



定位
價值
意義

人類是怎樣來的？

北京人？

山頂洞人？

北京猿人？

尼安德特人？

工具猿？直立猿？沙丘人？

誰是誰的祖先？

Texas State Board of Education 美國德州教育局規定

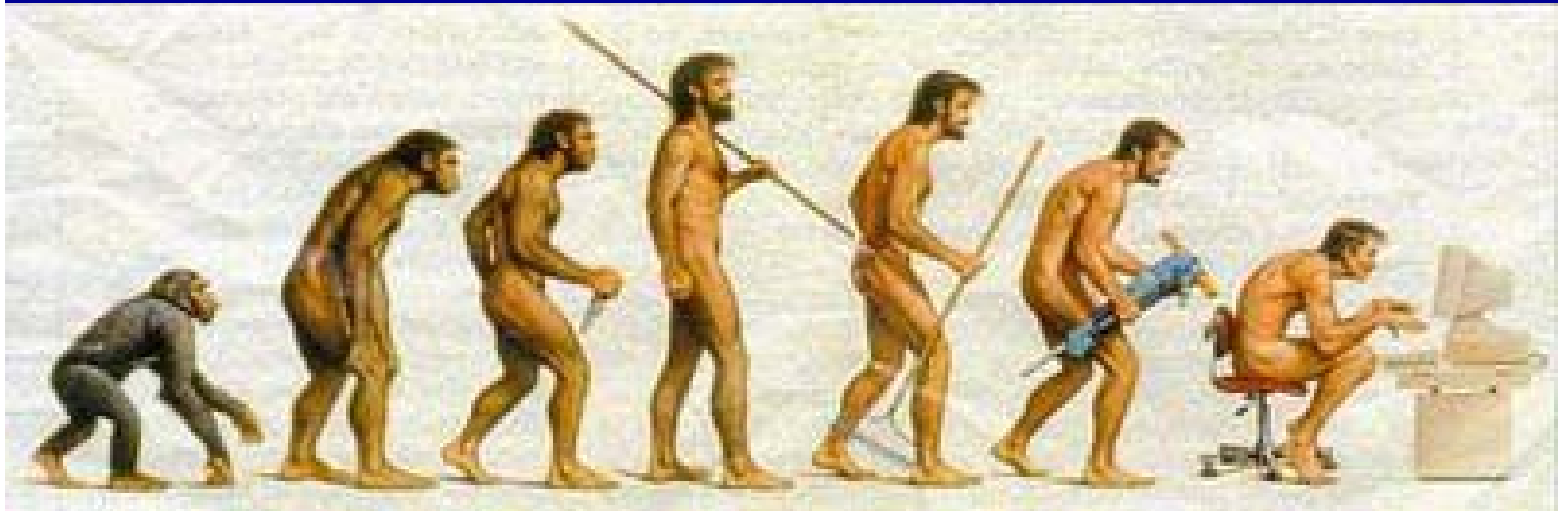
- requiring students to “critique” and examine “all sides of scientific evidence”

中學生要“評判”和檢驗“科學證據的面面觀”

- students to “analyze and evaluate” the evidence for major evolutionary concepts

學生要“分析和評估”進化思想的證據--
共同祖先，突變，自然選擇

[超過78%贊成同時講授進化論
正反兩面的證據。]



進化→

退化？



周口店
Peking
Man

科学
証據？

全国重点文物保护单位

周口店遗址

中华人民共和国国务院

一九六一年三月四日公布

近兩年誰去參觀過？

1921年:受当地农民指引,瑞典人安特生来到龙骨山,与奥地利人师丹斯基发掘周口店第一地点,当年得一人类臼齿,1923年继续发掘,所得材料均运往瑞典乌普萨拉研究。

1921. J. Andersson (a Swedish) discovered Peking Man site. O. Zdansky (a Austrian) excavated in Peking Man site and found a human molar.

1926年:在瑞典的实验室的周口店材料中修理出又一枚人牙,10月,安特生在北京欢迎瑞典太子访华会上宣布了这个东亚古人类的重要发现。

1926 A human premolar was found in laboratory in Sweden among the materials unearthed from Peking Man site.

1927年:一枚下臼齿,步发现下颌骨 large scal A well pr ed a new nsis for 1



瑞典太子與安特生

Prince Charles with Prof. J. G. Andersson

1926
3rd human tooth
瑞典太子訪華
會上宣佈



中国猿人北京种
“Peking man”

1941年:珍珠港事件后,已出土的北京人化石失踪了,所幸的是魏敦瑞详细研究了北京人化石,发表了很多本专著,提供了关于当时所知的最早人类祖先体质形态的系统知识,现在仍不失为关于直立人的体质的重要著作。1941, Peking Man fossils lost. But morphological information of them has been collected by F. Weidenreich (a German Jew) whose publications on Peking Man provided most part of the knowledge of the body structure of earliest humans known until that time.

1945年:北京解放十天,便恢复了周口店的发掘工作,1951年再次发掘,共发现北京人牙5枚,残肢骨二段,1950年从瑞典的周口店材料中又发现一枚北京人牙,1949. The excavatiou of Zhoukoudian sites resumed. Five teeth and two fragments of limb bone of Peking Man were found. Another premolar was found in materials transported to sweden from Peking Man site before the world war II.



周口店
Peking
Man

三顆人牙
鉛笔画
來的!

1921-6年在龙骨山第一洞
發現 3 顆人牙 human teeth

被命名为:

“中國猿人北京種”

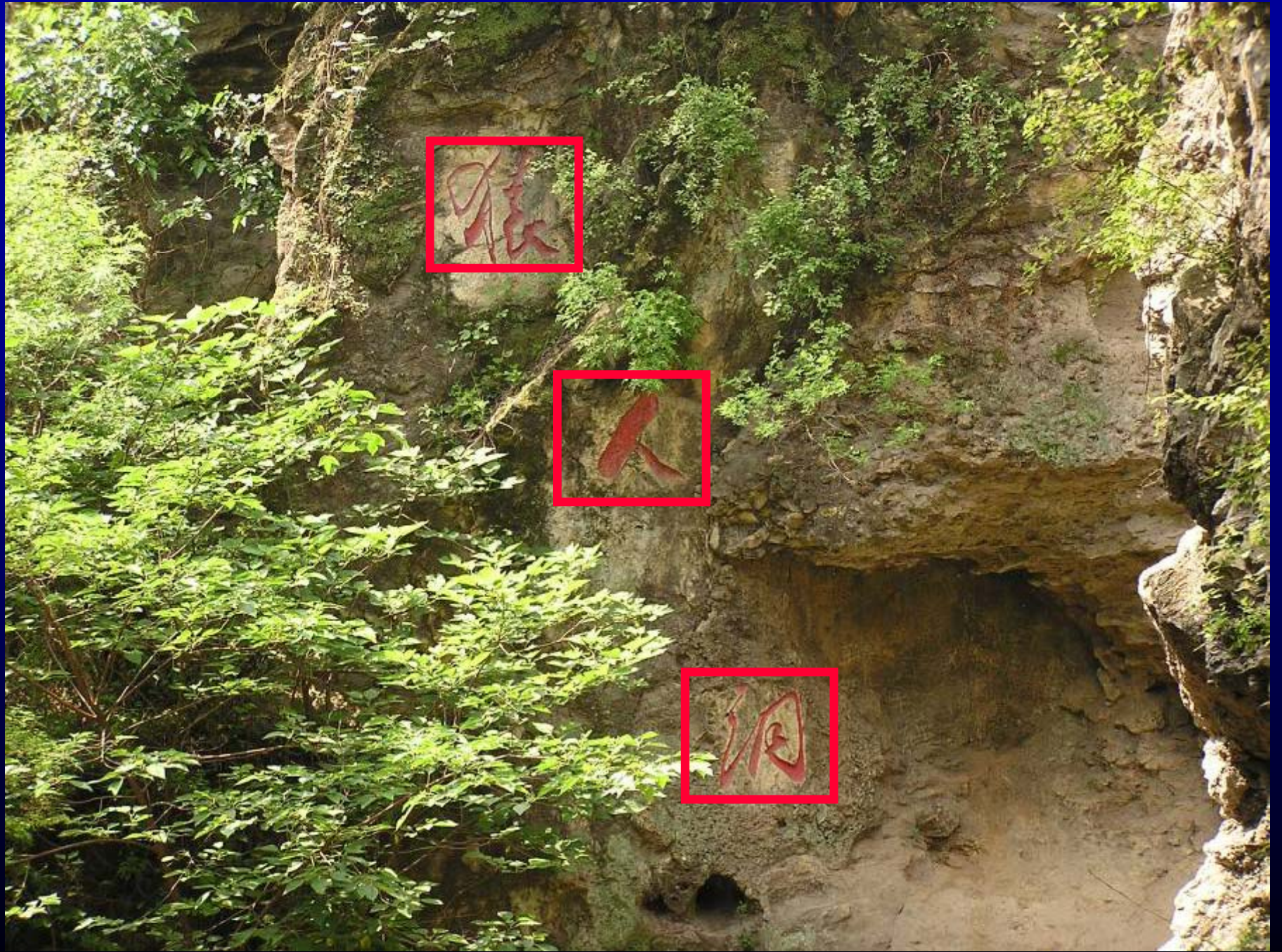
俗名: “北京人”





