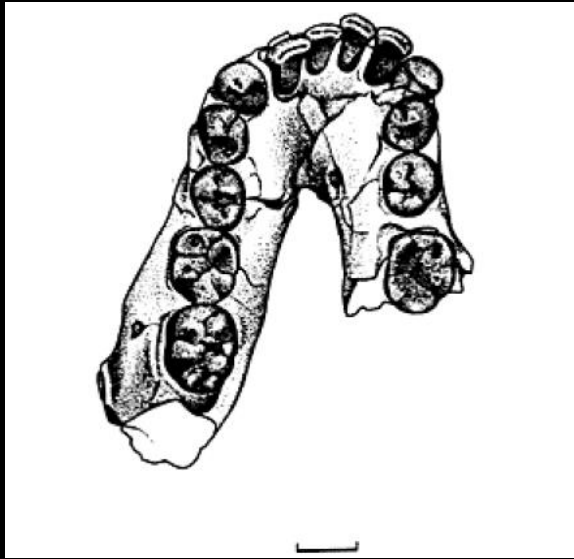


taxa homininés entre ← 2.5 Ma et 1.7 Ma →

<u>taxa</u>	2.5	2.4	2.3	2.2	2.1	2.0	1.9	1.8	1.7
<i>A. africanus</i>									
<i>A. garhi</i>									
<i>A. sediba</i>									
<i>P. aethiopicus</i>									
<i>P. boisei</i>									
<i>P. robustus</i>									
<i>H./A./K. rudolfensis</i>									
<i>H./A. habilis</i>									
<i>H. ergaster</i>									
<i>H. erectus</i>									
<i>H. georgicus</i> (<i>erectus</i>)									



Homo habilis



Homo habilis mandible OH 13 from Olduvai Gorge, Tanzania. Scale is 1cm.

OH 7: Olotipo di *H. habilis* trovato a Olduvai in 1964.

- Spessore elevato
- PM e M < *Australopithecus*
- CC (calcolato a partire di 2 parietali) = 700 ml

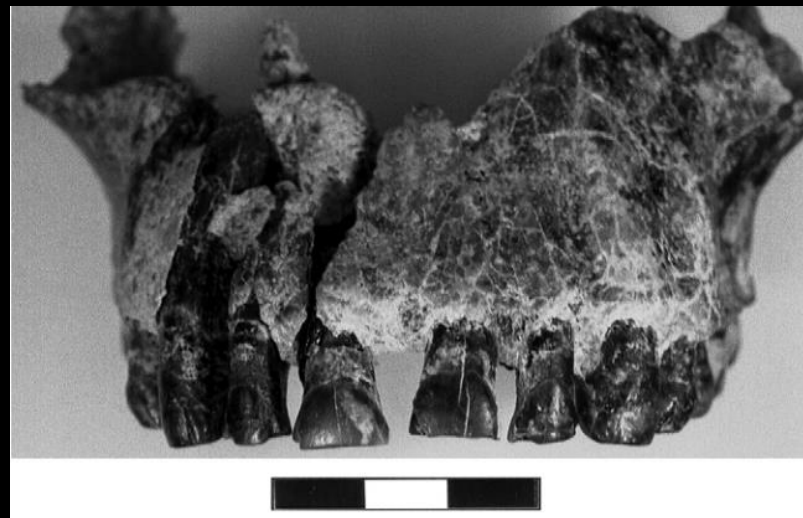
OH 7: Holotype of Homo habilis from Olduvai Gorge (1964)

- Thick jaw
- PM and M < *Australopithecus*
- CC (calculated from two parietal bones) = 700 ml

Homo habilis



OH 65



C : Radice dritta

C: straight root

P3: Radice dritta e unica

P3 : Straight single root



OH 65

StW 252 *Australopithecus*

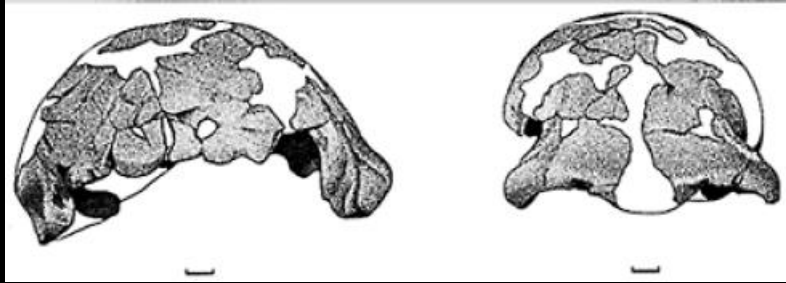
C : Radice curva e più corta

C: Shorter and curved root

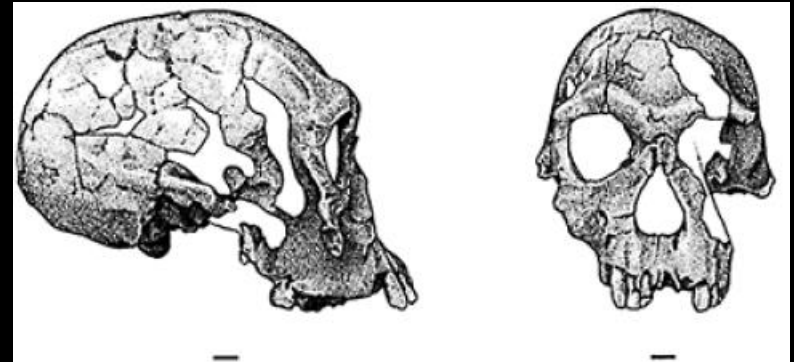
P3: Doppia radice curva

P3: two short curved roots

Homo habilis



Fragmentary calotte of *Homo habilis*,
OH 16 from Olduvai Gorge, Tanzania,
Scale is 1cm.

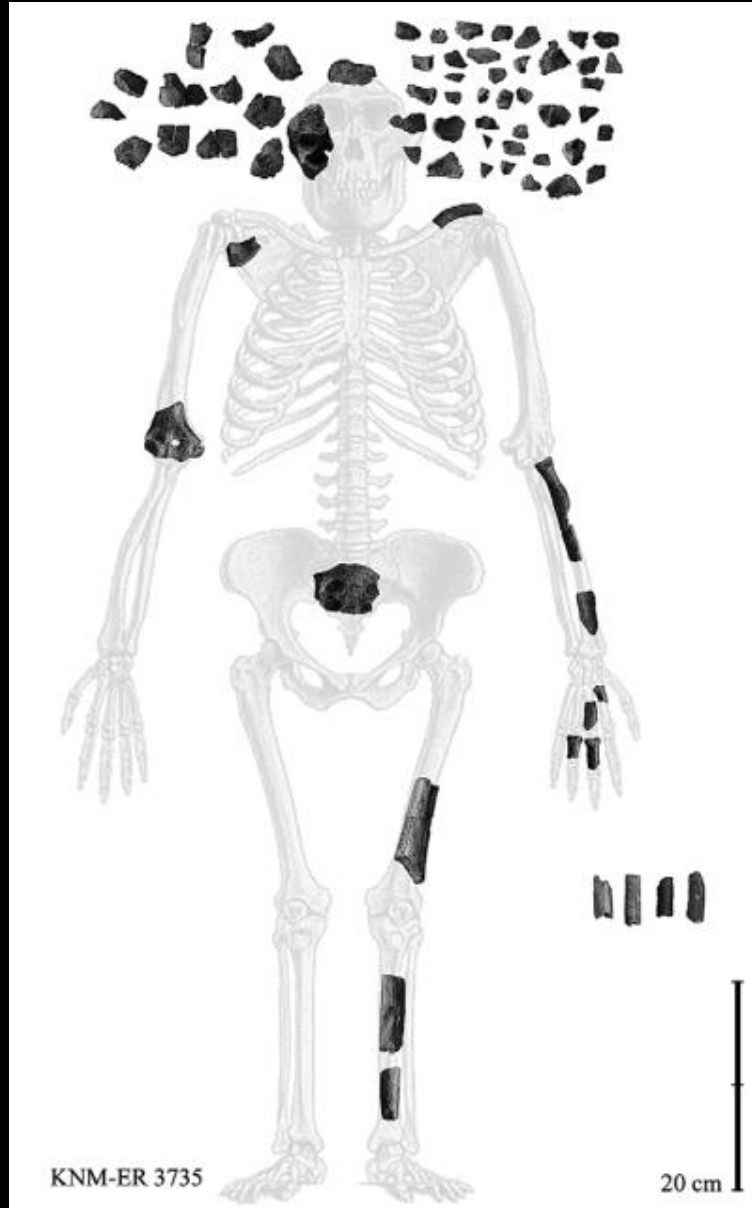


Female? cranium KNM ER-1813 from
Koobi Fora, Kenya, often assigned to
Homo habilis. Scale is 1cm.



OH 24

Homo habilis



Mosaica di caratteri:

Moderni:

- Gracilità dell'omero e del radio
Gracile humerus and radius
- Epifisi prossimale delle falange piccole
Small base of the hand phalange
- Pilastro del femore ben sviluppato
Well developed pilaster
- Geometria della sezione del femore
Cross sectional geometry of the femur

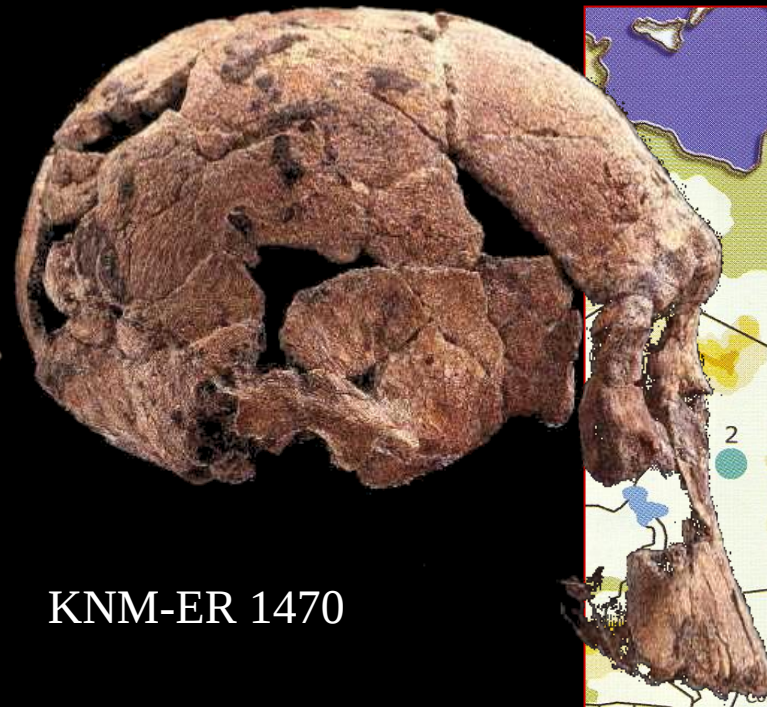
Ancestrali (condivisi con primi ominidi):

- Sacro piccolo
Small sacrum
- Diafisi delle falange robuste
Robust midshaft of the phalanges

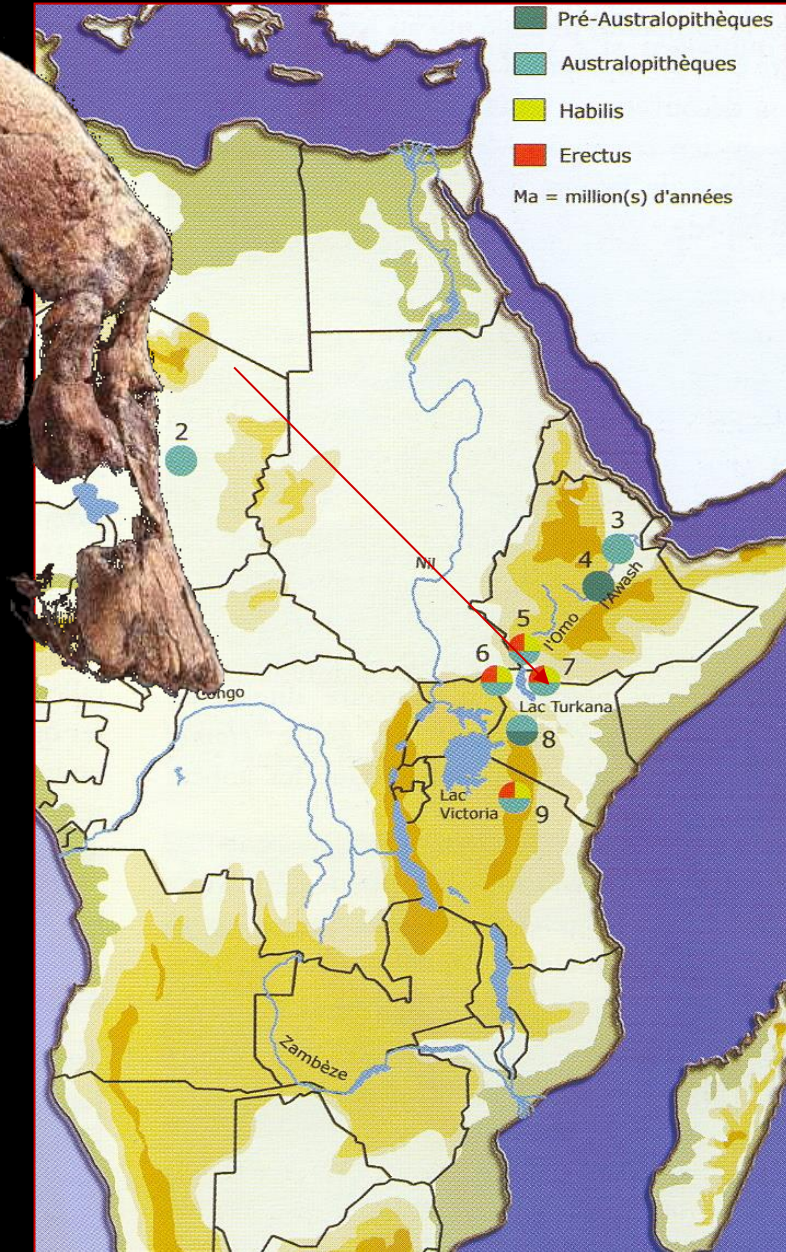
Scimmiesche:

- Scapola robusta
Robust scapula
- Avambraccio lungo
Long forearm

Homo rudolfensis



KNM-ER 1470





Radice dei zigomatici situati anteriormente
Anteriorly placed maxillary zygomatic roots



Faccia piatta e ortognata nella regione subnasale

Flat and subnasally orthognathic face

New fossils from Koobi Fora in northern Kenya confirm taxonomic diversity in early *Homo*

Meave G. Leakey^{1,2}, Fred Spoor^{3,4}, M. Christopher Dean⁴, Craig S. Felber⁵, Susan C. Antón⁶, Christopher Kiarie¹ & Louise N. Leakey^{1,2}



KNM-ER 62000: 8 anni (?)
Corona ~ primo *Homo*
Palato più corto che australopitecini

Figure 1 | The KNM-ER 62000 face. a–d, Anterior (a), right lateral (b), inferior (c) and superior views (d) of the KNM-ER 62000 face. Scale bar,

Molari e premolari piccoli

Small molars and premolars

Corpo alto ma stretto mesiolateralmente

Tall but mediolaterally narrow corpora



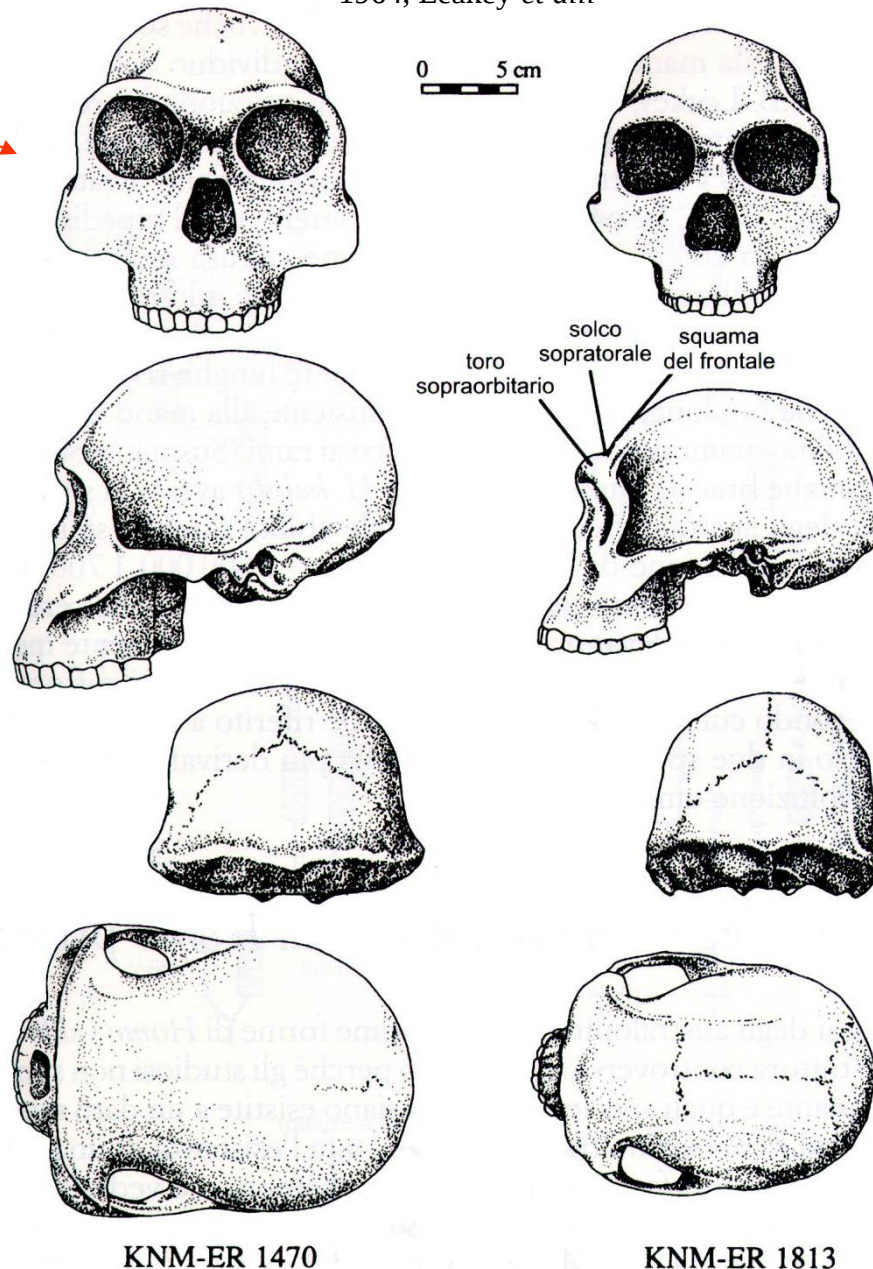
KNM-ER 60000 (1.78-1.87 Ma) e 62003 1.90-1.95 Ma

Homo rudolfensis
(2.5-1.6 M.a)

- Morfologia più robusta
- Most robust morphology*
- maggiore cc (750 cm³)
- > CC*
- faccia più robusta (larga a metà altezza e ortognata)
- Most robust face*
- Si trova a Koobi Fora, Chemeron e Uraha

1964, Leakey et alii

0 5 cm



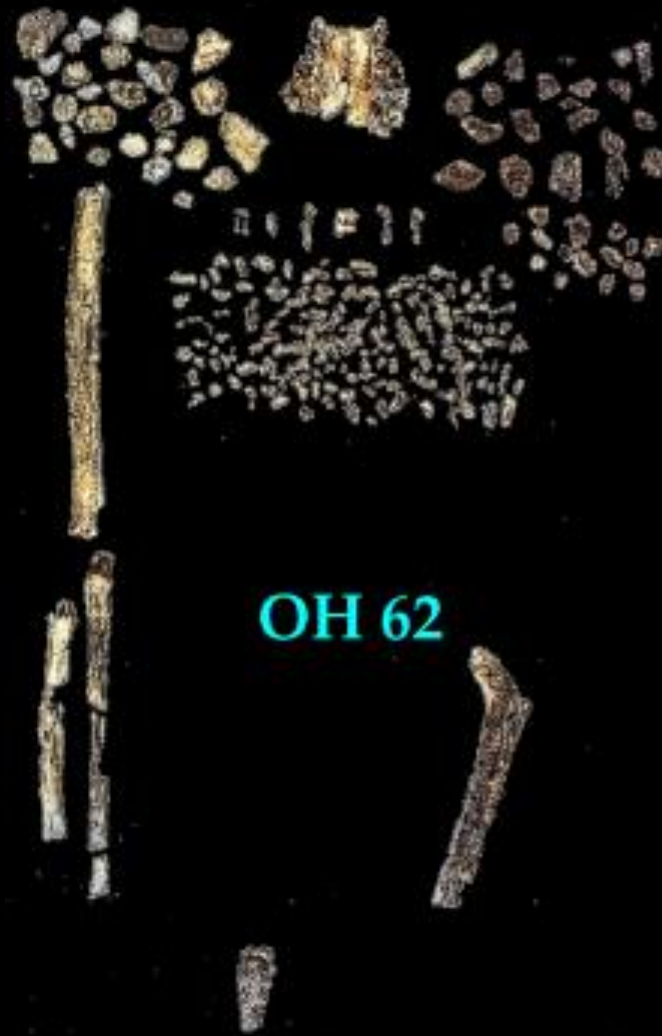
Homo habilis
(2.0-1.6 M.a)

- Specie più gracile
- More gracile*
- cervello più ridotto (610 cm³)
- < CC*
- Si trova a Koobi Fora, Omo e Olduvai.

