

Antropologie obecná I

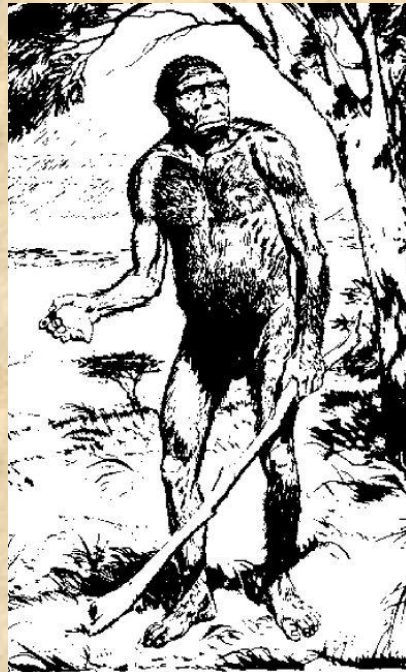
Předci hominidů



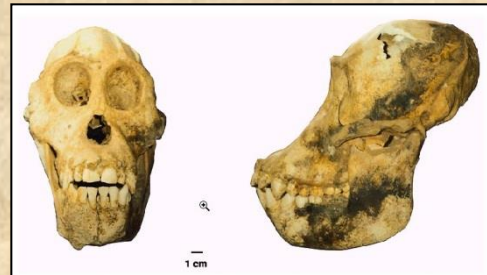
Doc. Václav Vančata

Antropologický ústav Př F MU

Lineární pojetí evoluce hominidů

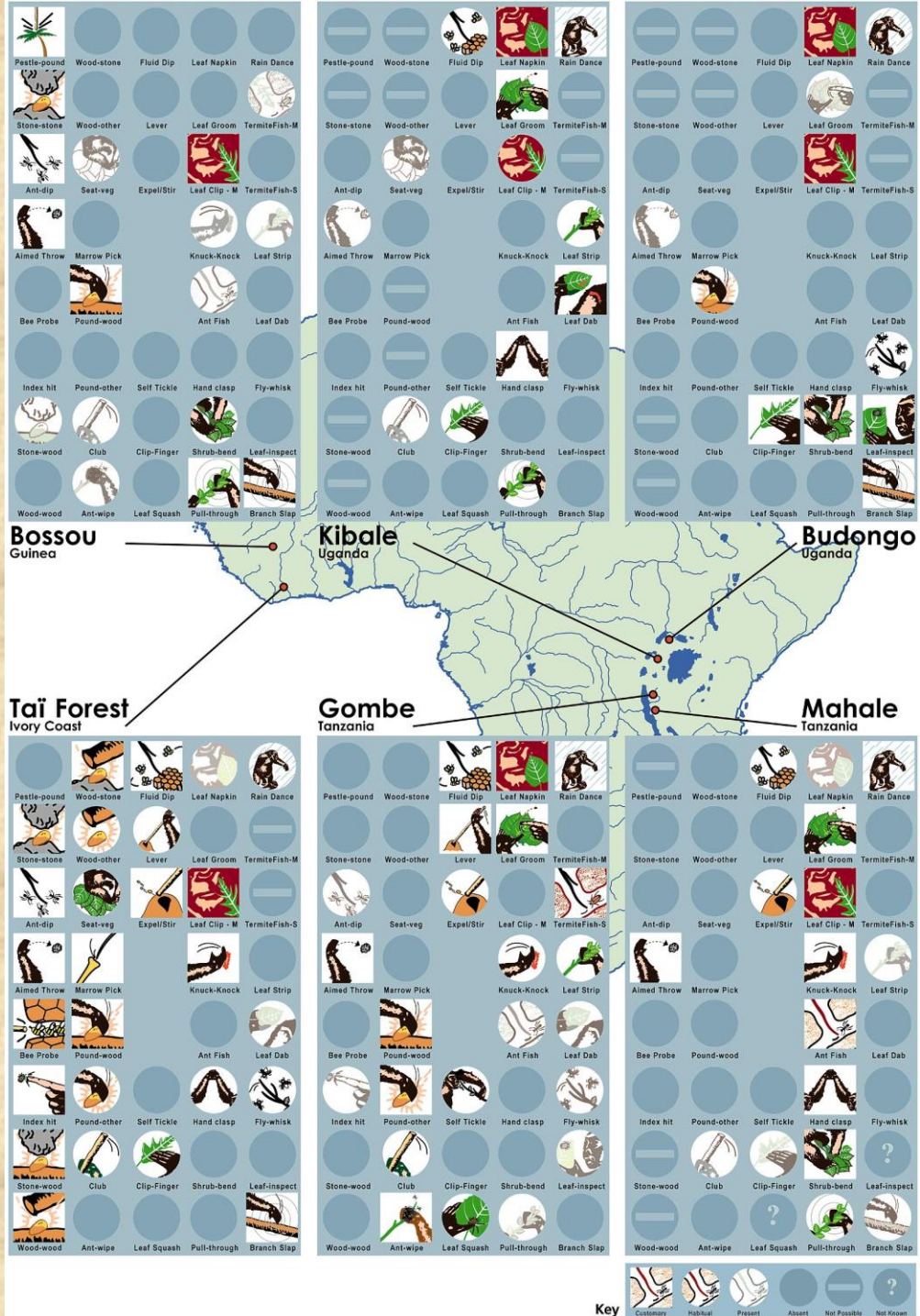


Orangutani – nástroje, voda a lov ryb

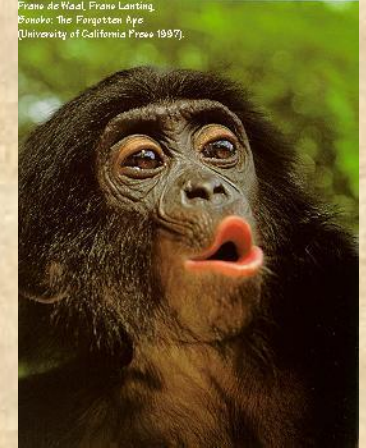


Pan troglodytes

nástrojové chování, tradice a lov



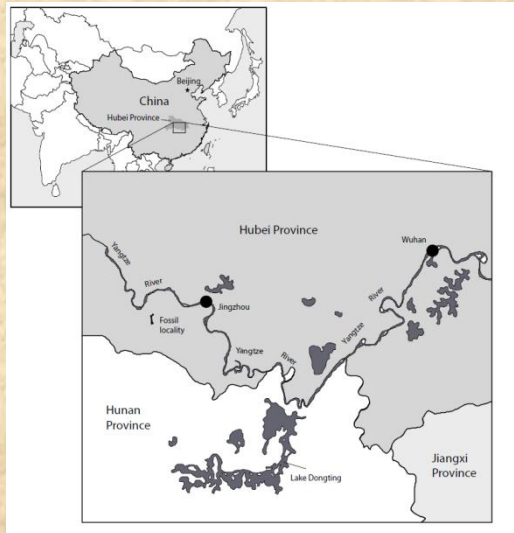
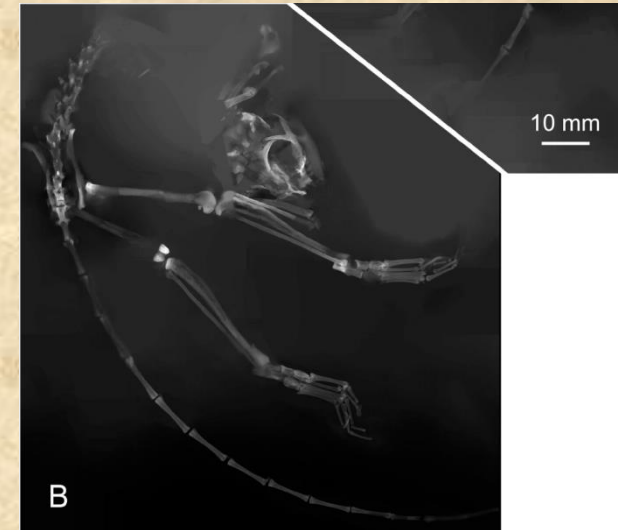
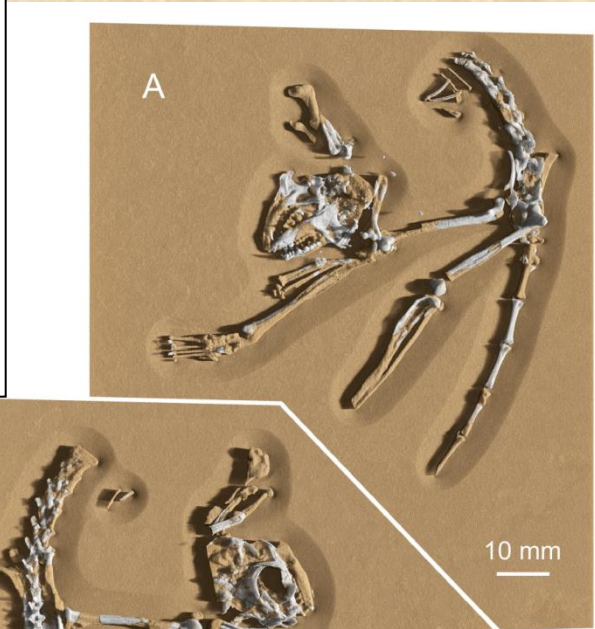
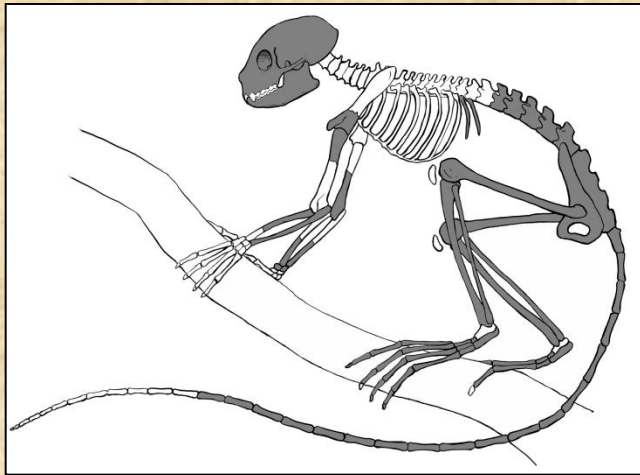
Gorily a šimpanzi – nejstarší nález pouhých 535 000 let

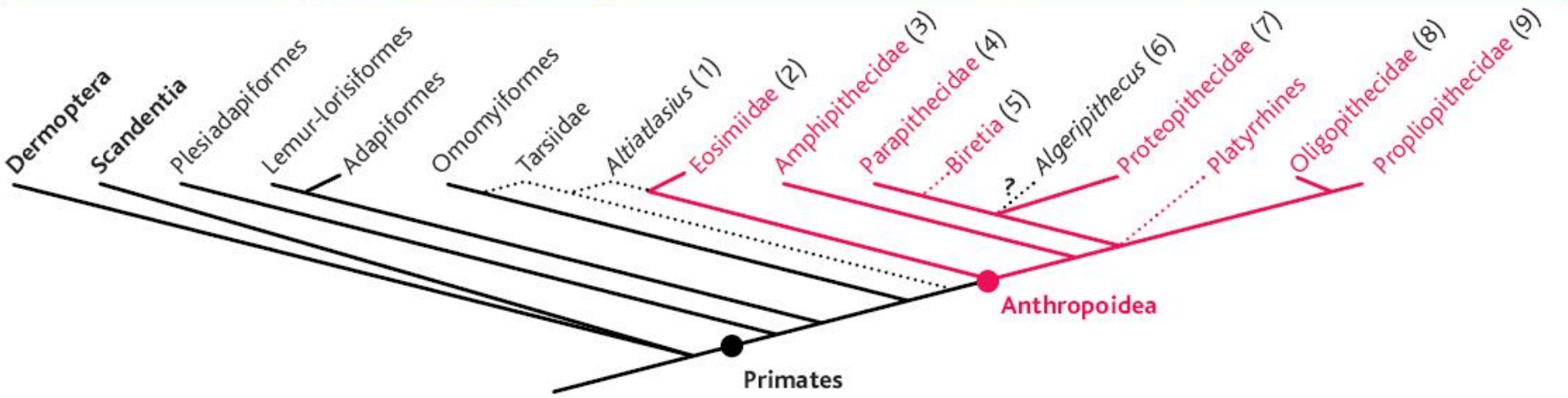
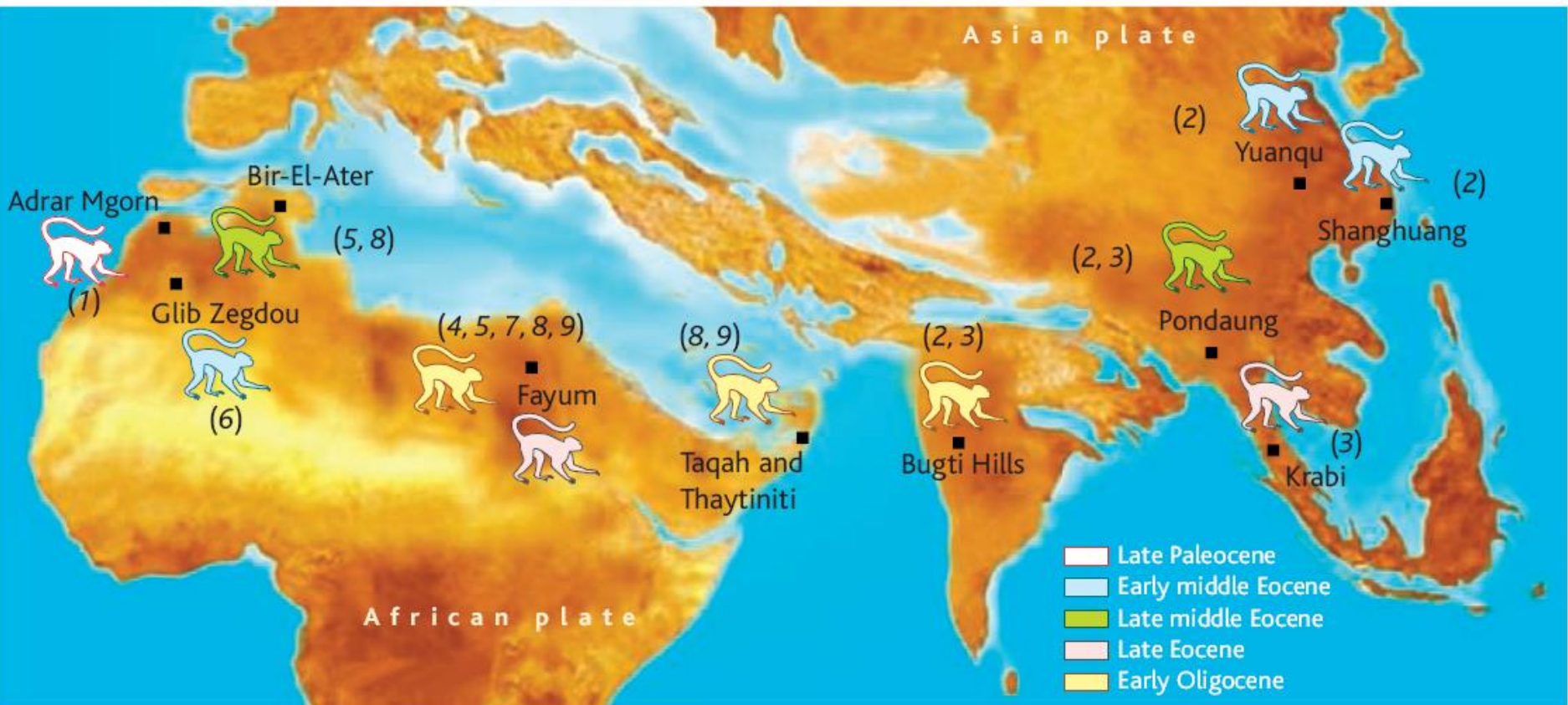


Franz de Waal, Frans Lanting.
Bonobo: The Forgotten Ape.
[University of California Press 1997].