第一地点鸽子堂





猿

人

洞





1929年
北京人第一头盖骨
发现处



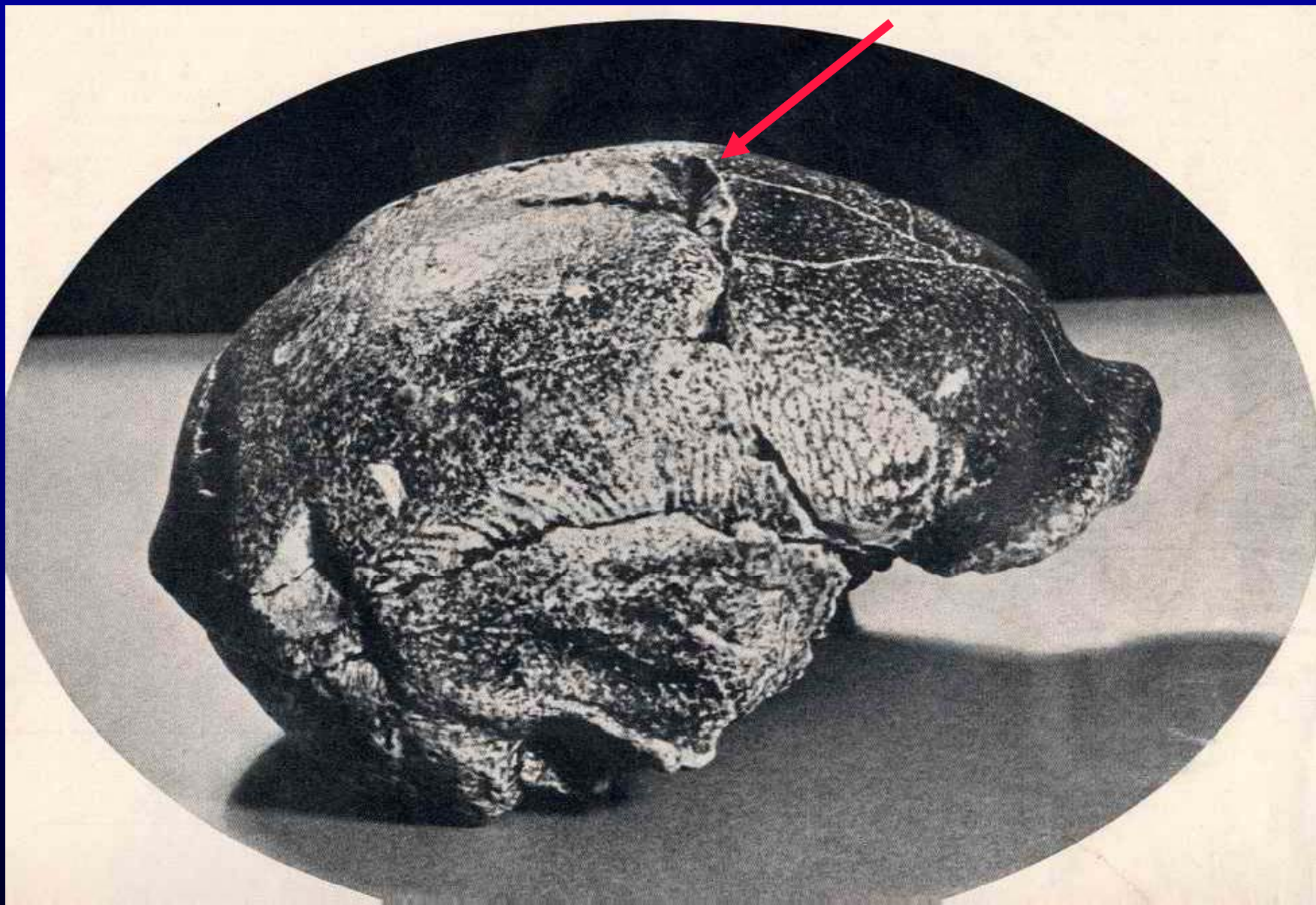
開掘猿人洞的第二天，
1929年12月2日下午4時，
裴文中用繩子拴腰下到**10**多米深的
猿人洞底，發現
的頭蓋骨
“一半在軟土中，一半在硬土中...”



北京人头盖骨(模型)

1929年12月裴文中在周口店发现第一个头盖骨
(当时轰动世界)

北方网
enorth.com.cn

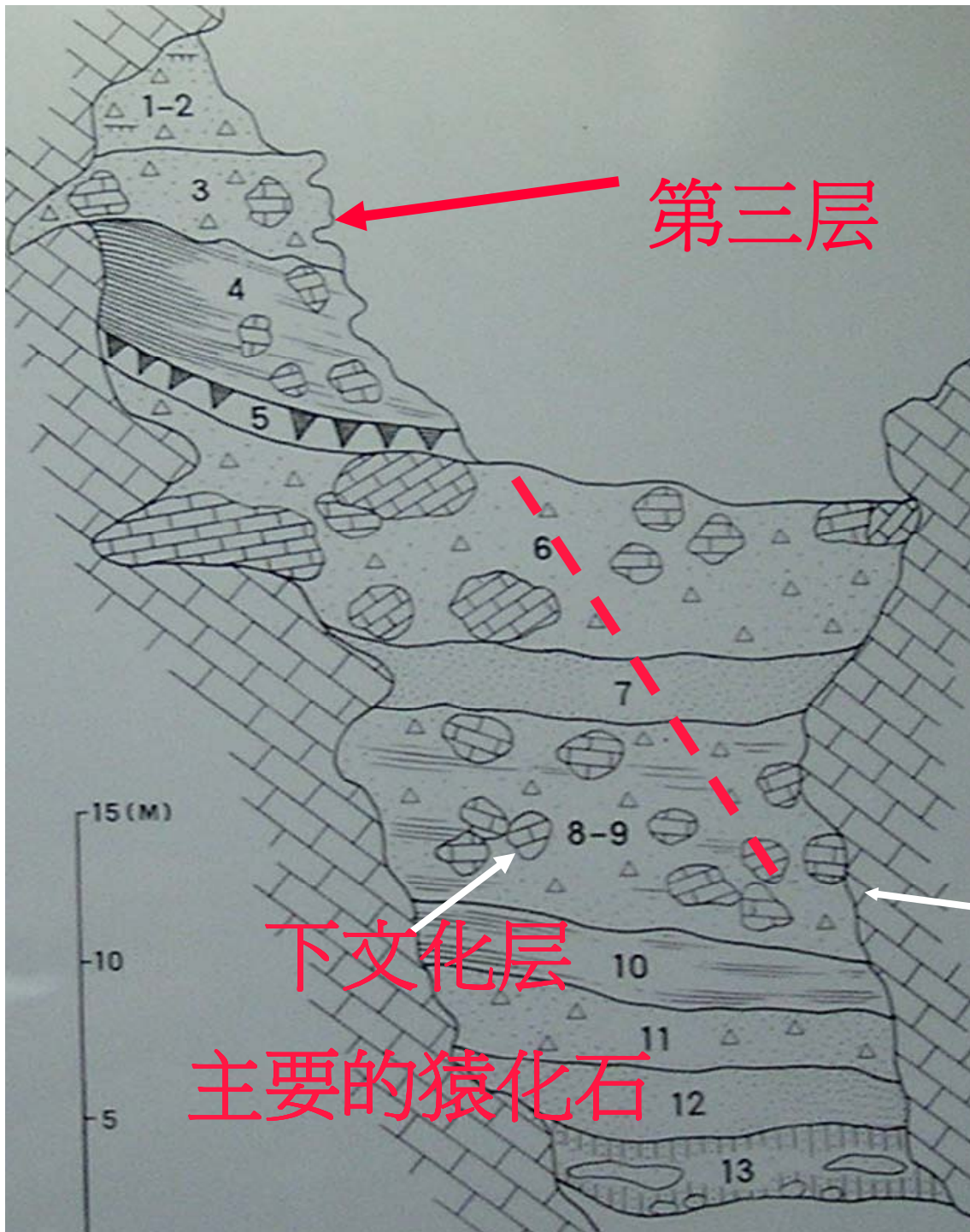


“异常厚...真不像人!”

1921年试掘周
口店龙骨山的照片

1929年裴文中
教授发现了第一具头
盖骨。图片示裴手抱
第一具头盖骨的情景。





第三层

下文化层
主要的猿化石

1929 看到
第一頭蓋骨
“50 萬年前”



頭蓋骨碎片



六個較“完整”的頭蓋骨



1951 “真不像人!”