Caratteristiche morfologiche dimostrano che i individui erano capace di avere una bipedia efficace. Però il talus è meno umano che il resto del piede e ha una morfologia scimmiesca

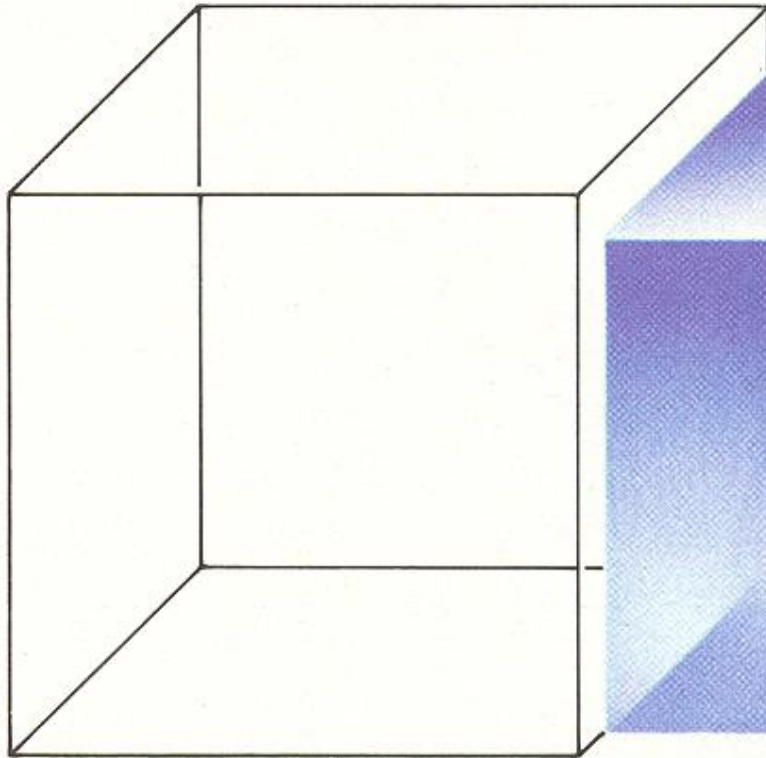
La bipedia dell' *Homo habilis* può essere piazzata tra quella occasionale dei Australopitecine e quella obbligata dei *H. ergaster*.

Efficient bipedism but the talus has ape-like morphology. The Homo habilis bipedism can be placed somewhere between the occasional one of the Australopiths and the obligatory one of H. ergaster

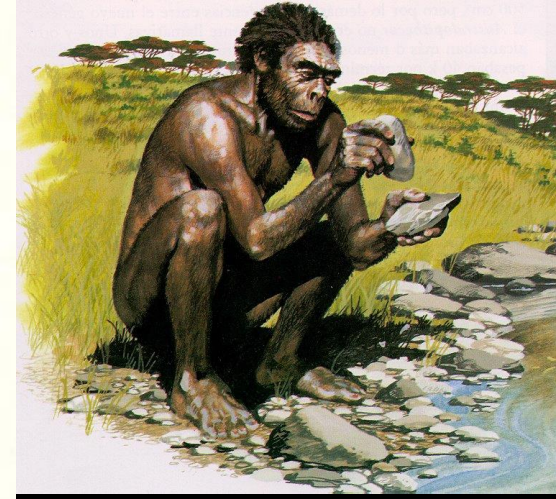
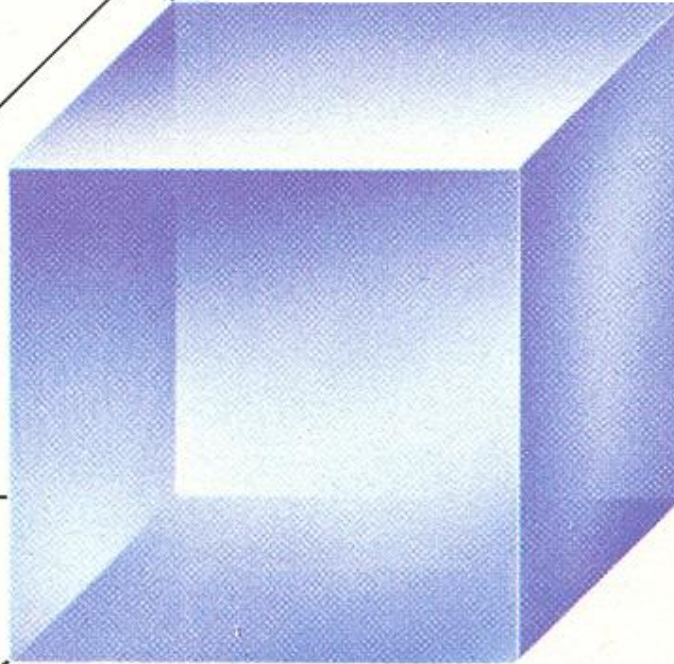


Homo ergaster / erectus

Uomo moderno



Homo ergaster/erectus



Gradual increase of cranium capacity of the hominids continue in Homo erectus (950 cc). Important social progress: organized hunting, diversification of tools

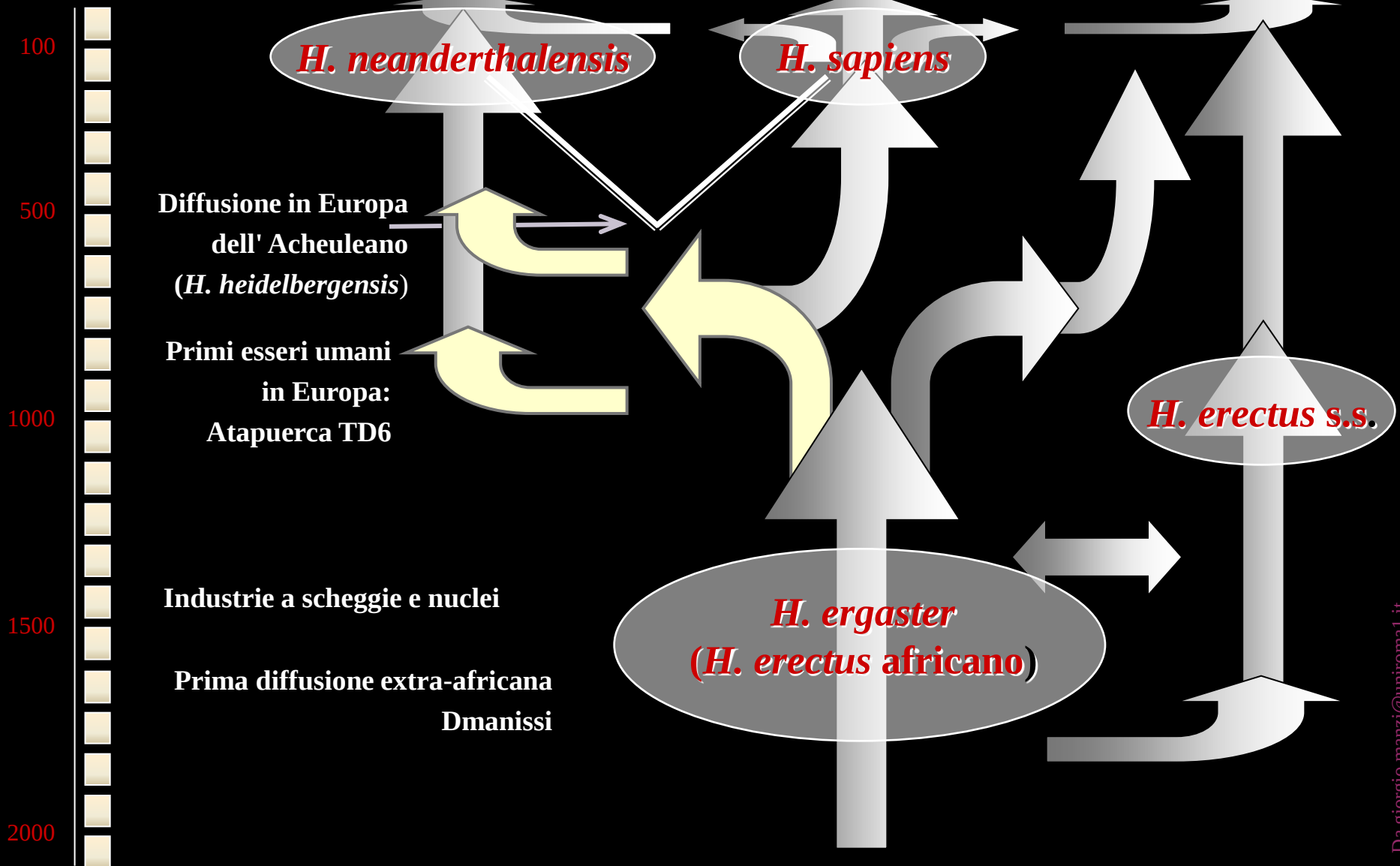
Il graduale aumento nella capacità cranica degli ominidi continuò nell'*Homo erectus*, la cui media era di 950 cm³. Si verificarono anche importanti progressi sociali: la caccia fu organizzata, gli utensili divennero più vari, e nei climi più freddi venne usato il fuoco.

Migliaia d'anni
dal presente

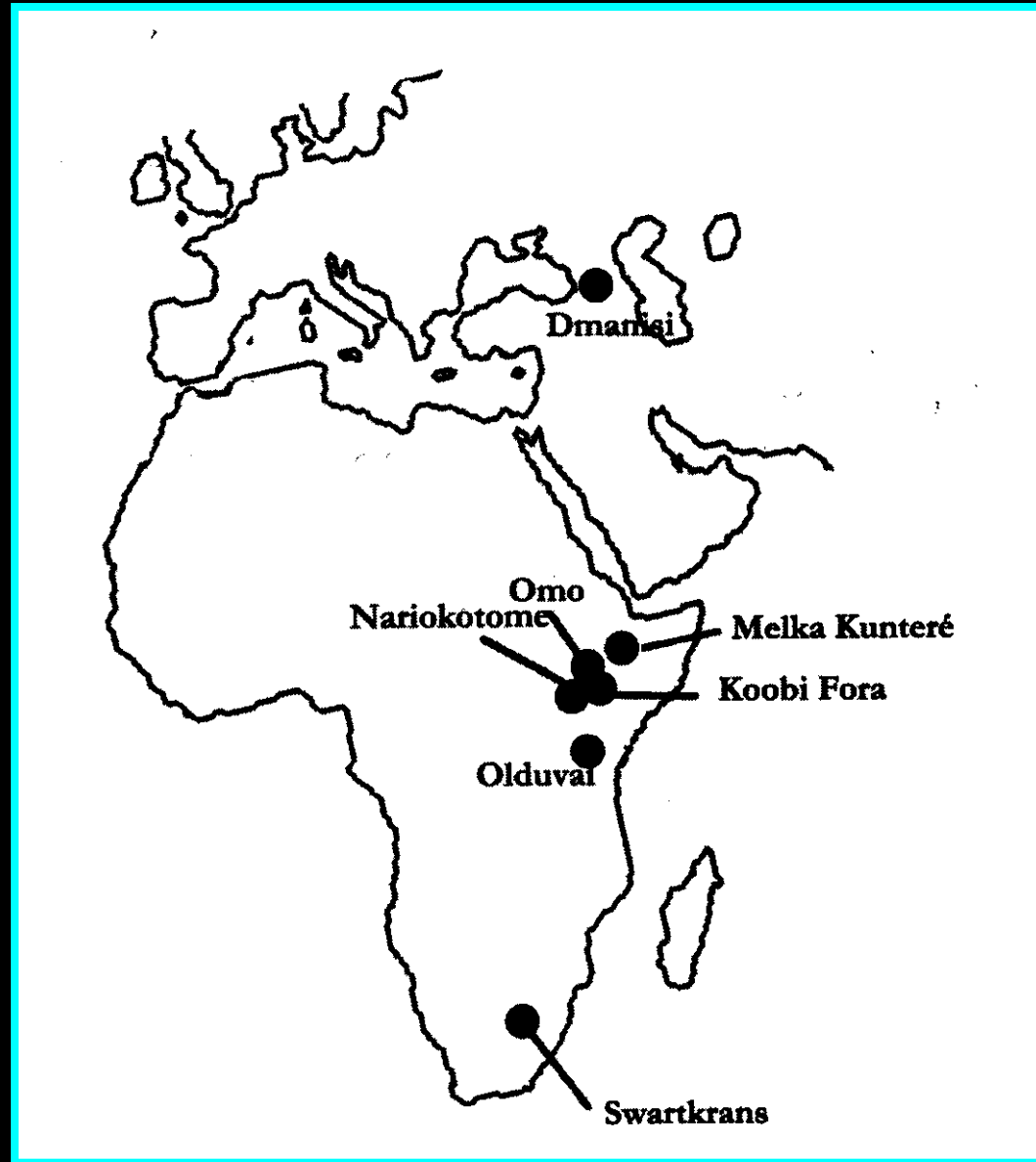
Europa

Africa & Vicino Oriente

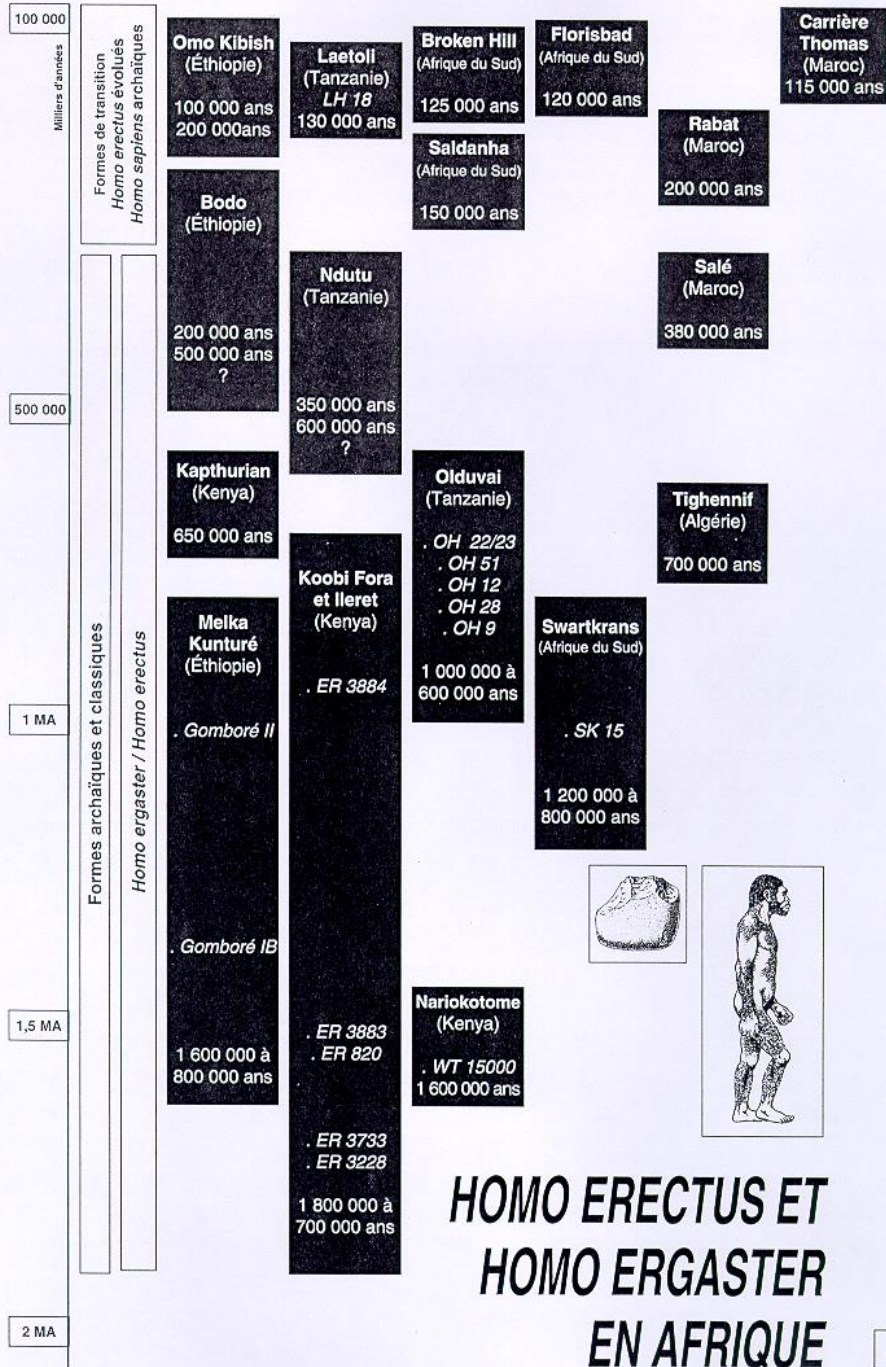
Estremo Oriente



Homo ergaster



Principali siti con resti di *Homo ergaster*



Frontale sfuggente

Toro sopraorbitario spesso

Linee temporali marcate

Restringimento retroorbitario

Solco sopratorale

OH9, calvario incompleto da Olduvai
(caratteri condivisi con le forme asiatiche)



Receding frontal

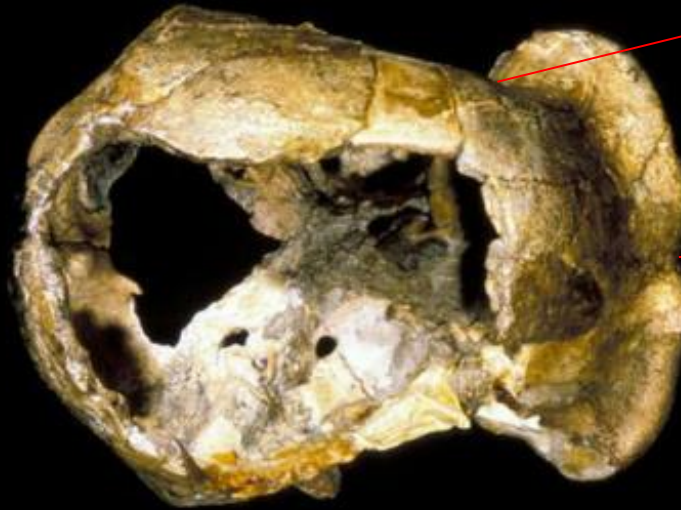
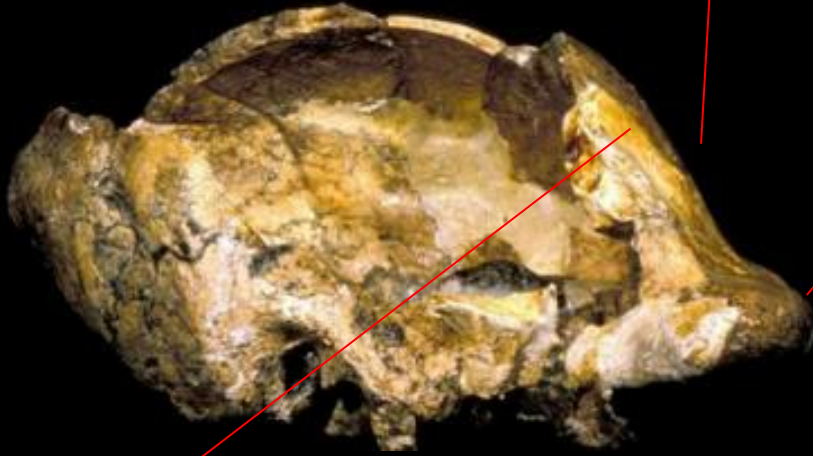
Thick sus-orbital torus