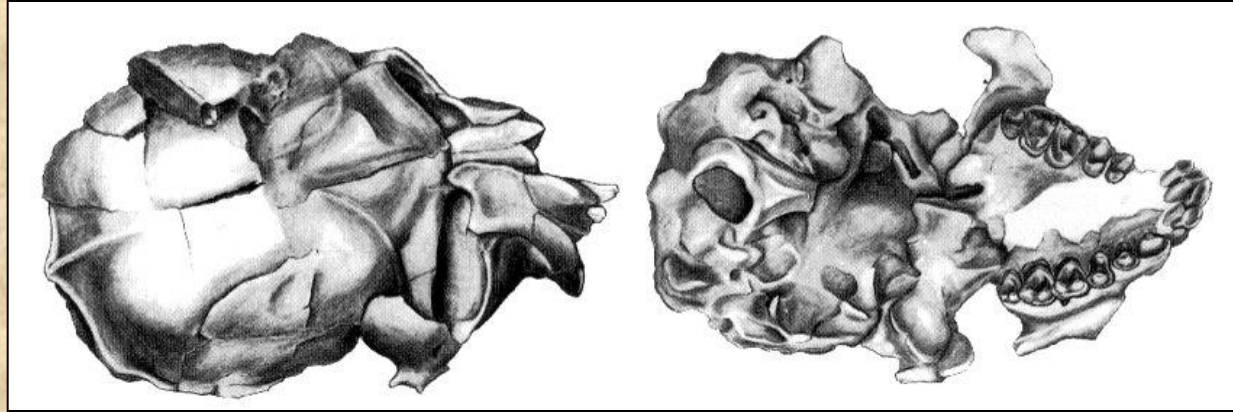
Archicebus achilles - antropoid nártounovití - 55 milionů - Čína



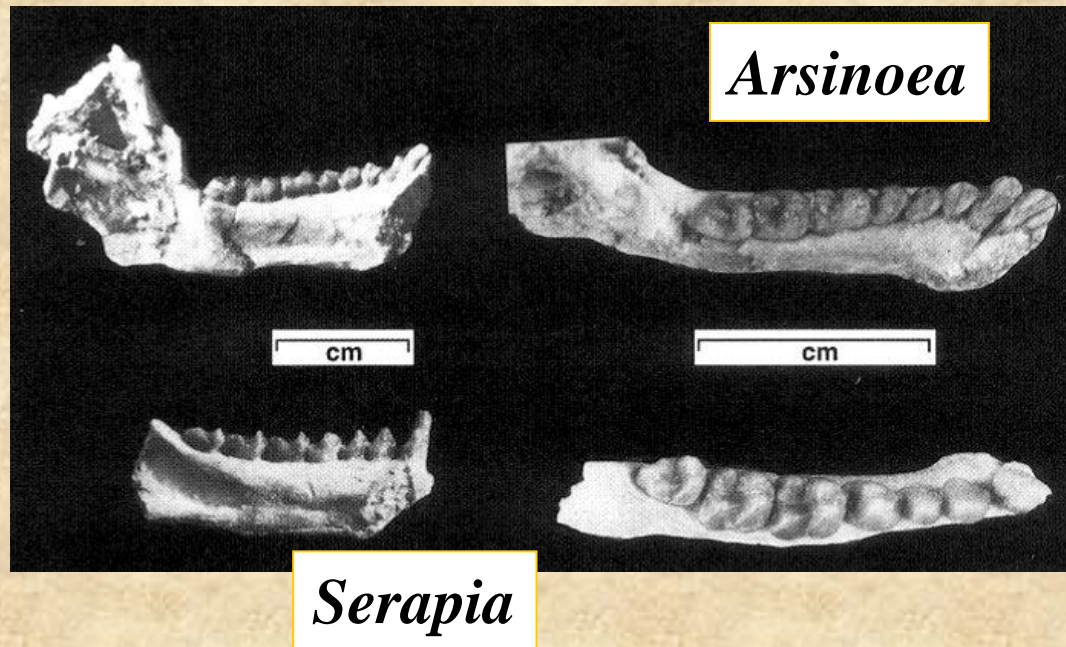


Early anthropoids. (Top) Paleogeographic reconstruction of South Asia and North Africa at the mid-Paleogene showing the

Eocénní *Anthropoidea* - Fayum



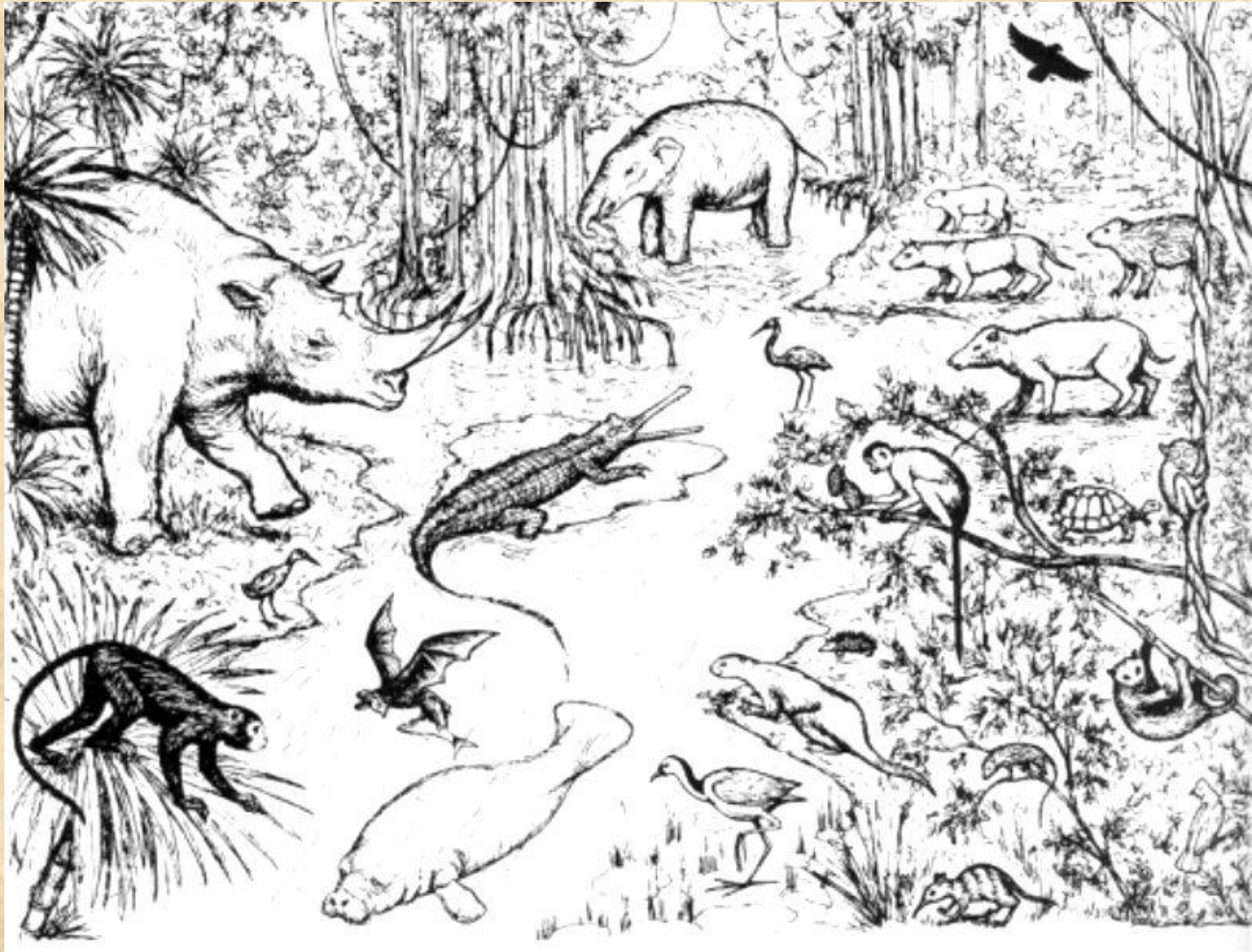
Catopithecus



Arsinoea

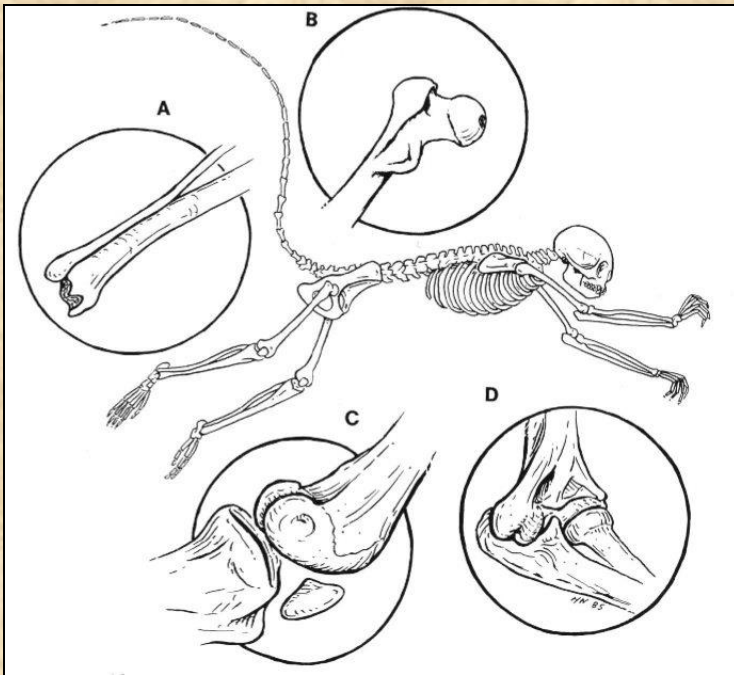
Serapia

Oligocénní *Anthropoidea* - Fayum



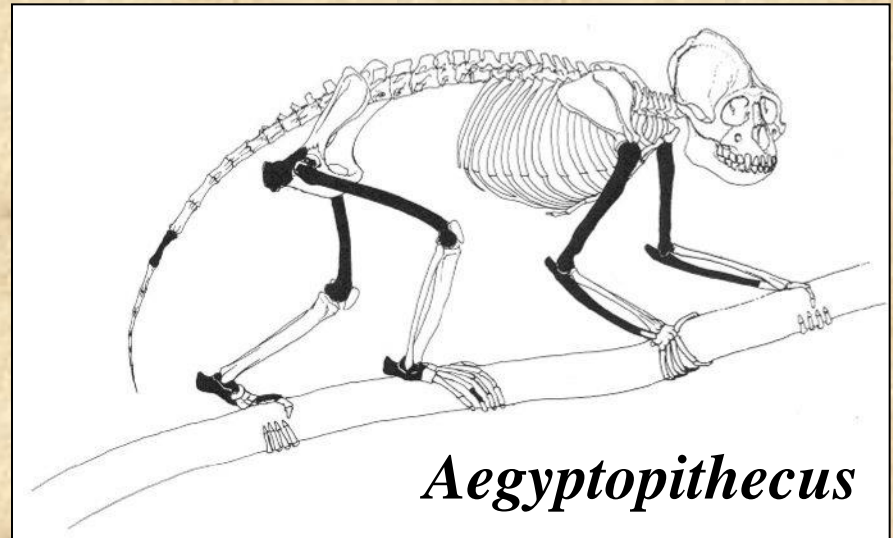
Adapidae a první zástupci nadčeledi Hominoidea

Parapithecoidea čeleď Parapithecidae

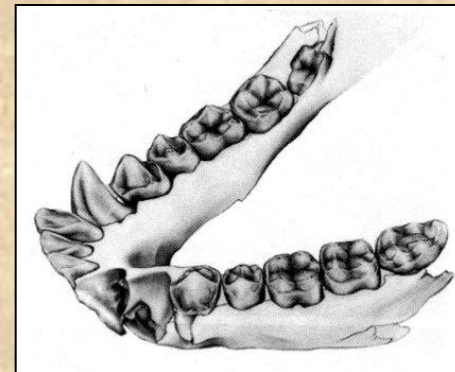


Apidium

Hominoidea čeleď Propliopithecidae



Aegyptopithecus



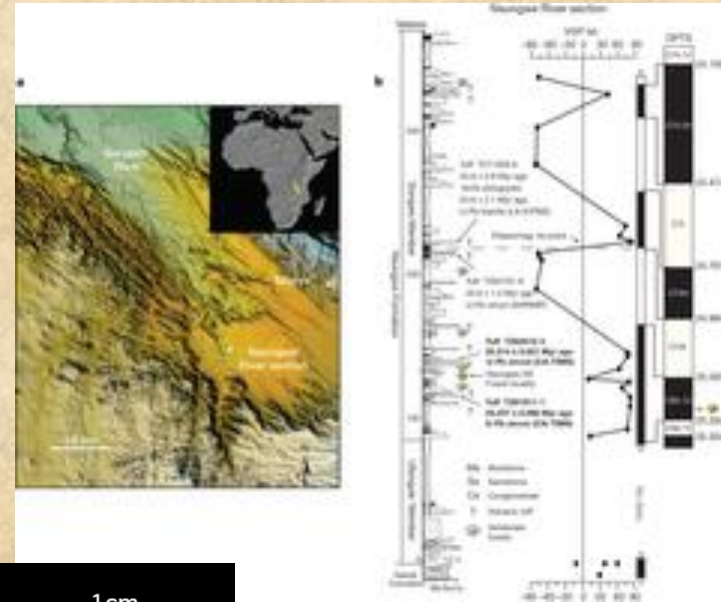
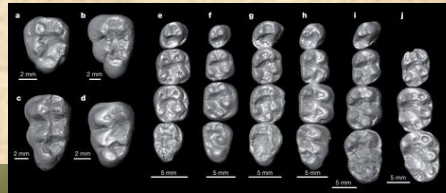
Propliopithecus

Nejstarší hominidea – 25 milionů let

Nsungwepithecus gunnelli – cercopithecid (opice)

Rukwapithecus fleaglei – hominoid (lidoop)

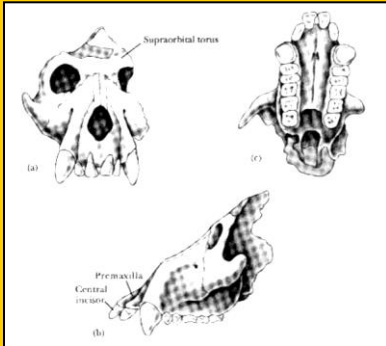
Nsungwepithecus gunnelli



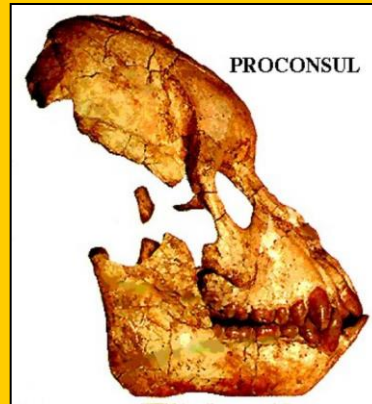
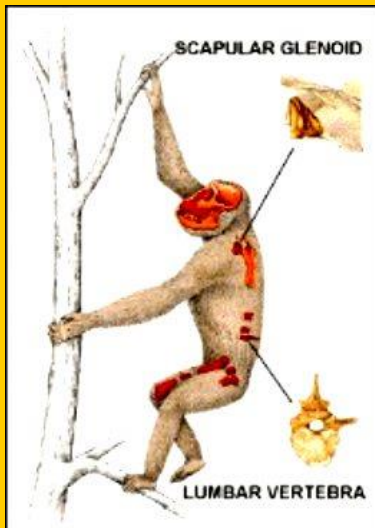
Rukwapithecus fleaglei

Adaptivní radiace hominoidů na konci oligocénu: Vznik lidoopů a opic

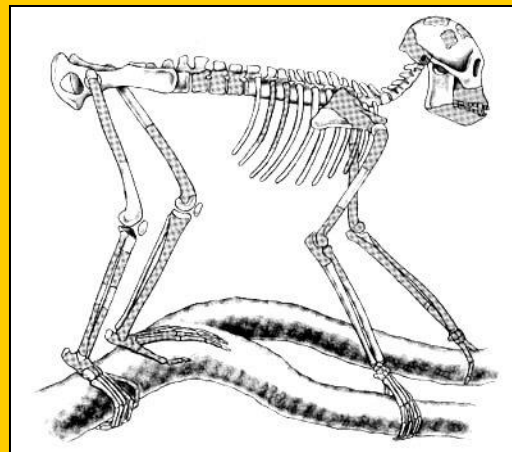
velkočeleď *Hominidea*



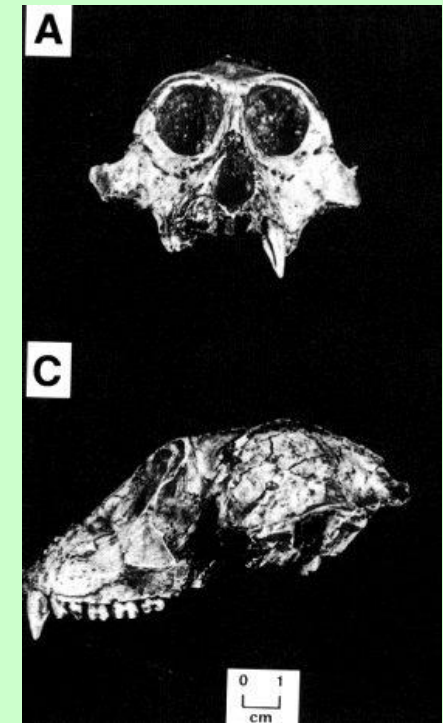
Hominoidea
Afropithecidae



Proconsuloidea



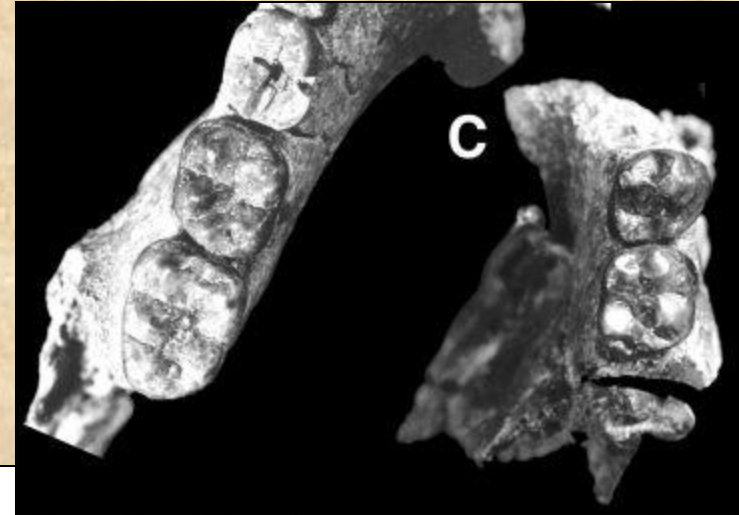
Cercopithecoidea



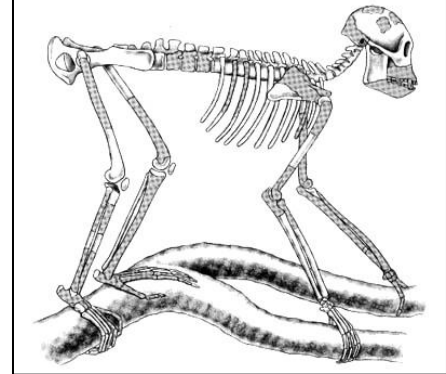
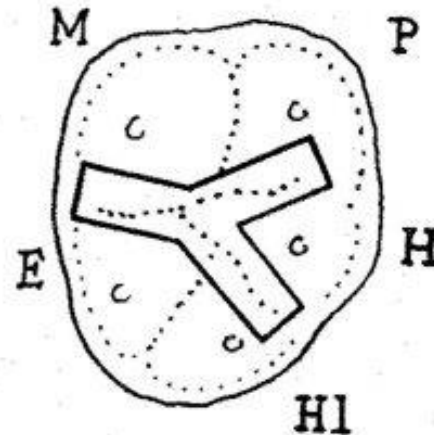
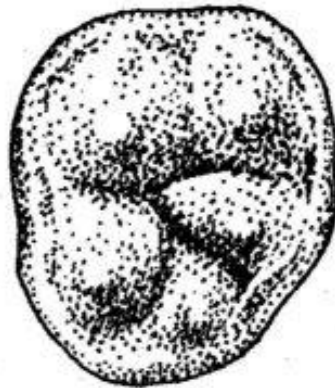
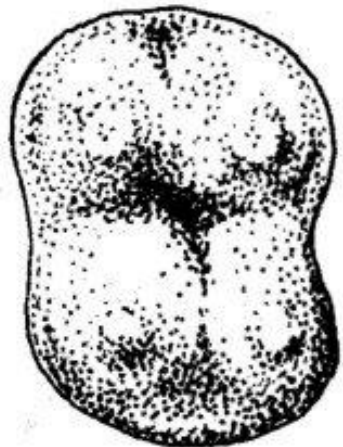
Viktoriapithecidae
Ocasatí úzkonosí
primáti - praopice