下颌骨及牙齿
mandible with teeth

肩胛骨
scapular

肱骨
humerus

桡骨
radius

桡骨
radius

股骨
femur

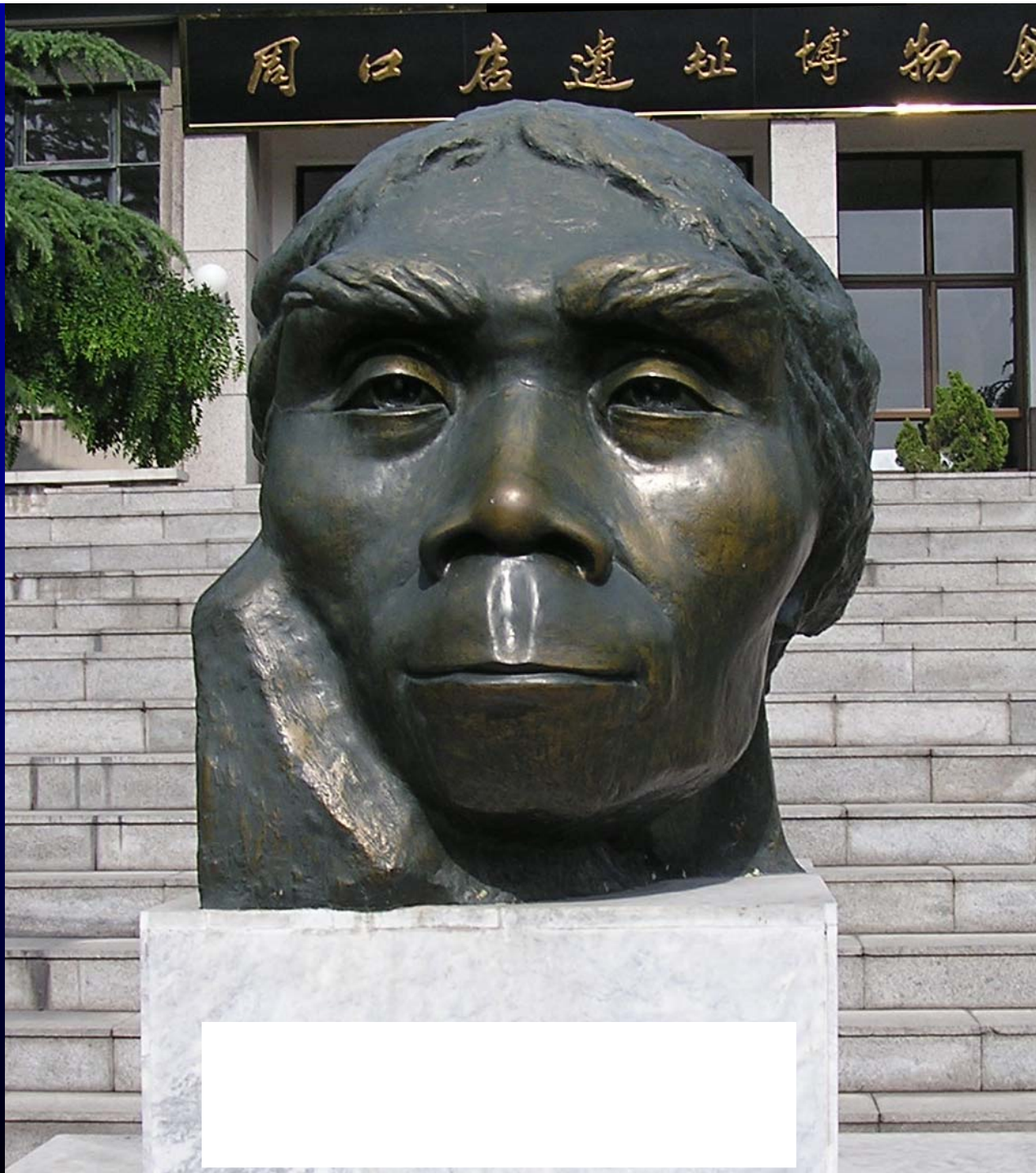
股骨
femur

腓骨
fibula

胫骨
tibia

脚骨
pedal bone





它就是
人的
“祖先”？
(2004)



? ?





北京自然博物馆









到底谁
是祖先？






山顶洞晚期智人头骨

Skull from Upper Cave
(Late *Homo sapiens*)

Human art



A photograph of a primitive bone needle, likely made from a bird bone, with a small hole at the top and a sharp point at the bottom. A thin, dark thread is threaded through the hole and is curved into a loop on the right side. The needle is placed on a white circular background, which is set against a black background.

人类的骨针—
“文化大爆炸”



山顶洞晚期智人头骨

Skull from Upper Cave
(Late *Homo sapiens*)



太像神蹟!

“異常厚...真不像人!” → 人

分类名称: 安氏鸵鸟 Ostrich
Taxon (*Struthio anderssoni*)
骨骼名称: 蛋壳
Element Egg shells
地点: 第1地点
Locality Locality 1

Taxon:

骨骼名称:
Element:
地点:
Locality:
地质年代
Age:





20000
Pithecanthropus
Diplocephalus
20000
100000
Lithomorphus
1000
1000
1000





1966年北京人头盖骨发现处

A skull-cap of Peking Man
was discovered here in
1966

1966年北京人头盖骨发现处

A skull-cap of peking Man
was discovered here in
1966



第一地点鸽子堂

3 颗人牙



北京猿人遗址地层剖析简介

1-2层



红土质层，含石及骨
化石层。

3 层



大猿人遗址，一九四
九年在此层发现北京人
大猿。

4 层



此 层

5 层



清砾质层，含
化石层。

6 层



大猿人遗址，含化
石。

7 层



砂，含化石。

8-9层



清砾质层，含化石
层，一九四九年在此层
发现北京人第一头大猿。

10 层



红土质层，含化石
层，一九四九年在此层
发现北京人。

11 层



红土质层，含化
石层。

12 层



红土质层，含化石
层。

13 层

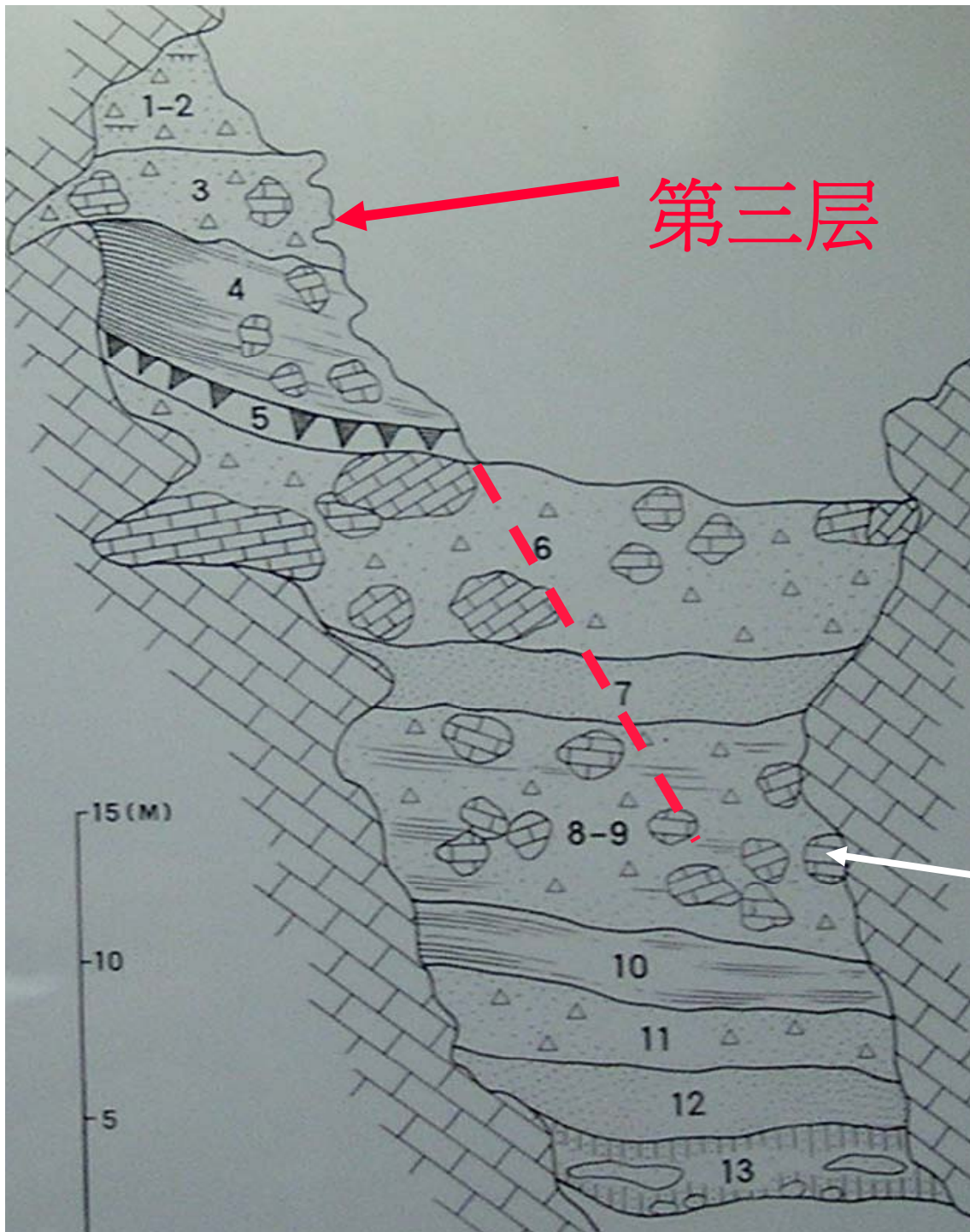


红土质层，含化石
层。

底 层



砂质层，含化石。



第三层

下文化层
主要的猿化石



From the 3rd layer!