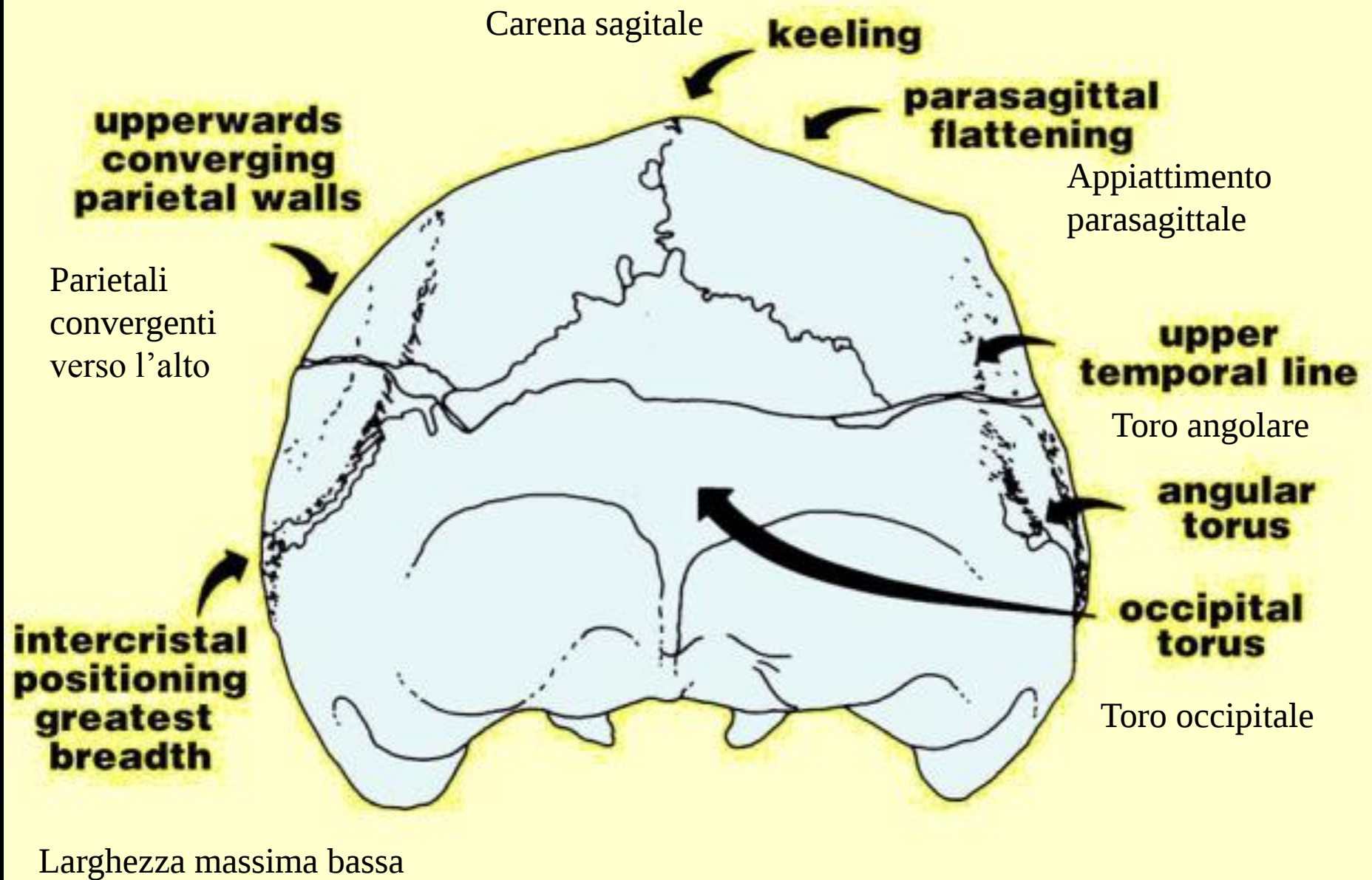
Marked temporal line

Retro-orbital shrinkage

Sus-orbital sulcus

*OH9, incomplet calvaria from Olduvai
(feature shared with asiatic form)*





100.000
MA

Forme di transizione
Homo ergaster evoluti
Homo sapiens arcaici

500.000
MA

FORME ARCAICHE E CLASSICHE

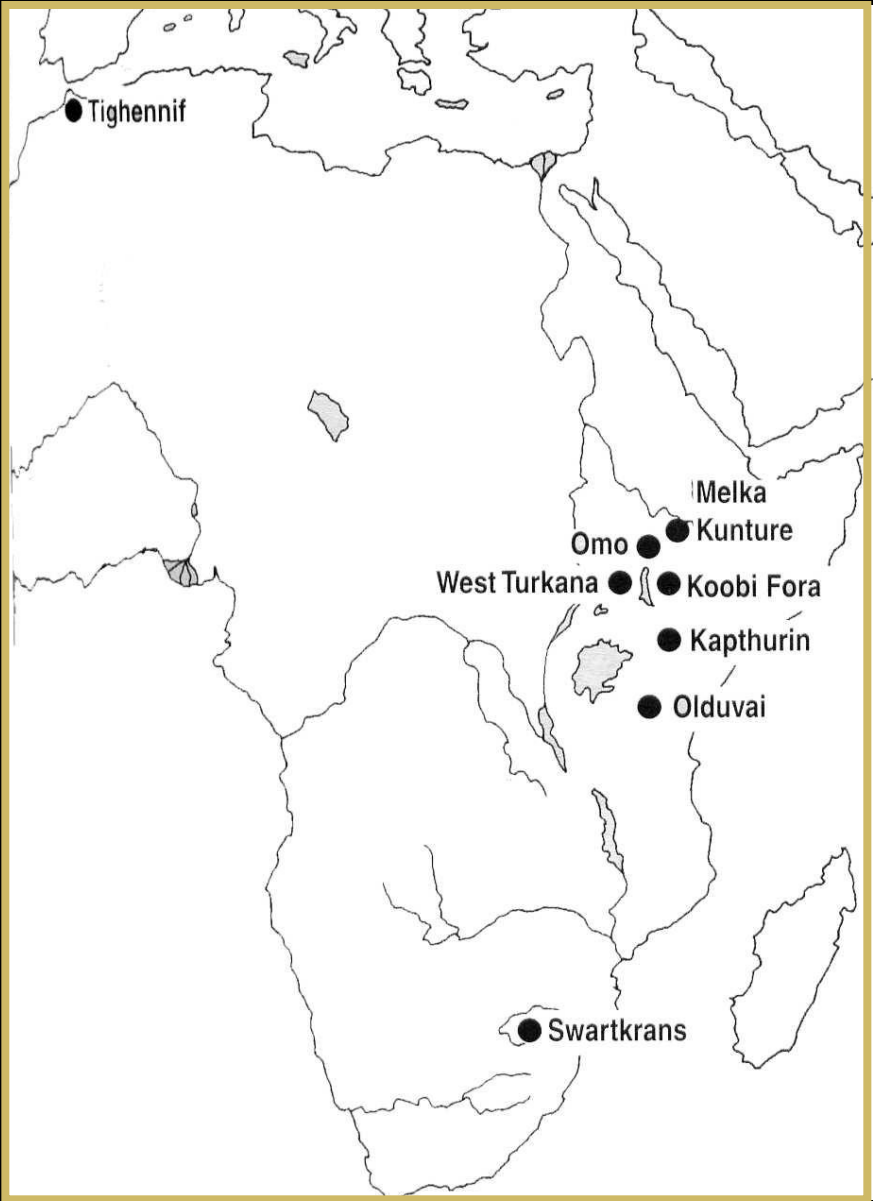
Homo ergaster

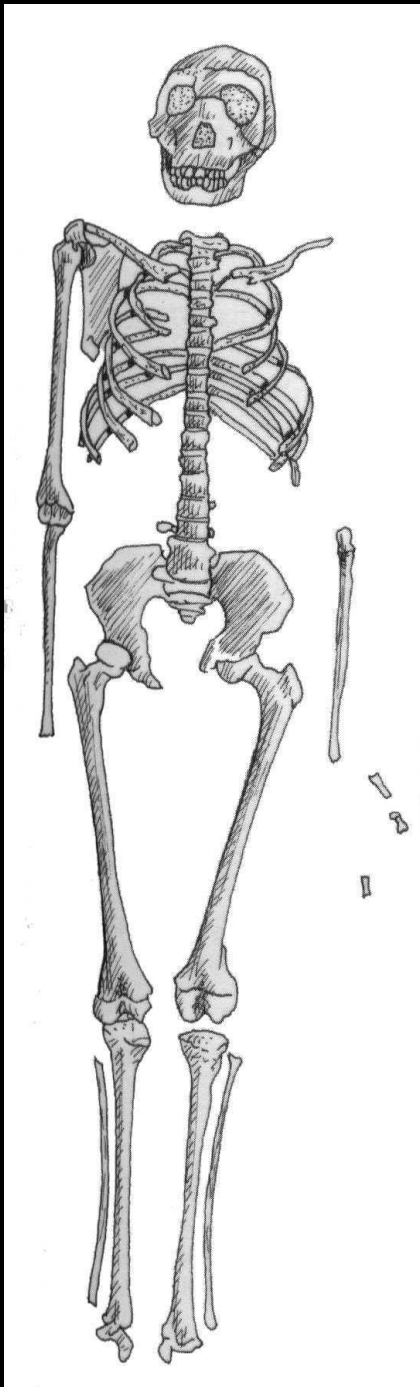
1 MA

Africa del Nord
Africa del Sud
Africa dell'Est
1.800.000 – 600.000 anni BP
Taglia: 1,50 -1,60 m

1,5 MA

2MA





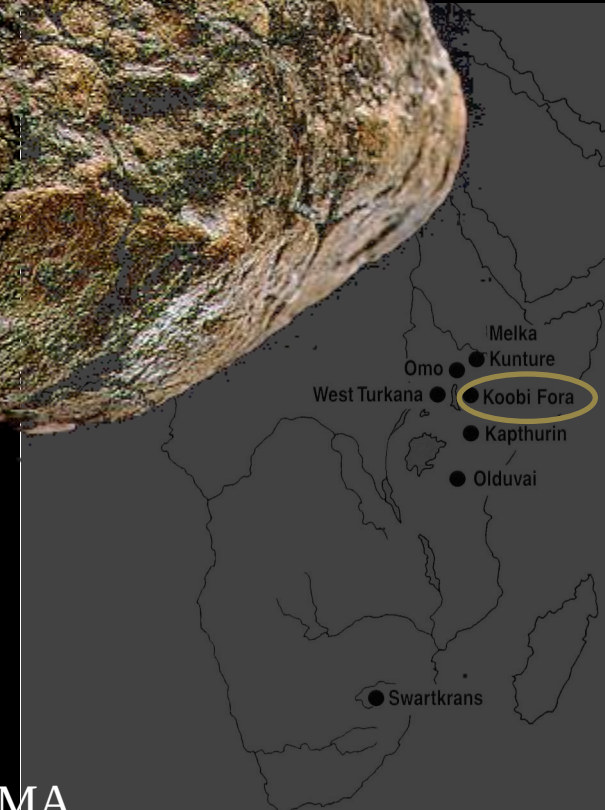
Scheletro di *Homo ergaster* (KNM-WT 15000) scoperto a Nariokotome (Kenya) e datato a circa 1,6 milioni di anni BP.

WT 15000

1,6 milioni di anni



KNM-ER 3733



H. ergaster KNM-ER 3733, Koobi Fora 1.75 MA



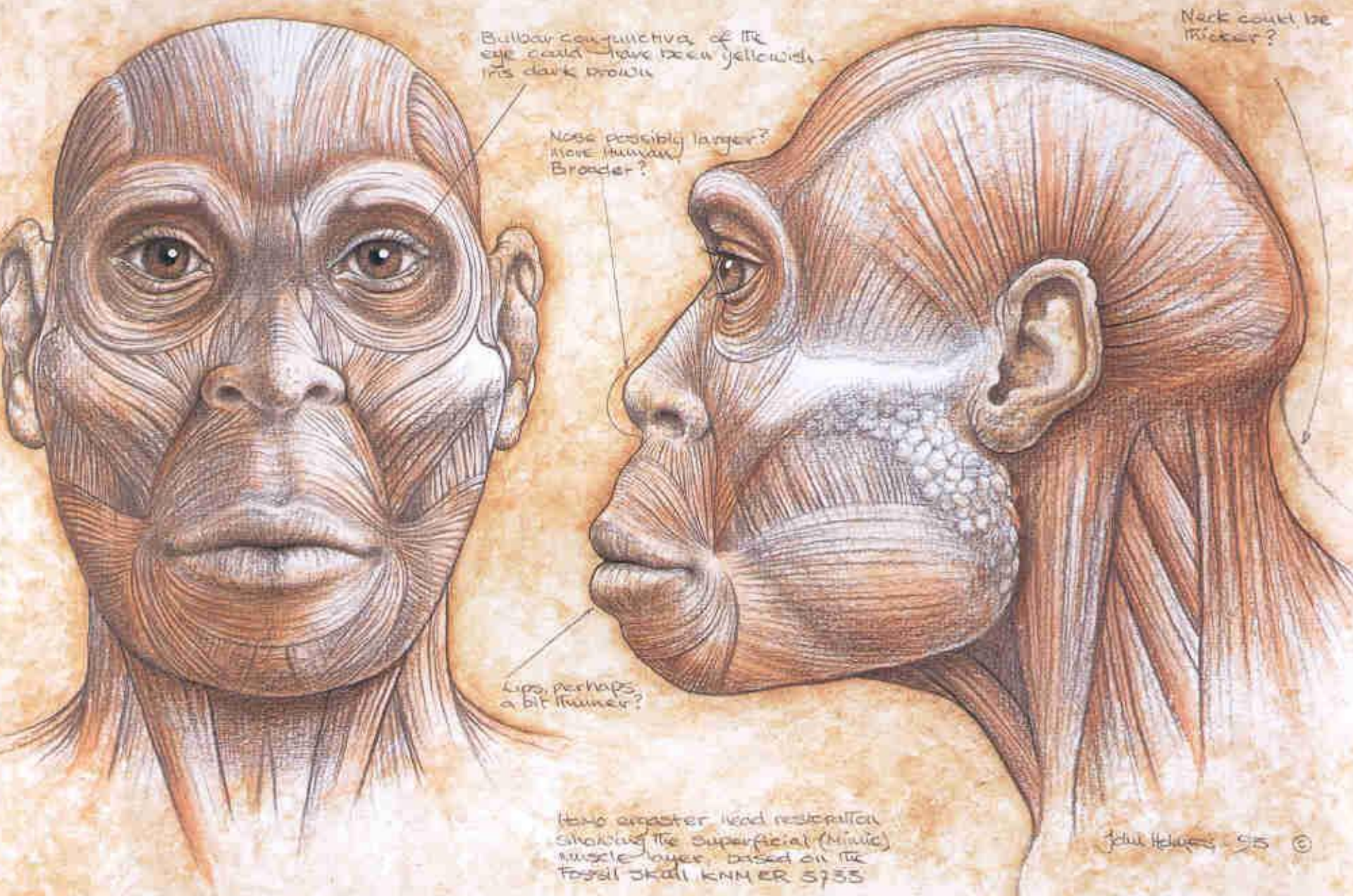
H. ergaster KNM-ER 3733, Koobi Fora 1.75 MA



KNM-ER 3733

H. ergaster KNM-ER 3733, Koobi Fora 1.75 MA

Ricostruzione anatomica di *H. ergaster* sulla base del cranio KNM-ER 3733





KNM-ER 3733



H. ergaster

KNM-ER 992

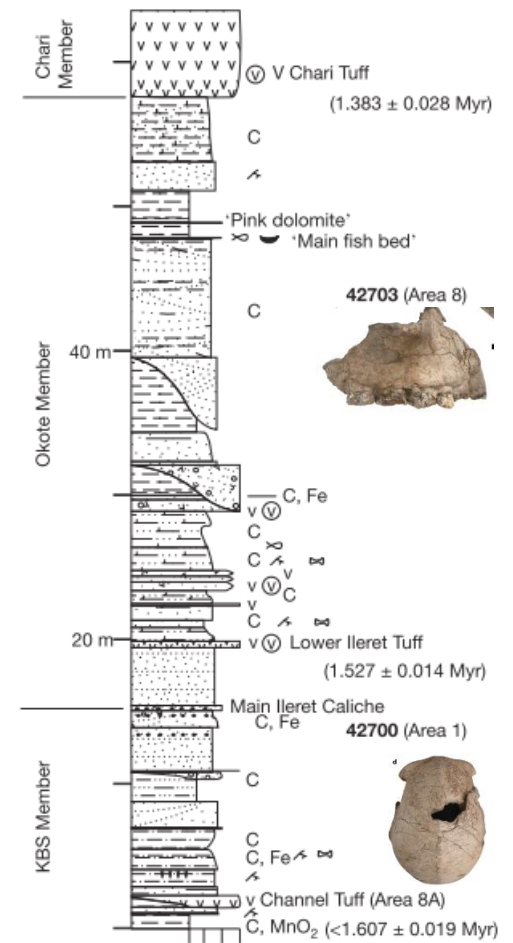
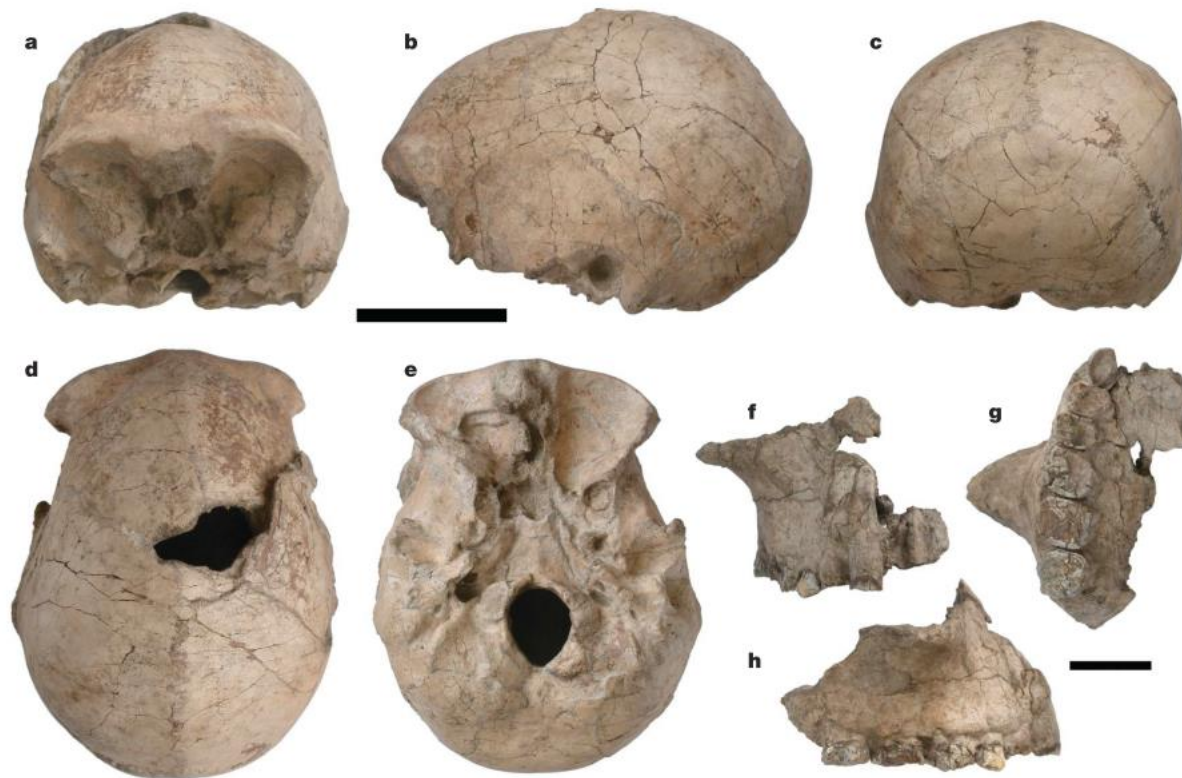
1.5 Myr

Koobi Fora
(Kenya)

LETTERS

Implications of new early *Homo* fossils from Ileret, east of Lake Turkana, Kenya

F. Spoor¹, M. G. Leakey^{2,3}, P. N. Gathogo⁵, F. H. Brown⁵, S. C. Antón⁶, I. McDougall⁷, C. Kiarie⁸, F. K. Manthi⁸ & L. N. Leakey^{2,4}

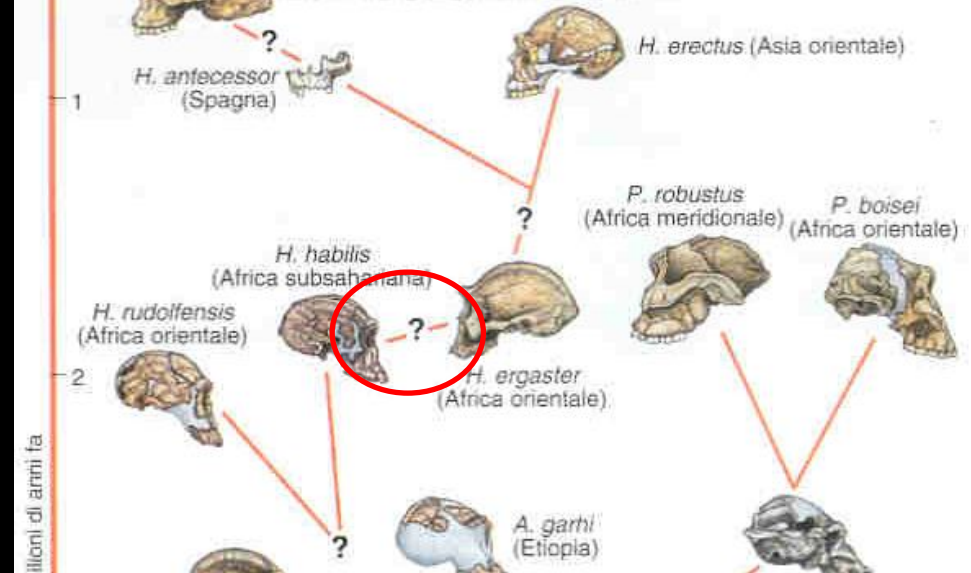


The KNM-ER 42700 calvaria and KNM-ER 42703 partial maxilla

LETTERS

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F. Spoor¹, M. G. Leakey^{2,3}, P. N. Gathogo⁵, F. H. Brown⁵, S. C. Antón⁶, I. McDougall⁷, C. Kiarie⁸, F. K. Manthi⁸ & L. N. Leakey^{2,4}

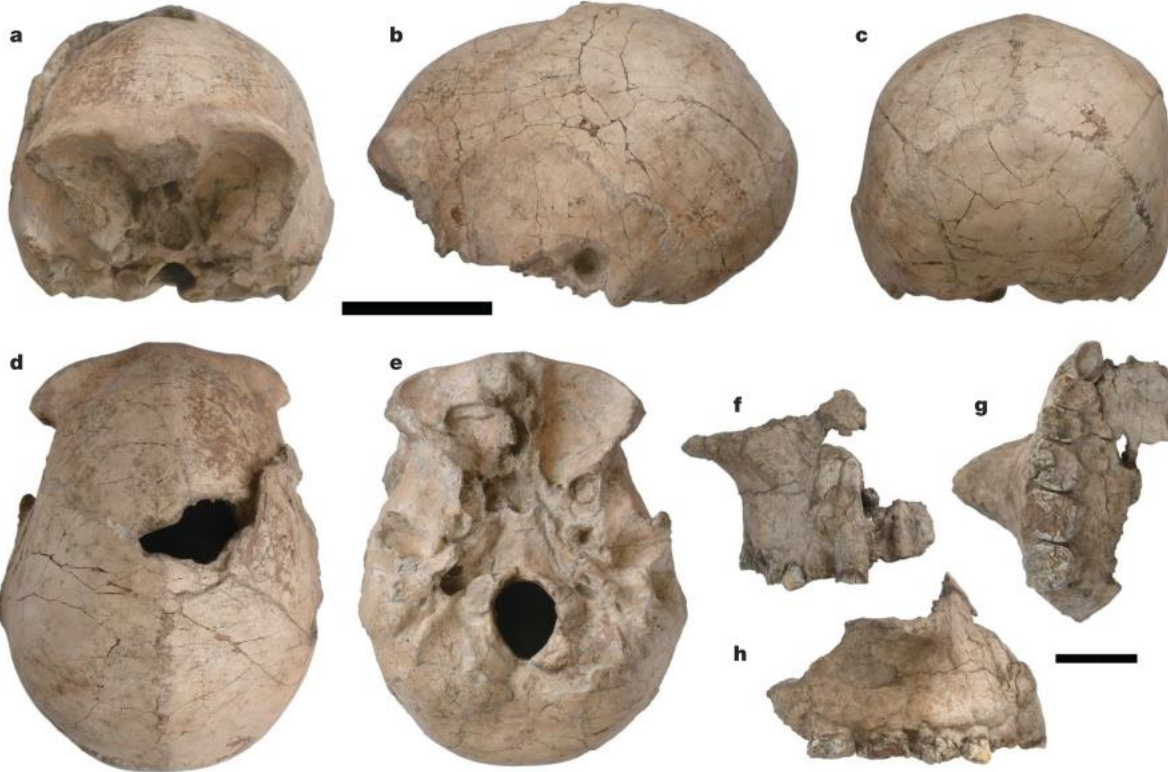


I siti in Africa orientale danno informazione sull'emergenza e l'evoluzione dei primi *Homo*.

Sites in eastern Africa have shed light on the emergence and early evolution of the genus Homo

H. habilis e *H. erectus* sono spesso interpretati come una singola linea evolutiva anagenetica.

H. habilis and H. erectus, have often been interpreted as time-successive segments of a single anagenetic evolutionary lineage.



KNM-ER
42700
Calvaria

KNM-ER
42703
Frammento di
mascellare

Due nuovi resti cranici trovati nella formazione di Koobi Fora (Lago Turkana in Kenya) hanno cambiato le idee sul rapporto tra le specie dei primi *Homo*

Two new cranial fossils from the Koobi Fora Formation, east of Lake Turkana in Kenya, change the knowledge about the relationship between species of early Homo.

Il frammento di mascellare attribuito a *H. habilis* dimostra che questa specie ha sopravvissuto dopo quello che si pensava, implicando il rapporto anagenetico con *H. erectus* improbabile.