Dryopitékový Y-vzor

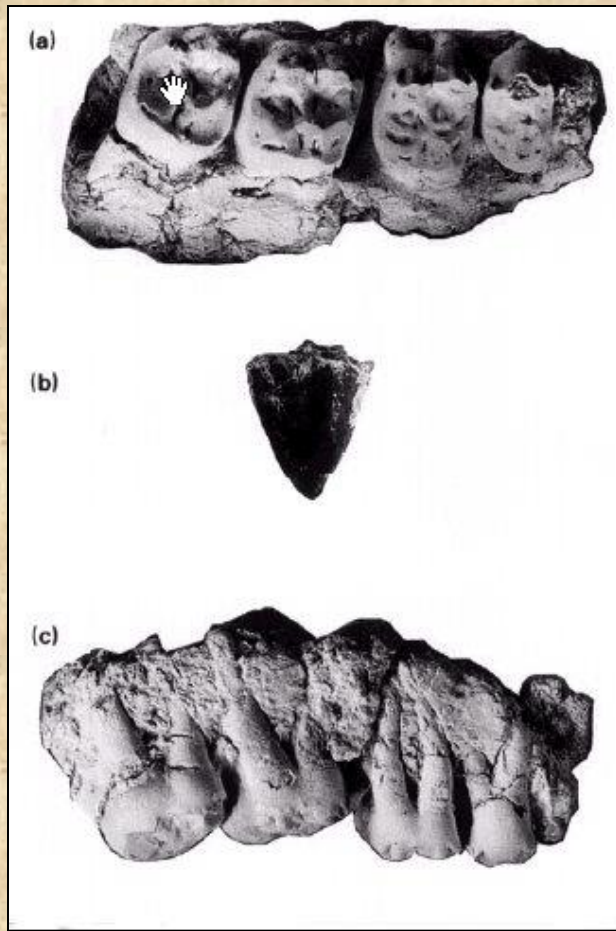
Pro nadčeleď *Hominoidea* jsou typické pětihrbolkové dolní moláry, s takzvaným dryopitékovým vzorem. Dryopitékový vzor se objevuje poprvé propliopitéků. V definitivní podobě však až u bezocasých hominoidů koncem oligocénu.



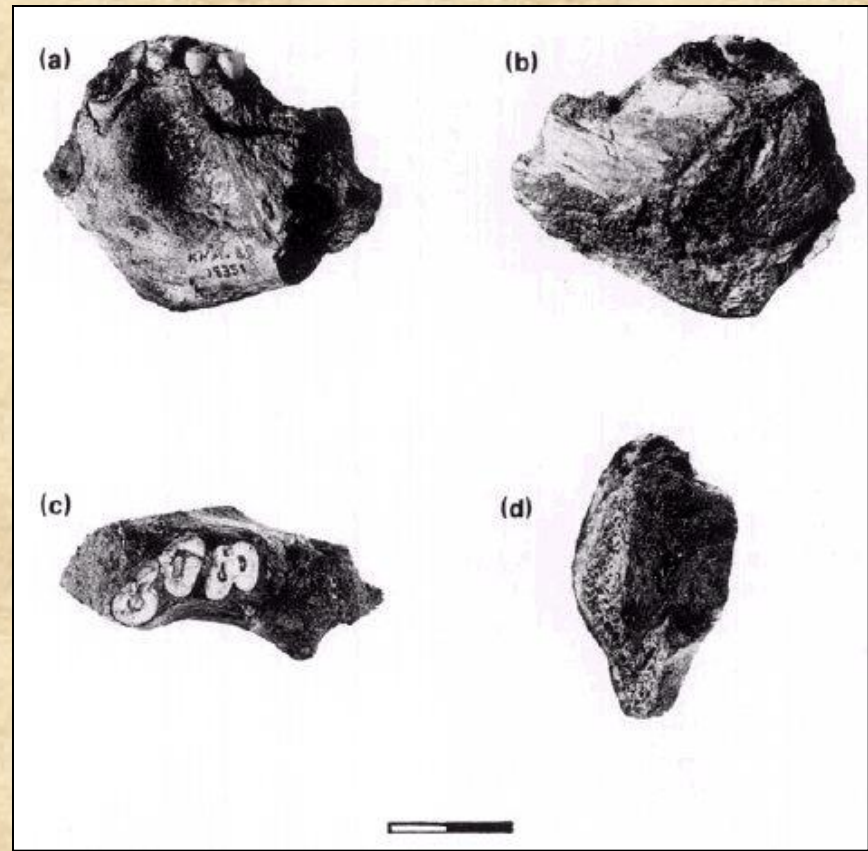
Bilofodontní molár cerkopitekoidních opic (vlevo) a pravý dolní molár zástupce nadčeleďi *Hominoidea* s dryopitékovým vzorem neboli tzv. vzorem Y_5 (uprostřed a vpravo). M — metakonid, P — protokonid, E — entokonid, H — hypokonid, H1 — hypokonulid



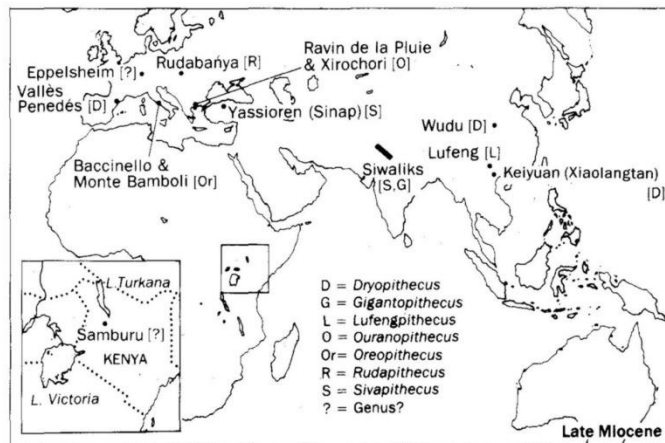
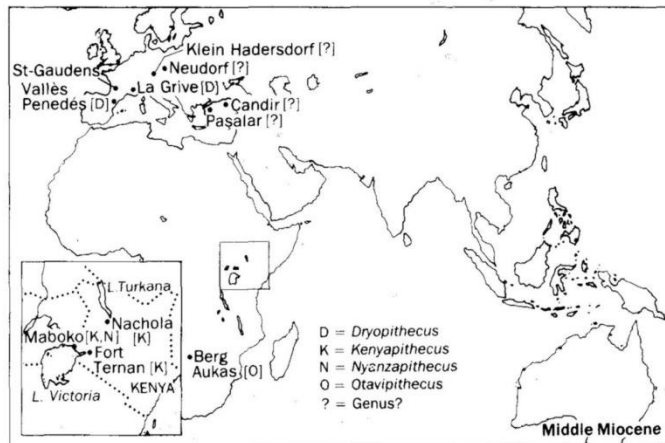
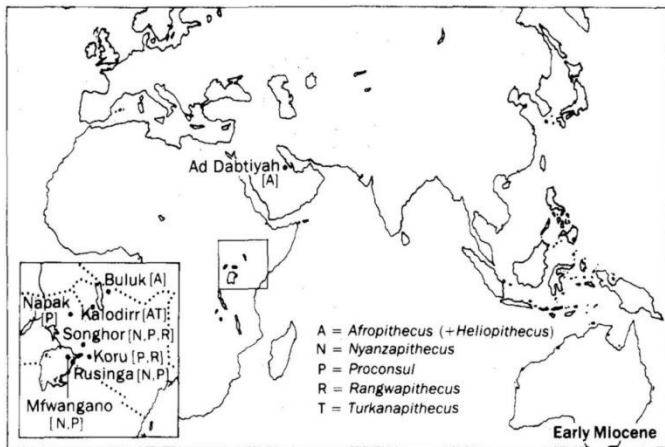
Nejstarší *Hominoidea* - svrchní oligocén
Lothidok hominoid - *Kamoyapithecus*



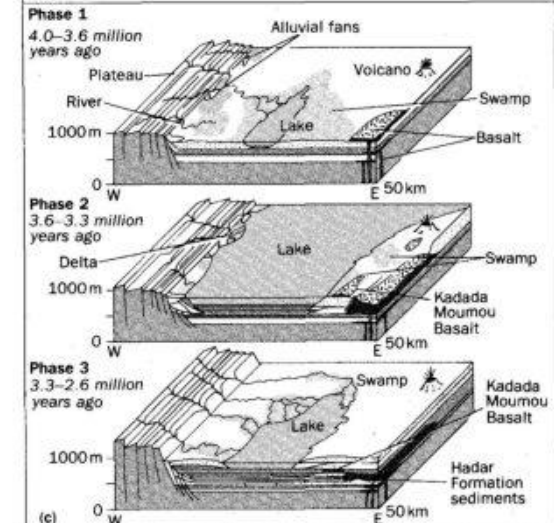
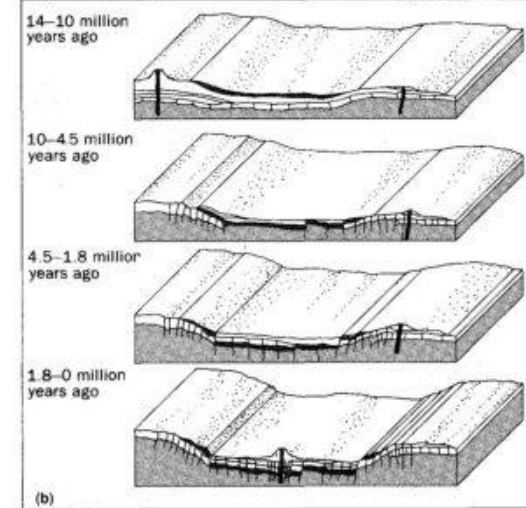
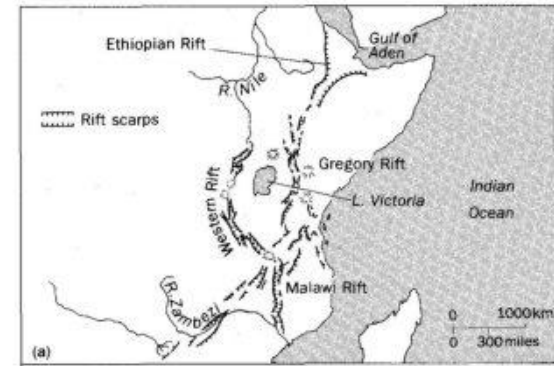
Maxilla