1966年在第三層發現北京猿人之頭蓋骨

1944年裴文中被日本宪兵队逮捕，这是被释放后在家里和子女合影
Photo of Pei Wenzhong after being arrested and affranchised by
Japanese Army in 1944

1941年，在动荡的局势中，于之前所发现的北京人化石全部丢失。裴文中对此痛心不已。而如今，虽经多方寻找，这批珍贵的古人类化石依旧下落不明……

解放后，在党和政府的重视下，周口店的发掘工作得到恢复。1966年，在裴文中的主持下，再一次对猿人洞进行发掘，获得了两块现今仅存的头盖骨化石，一块额骨，一块枕骨。同时，依靠多年发掘积累的丰富经验，裴文中又指认出两块化石与1934年的两块颞骨（现存模型）属于同一个个体。



1934, 1936, 及1966 年所發現之頭蓋骨合拼

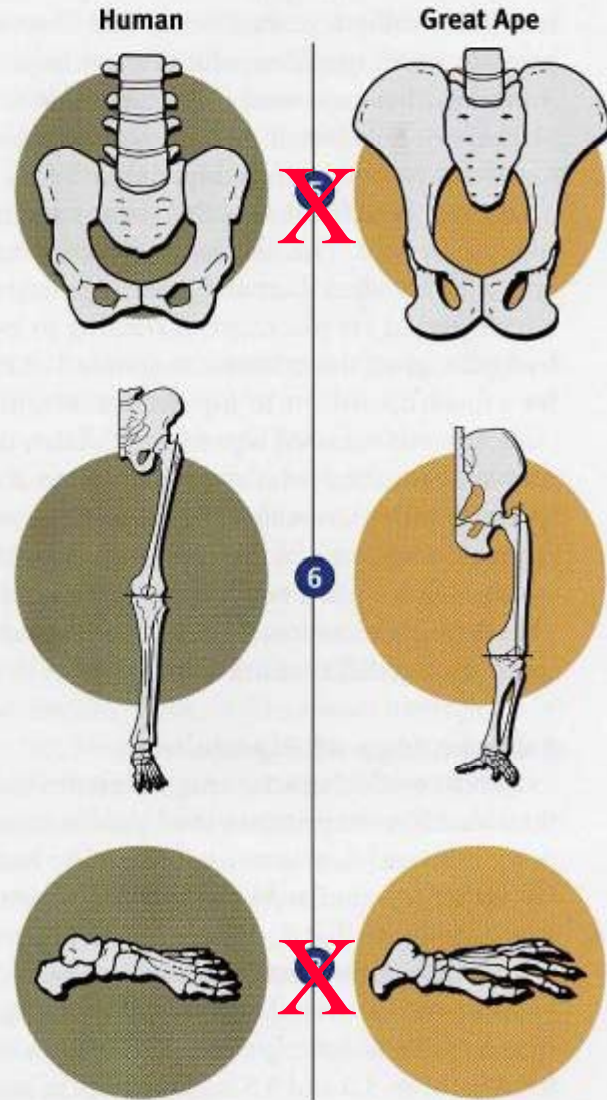
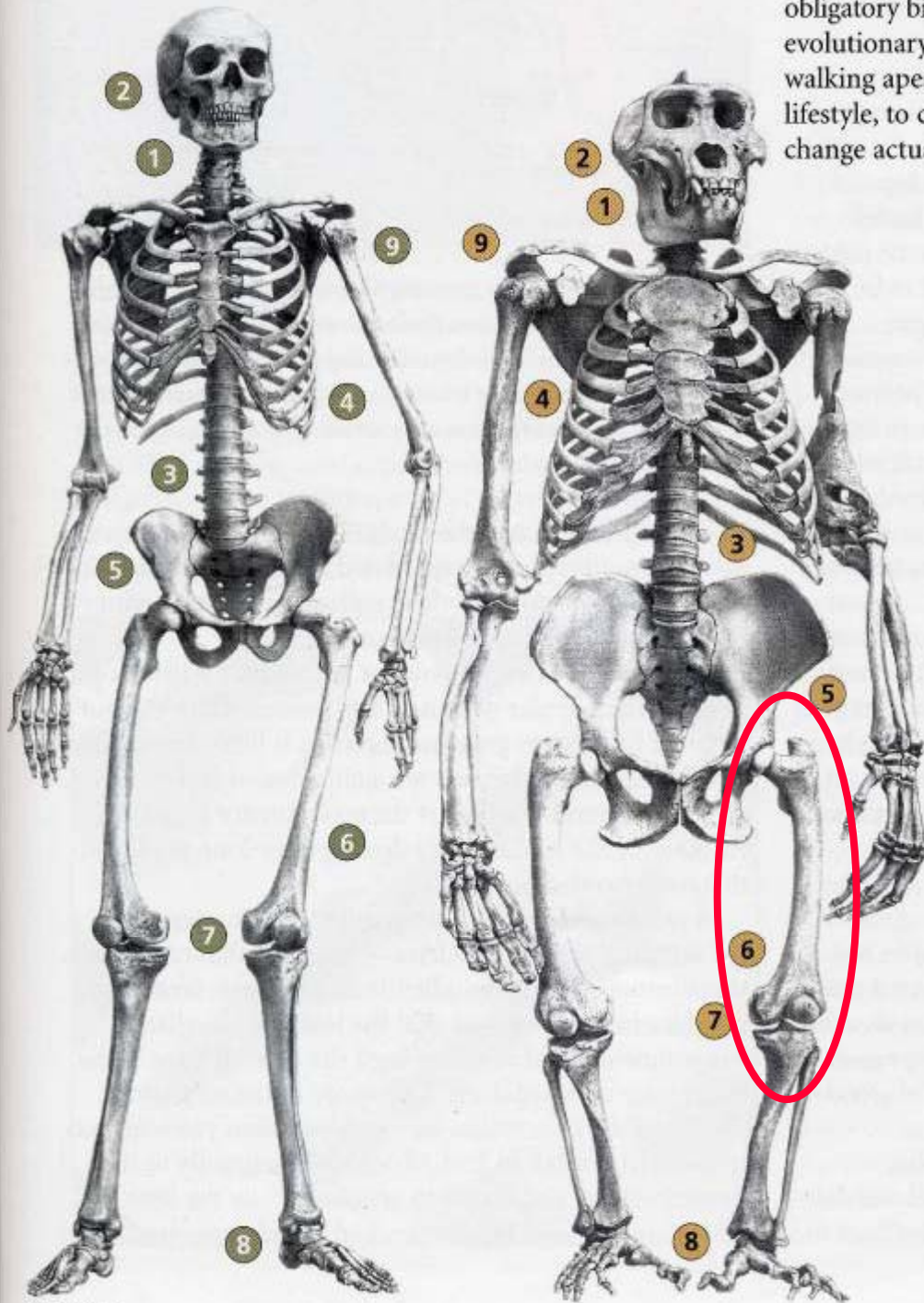
陳慶真引用 M. Boule:

- 「你们讓我遠渡重洋…就來看這堆…被砸碎的猴子骨頭嗎？」
- 「它們根本是被真正人擊殺的猴子！」



直立行走？

obligatory bipedalism of modern humans. Lastly, significant evolutionary pressure would be necessary to force knuckle-walking apes, perfectly suited for their environment and lifestyle, to change into upright walking primates, if such change actually could occur.





Australopithecus africanus

南方古猿



Homo erectus

直立人



Homo sapiens sapiens

现代人

股骨
必须
弯的
才能
立行

下颌骨及牙齿
mandible with teeth

肩胛骨
scapular

肱骨
humerus

桡骨
radius

桡骨
radius

股骨
femur
股骨
femur

腓骨
fibula

胫骨
tibia

脚骨
pedal bone





Peking Man
(500,000 Yr)

Human

直的股骨不能直立行走



Walk upright?





北京人化石

地点 北京周口店

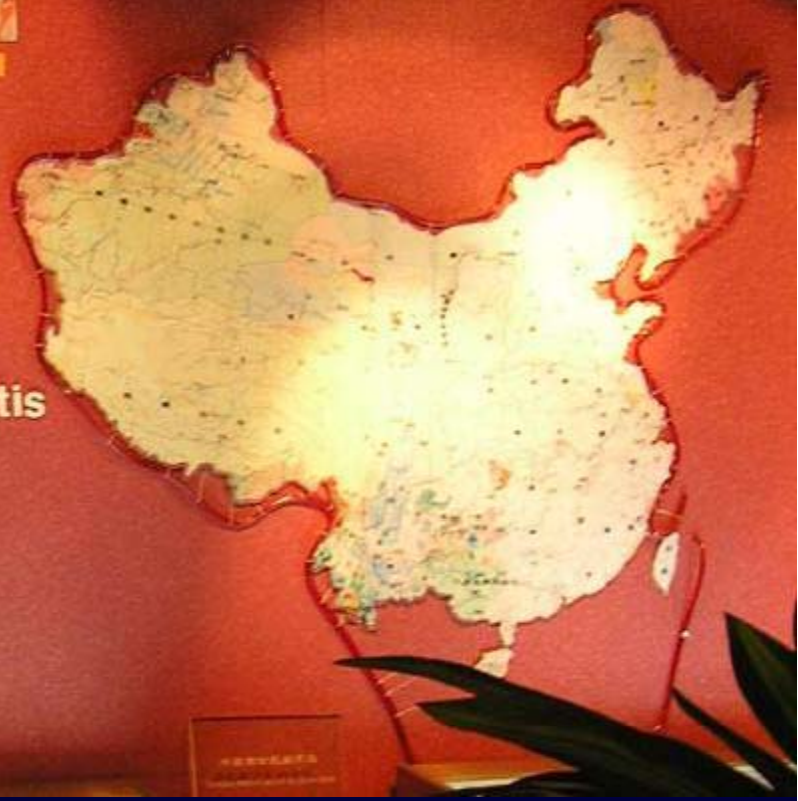


Peking
man
walked
upright?