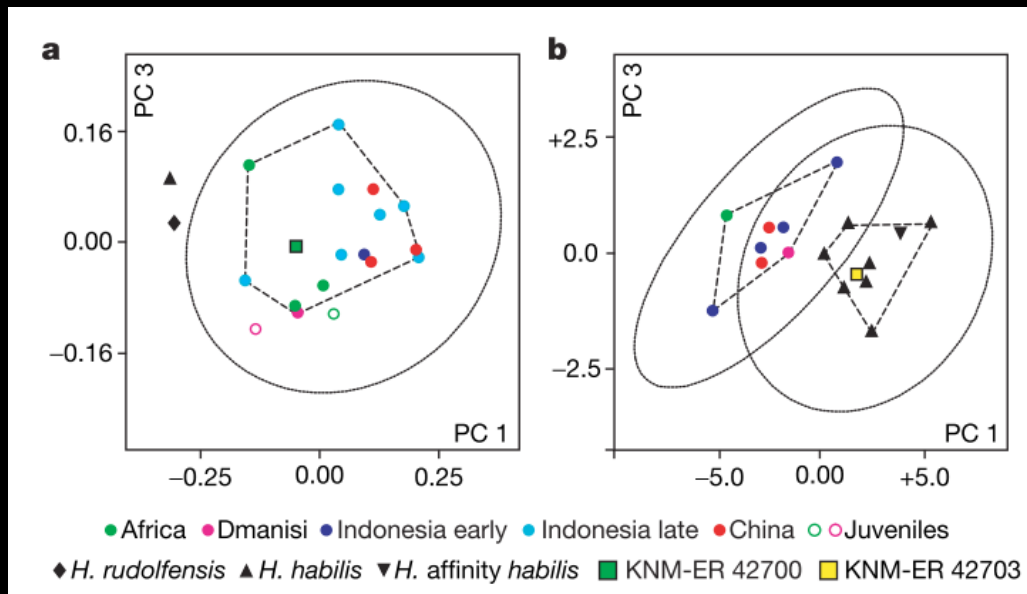
A partial maxilla assigned to H. habilis reliably demonstrates that this species survived until later than previously recognized, making an anagenetic relationship with H. erectus unlikely.

La scoperta di un piccolo calvario di *H. erectus* indica che questo taxa si sovrappone in taglia con *H. habilis*, e potrebbe avere dimostrato un dimorfismo sessuale marcato.

The discovery of a particularly small calvaria of H. erectus indicates that this taxon overlapped in size with H. habilis, and may have shown marked sexual dimorphism.

Il nuovo fossile conferma la distinzione tra *H. habilis* e *H. erectus*, indipendentemente dalla taglia generale cranica, e suggerisce che questi due taxa vivevano nella stessa area (lago) per quasi mezzo milione di anni.

The new fossils confirm the distinctiveness of H. habilis and H. erectus, independently of overall cranial size, and suggest that these two early taxa were living broadly sympatrically in the same lake basin for almost half a million years.



KNM-ER 42700 = *H. erectus* variability

KNM-ER 42703 (denti) = *H. habilis* variability

Early Hominin Foot Morphology Based on 1.5-Million-Year-Old Footprints from Ileret, Kenya

Matthew R. Bennett,^{1*} John W.K. Harris,² Brian G. Richmond,^{3,4} David R. Braun,⁵ Emma Mbua,⁶ Purity Kiura,⁶ Daniel Olago,⁷ Mzalendo Kibunjia,⁶ Christine Omuombo,⁷ Anna K. Behrensmeier,⁸ David Huddart,⁹ Silvia Gonzalez⁹

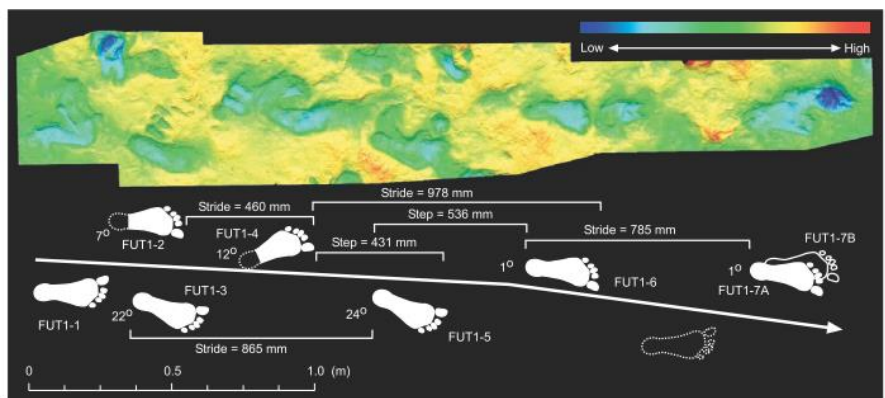
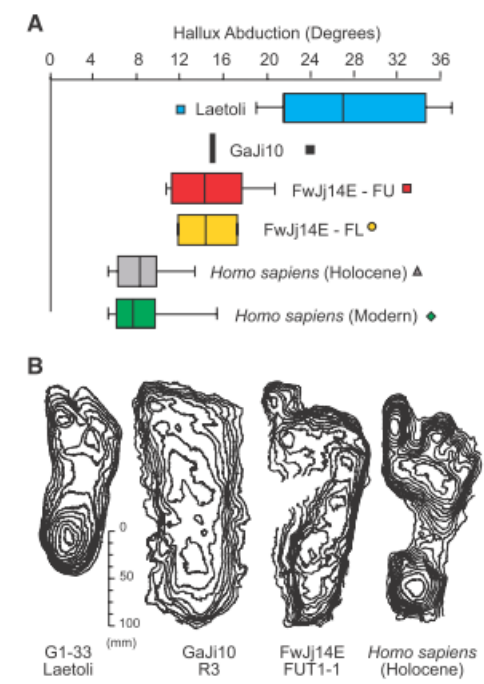


Fig. 2. Tessellated swath of optical laser scans of the main footprint trail on the upper footprint surface at FwJj14E. Color is rendered with 5-mm isopleths.



Impronte datate a 1.51-1.53 Ma

Alluce relativamente abdotto (distante) / *Relatively abducted hallux*

Trasferimento mediale del peso prima del push-off / *Medial weight transfer before push-off*

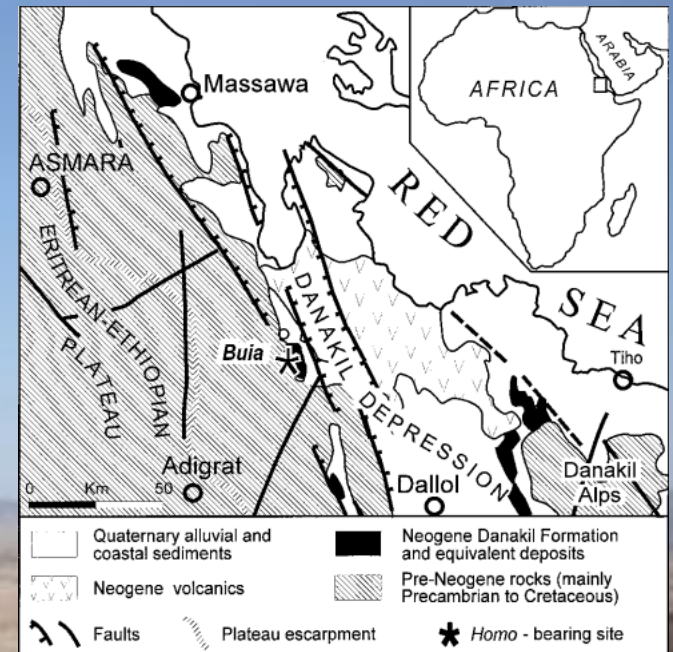
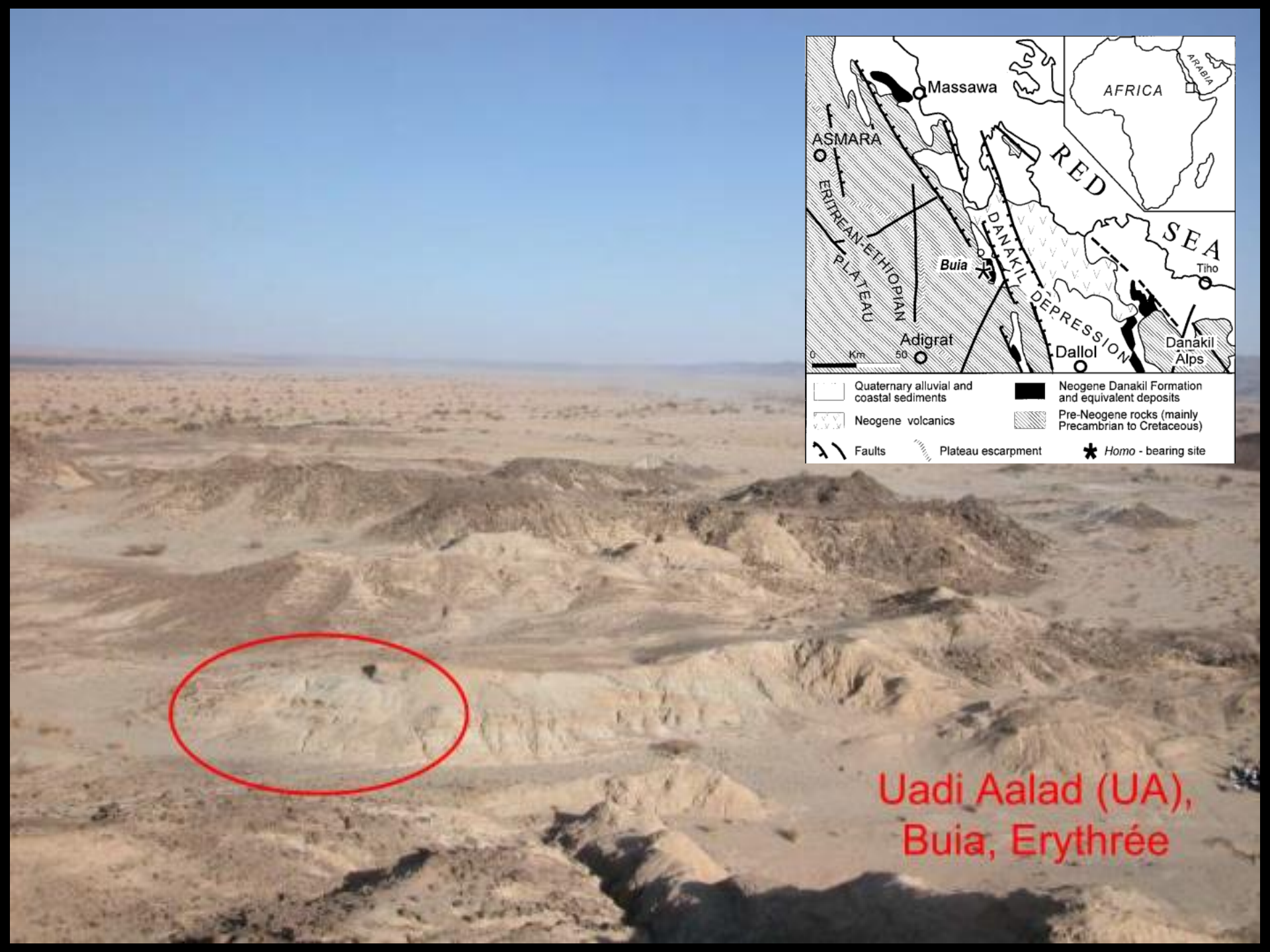
La taglia delle impronte è in accordo con la statura e la massa corporea stimata dei *ergaster/erectus*

The size of the footprints is consistent with stature and body mass estimates for H. ergaster / erectus

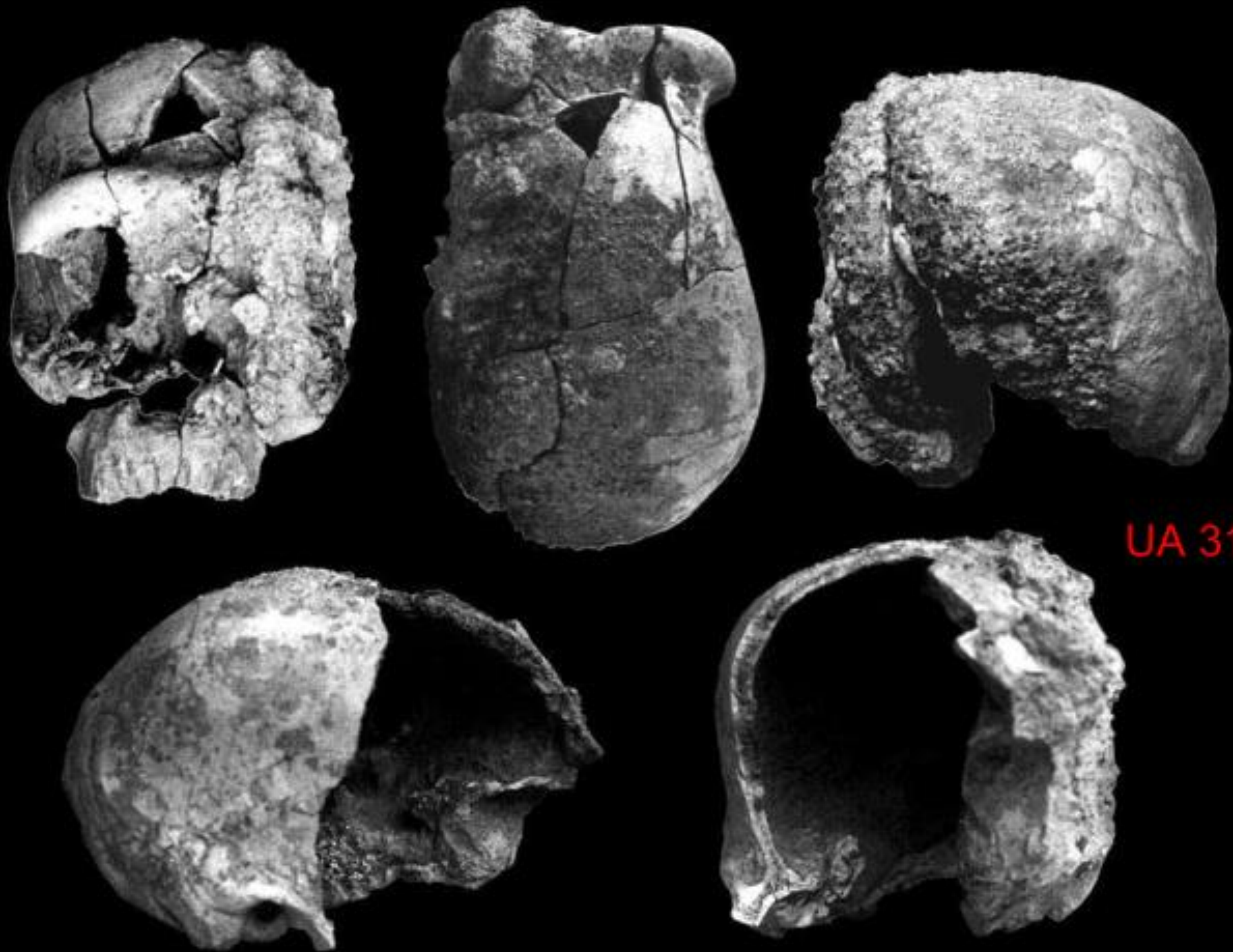
Distinti morfologicamente da Laetoli / *Morphologically distinct from laetoli (3.75 Ma)*

Dimostrano che i ominini hanno sviluppato una piede funzionalmente moderno e una

locomozione bipeda / *Show that hominins had evolved an essentially modern human foot function and style of bipedal locomotion*



Uadi Aalad (UA),
Buia, Erythrée



UA 31



**UA 31
(Buia)**

1Myr

UA 31

WT 15K

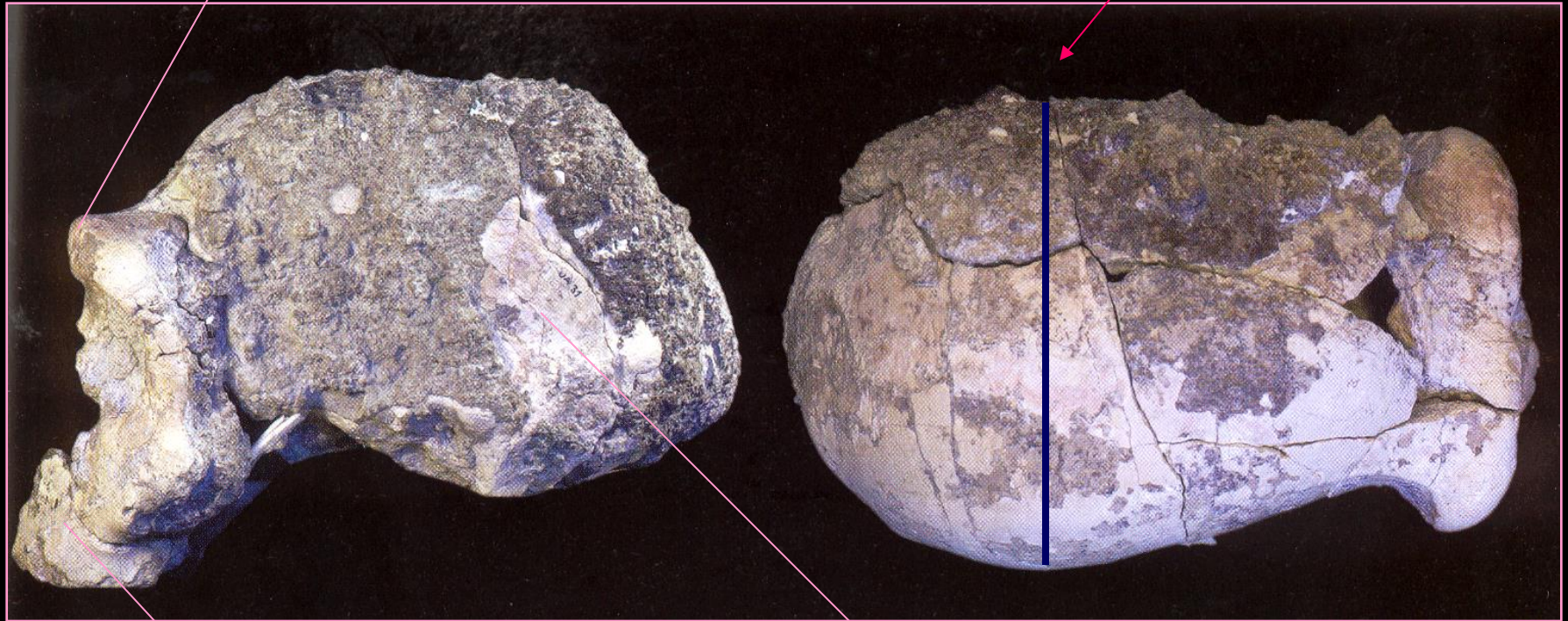
P4 / M¹

P4 / M¹



Toro massiccio

Larghezza biparietale



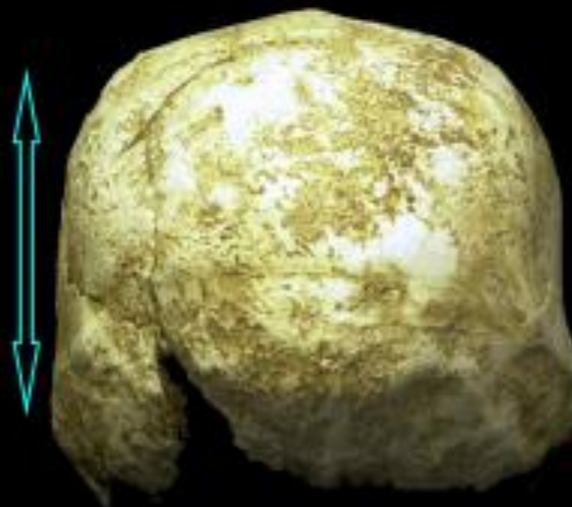
Prognatismo
sottonasale

cc 750-800 cm3

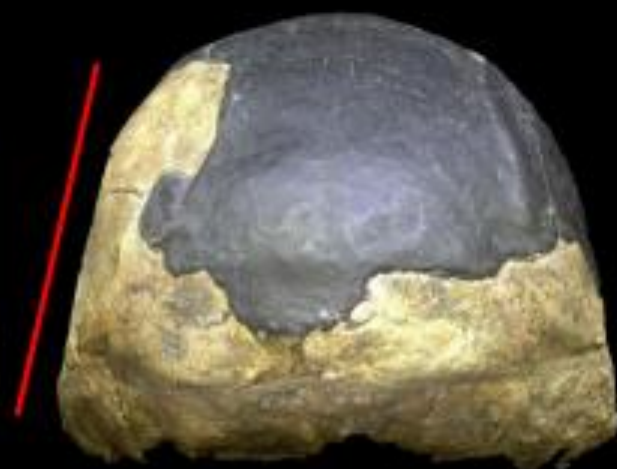
Buia, UA 31, (Eritrea, 1995-97)



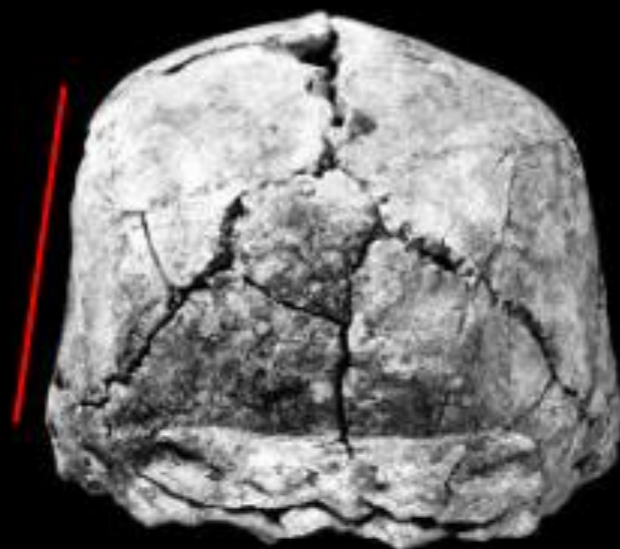
Sangiran 17



UA 31



OH 9

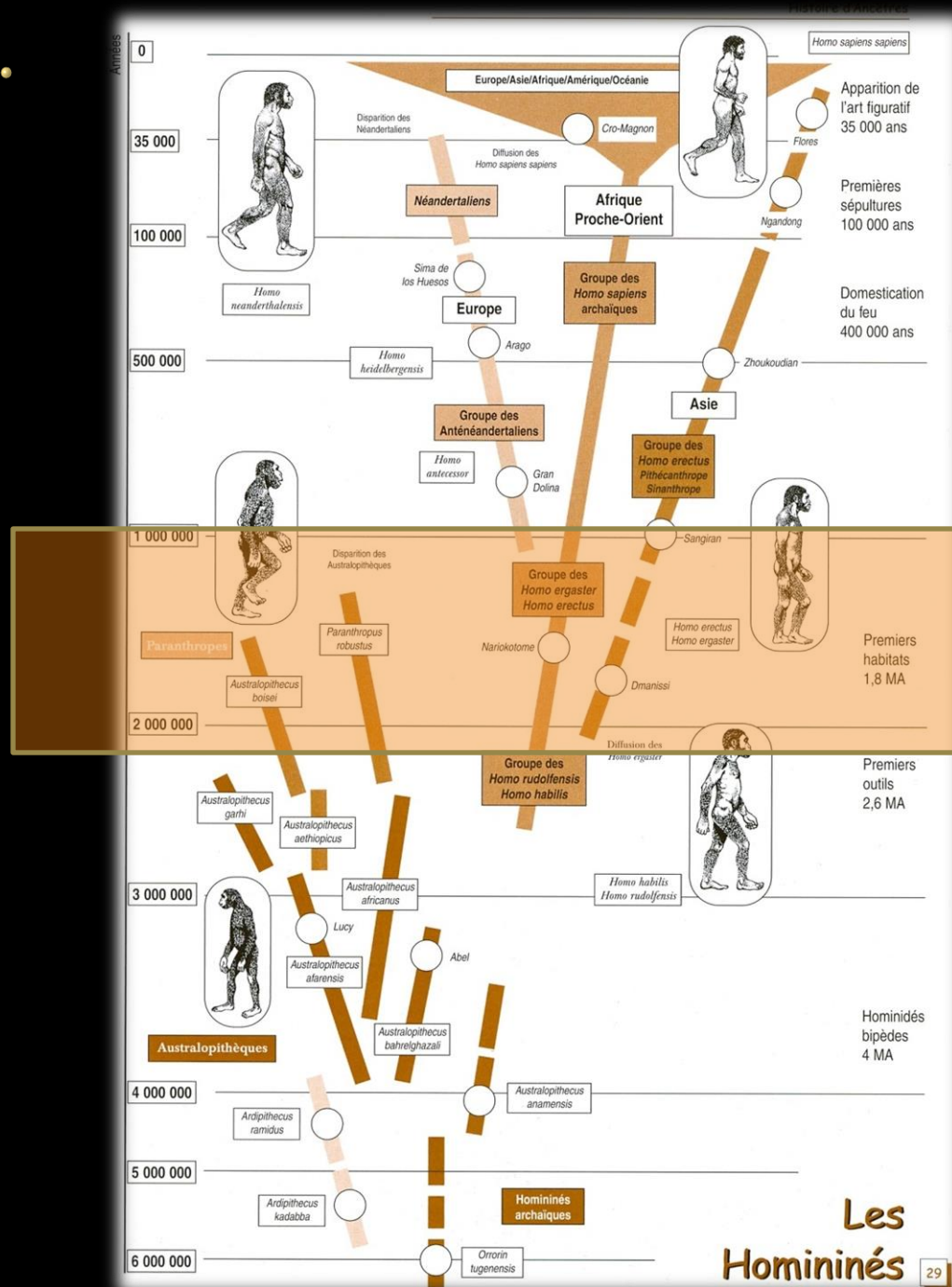


Daka

Out of Africa.....