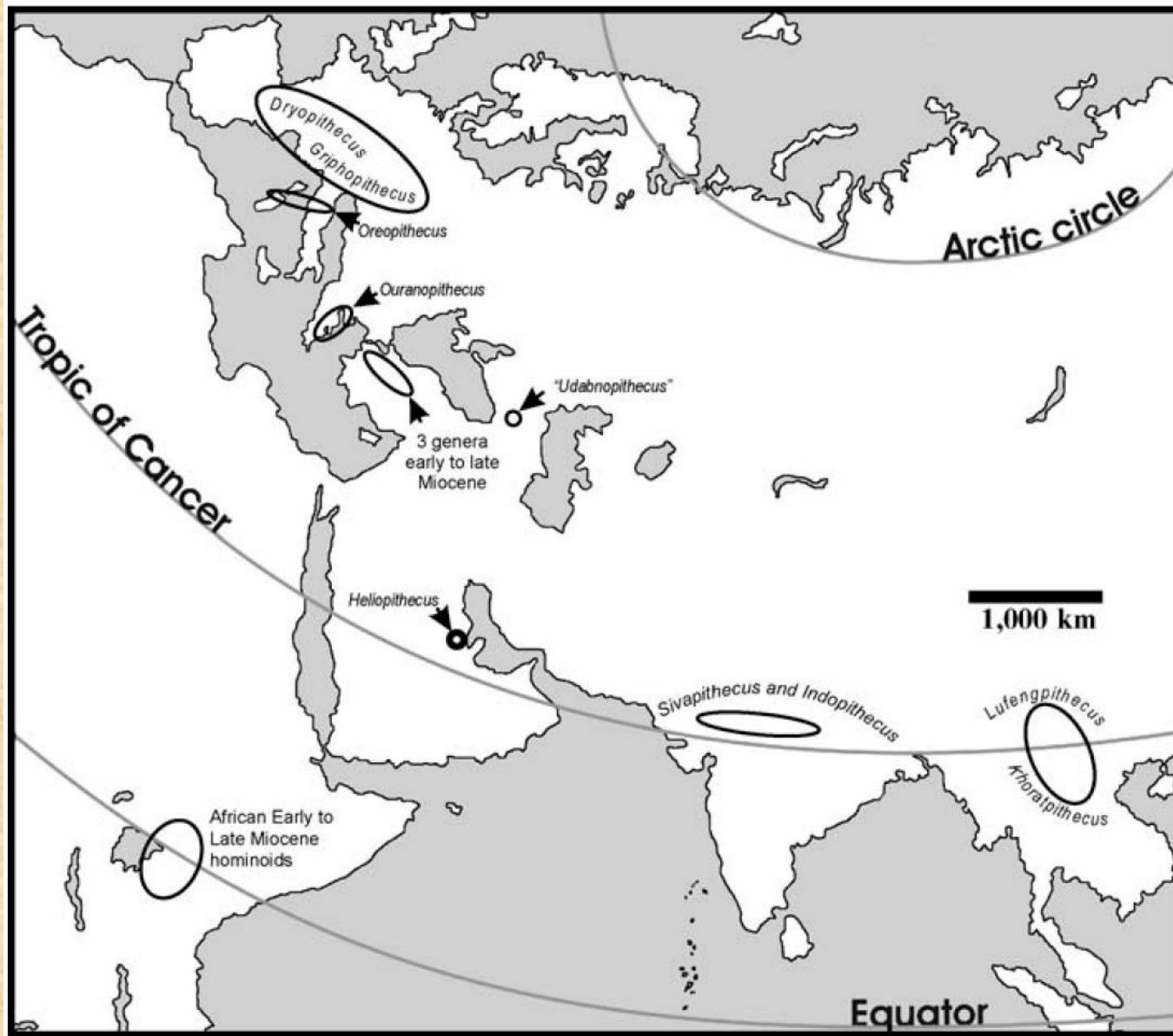
Mandibula



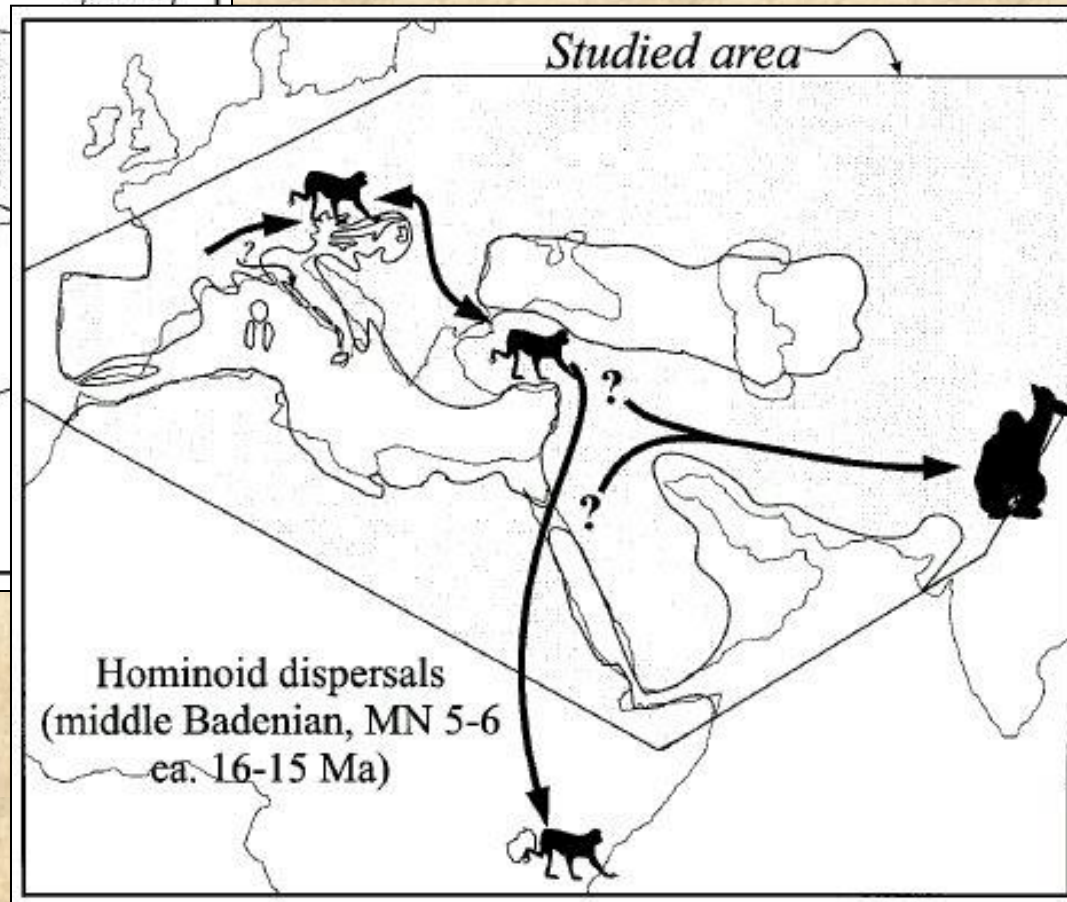
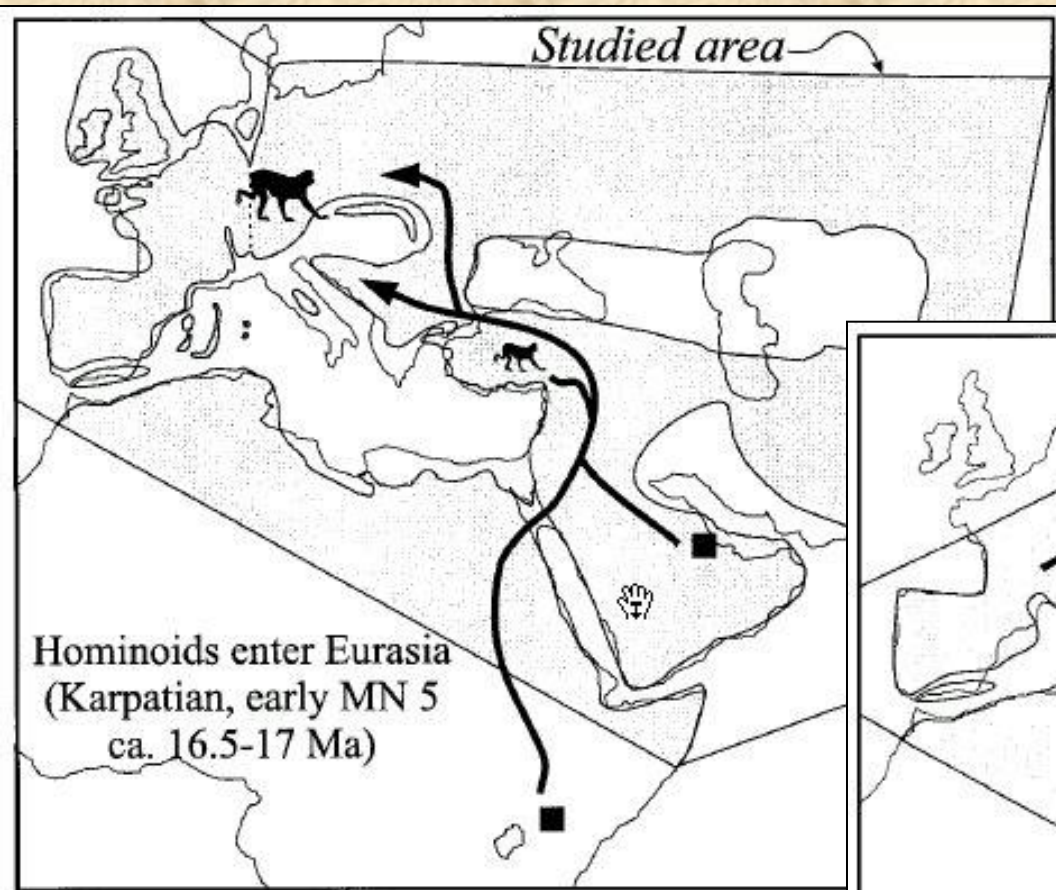
Evoluční a biogeografické trendy v miocénu



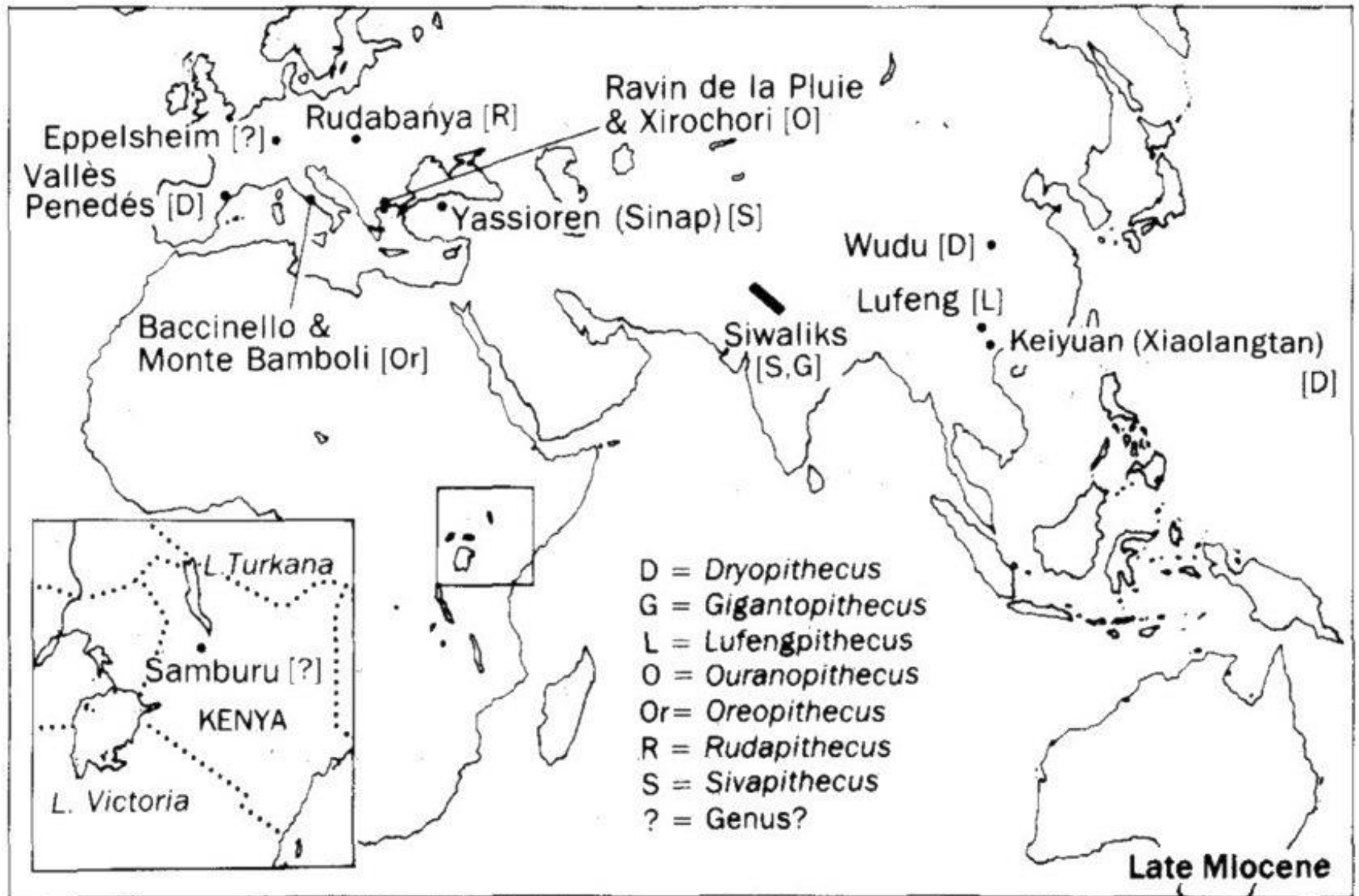
Nejdůležitější oblasti s nálezy fosilních lidoopů



Možné migrace do Evropy a zpět



Svrchní miocén



Oreopithecus - bipedie ??

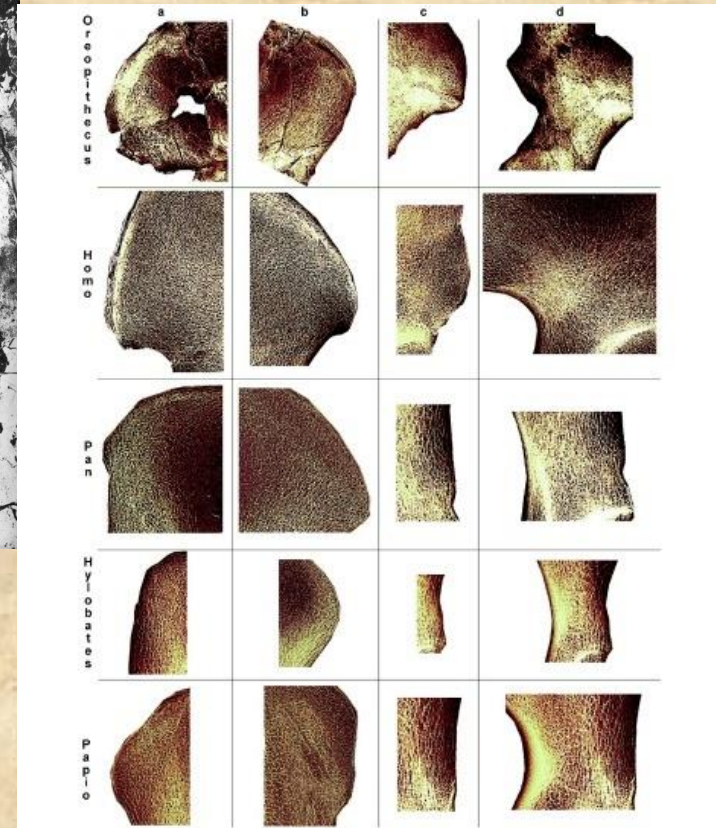
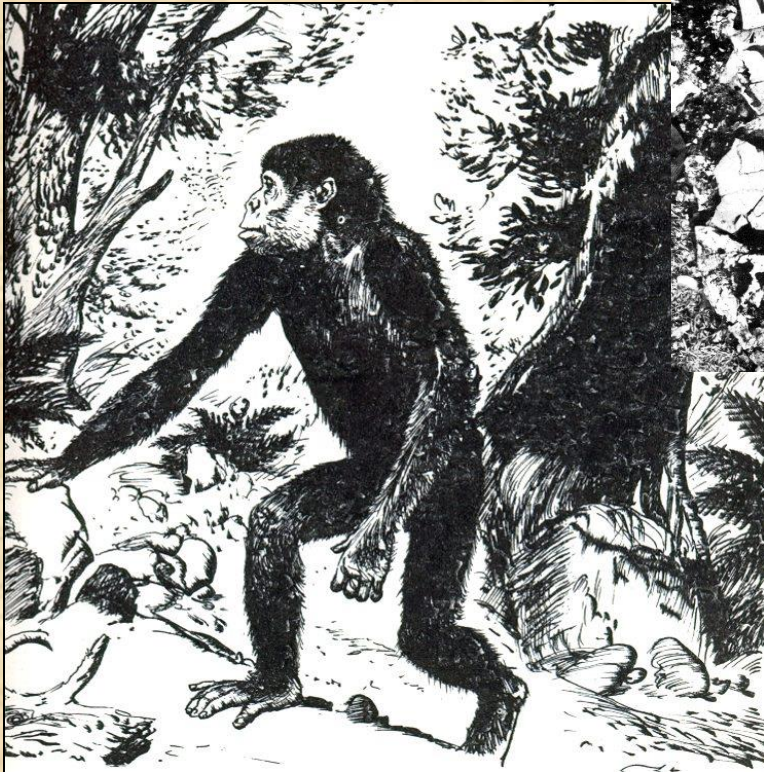


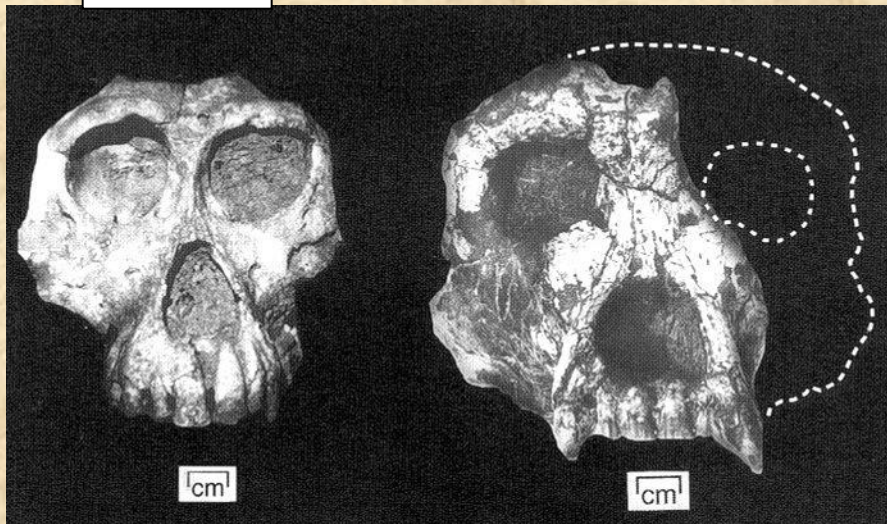
FIG. 5. Comparative site-specific structural morphology of the hip bone in *Oreopithecus* (IGF 11778), *Homo* (SCR. 352), *Pan* (PVA 2706), *Hylobates* (AIZU 1726), and *Papuio* (AIZU PAL 109). Iliac blade posterosuperior margin (a), anterosuperior margin (b), anteroinferior margin (c), and suprasacetabular area (d) are shown. Because specimens are not reproduced to scale, the sizes of the trabecular mesh are not directly comparable.

Čeled' *Dryopithecidae*



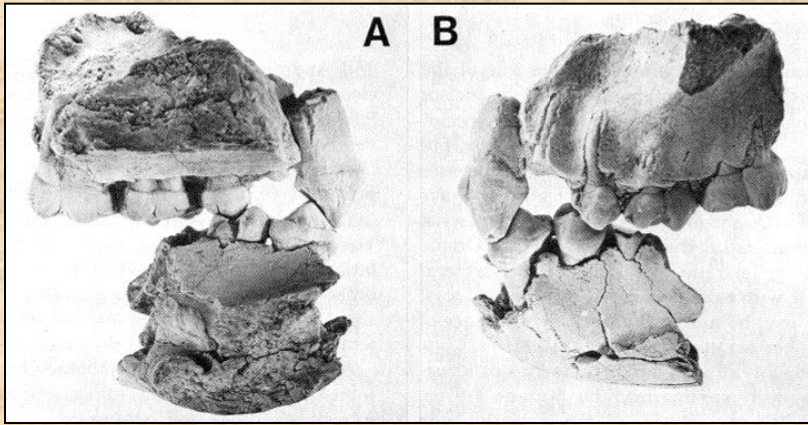
**Přímí předchůdci hominidů
Vyvíjeli se v Africe, Evropě
a Asii v období před
14 - 8 miliony lety**

Evropa

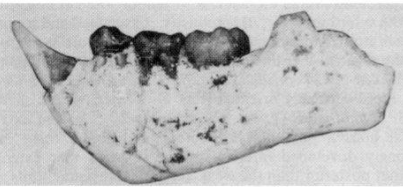
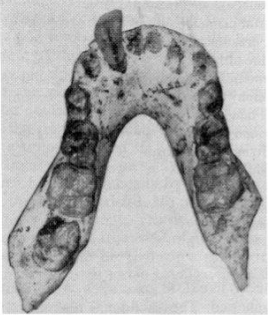