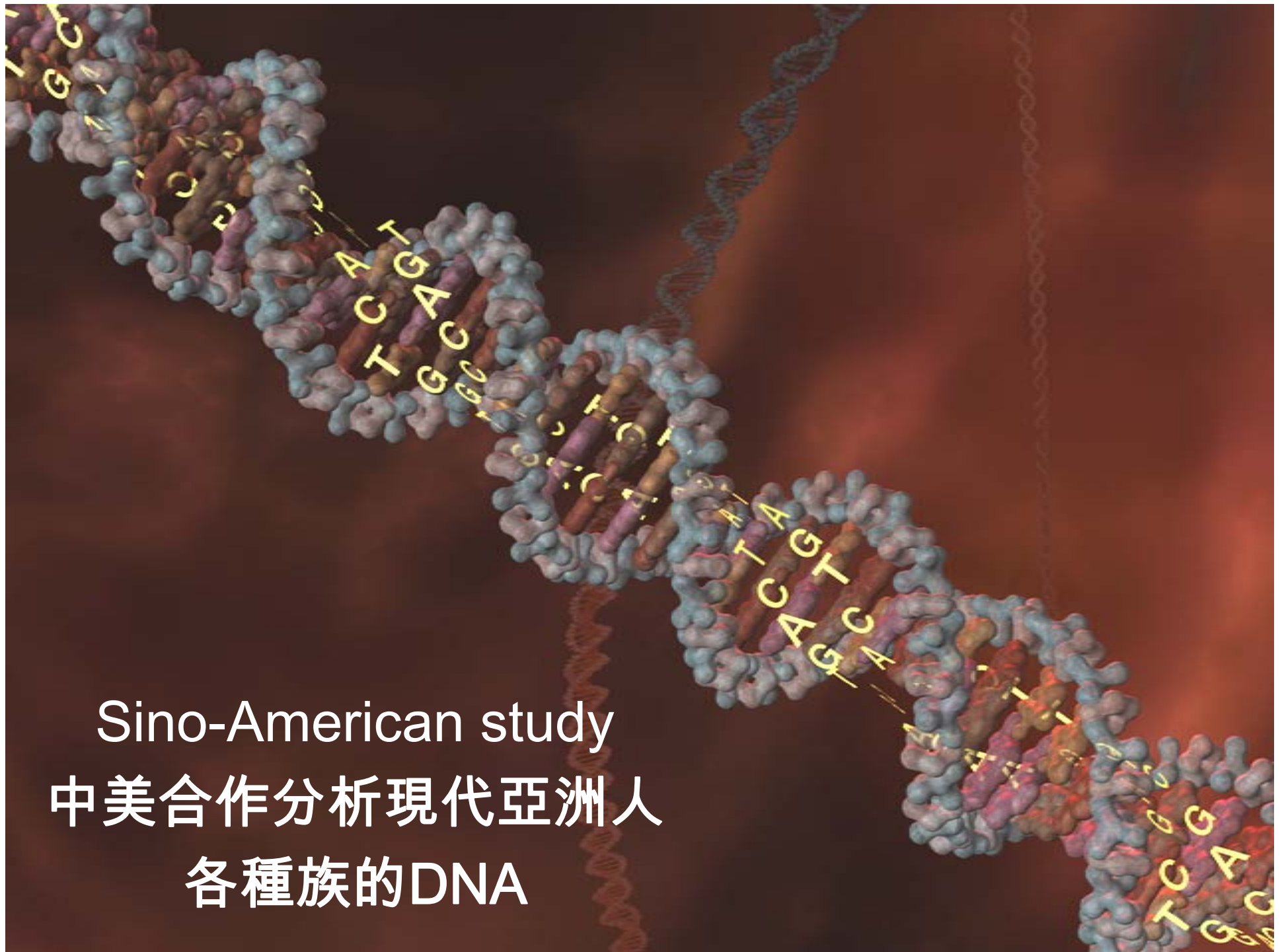


五十六个民族
五十六朵花

56 Nationalities
56 Flowers



中国民族分布图



Sino-American study
中美合作分析現代亞洲人
各種族的DNA

Out of Africa theory

据新华社北京 4 月 28 日电 我国科学家最近公布的一项研究

我科学家首次从遗传学角度证明

现代亚洲人类可能源于非洲

结果表明，亚洲地区不存在从直立人到现代人的连续进化过程

现代亚洲人类可能起源于非洲。

这项基于基因水平遗传学的研究表明，当今亚洲的基因库主要源于非洲起源的现代人，世界各人群遗传树与现代人类非洲单一起源说相符。这是世界上第一次从遗传学角度

证明亚洲人与非洲人的关系。

1987 年，国外学者通过研究提出了人类起源于非洲并向其它地方迁移的学说。国际学术界认为，中国科学家的这次发现为这一学说提供了重要论据。

基因分析表明，非洲人进入中国大陆后，可能是由于长

江天堑阻断，只有少数人到了北方，因此北方人之间差异较南方人小得多。

科学家们认为，在亚洲发现了 50 万年前的北京人和 170 万年前的元谋人化石，但它们与现代人没有直接的承袭关系。亚洲古人类化石在 10 万

否也是要寻找

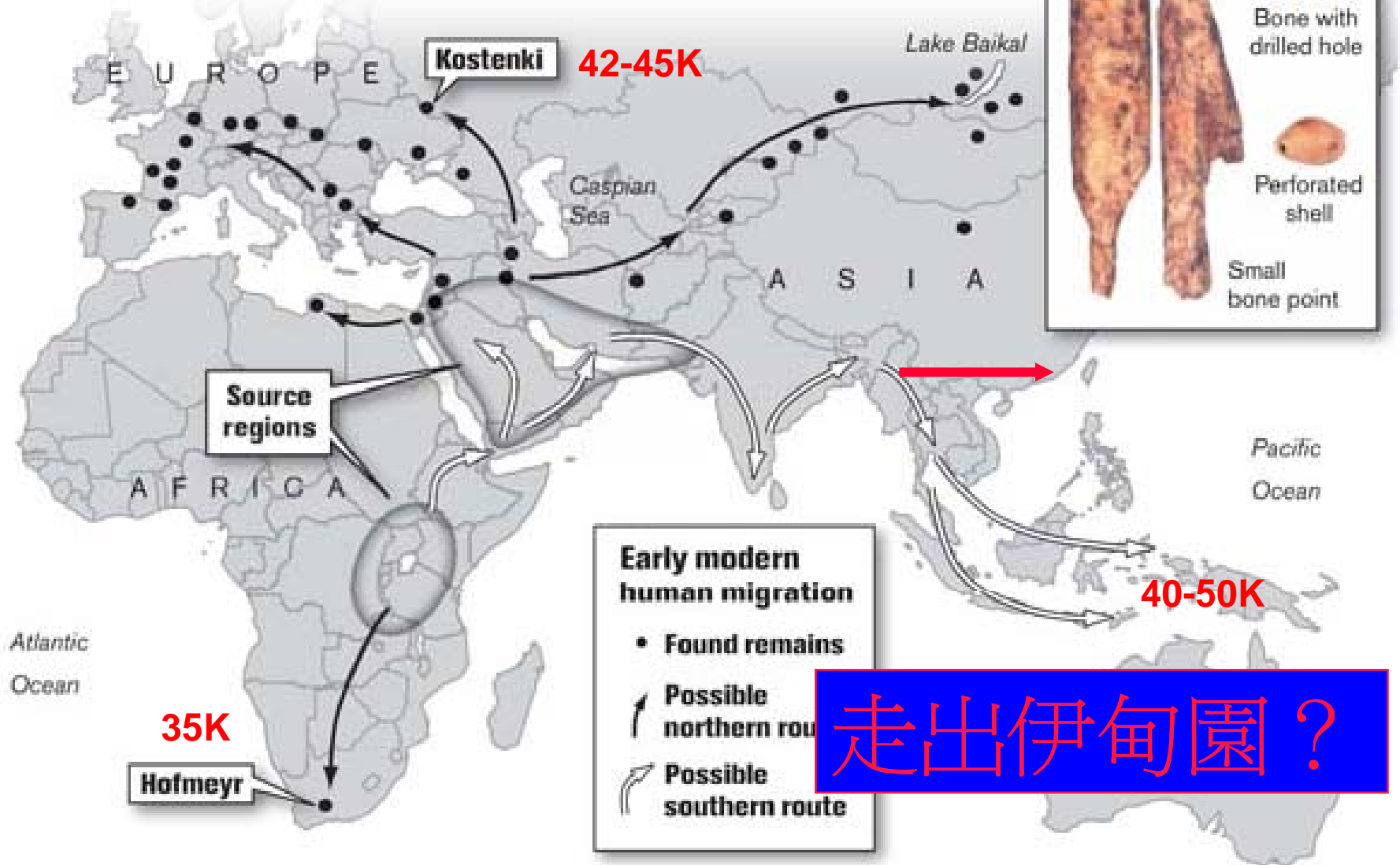
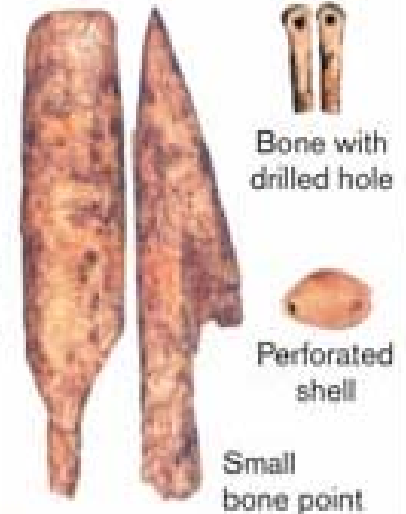
(Nature 2009/3 封面：稱北京人 77 萬年前就存在)

Fossil finds

Fossil bones and tools from the Kostenki excavation support the theory of an ancient skull found near the South African town of... the early migrations of the first fully modern humans.