Out of Africa.....



Out of Africa.....



DMANISSI

Una nuova rivoluzione
1.750.000 anni fa



Out of Africa.....

La stratigrafia del sito inizia con una colata basaltica di 4 m di spessore.

La colata su cui si sono insediati gli ominidi è datata a più di 1,8 milioni di anni BP



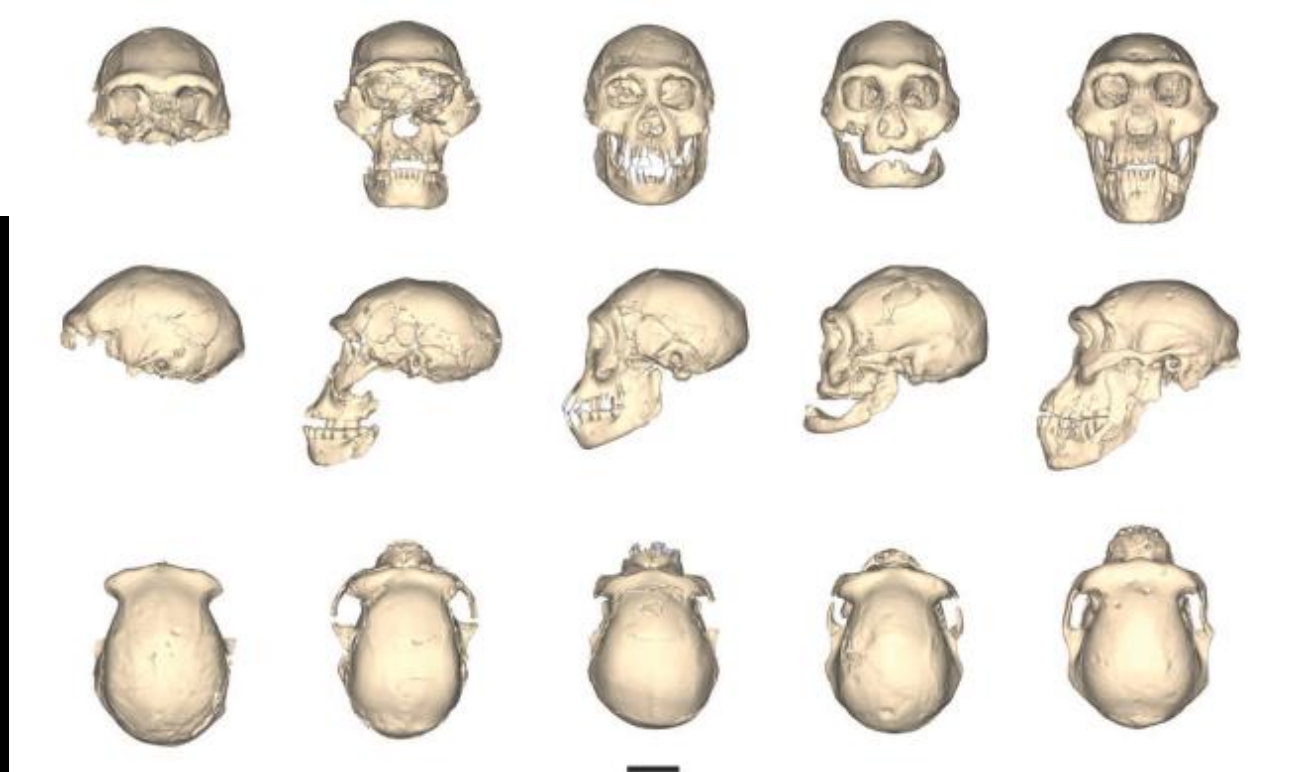
Out of Africa.....



Campagna di scavo 2002

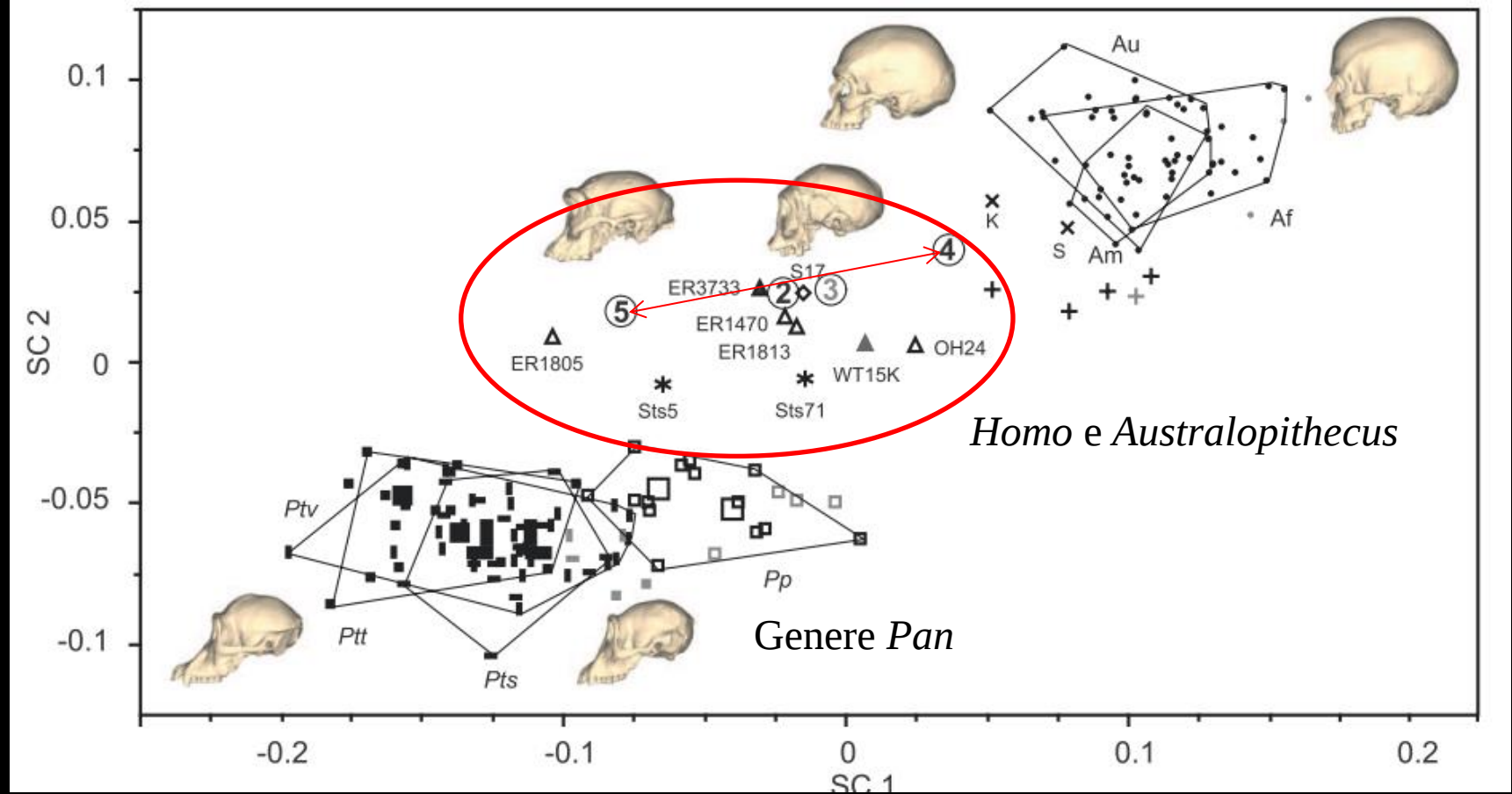
A Complete Skull from Dmanisi, Georgia, and the Evolutionary Biology of Early *Homo*

David Lordkipanidze,^{1*} Marcia S. Ponce de León,² Ann Margvelashvili,^{1,2} Yoel Rak,³
G. Philip Rightmire,⁴ Abesalom Vekua,¹ Christoph P. E. Zollikofer^{2*}



Il campione di Dmanisi, che comprendo ora 5 crani, fornisce delle evidenze dirette di una variazione morfologica ampia all'interno e tra i primi *Homo*. Questo suggerisce l'esistenza di una linea evolutiva unica dei primi *Homo*, con una continuità filogeografica attraverso i continenti.

The Dmanisi sample, which now comprises five crania, provides direct evidence for wide morphological variation within and among early Homo paleodemes. This implies the existence of a single evolving lineage of early Homo, with phylogeographic continuity across continents.



Dmanisi suggerisce che le variazioni intrademiche e intraspecifiche nei fossili di ominidi del Plio-Pleistocene tendono ad essere interpretate come specie diverse, soprattutto quando dei unici fossili provenienti da diverse località sono confrontati tra di loro.

Dmanisi adds to the growing evidence that intrademic and intraspecific variation in Plio-Pleistocene fossil hominids tends to be misinterpreted as species diversity, especially when single fossil specimens from different localities are compared with each other

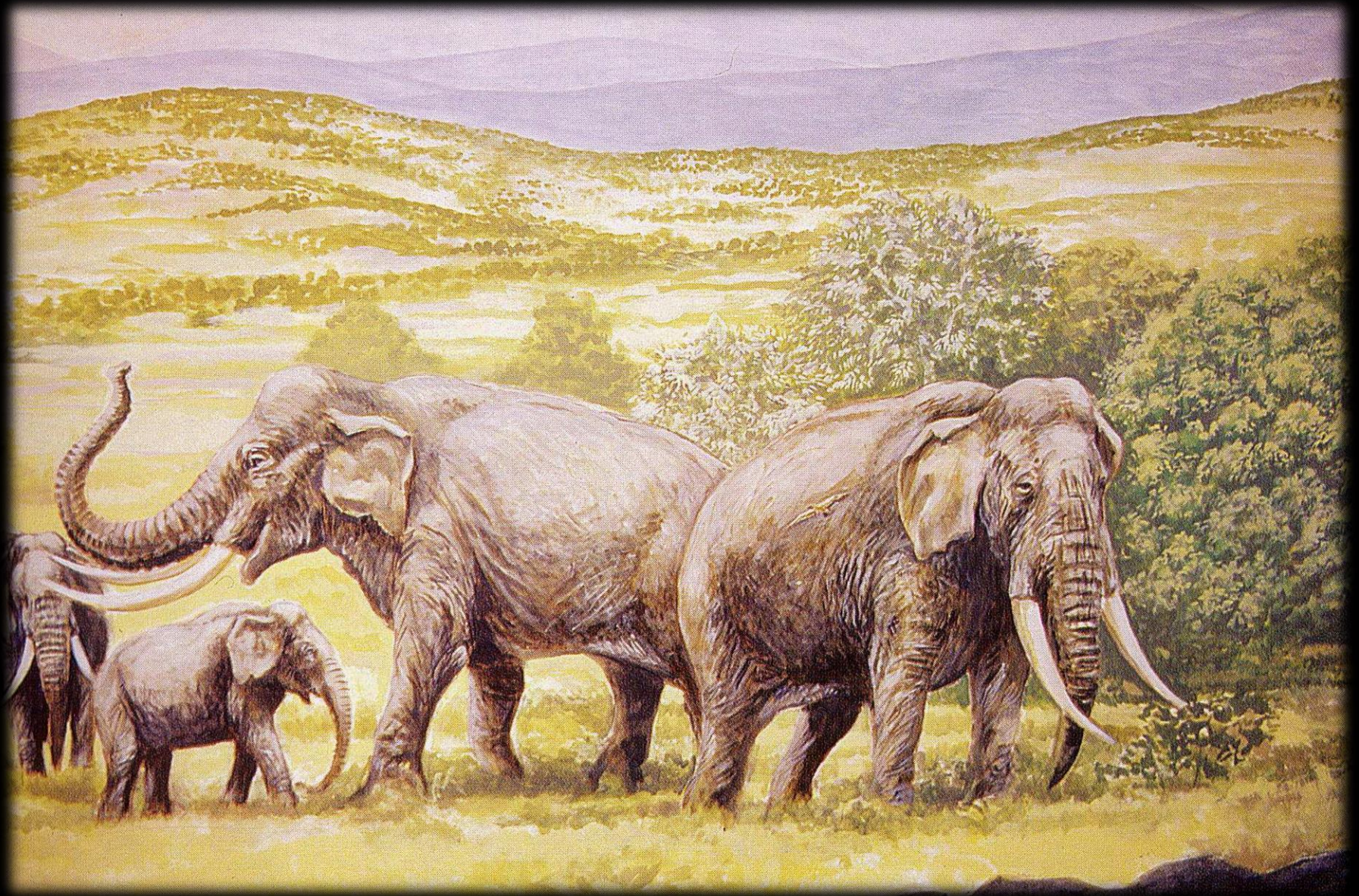
La popolazione di Dmanisi proviene probabilmente da un'espansione del Pleistocene inferiore di *H. erectus* dall'Africa = *H. erectus ergaster*. È designato come *H. e.e. georgicus* per indicare la localizzazione geografica.

The Dmanisi population probably originated from an Early Pleistocene expansion of the H. erectus lineage from Africa, so it is sensibly placed within H. e. ergaster and formally designated as H. e. e. georgicus to denote the geographic location of this deme

Dato i scarsi e frammentati fossili ritrovati in Africa precedenti a Dmanisi, la questione della filogenia e la classificazione dei primi *Homo* africani rimane irrisolta. Bisognerebbe testare l'ipotesi secondo la quale tutti i fossili attribuiti ai taxa *H. habilis* e *H. rudolfensis* appartengono ad un'unica linea evolutiva *Homo*.

Given the scattered and fragmentary fossil record in Africa that predates Dmanisi, questions of earliest African Homo phylogenetics and classification remain unresolved. It remains to be tested whether all of the fossils currently allocated to the taxa H. habilis and H. rudolfensis belong to a single evolving Homo lineage.

Out of Africa.....

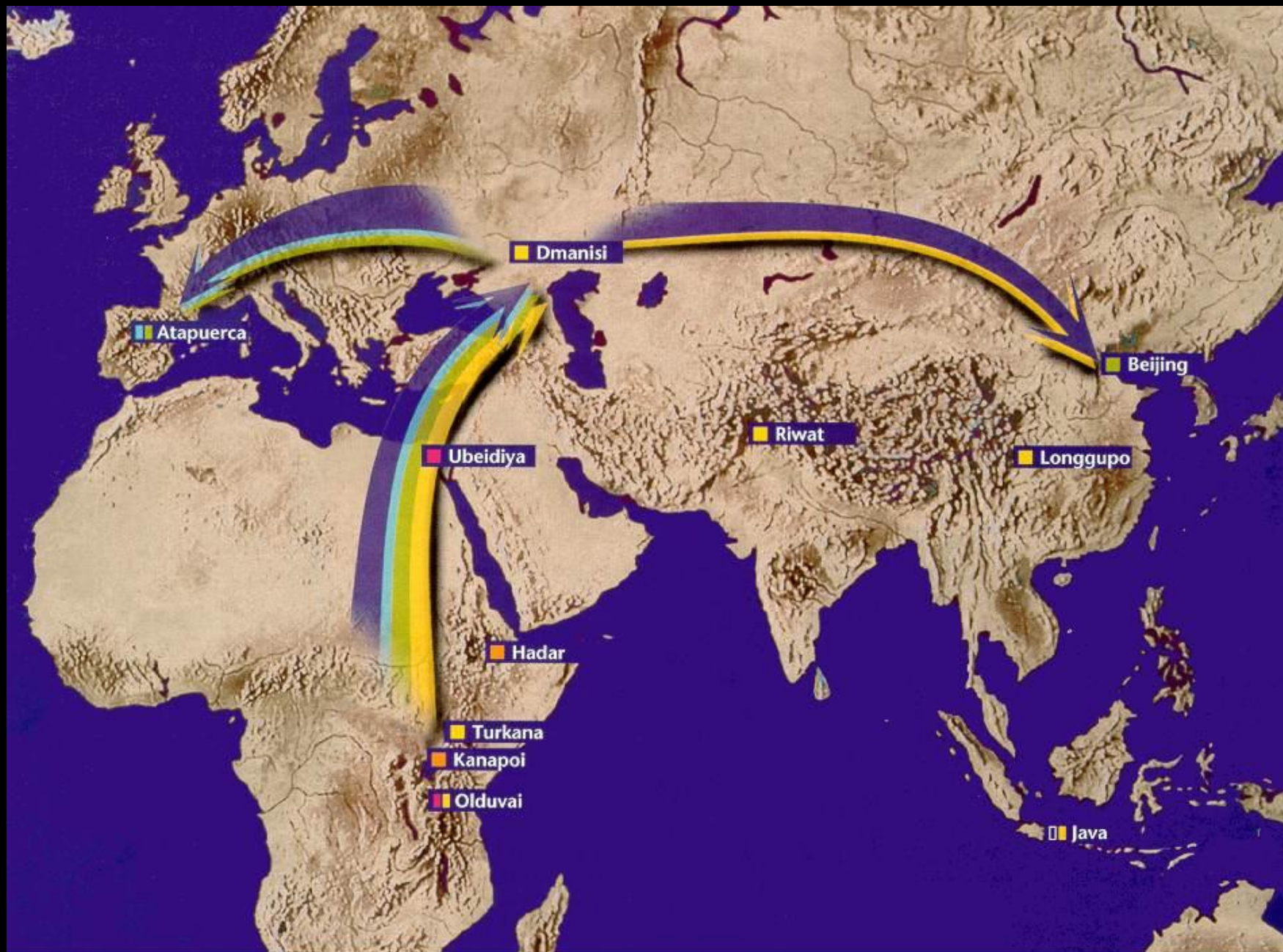


Out of Africa.....

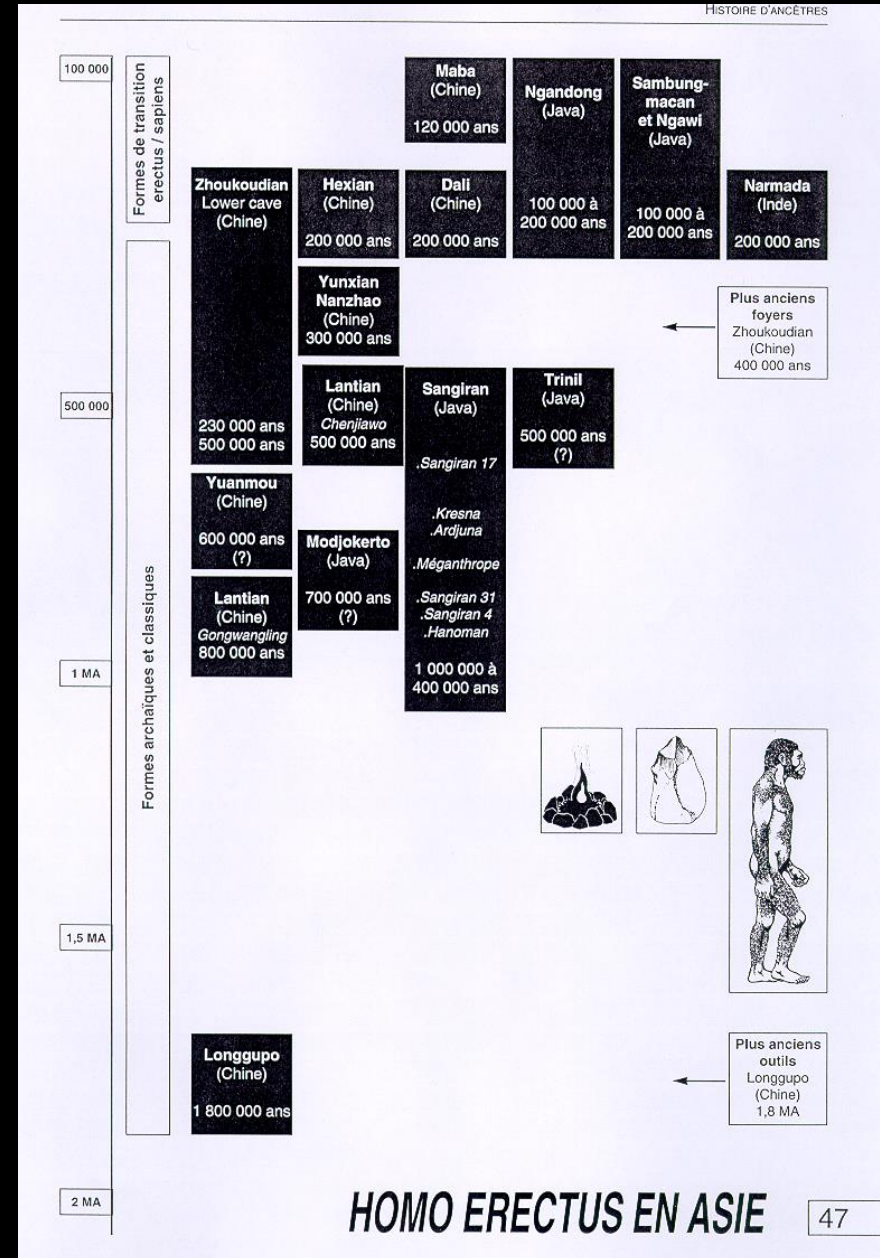


Out of Africa.....