**Sivapitéci
Asie**

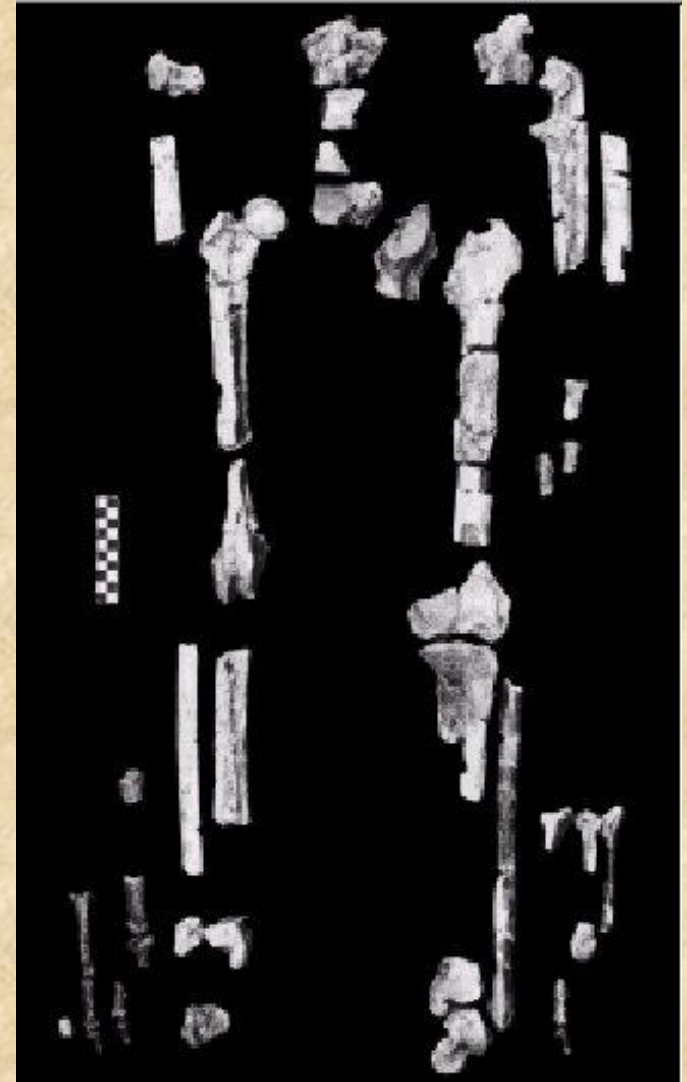
Kenyapitéci



Kenyapithecus wickeri



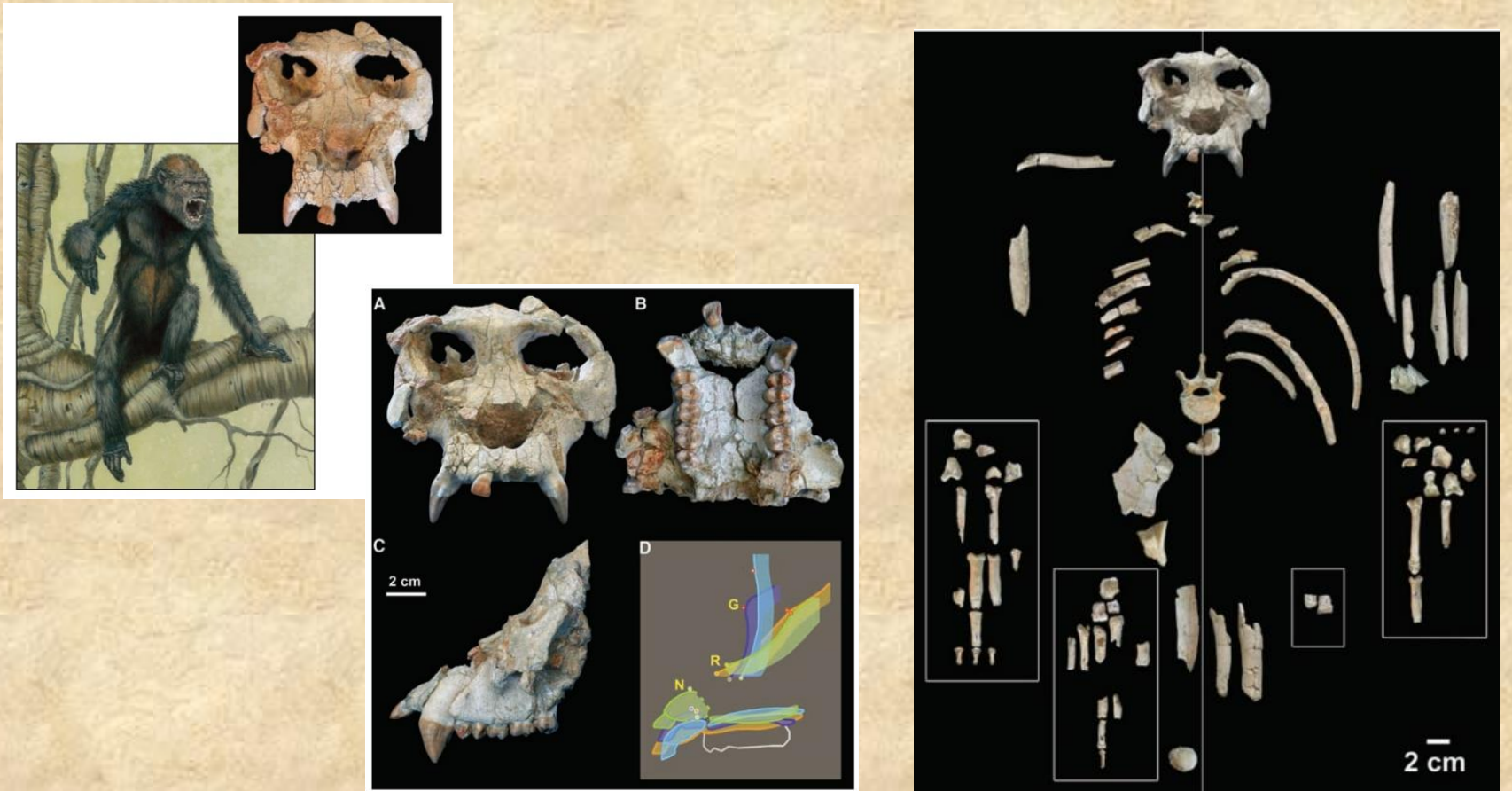
- Kenyapitéci jsou nejstarší skupinou dryopitékovitých, s mnoha starobylými znaky
- V mnoha případech je již patrná diferenciaci končetin a progresivní změny na chrupu. Po langianské transgresi zůstali izolováni v Africe a v Turecku
- ***Griphopithecus*** ze středního miocénu Evropy a záp. Asie je zřejmě předkem všech dalších lidoopů.



Kenyapithecus (Nacholapithecus)

Pierolapithecus catalaunicus

ze středního miocénu je praprapředek homininů Evropy,
Afriky i Asie



Čínští dryopitéci - *Lufengpithecus*

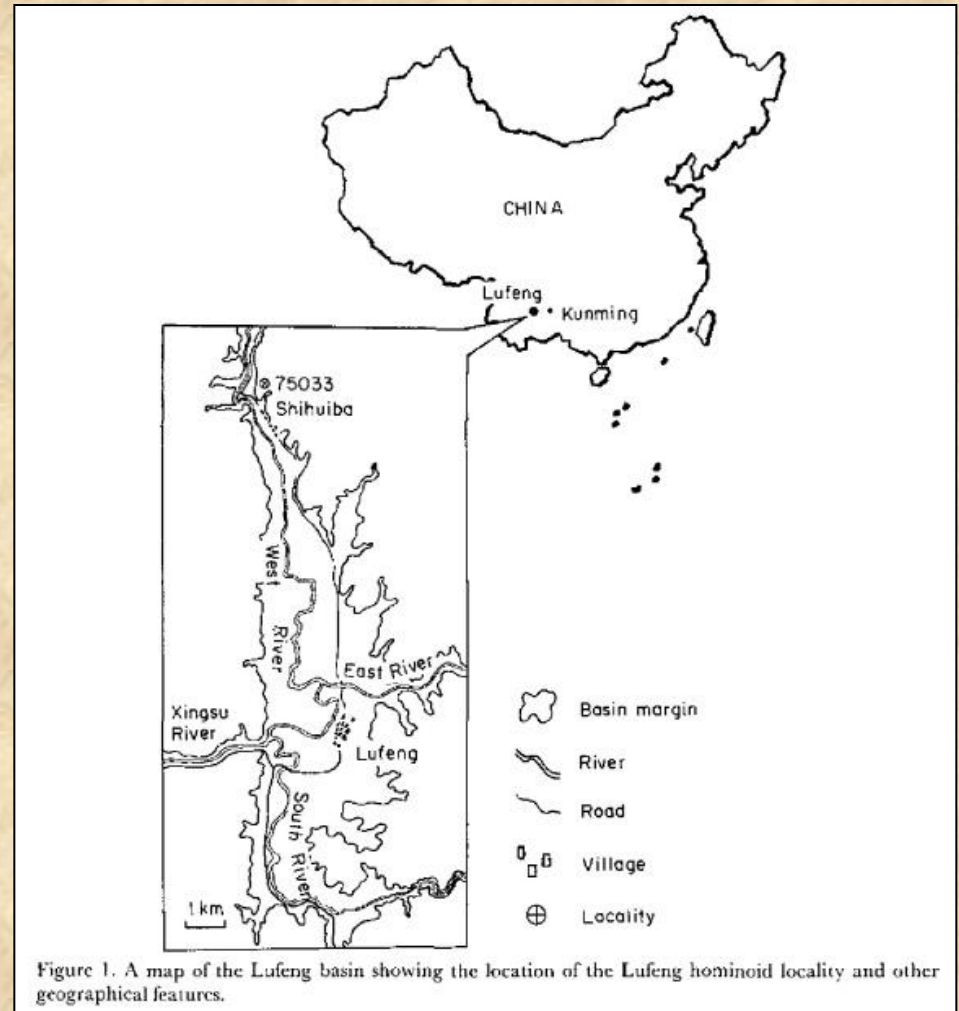
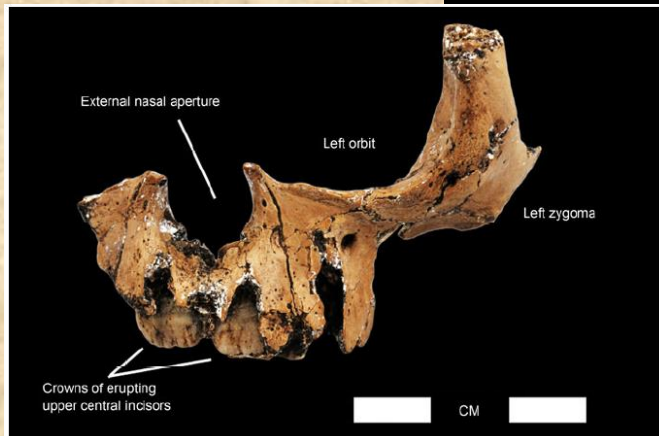


Figure 1. A map of the Lufeng basin showing the location of the Lufeng hominoid locality and other geographical features.

Lufengpithecus lufengensis – juvenilní lebka

Yunnan – Čína – svrchní miocén - 6,2 milionů let



Dryopithecus - evropský fenomén

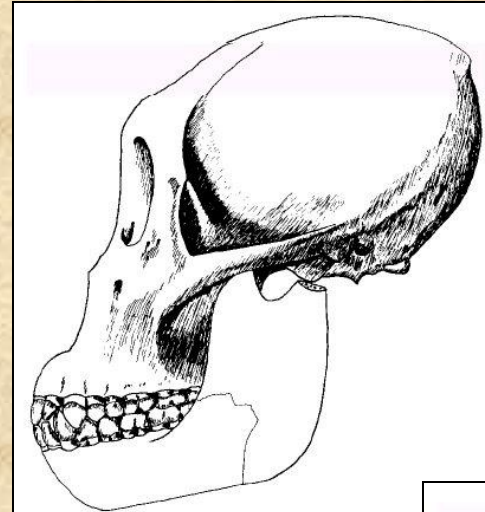
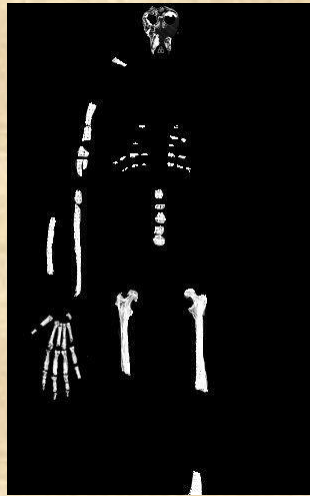
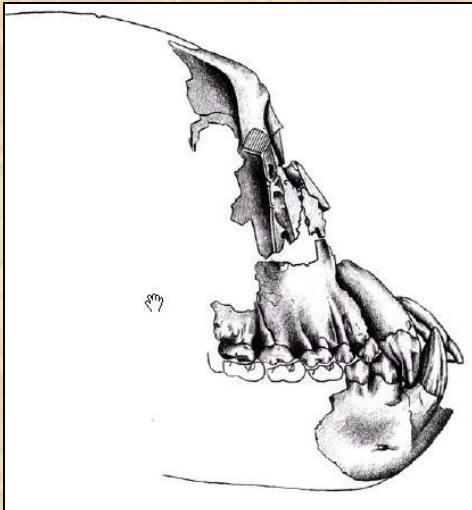
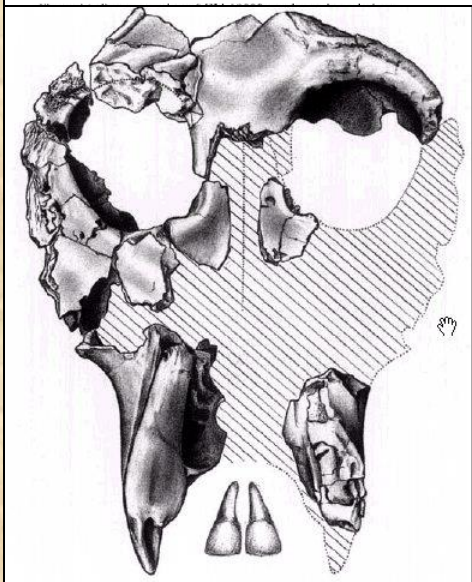


Fig. 10. Restoration of a female *D. brancai*

D. brancai
více pozemní
končetiny příliš
nediferencované
Maďarsko



D. laietanus
Stromový, končetiny
výrazně diferencované
podobné orangutánům
Španělsko



Dryopitéci - hominidé před hominidy

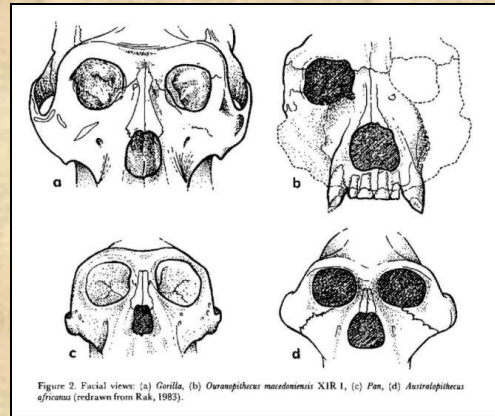
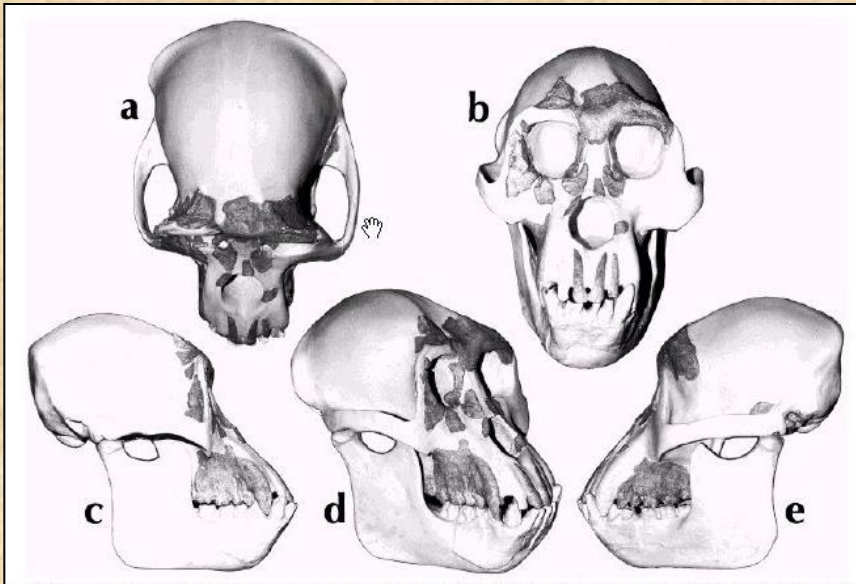
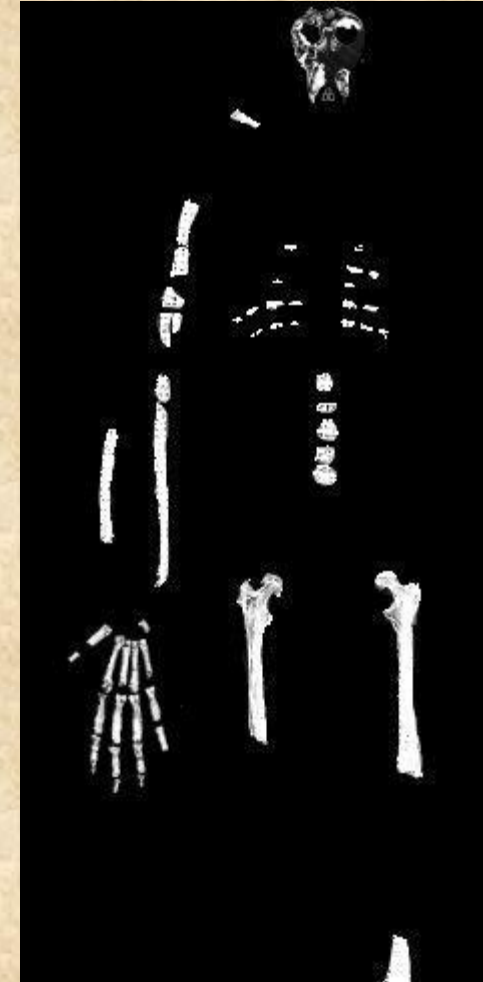
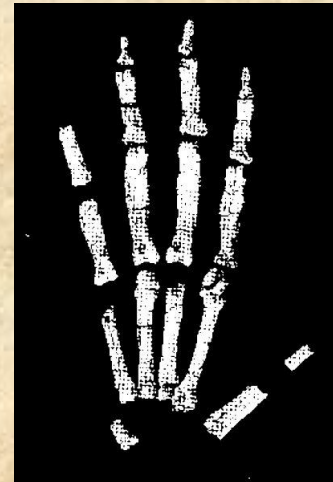