Out of Africa theory

Tools found at Kostenki





[科学发现]

北京猿人并非中国人祖先

北京科技报

2005年01月14日02:13

作者：张星海

OLDER THAN 'LUCY'

Scientists from Berkeley, Japan and Ethiopia have found 4.4 million-year-old fossilized teeth, skull fragments, and they say the human family tree of the African apes may find critical lower limb fossils to reveal whether the new species, *Australopithecus ramidus*, walked upright.

現代的猿類

MODERN AFRICAN APES

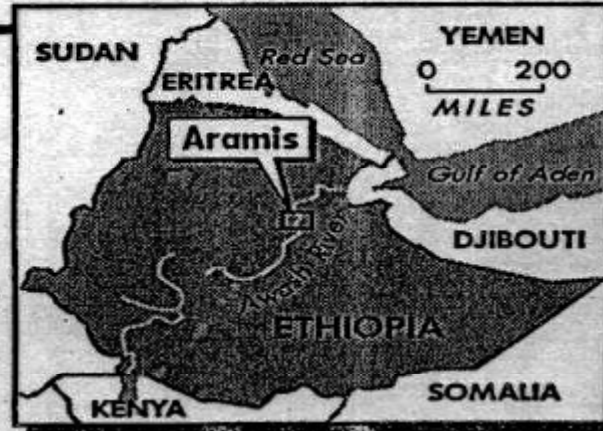


Present day Gorilla Chimp Pygmy chimp

MILLION YEARS

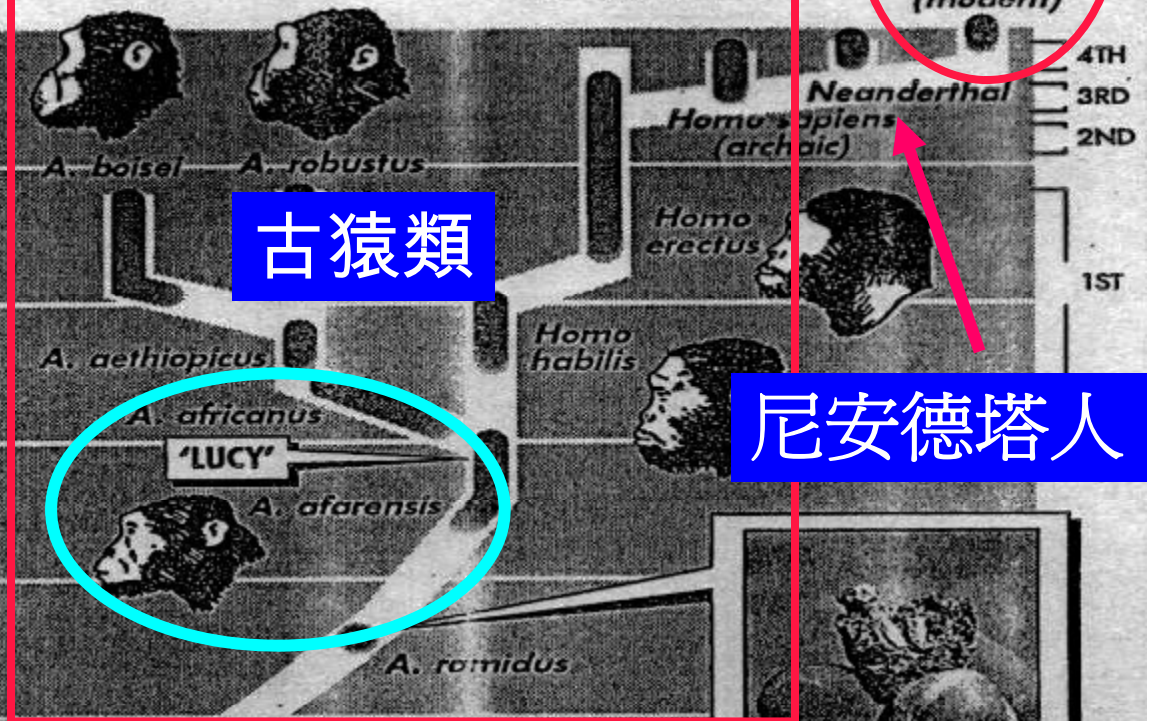


猿无祖先?
No ancestor



Homo sapiens (modern)

HOMINIDS



古猿類

尼安德塔人

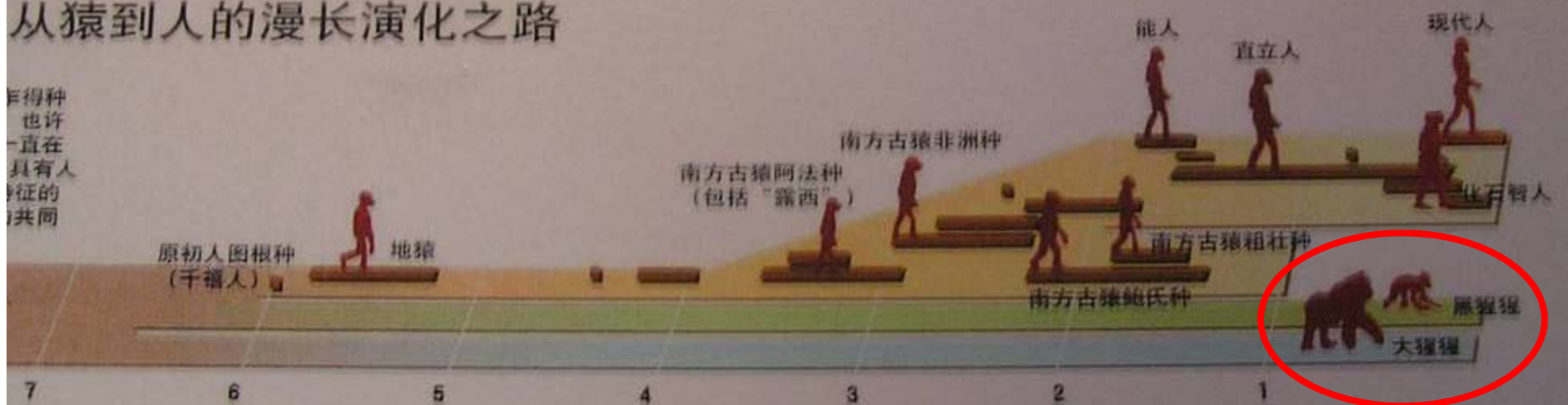


Fossilized tooth of *Australopithecus ramidus*

Sources: Tim White, University of California at Berkeley; "From the Beginning" by David Peters.