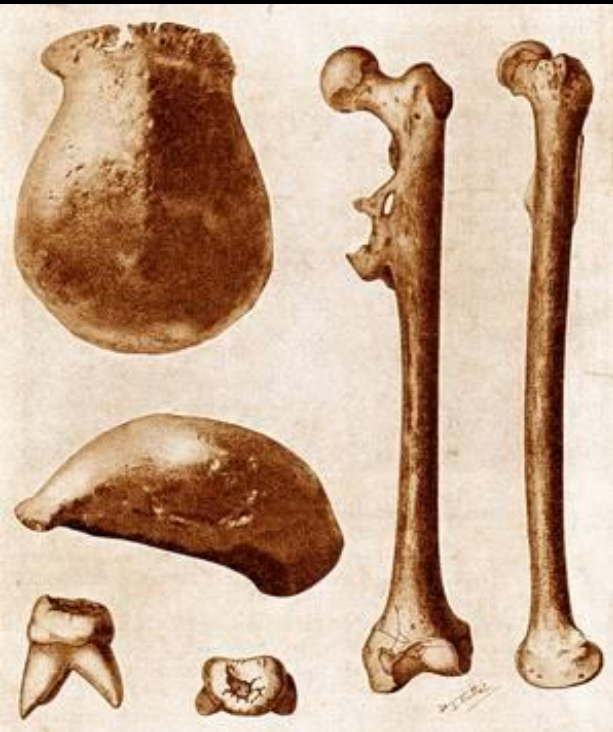


Out of Africa.....verso l'Asia



Out of Africa.....chi?

- ◉ L'olotipo di *H. erectus* è il cranio di Trinil (Java)
- ◉ Appartengono alla stessa specie i crani di Zhoukoudian (Cina), Sangiran e Ngandong
- ◉ ... ritrovamenti africani?



Più antichi fossili africani: *Homo ergaster*
Fossili più recenti: *Homo erectus*

Larghezza cranica massima
Maximum cranial breadth



*Australopithecus
africanus*



Homo erectus



Homo sapiens

Forma sfenoide: larghezza massima in posizione arretrata

Sphenoid shape: Maximum breadth backward

Restringimento dietro il toro sopra-orbitale / *Shrinkage retro orbital*

Forma del cranio in vista superiore

Cranial shape in superior view

Parete convergente verso l'avanti: forma sfenoide

Wall convergente forward: sphenoidal shape



*Australopithecus
africanus*

Parete convergente quasi-parallele: forma ovoidea

Wall almost parallel: ovoidal shape



Homo erectus



Homo sapiens

Prognatismo faciale
Facial prognatism



*Australopithecus
africanus*



Homo erectus



Homo sapiens

Prognatismo alveolare
Alveolare prognathism

Proiezione laterale dei zigomatici
Lateral projection of the zygomatics



*Australopithecus
africanus*



Homo erectus



Homo sapiens

Arcate zigomatiche visibile in vista superiore

Forma dell'osso frontale: convessità e inclinazione

Frontal shape: convexity and inclination



*Australopithecus
africanus*



Homo sapiens



Homo erectus

Forma dell'osso occipitale

Occipital shape



*Australopithecus
africanus*

Piano nucale lungo e
squama occipitale
piccola (contrario dei
sapiens) = muscoli
più potenti ma
cervello più piccolo



Homo sapiens

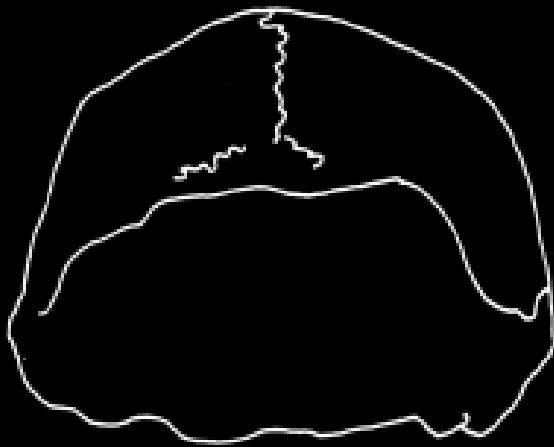
*Long nuchal plan and
small occipital
squama (opposite of
sapiens) = stronger
muscle but smaller
brain*



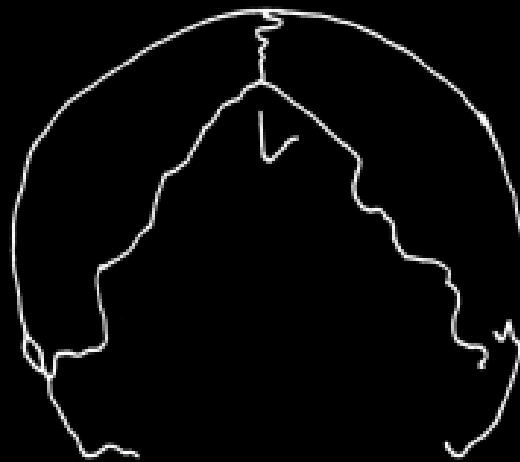
Homo erectus

Forma del cranio in vista posteriore

Cranial shape in posterior view



Pentagonale a parete
convergente verso l'alto
*Pentagonal with the wall
convergent upward*



Circolare (Caso
particolare dei
neandertaliani)
*Circular
(neanderthals)*



A « tetto di casa »
(*Homo sapiens*)
In « House roof »
(*Homo sapiens*)

Bozze parietale non sviluppate
Undeveloped parietal bump

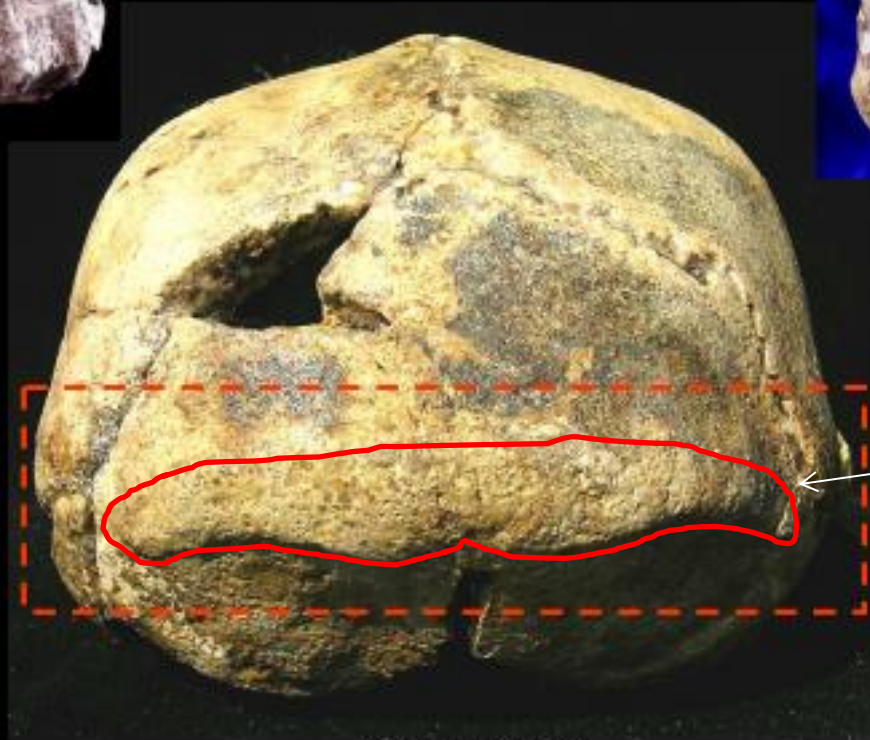
Toro occipital transverso
Occipital transverse torus



*Australopithecus
africanus*



Homo sapiens



Homo erectus

Toro
trasverso
occipitale

Complesso sopra-orbitale
Supra-orbitale complex

Complexe supra-orbitaire



Australopithecus africanus



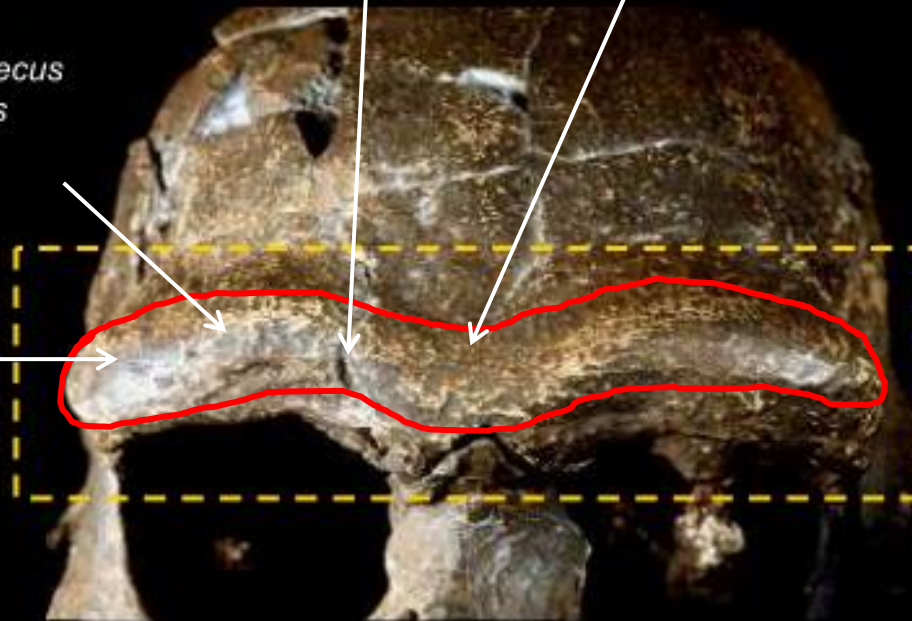
Homo sapiens

Arcata
sopraccigliare

Glabella

Solco sopra-
orbitale

Trigone sopra-
orbitale



Homo erectus

torus supra-orbitaire: tous
les éléments sont fusionnés

Spazio interorbitale largo = becco encefalico / *large interorbital space = encephalic beak*

Out of Africa.....chi?

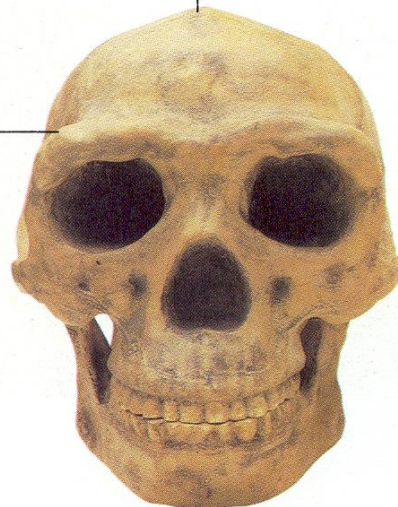
cranio dell'*Homo erectus*, «uomo di Pechino»



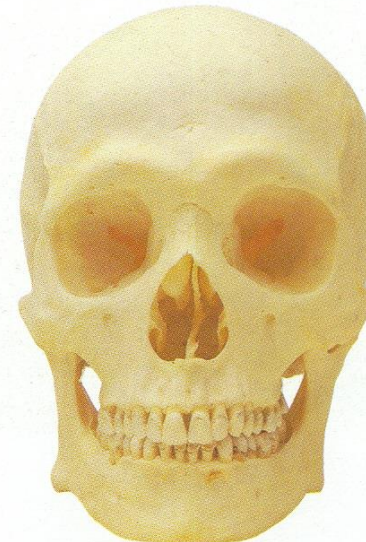
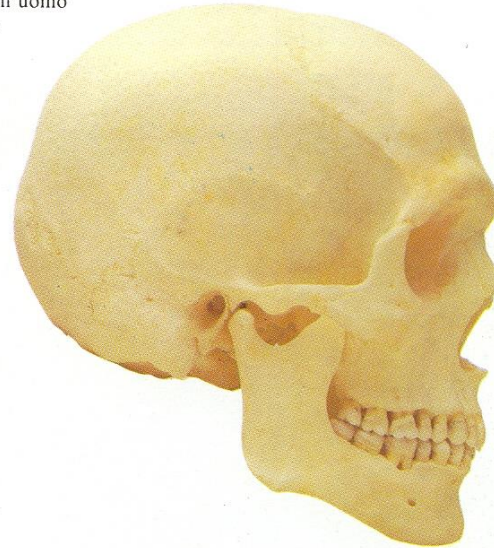
spessa cresta sulla parte posteriore del cranio

apice del cranio carenato

arcata sopraorbitale dritta e spessa



cranio dell'uomo moderno



Java

Modjokerto 1,800,000

Sangiran 1,800,000-1,600,000

Trinil 900,000 ?

Ngandong 400,000



China

Yuanmou 1,700,000 ?

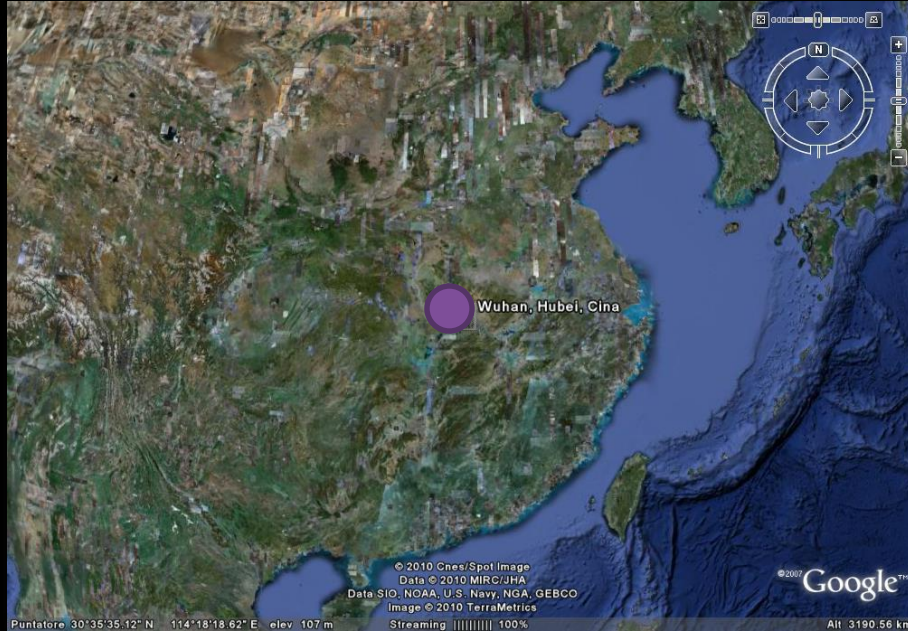
Lantian 800,000 780

Zhoukoudian 750,000-450,000

Hexian 400,000 1025



LONGUPPO (1,9 Ma BP)



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Article original

Les plus anciennes occupations humaines en Chine

The earliest human settlements in China

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^c Département de préhistoire, Muséum national d'histoire naturelle de Paris, France

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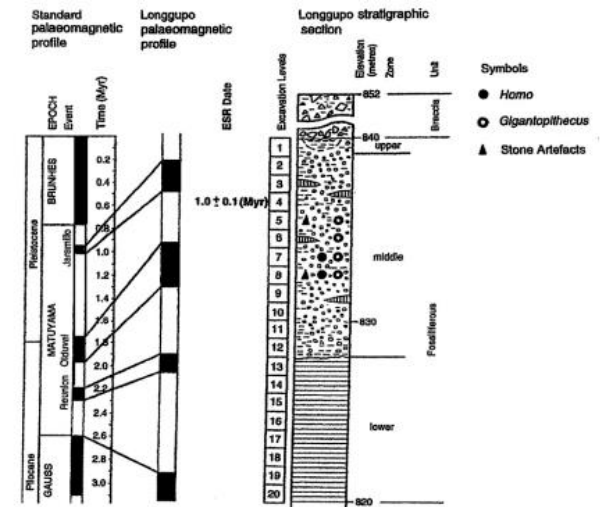


Fig. 6. Stratigraphie de la grotte Longgupo et hypothèses de datation (d'après Huang et al., 1995).

Fig. 6. Stratigraphy of the Longgupo cave and hypotheses for datation (after Huang et al., 1995).

YUANMOU BASIN (1,9 Ma BP)



À l'heure actuelle, l'hominidé de Yuanmou est représenté par seulement deux incisives supérieures centrales d'un même individu, qui apparaît comme un *Homo erectus* (Hu, 1973). Seules 22 pièces d'industrie lithique ont été trouvées sur le site, dont 12 proviennent de la fouille. En plus, 12 artefacts lithiques ont été rapportés de quatre localités voisines, considérées comme appartenant à la même période que l'hominidé du site de Yuanmou (Wen, 1978 ; Huang, 2000). L'industrie lithique est en quartz et en quartzite, et présente de petites dimensions (généralement moins que 60 mm) ; elle consiste en des éclats bruts, des nucléus exploités par percussion directe et des outils retouchés plus ou moins soigneusement, dont des grattoirs latéraux (Fig. 8).

Les analyses paléomagnétiques initiales indiquent une datation ancienne du site de Yuanmou, rapporté au sous-chronne normal de Gilsa, vers 1,6 Ma (Huang, 2000). Ce résultat a été sujet à beaucoup de controverses depuis lors, d'autant plus que l'existence du sous-chronne de Gilsa est remise en cause. Certains suggérèrent un âge du Pléistocène moyen (Brunhes). Récemment, une équipe de recherche sinojaponaise réétudie en collaboration la lithostratigraphie, la sédimentologie, et l'ensemble des dépôts de la séquence du Cénozoïque supérieur, qui inclut les couches fouillées dans le bassin de Yuanmou, où se trouvaient les fossiles humains. La séquence recadrée selon les nouvelles études magnétostratigraphiques, place l'*Homo erectus* de Yuanmou au-dessus de l'inversion Matuyama-Brunhes (Hyodo et al., 2002), qui est datée d'entre 0,78 et 0,79 Ma. Cependant, ces dates récentes sont difficiles à mettre en relation avec les résultats précédents, fournis par les analyses en biostratigraphie, lithostratigraphie et

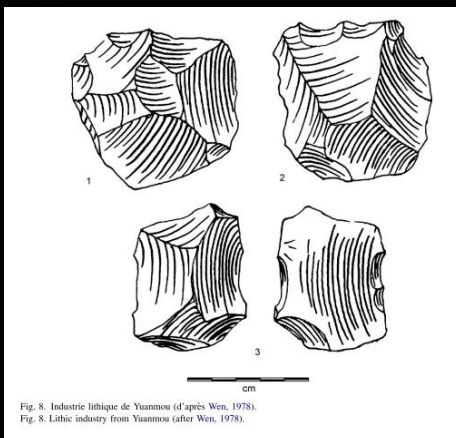
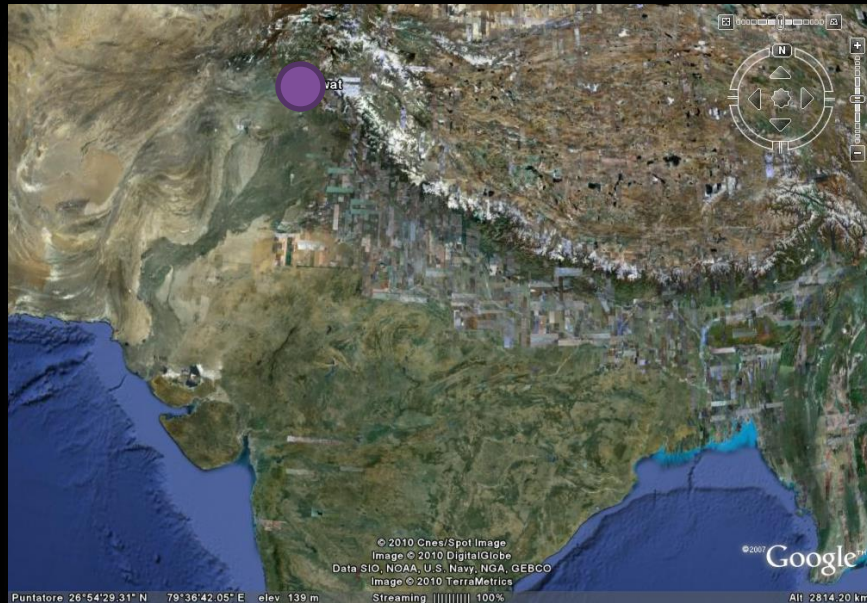


Fig. 8. Industrie lithique de Yuanmou (d'après Wen, 1978).
Fig. 8. Lithic industry from Yuanmou (after Wen, 1978).