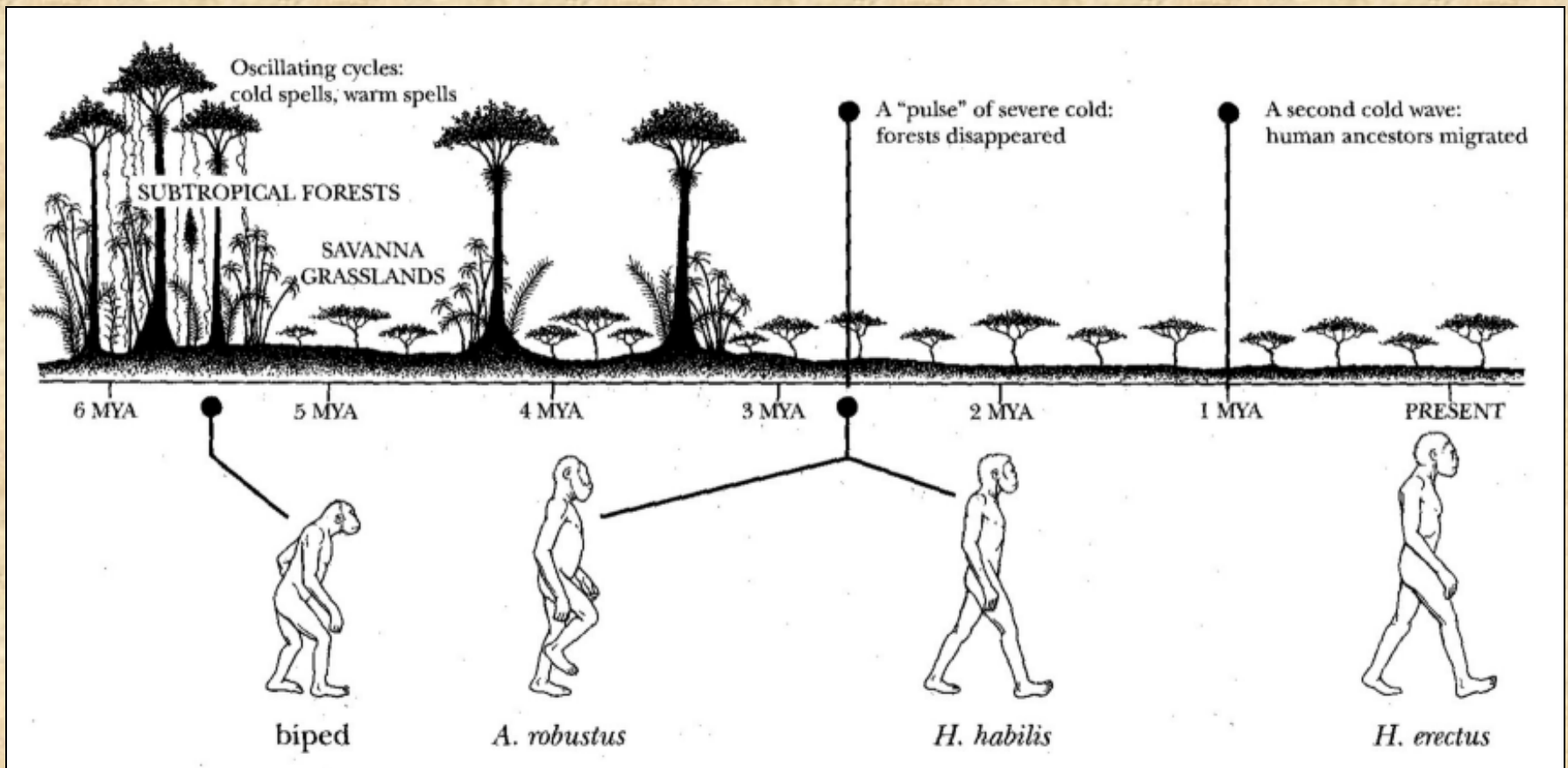
Figure 2. Facial views: (a) *Gorilla*, (b) *Orrorinipithecus macedonensis* XIR 1, (c) *Pan*, (d) *Australopithecus africanus* (redrawn from Rak, 1993).



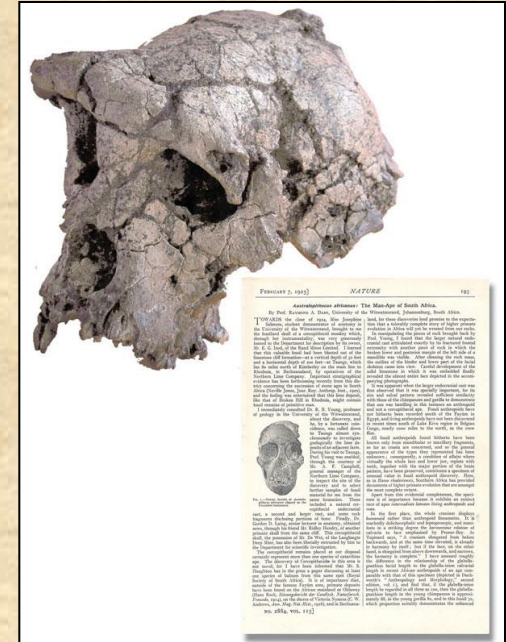
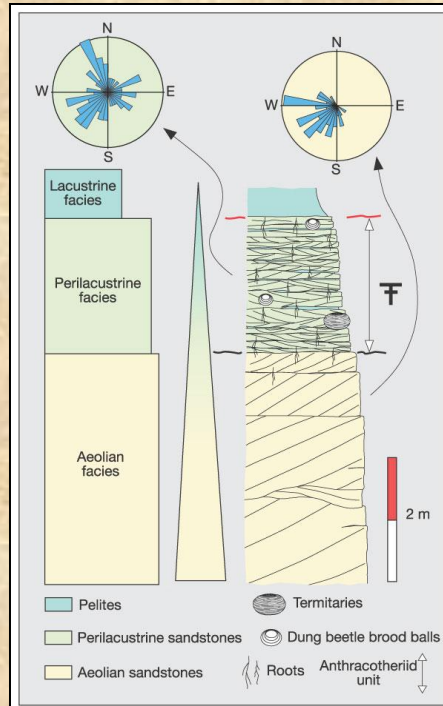
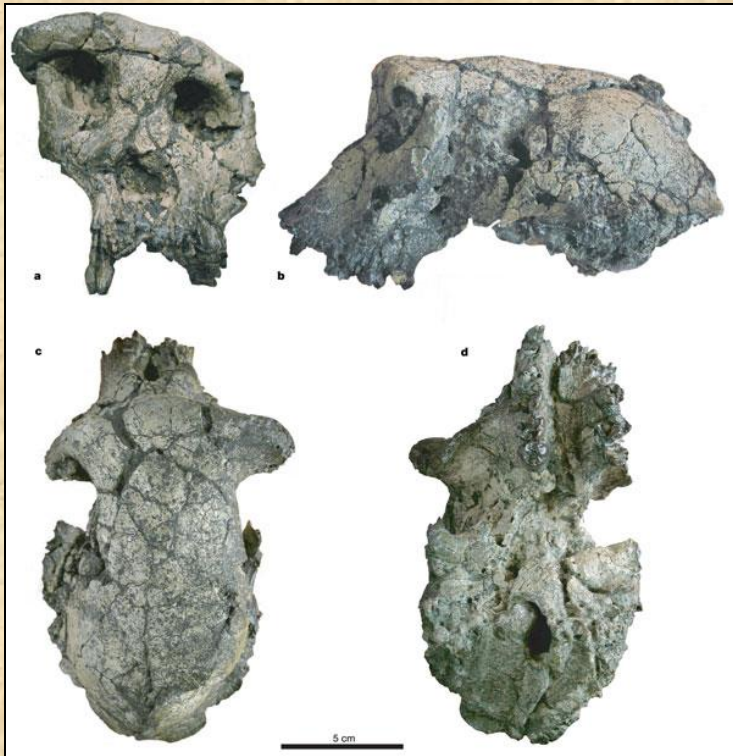
Dryopitéci měli velký mozek
podle 3D rekonstrukce samice - 320 cm²
Měli diferencovanou funkci končetin
D. laietanus měl velmi dlouhé paže
a velké ruce jako orangutani
Stejně jako *Orrorinipithecus* měli již některé
znaky na lebce i skeletu podobné hominidům



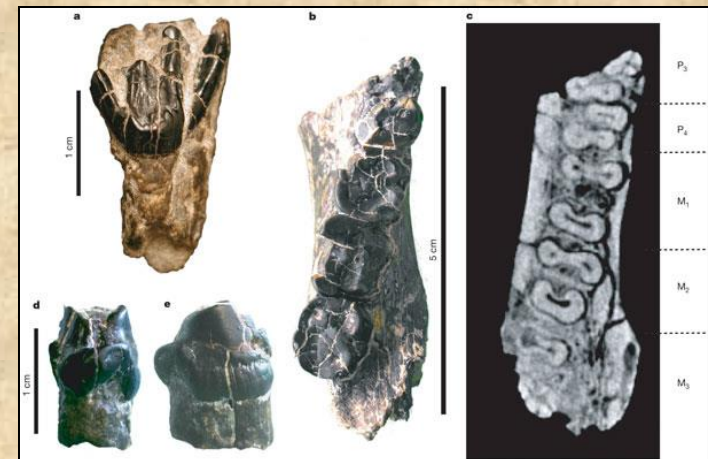
Ekologické podmínky při vzniku a evoluci hominidů – Mesinské krize a evoluce homininů



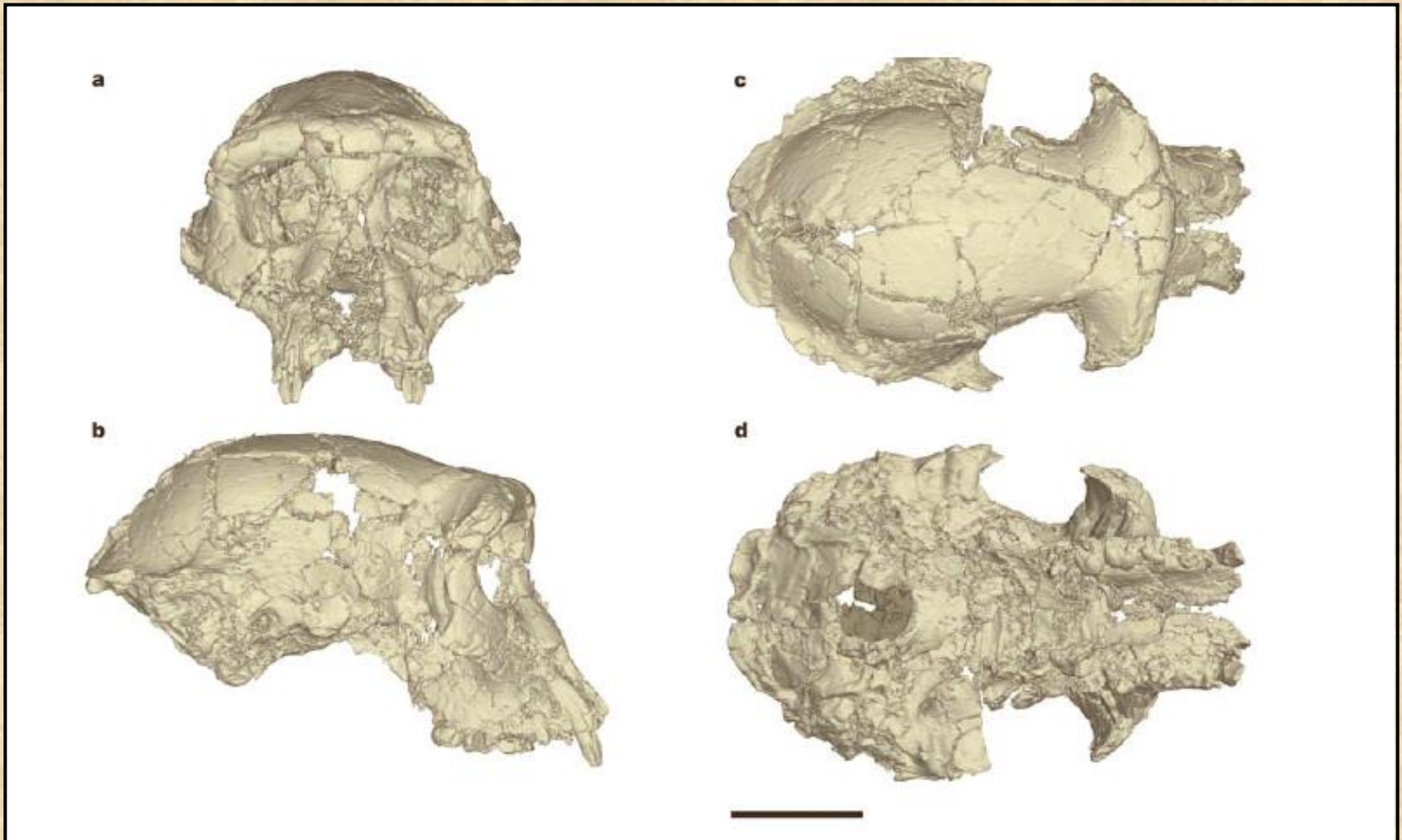
Sahelanthropus tchadensis - první hominin



- Sahelantrop - 6 - 6,5 milionu let
- Špičáky nebyly zaostřovány jako u šimpanze
- Týlní otvor posunut dopředu
- Obličejový skelet je poměrně vertikálně stavěný
- Mohutný nadočnicový val



Sahelanthropus tchadensis – rekonstrukce lebky



Co je skutečným kritériem pro hominina? *Orrorin tugenensis* - Millenium Man

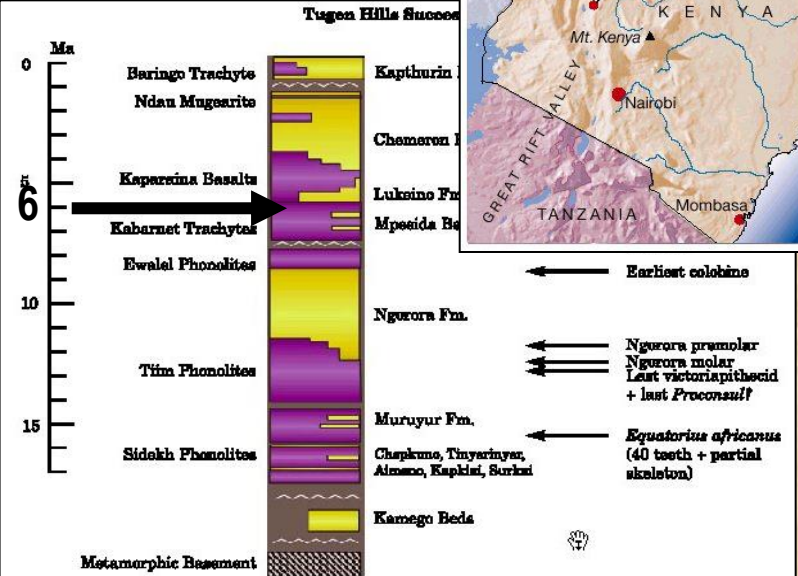
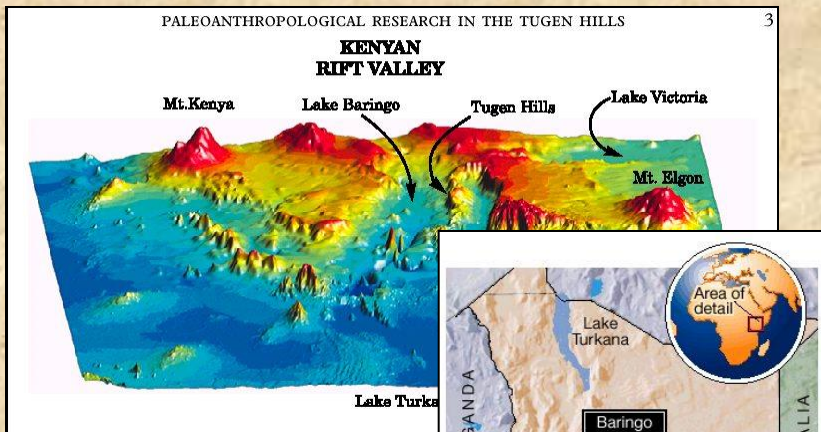
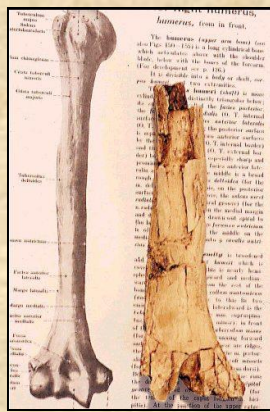
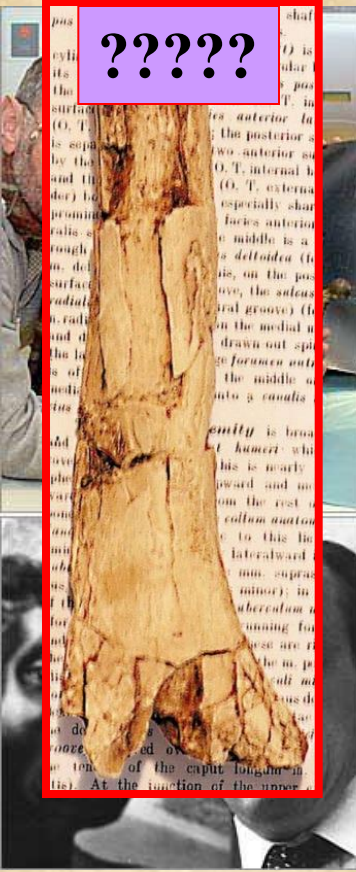