从猿到人的漫长演化之路

也许
一直在
具有人
特征的
共同



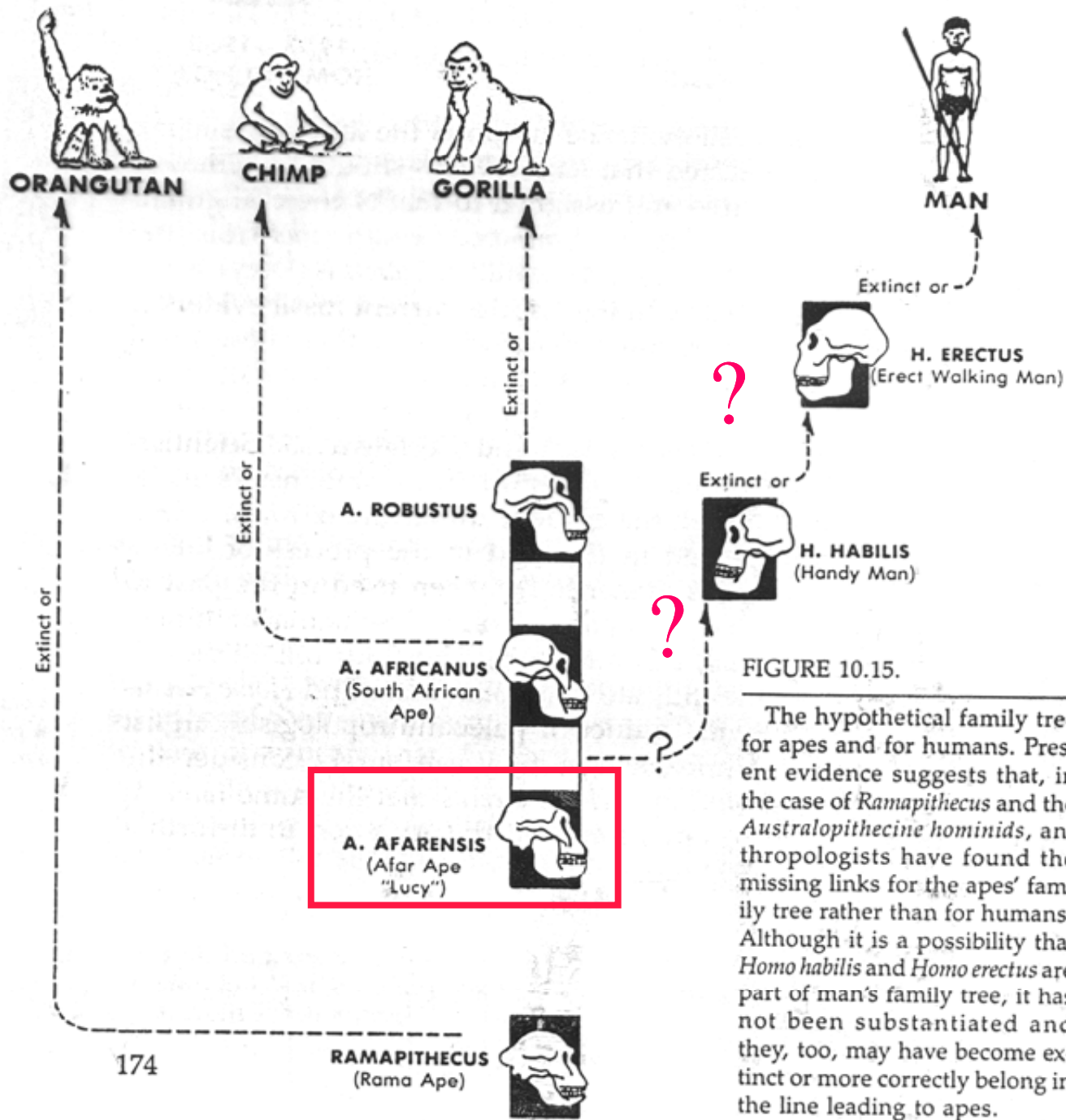


FIGURE 10.15.

The hypothetical family tree for apes and for humans. Present evidence suggests that, in the case of *Ramapithecus* and the *Australopithecine* hominids, anthropologists have found the missing links for the apes' family tree rather than for humans. Although it is a possibility that *Homo habilis* and *Homo erectus* are part of man's family tree, it has not been substantiated and they, too, may have become extinct or more correctly belong in the line leading to apes.



“Lucy” 3.2 百萬年

1.1 meters tall

Walking erect? 不直立

Lucy demoted to
Gorilla-like

降為大猩猩

Not direct ancestor of
humans 非人祖先

PNAS 4/17/ 2007

It's a girl — she's 3.3 million years old, almost human.

Fossils of oldest known child hominid found in Ethiopia 'in mint condition'

By Keay Davidson
CHRONICLE SCIENCE WRITER

Scientists have uncovered fossils of the oldest known hominid child near the site in Ethiopia where researchers discovered prehistory's most famous female — Lucy, a 3.2 million-year-old skeleton — in 1974.

The unnamed tot's remains appear to be those of a 3-year-old female that lived 3.3 million years ago and, like Lucy, is a primitive human ancestor of the species *Australopithecus afarensis*. It probably walked upright, but it might also have been able to climb trees, judging by its curved finger bones, a research team reported in today's issue of *Nature*.

"It would have resembled a chimpanzee more than it would have a modern human, although it's clearly neither of those things," Bernard Wood, an anthropologist at George Washington University in Washington, said in an interview.

"I think it would have had a hairy body, but who's to know? Nobody knows the answer to

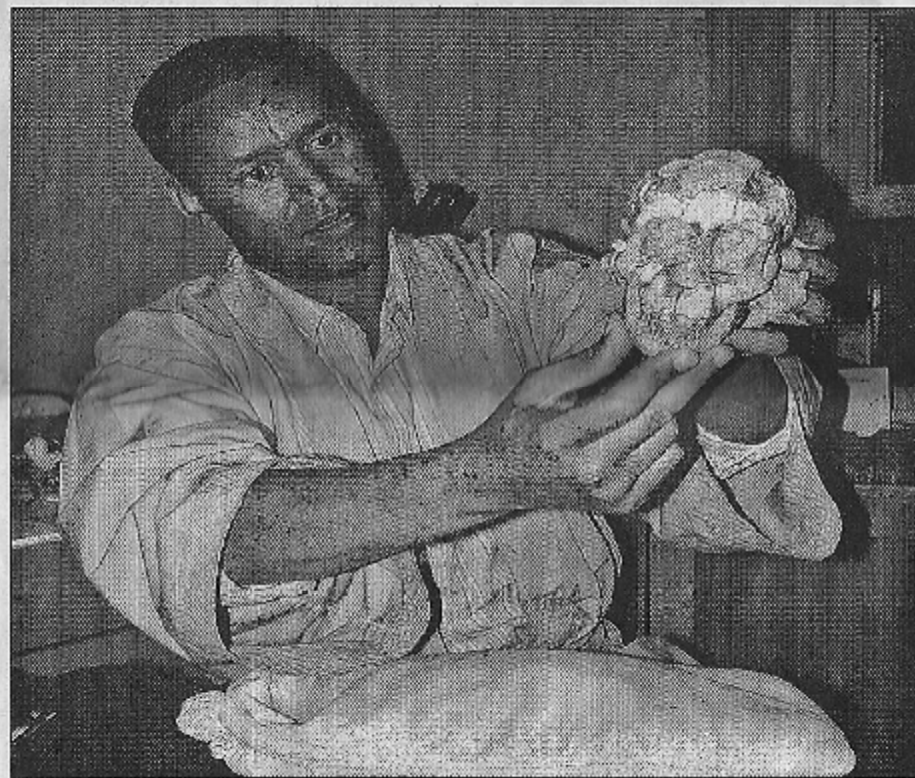
plete" known specimen of a hominid child.

Wood agreed. "It's in mint condition, (although) some (parts) are missing that may well turn up later. This is a discovery of an incredibly well-preserved individual . . . that lived between 3 and 4 million years ago," he said.

After the find, Alemseged quietly spent the next six years carefully scraping away the sediments and analyzing the creature's fossils.

The discovery delighted Donald C. Johanson, the paleoanthropologist who stunned the world when he found the 3.2 million-year-old Lucy fossil at Hadar, Ethiopia, a few miles from the Dikika site. "I don't think there's any question that (the child is) the same species as Lucy," because its features "are identical to what we see in all of the major hominids," Johanson said in a phone interview Tuesday.

Scientists have previously found fragments of a few other *Australopithecus afarensis* children. "but nothing as significant



Max Planck Institute for Evolutionary Anthropology

Zeresenay Alemseged found the remains in 2000 and spent the last six years analyzing them. He holds the skull of the 3-year-old.

Organ of balance in the inner ear more ape-like than human

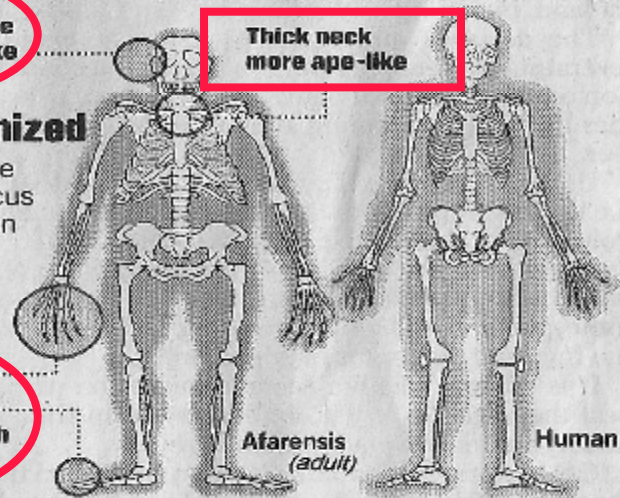
Thick neck more ape-like

Fossils scrutinized

Partial fossil evidence of the *Australopithecus afarensis* suggests an ape-like anatomy, better at climbing than humans.