RIWAT 1,9 Ma BP



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Paléontologie humaine et Préhistoire

Les premiers peuplements d'Asie du Sud : vestiges culturels

Claire Gaillard

UMR 5198 du CNRS, département de préhistoire du Muséum national d'histoire naturelle,
Institut de paléontologie humaine, 1, rue René-Panhard, 75013 Paris, France

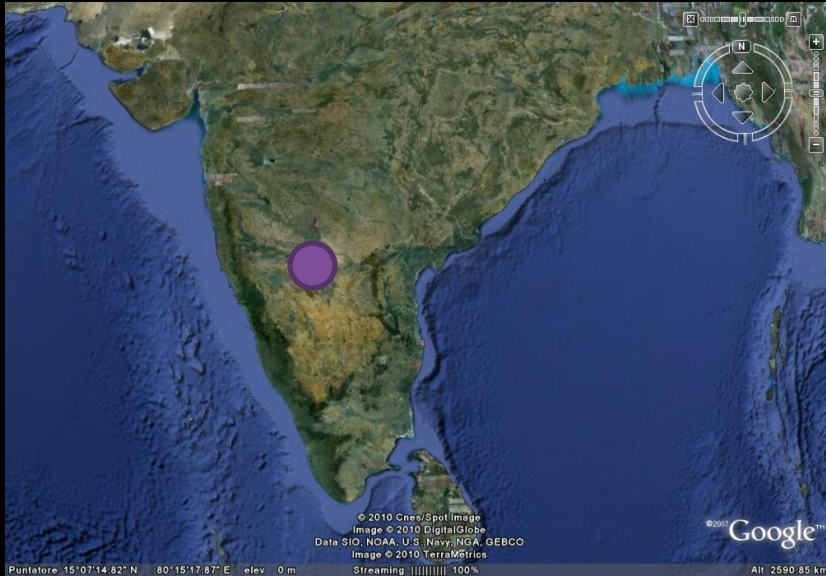
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Disponible sur internet le 28 novembre 2005

Rédigé à l'invitation du Comité éditorial

The earliest artefacts in South Asia were found at Riwayat, in the western region of the Siwalik range (near Rawalpindi). They are a few flakes from a conglomerate layer, folded at the time of Soan syncline formation, around 1.9 Ma [37,38].

ISAMPUR 1 Ma BP



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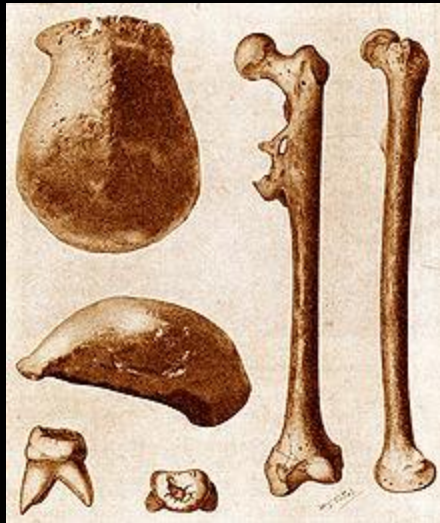
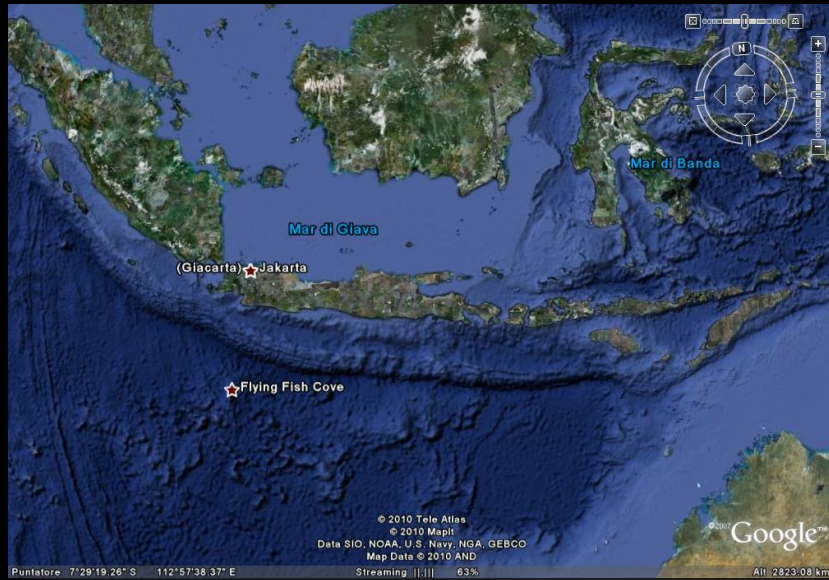
Disponible sur internet le 28 novembre 2005

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substratum même. Ce niveau acheuléen a été daté par la méthode ESR, appliquée à des dents de grands herbivores. Les résultats publiés proposent une date moyenne de $1,27 \pm 0,17$ Ma, en supposant, sur la base de tests concernant le Pléistocène moyen, que l'activité de l'échantillon résulte d'une incorporation tardive (*late uptake*, LU) [2,30]. Cette datation est vivement remise en question par certains auteurs [1] et d'autres analyses sont attendues pour confirmer ou infirmer ces premiers résultats [28]. Toujours est-il que le site d'Isampur appartient très probablement au Pléistocène inférieur.

Homo erectus à Java (*Pithecanthropus*)



1.9 ± 0.5 mya (Jacob & Curtis 1971)

1.81 ± 0.04 mya (Swisher *et al* 1994).



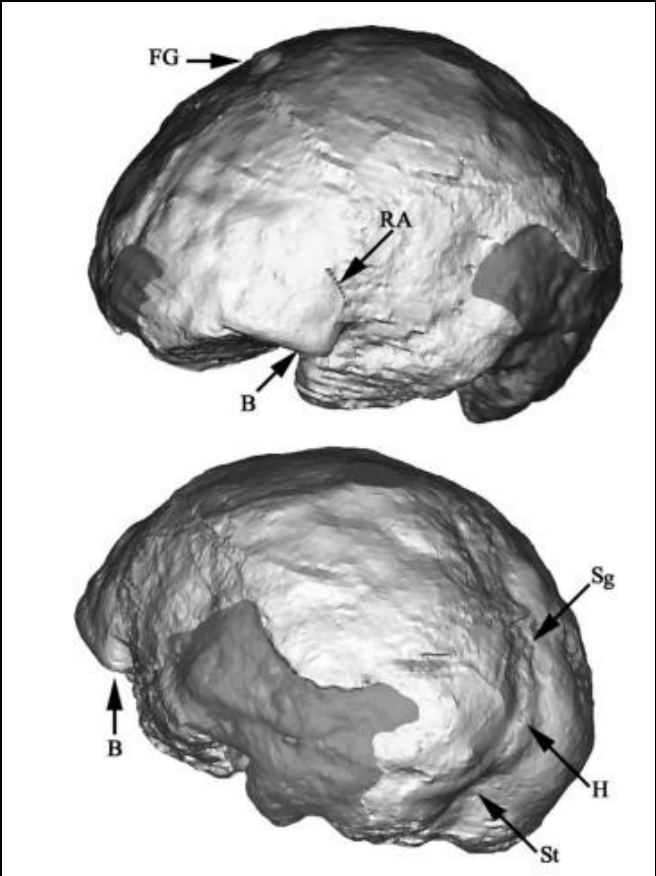
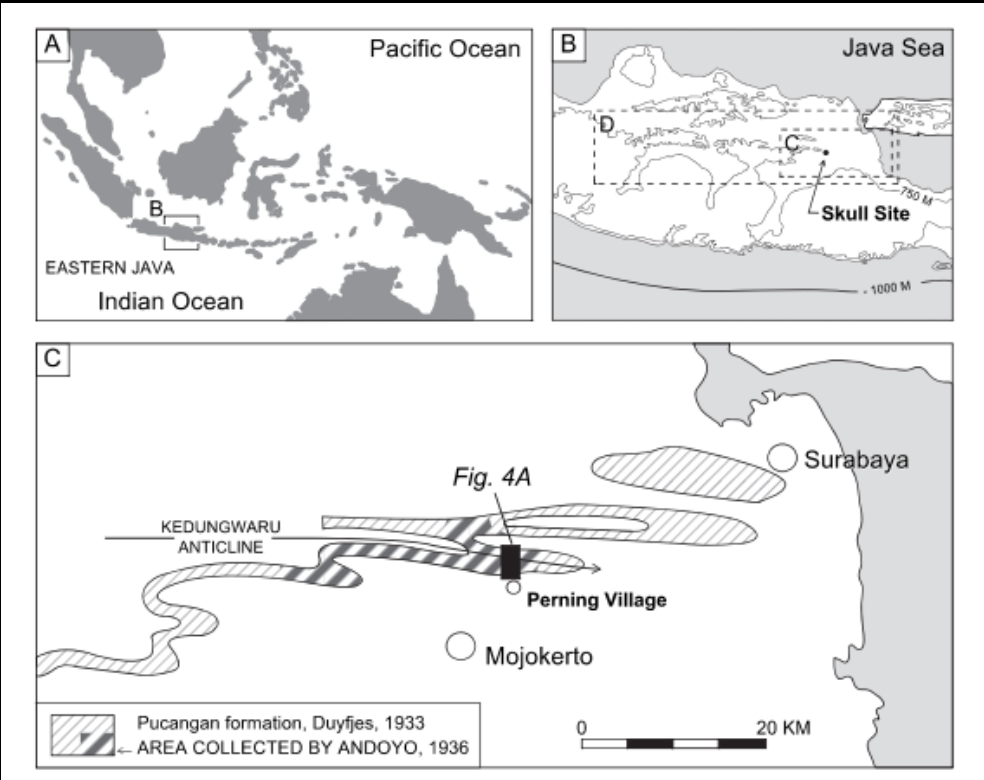
1.6 ± 0.04 mya (Jacob & Curtis 1971)

1.66 ± 0.04 mya (Swisher *et al* 1994)

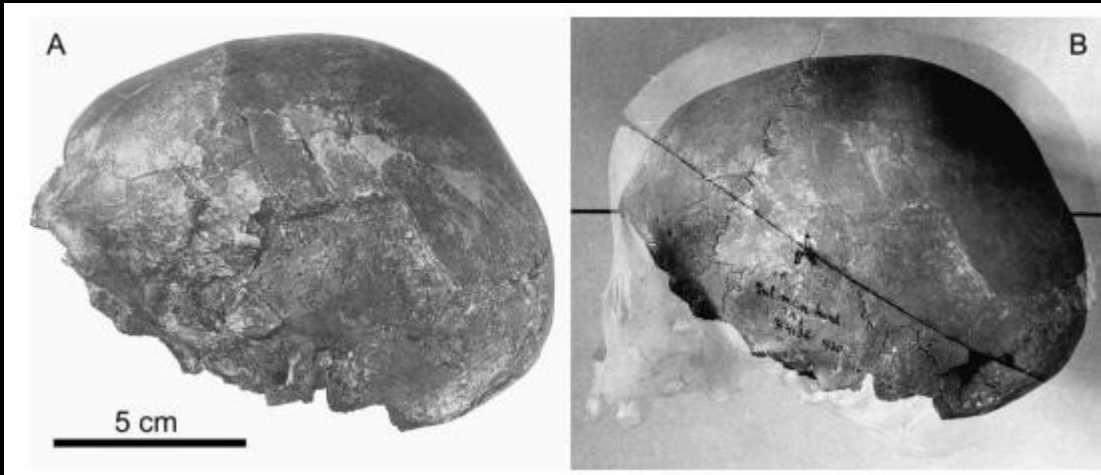
1.64-1.67 mya: Kalibeng-Pucangan (Sémah 2000)

1.66 ± 0.04 mya: Lowest Pucangan: (Widiasmoro 2001).

Mojokerto, 1.9 Myr



Visualization of Mojokerto endocranial cast (Balzeau, 2005)



Photographs of Mojokerto child skull. A) left lateral view B) compared with 1,5 years old modern-child skull



Sangiran 2

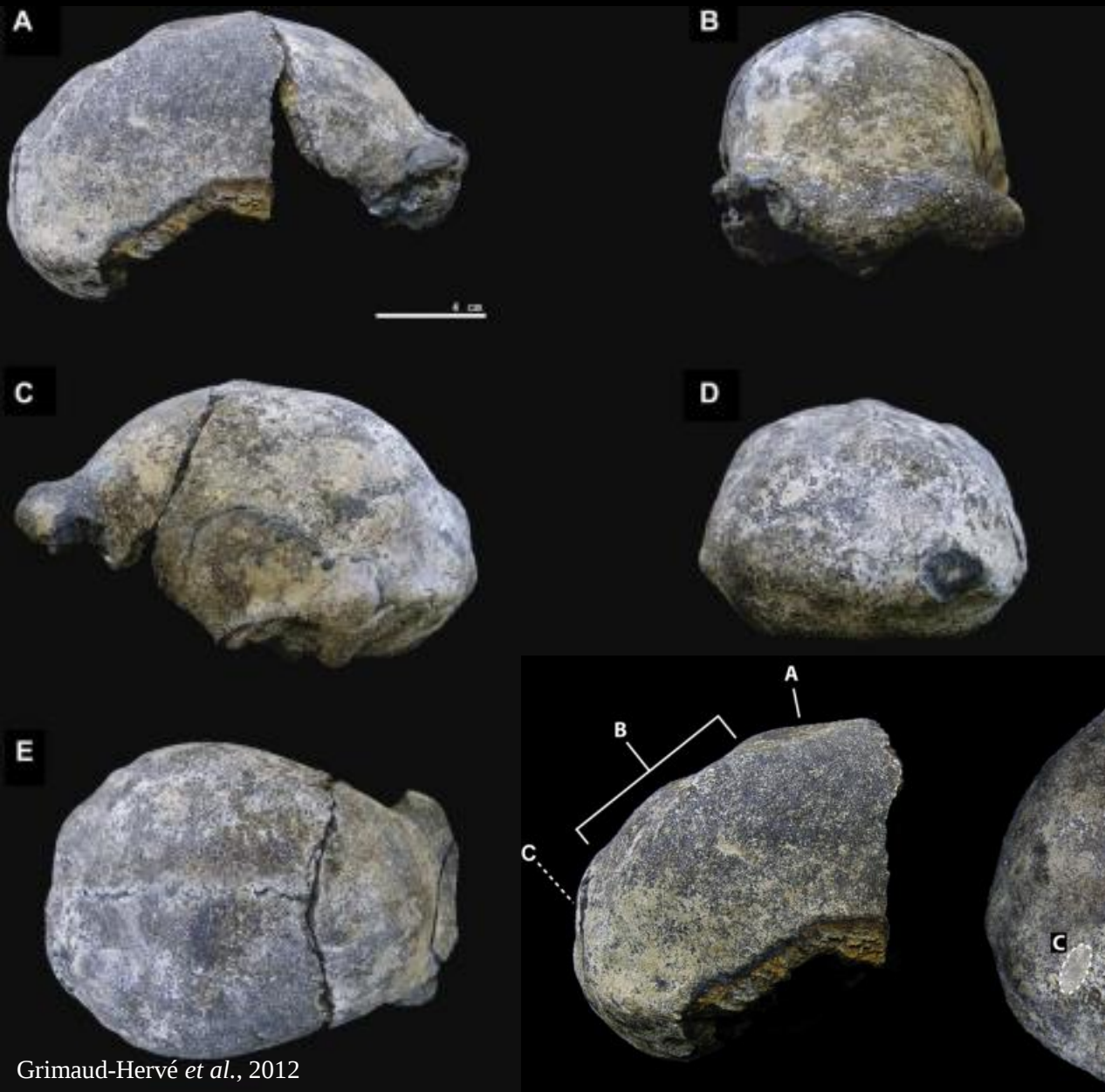


(a)

Sangiran 38



(b)



Right lateral (A), anterior (B), left lateral (C), posterior (D), superior (E) views of the Bukuran cranial vault from Sangiran. Oriented in the estimated Frankfurt Horizontal Plane. Scale $\frac{1}{4}$ 4 cm. (AeE) and 5 cm (F).



Main pathological depressions of right lateral view. Scale $\frac{1}{4}$ 2 cm

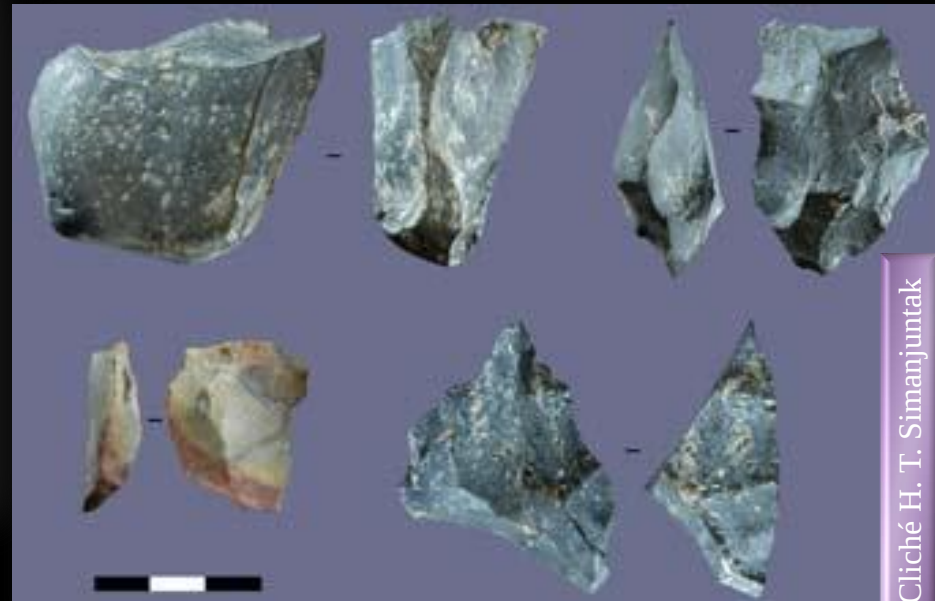
Soa Bassin, Flores



Lithic artifacts discovery at the open sites of Mata Menge, Tangitallo, etc associated with *Stegodon*, komodo dragon, rat and various other taxa from layers dated to c.800,000 BP (Morwood *et al.* 1997-1999).



Dozu Dhalu, Soa
gorga 07



LETTERS

Hominins on Flores, Indonesia, by one million years ago

Adam Brumm¹, Gitte M. Jensen², Gert D. van den Bergh^{1,3}, Michael J. Morwood¹, Iwan Kurniawan⁴, Fachroel Aziz⁴ & Michael Storey²

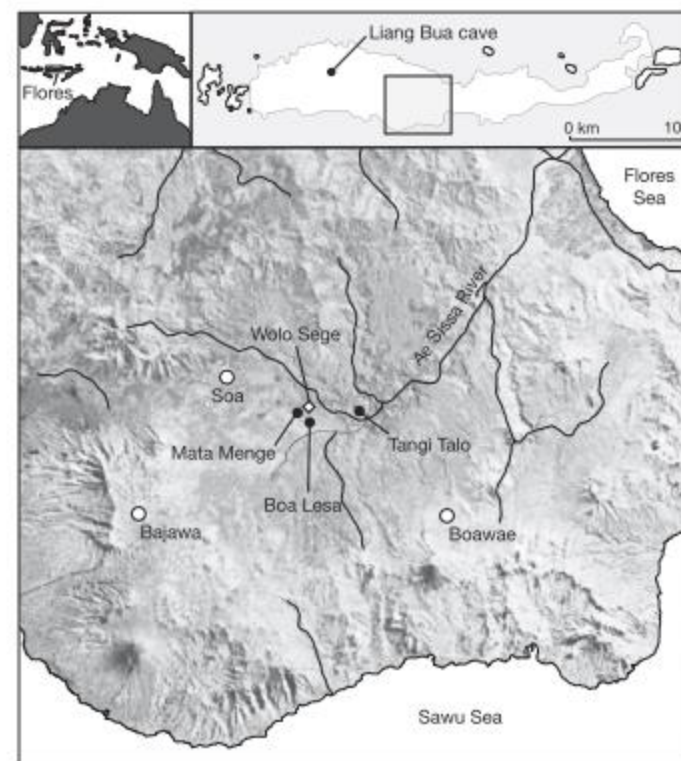
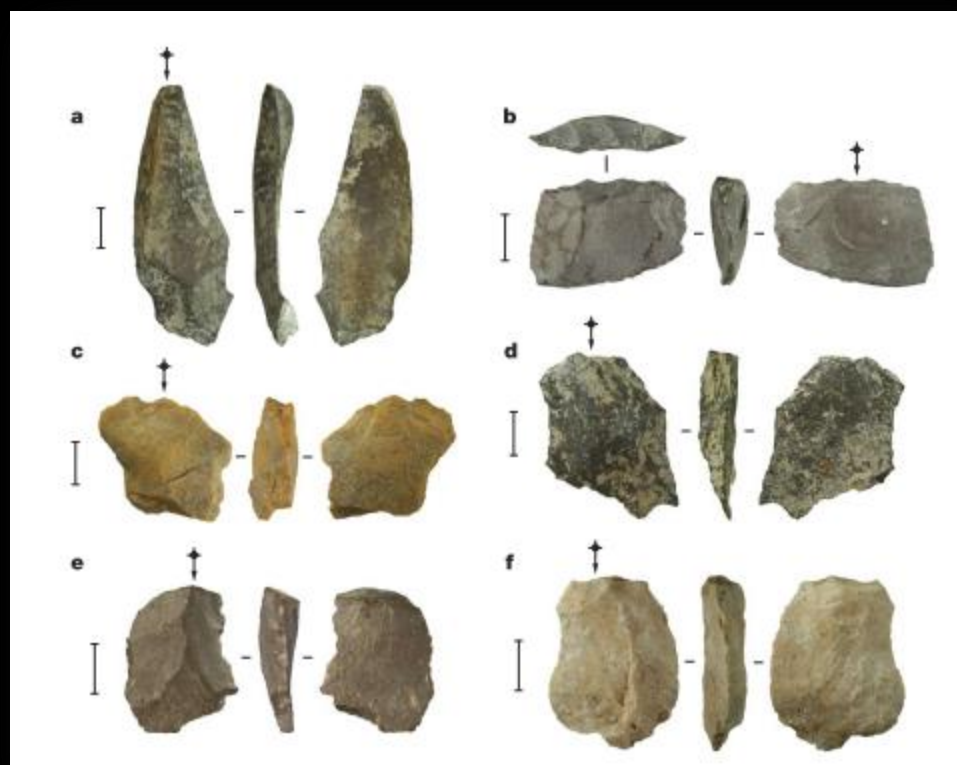
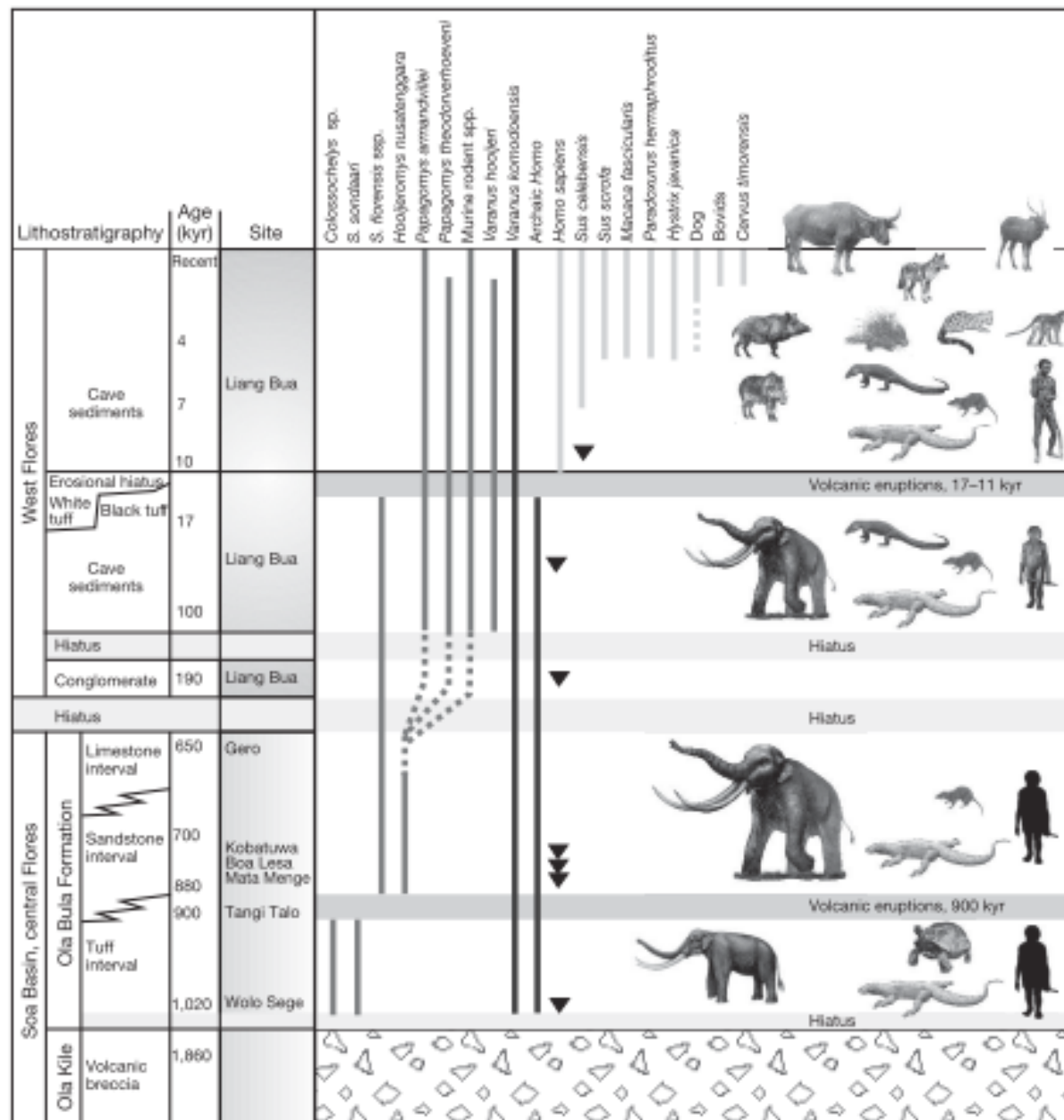


Figure 1 | Map of Flores showing the location of Wolo Sege. Also shown are other key early- or middle-Pleistocene archaeological and palaeontological localities in the Soa Basin mentioned in the text, and the late-Pleistocene Liang Bua cave in western Flores. (Base maps courtesy of D. Hobbs.)