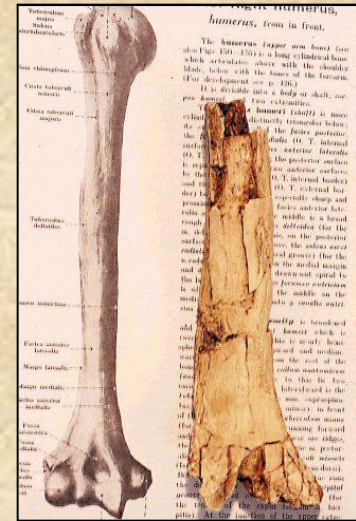
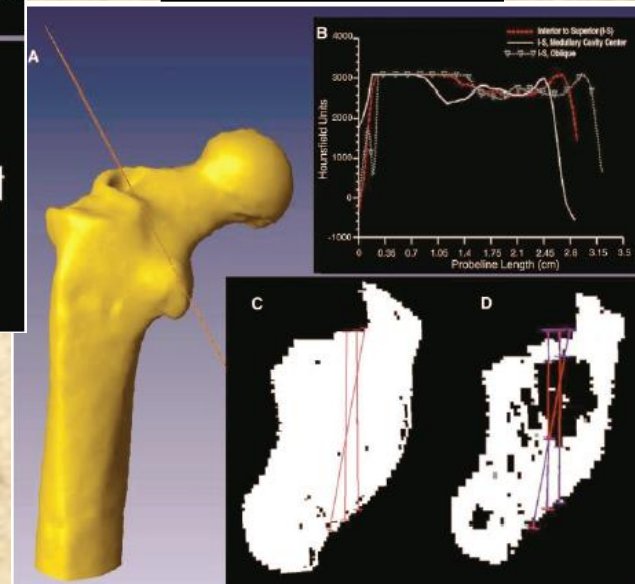
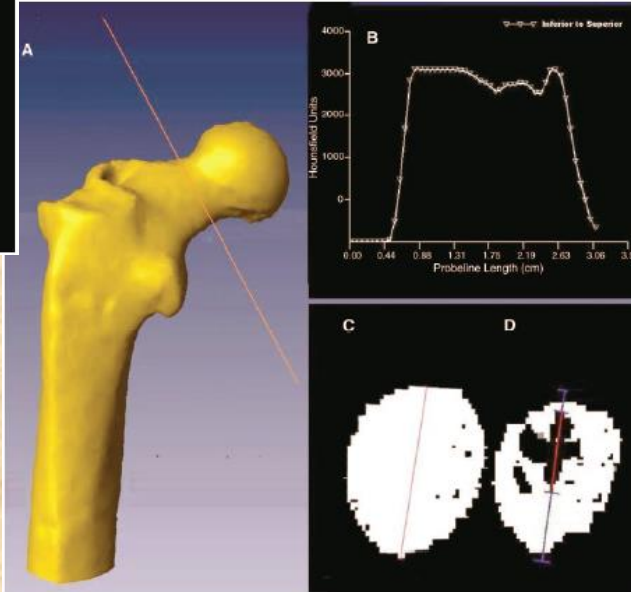
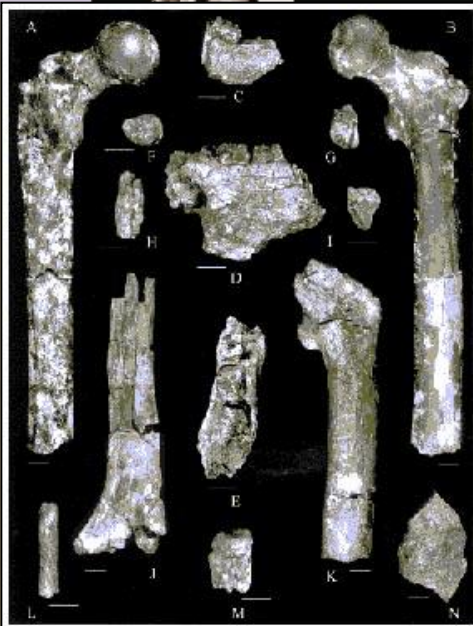
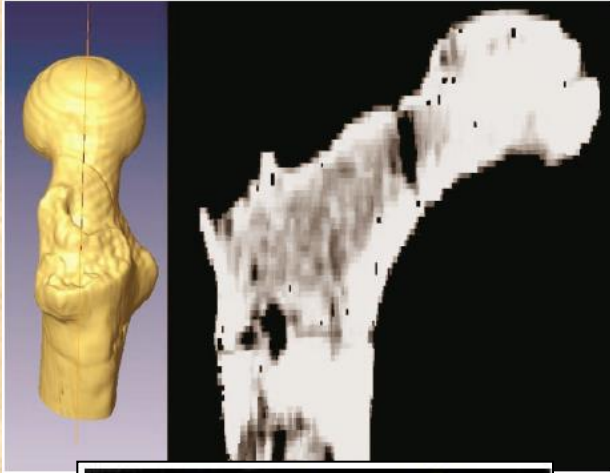
Figure 2. Stratigraphic succession through the Tugen Hills.



**Není prokázána bipedie
Zuby mají lidoopí charakter**

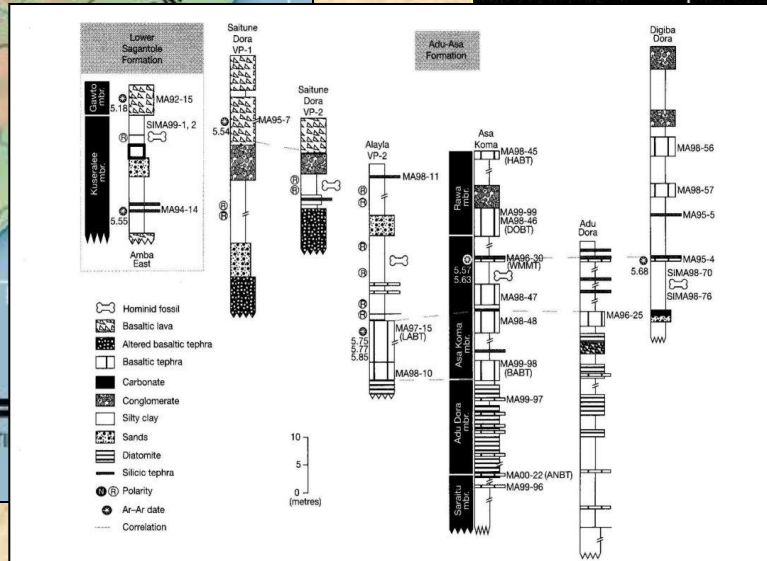
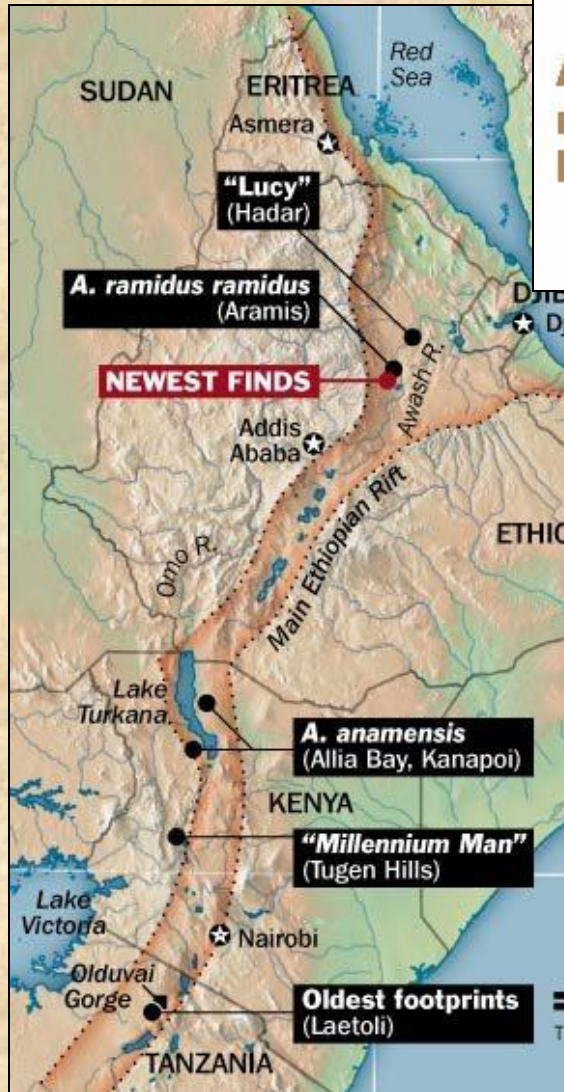
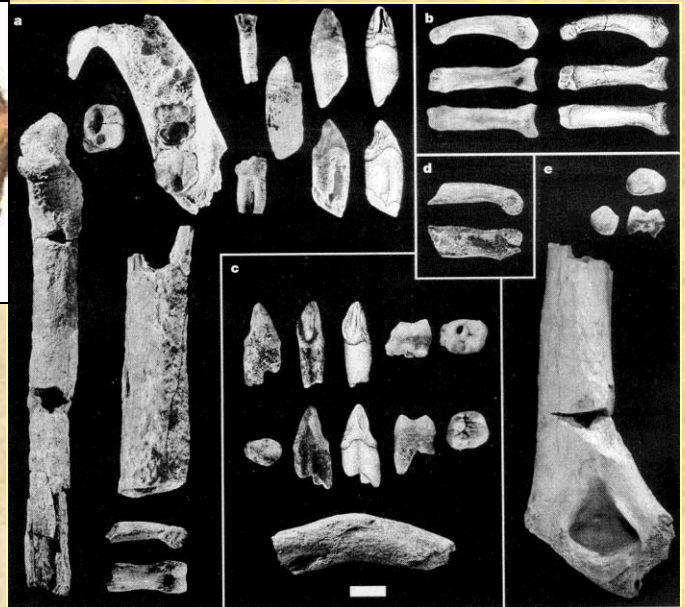
Je případná bipedie rozhodujícím kritériem pro hominina?

Orrorin tugenensis



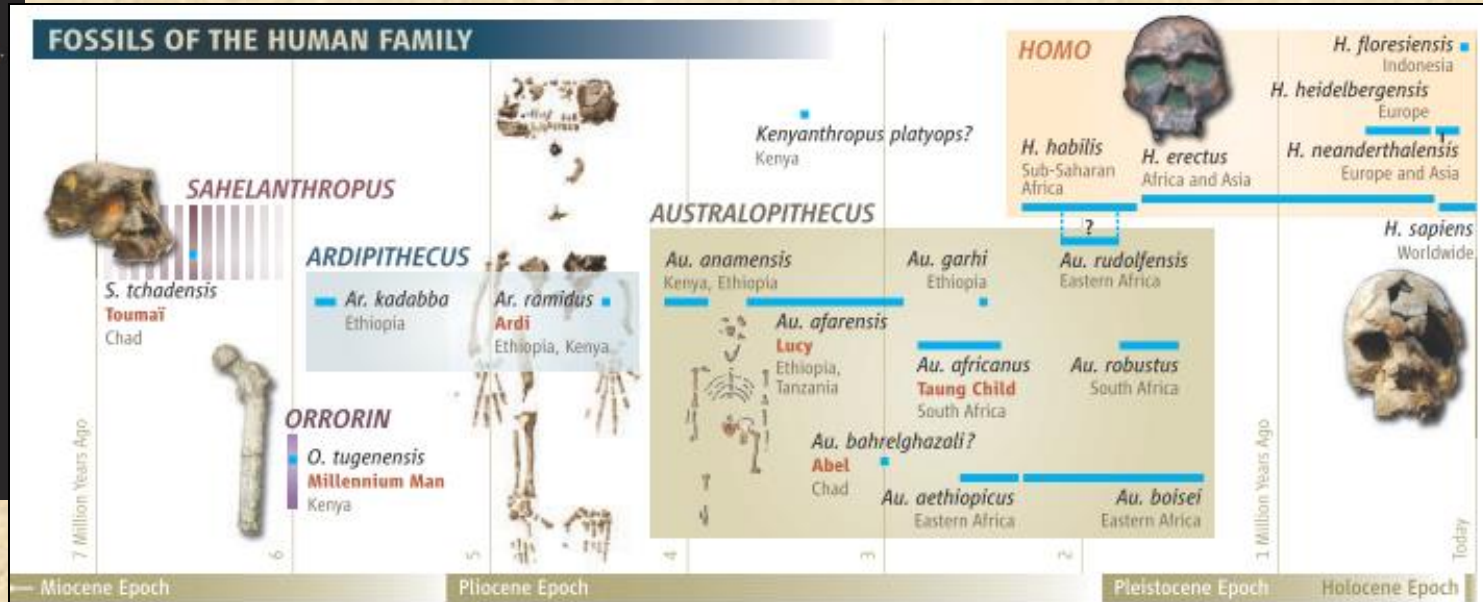
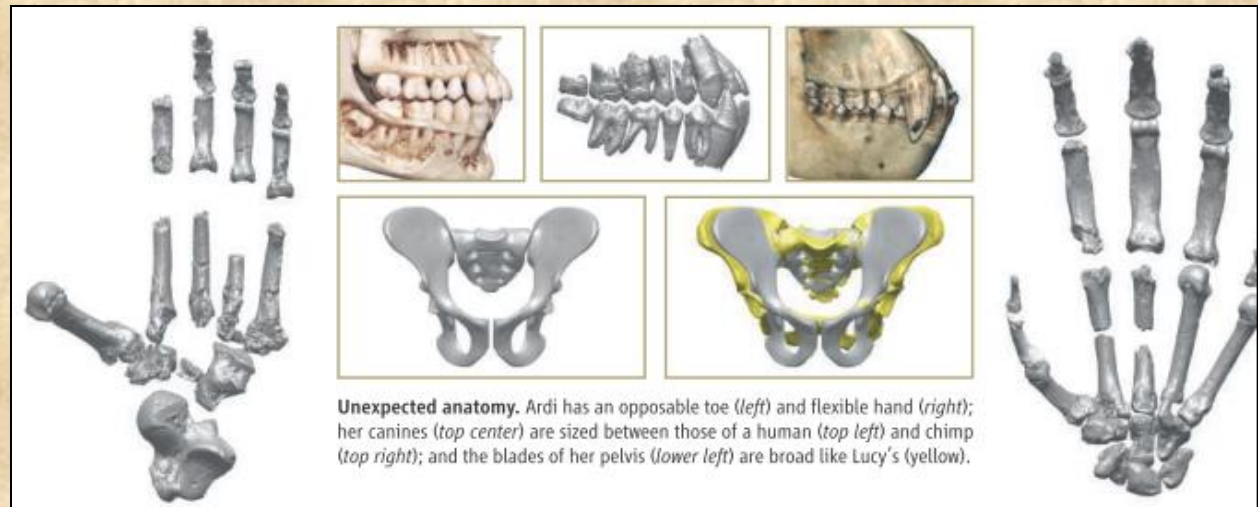
Ardipithecus ramidus kaddaba

**Ardipithecus
ramidus
kadabba**

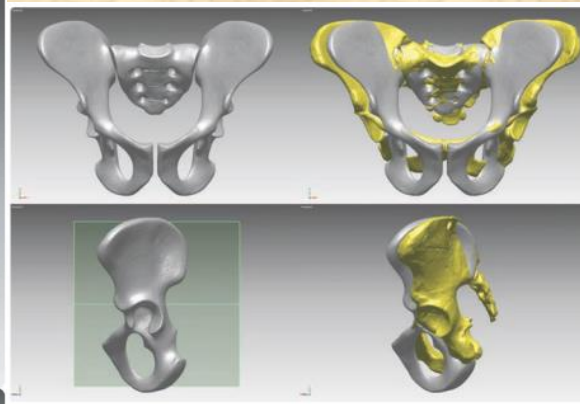
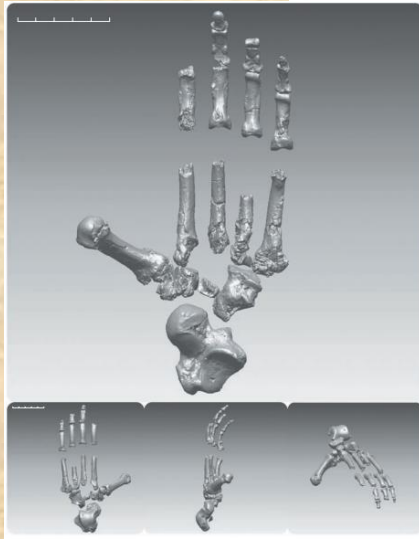
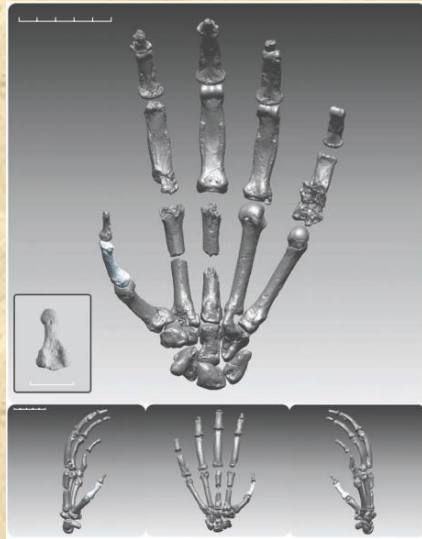
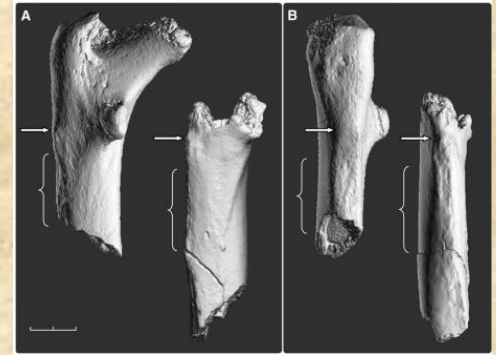
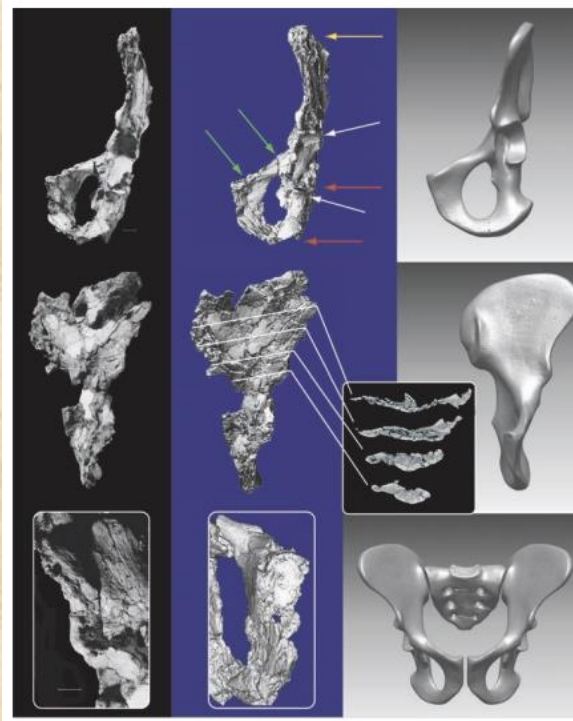
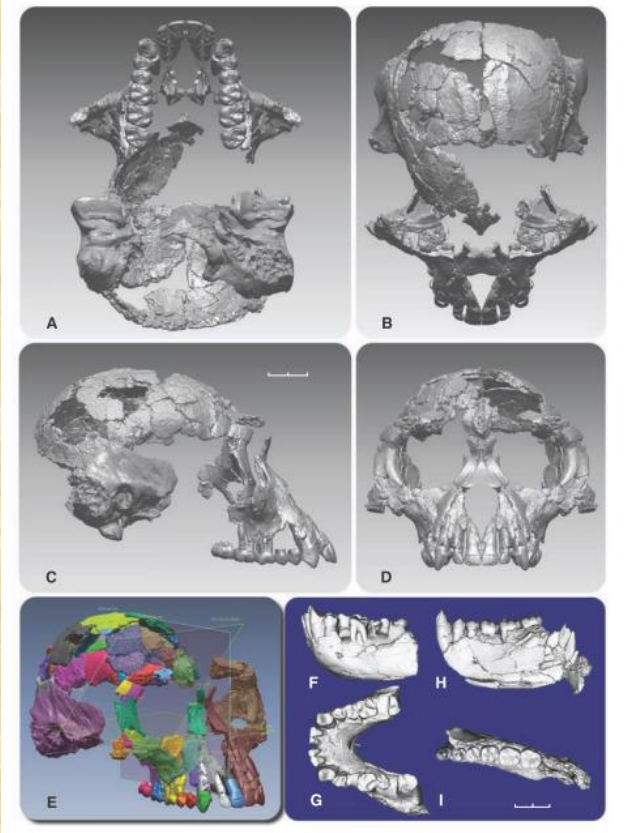