A new small-bodied hominin from the Late Pleistocene of Flores, Indonesia

P. Brown¹, T. Sutikna², M. J. Morwood¹, R. P. Soejono², Jatmiko², E. Wayhu Saptomo² & Rokus Awe Due²

¹Archaeology & Palaeoanthropology, School of Human & Environmental Studies, University of New England, Armidale, New South Wales 2351, Australia

²Indonesian Centre for Archaeology, Jl. Raya Condut Pejaten No. 4, Jakarta 12001, Indonesia

Currently, it is widely accepted that only one hominin genus, *Homo*, was present in Pleistocene Asia, represented by two species, *Homo erectus* and *Homo sapiens*. Both species are characterized by greater brain size, increased body height and smaller teeth relative to Pliocene *Australopithecus* in Africa. Here we report the discovery, from the Late Pleistocene of Flores, Indonesia, of an adult hominin with stature and endocranial volume approximating 1 m and 380 cm³, respectively—equal to the smallest-known australopithecines. The combination of primitive and derived features assigns this hominin to a new species, *Homo floresiensis*. The most likely explanation for its existence on Flores is long-term isolation, with subsequent endemic dwarfing, of an ancestral *H. erectus* population. Importantly, *H. floresiensis* shows that the genus *Homo* is morphologically more varied and flexible in its adaptive responses than previously thought.

Description of *Homo floresiensis*

Order Primates Linnaeus, 1758
 Suborder Anthropoidea Mivart, 1864
 Superfamily Hominoidea Gray, 1825
 Family Hominidae Gray, 1825
 Tribe Hominini Gray, 1825
 Genus *Homo* Linnaeus, 1758
Homo floresiensis sp. nov.

Horizon. The type specimen LB1 was found at a depth of 5.9 m in Sector VII of the excavation at Liang Bua. It is associated with calibrated accelerator mass spectrometry (AMS) dates of approximately 18 kyr and bracketed by luminescence dates of 35 ± 4 kyr and 14 ± 2 kyr. The referred isolated left P₃ (LB2) was recovered just below a disconformity at 4.7 m in Sector IV, and bracketed by a U-series date of 37.7 ± 0.2 kyr on flowstone, and 20 cm above an electron-spin resonance (ESR)/U-series date of 74^{+14}_{-12} kyr on a *Stegodon* molar.

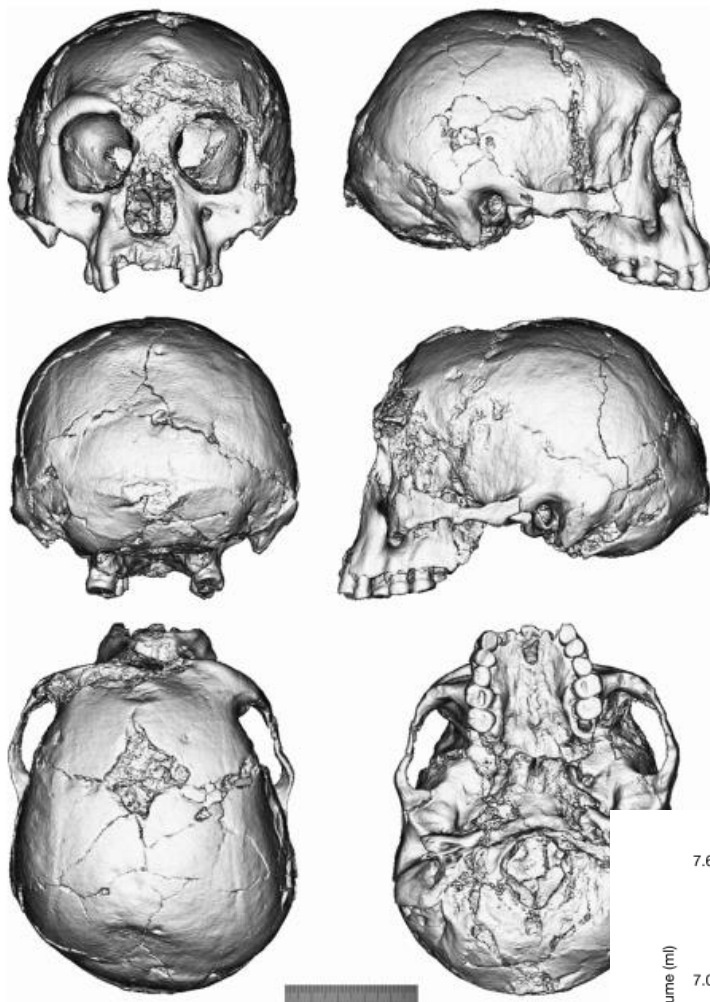


Figure 2. Surface rendered CT images of LB1/1. The orientations and scale same as in

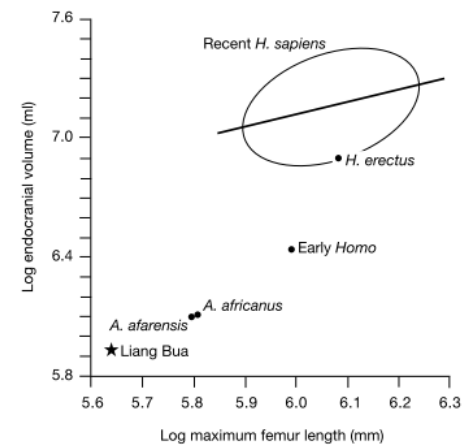


Figure 3 Relationship between endocranial volume and femur length in LB1, *A. afarensis*, *A. africanus*, early *Homo* sp., *H. erectus* and modern *H. sapiens*. Modern human data, with least squares regression line and 95% confidence ellipse, from a global sample of 155 individuals collected by P.B. Details of the hominin samples are in the Supplementary Information.

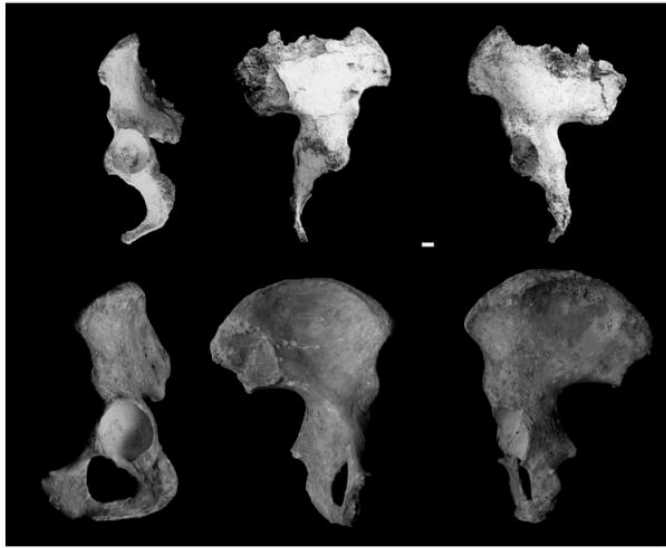


Figure 6 Comparison of the left innominate from LB1 with a modern adult female *H. sapiens*. Lateral (external), and medial and lateral views of maximum iliac breadth. The pubic region of LB1 is not preserved and the iliac crest is incomplete. Scale bar, 1 cm.

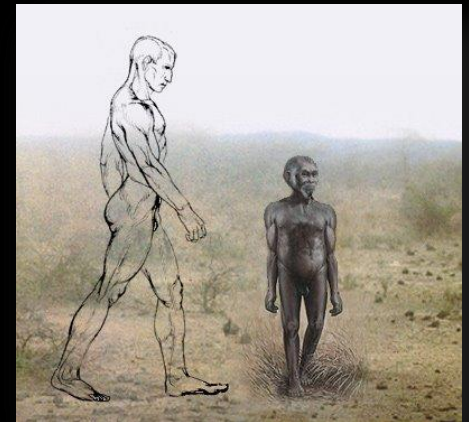


Figure 7 Anterior and posterior views of the LB1 right femur and tibia, with cross-sections of the femur neck and midshaft, and tibia midshaft. The anterior surfaces of the medial and lateral condyles of the femur are not preserved. With the exception of the medial malleolus, the tibia is complete and undistorted. Scale bar, 1 cm.

LB1: Mosaica di caratteri primitivi, unici e derivati mai visti in altri ominidi: volume endocranico piccolo e stature = australopitecini

Ma no condivide con questo genere altri caratteri come le dimensione dentale, il prognatismo facciale accentuato che sono piu simili ad altre specie del genere *Homo*

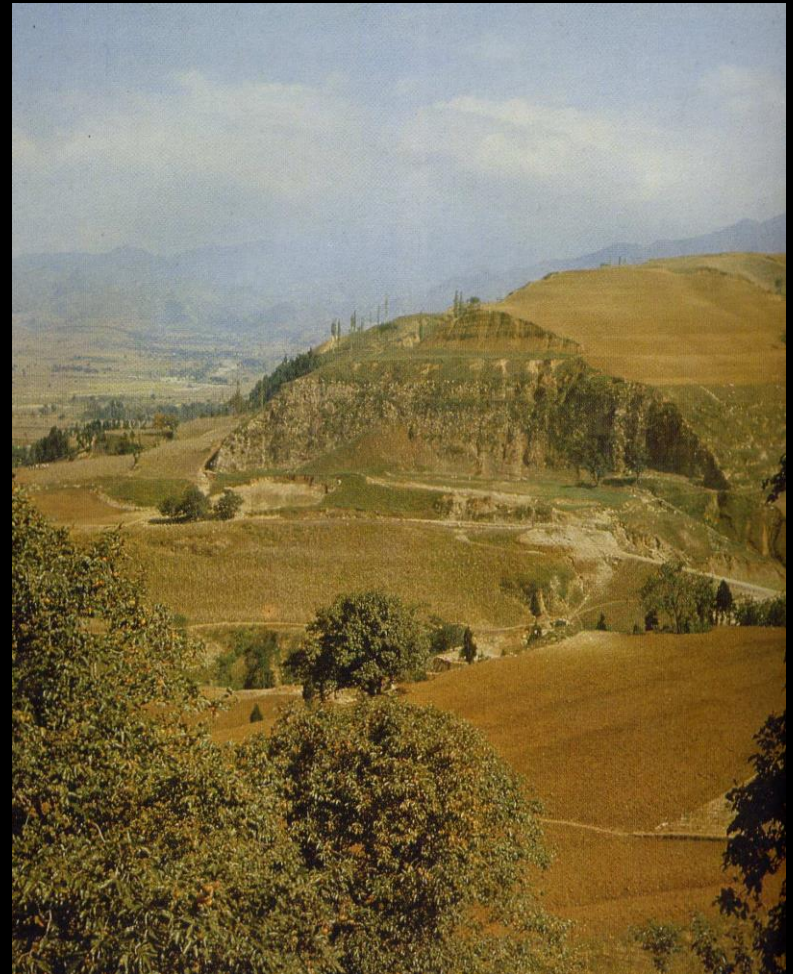
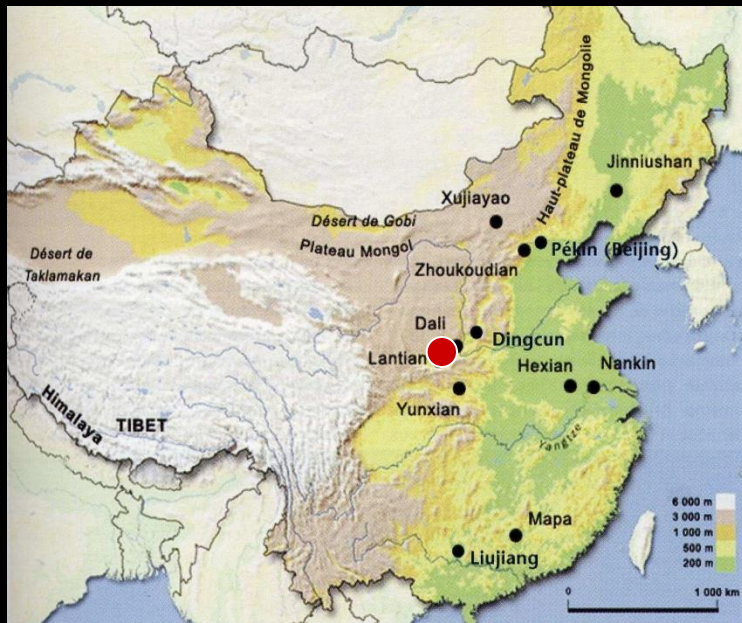
LB1 has the small endocranial volume and stature evident in early australopithecines, it does not have the great postcanine tooth size, deep prognathic facial skeleton and masticatory adaptations common to members of this genus. Instead, the facial and dental proportions, postcranial anatomy consistent with human-like obligate bipedalism.



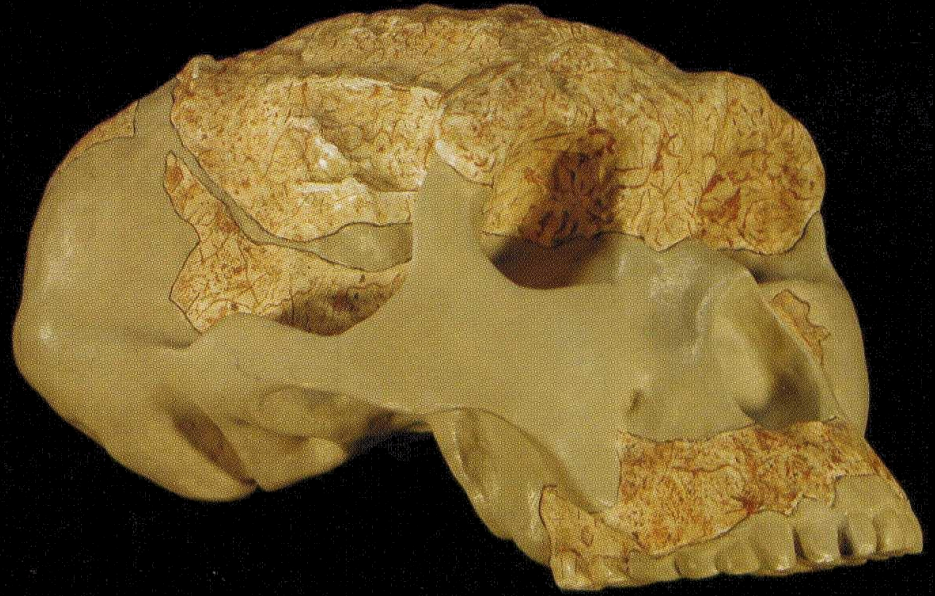
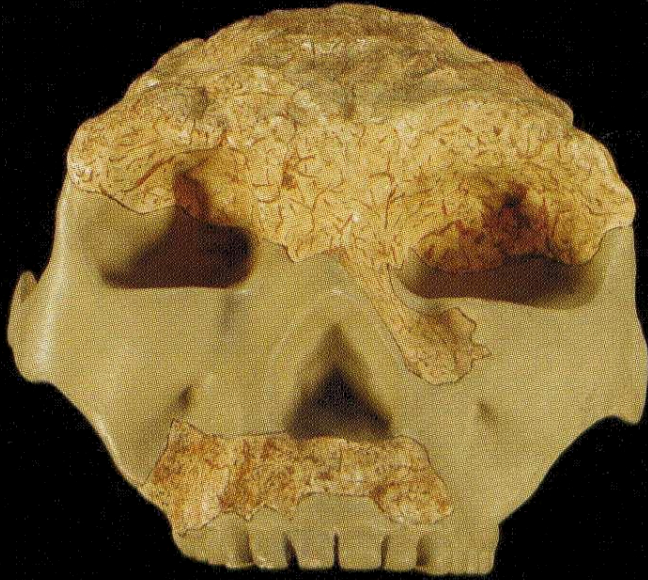
Out of Africa.....verso l'Asia

L'area fossilifera è costituita da più siti datati a circa 800.000 anni fa.

LANTIAN



Out of Africa.....verso l'Asia

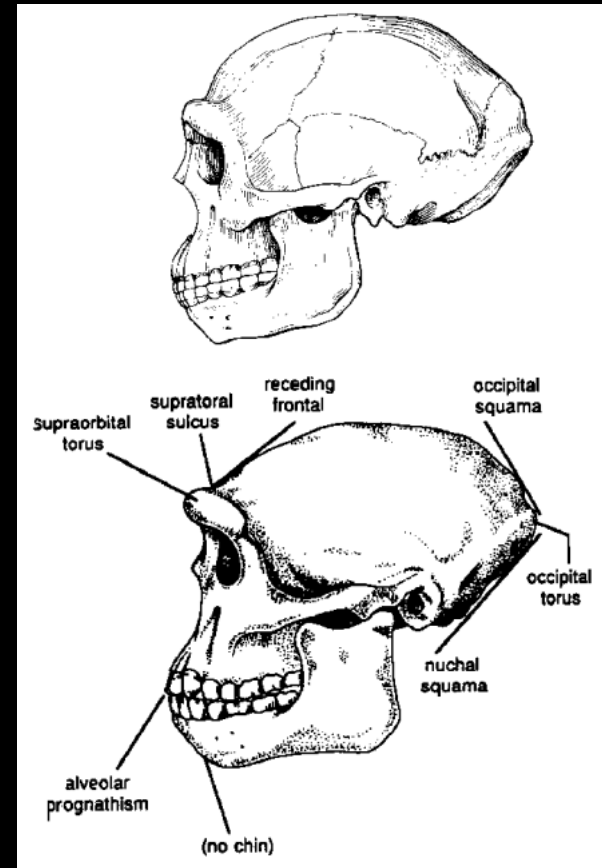
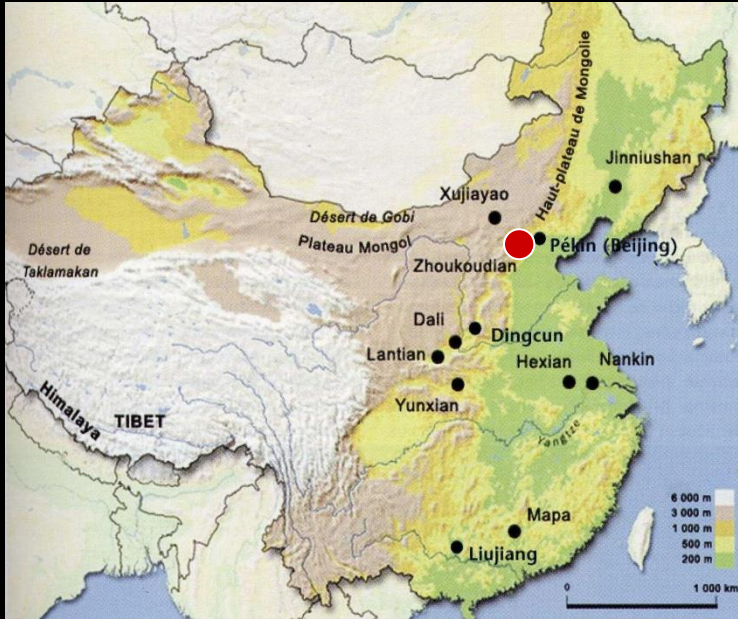


RICOSTRUZIONE DELLA FACCIA, DEL
CRANIO E DELLA MANDIBOLA DI
LANTIAN -

Out of Africa.....verso l'Asia

ZHOUKOUDIAN

La località 1 è stata datata tra 600.000 e 200.000 anni BP. Si tratta di un insediamento in grotta.



Confronto tra Sangiran 4 (basso) e Zhoukoudian)