**Kaddaba:
5,75 milionu let**

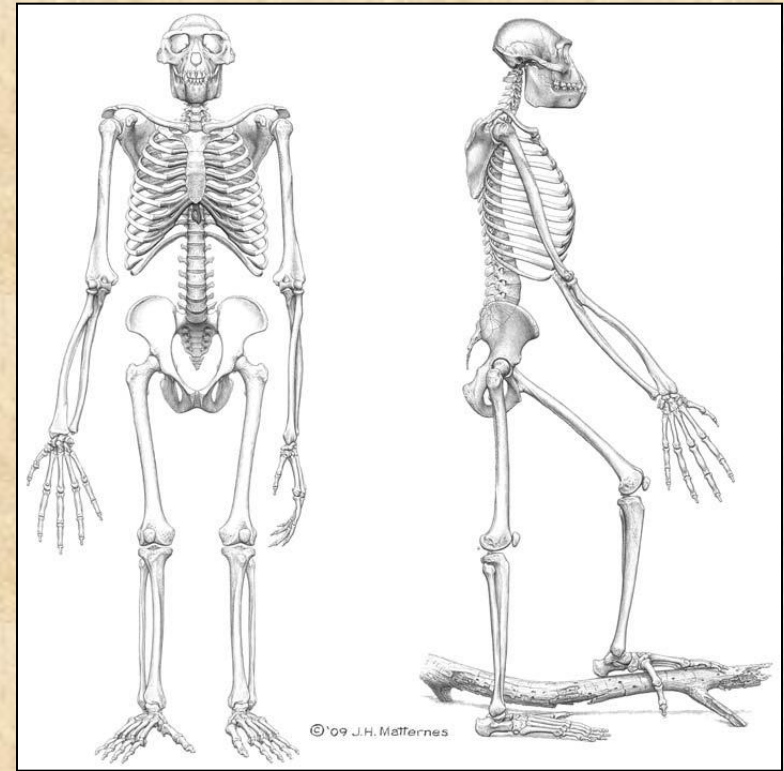
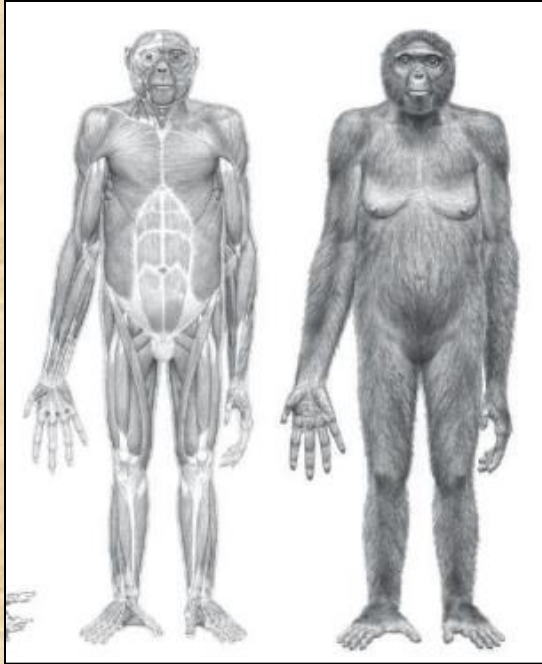
Nové informace o *Ardipithecus ramidus*



Skelet *Ardipithecus ramidus*

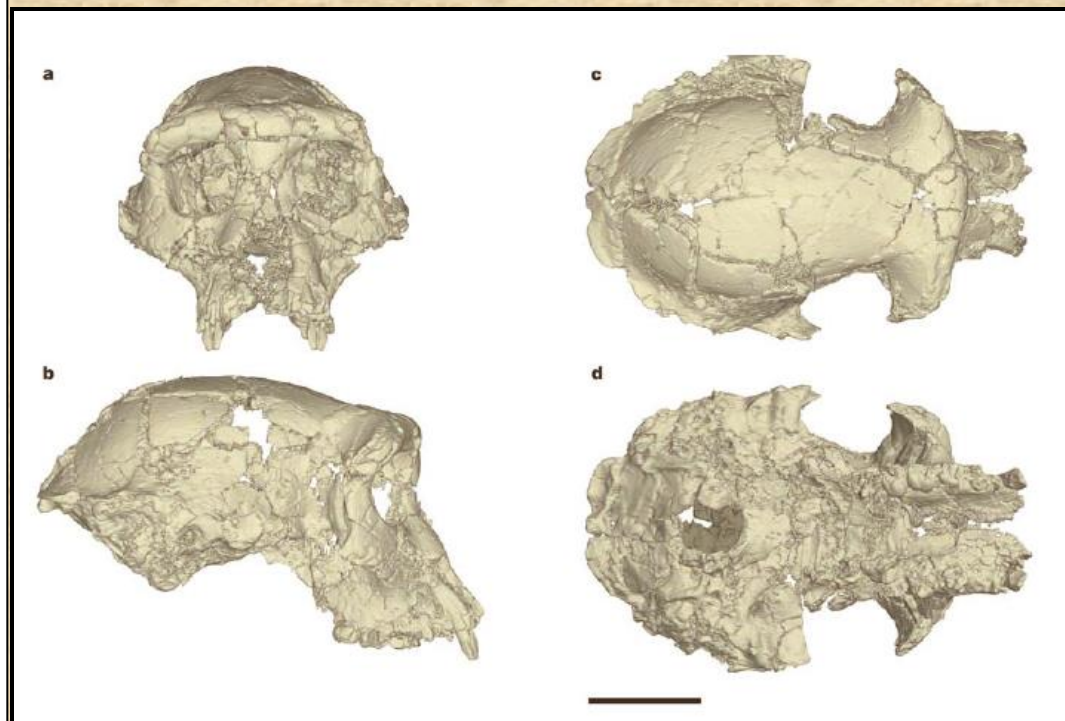
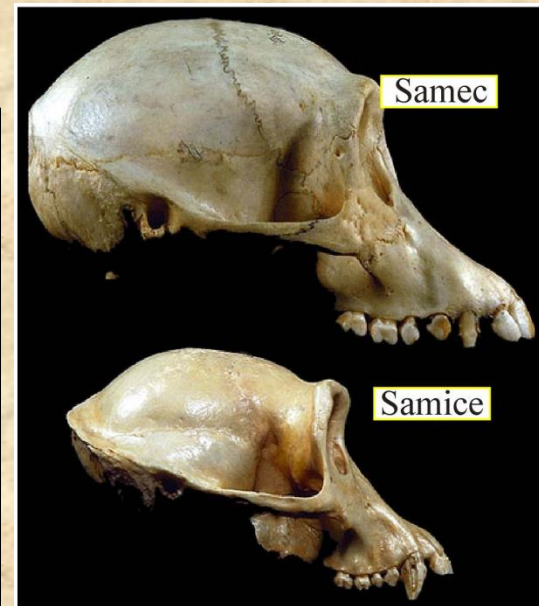
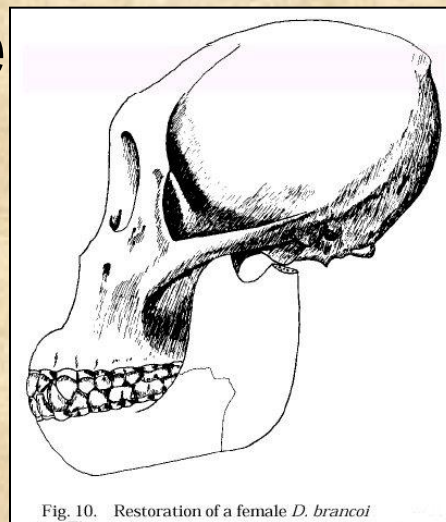
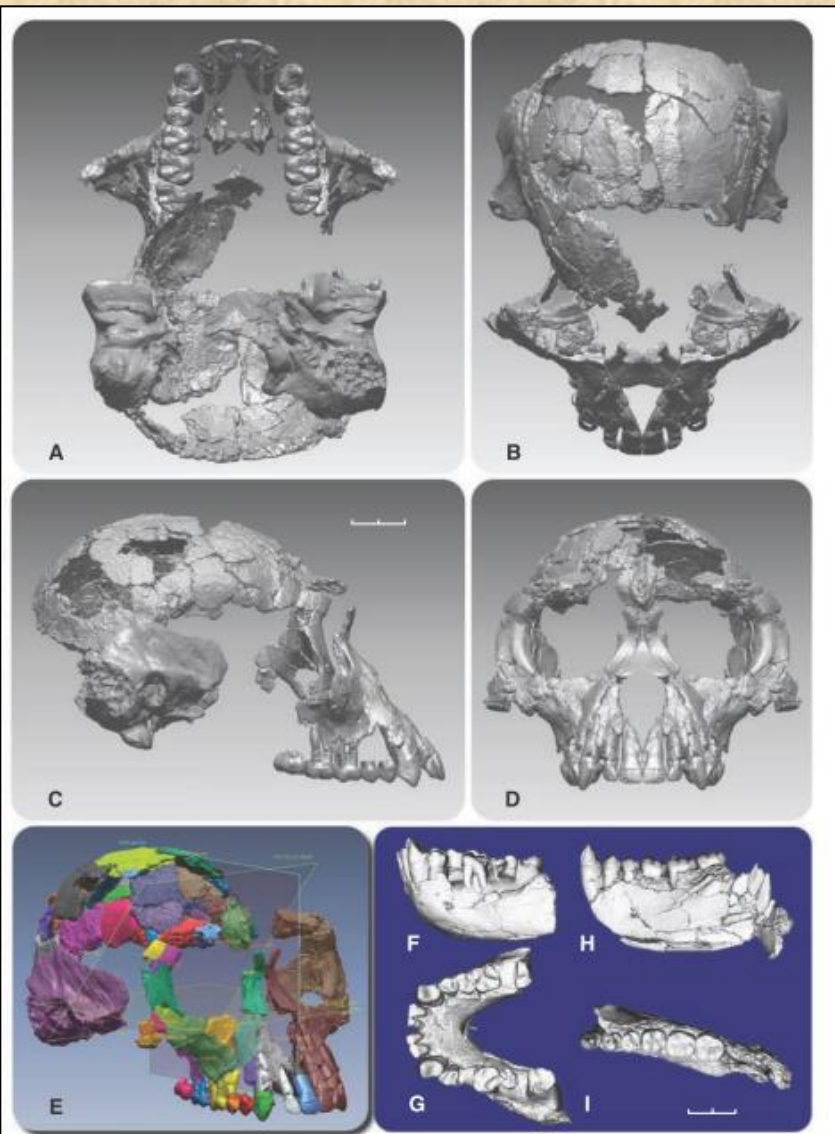


Nové informace o *Ardipithecus ramidus*



	Výška	Hmotnost	BMI	Rohrer
Flores LB1	112,1	30,3	24,11	2,151
Flores LB1	115,0	31,0	23,44	2,038
Ardi Science	120,0	50,5	35,07	2,923
Ardi	122,8	34,5	22,86	1,861
Ardi	122,8	33,1	21,93	1,785
Ardi	126,2	35,0	21,97	1,741
Ardi	129,6	38,0	22,63	1,747
Bouri	130,6	38,0	22,29	1,707
Pan troglodytes	115,0	45,0	34,03	2,959

Porovnání lebky ardipitéka, sahelantropa a šimpanze



Příklad využití analýzy HOX genů v evoluci skeletu hominidů

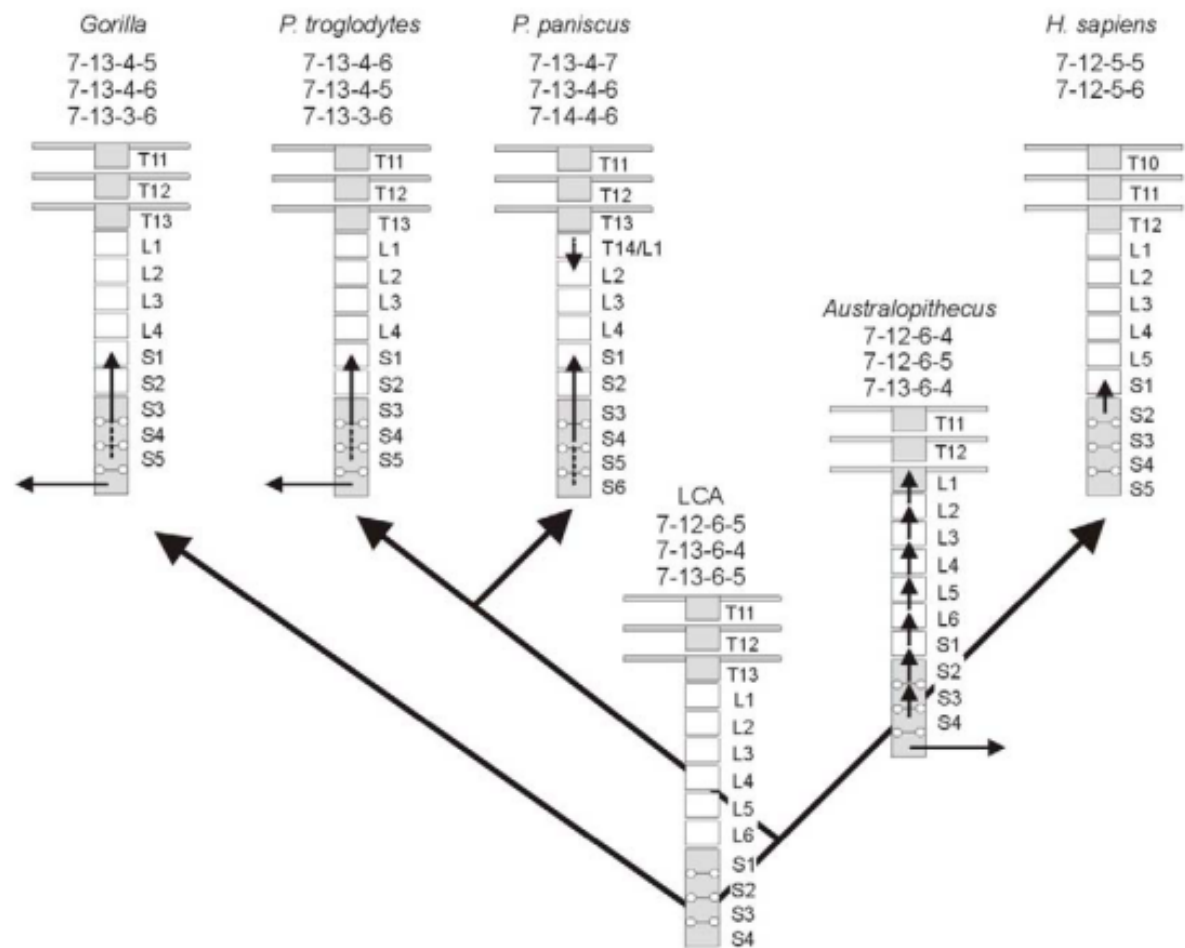


Figure S15. Reconstructed Vertebral Patterning of Hominoids (from 21). Most frequently observed axial formulas for each extant species are indicated along with the presumed modal formulas (those of highest probable frequencies) for the last common ancestor of *Gorilla* and humans (GLCA) and early hominids. A horizontal arrow indicates loss of a somite; a vertical arrow signifies changes in the positions of the anterior boundaries of *Hox* gene expression domains underlying indicated transformations of vertebral identities (22). Reduction in the number of somites contributing to the thoracic column is presumed to have occurred before the *Homo* horizon.