Fingers very curved

Scientist have yet to retrieve the toe, which may be chimp-like



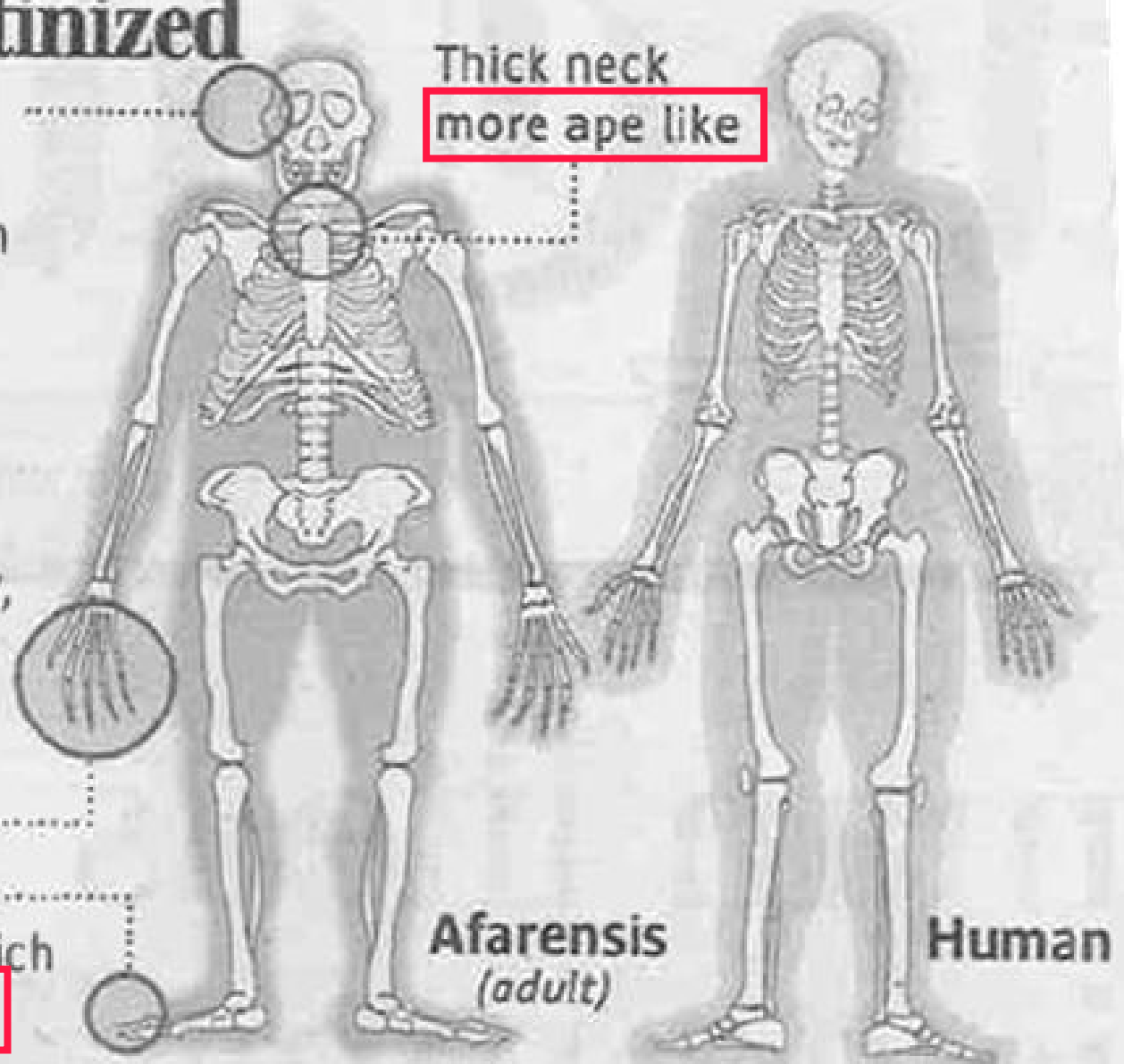
更似黑猩猩

Fossils scrutinized

Organ of balance in the inner ear more ape like than human

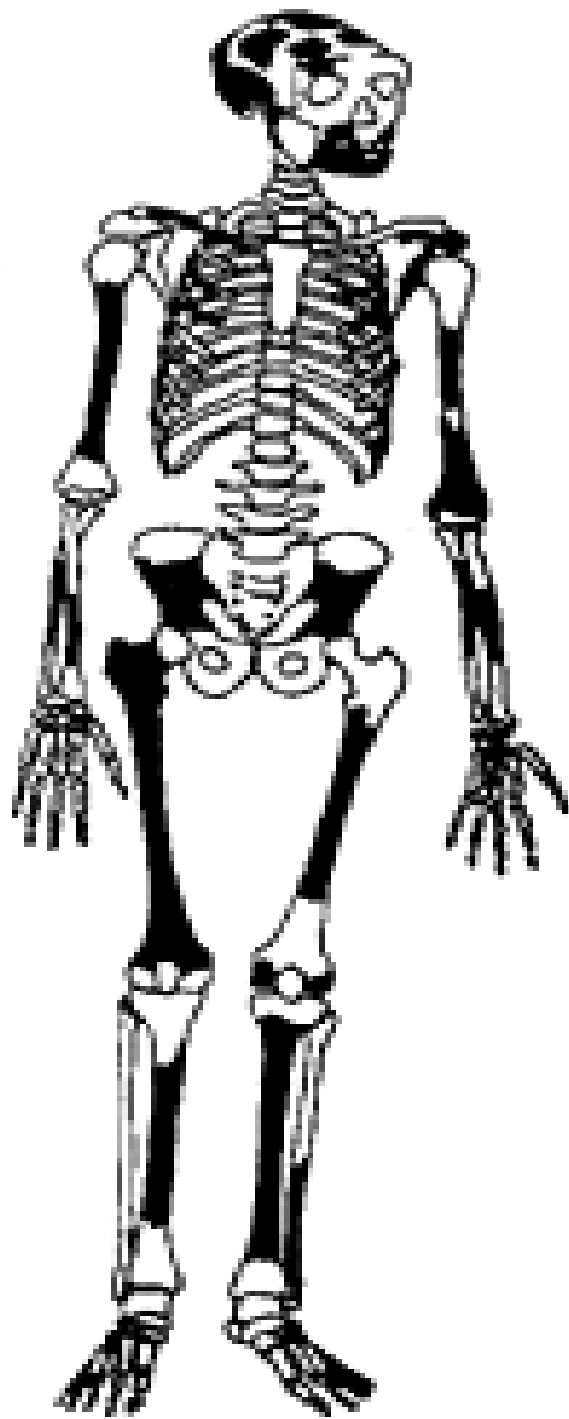
New partial fossil evidence of the *Australopithecus afarensis* suggests an ape like anatomy, better at climbing than humans.

Fingers very curved.....
Scientists have yet to retrieve the toe, which may be chimp like



Sources: *Nature*, 2004; Laszlo Meszoly

THE ASSOCIATED PRESS



尼安德塔人

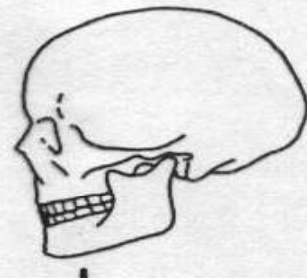
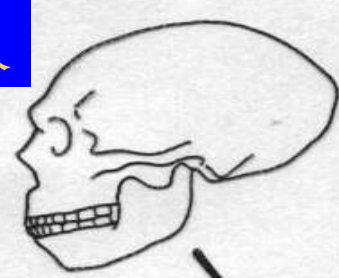
現代人

Homo neanderthalensis Homo sapiens

直立猿

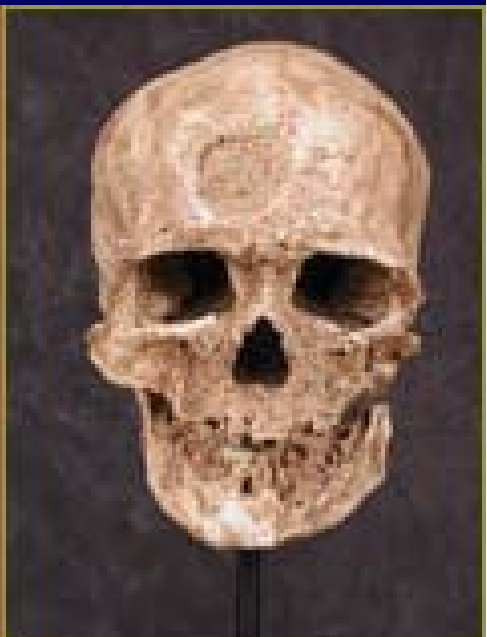
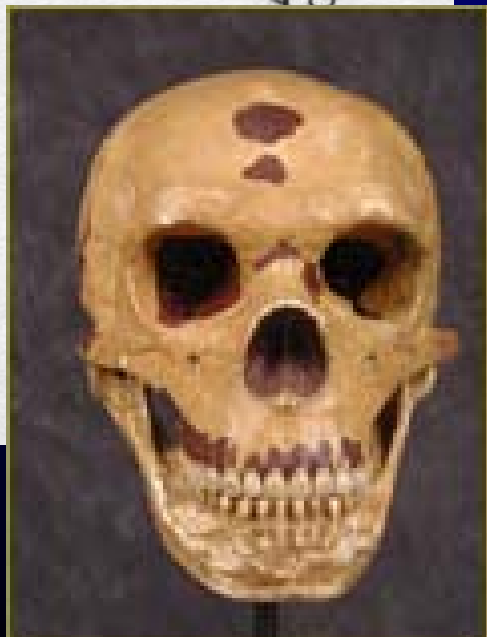
巧猿

南方猿



A. afarensis A. africanus (slender Australopithecus)

on Years Ago





‘尼人’



‘尼人’

already inhabited. Neanderthals were 99.5 percent genetically identical to modern humans, but had evolved distinctive anatomy during hundreds of thousands of years in the cold Eurasian climate.

NEANDERTHAL FEATURES

● New genetic evidence

● A form of the gene *MC1R* would have endowed its carriers with red hair and pale skin.

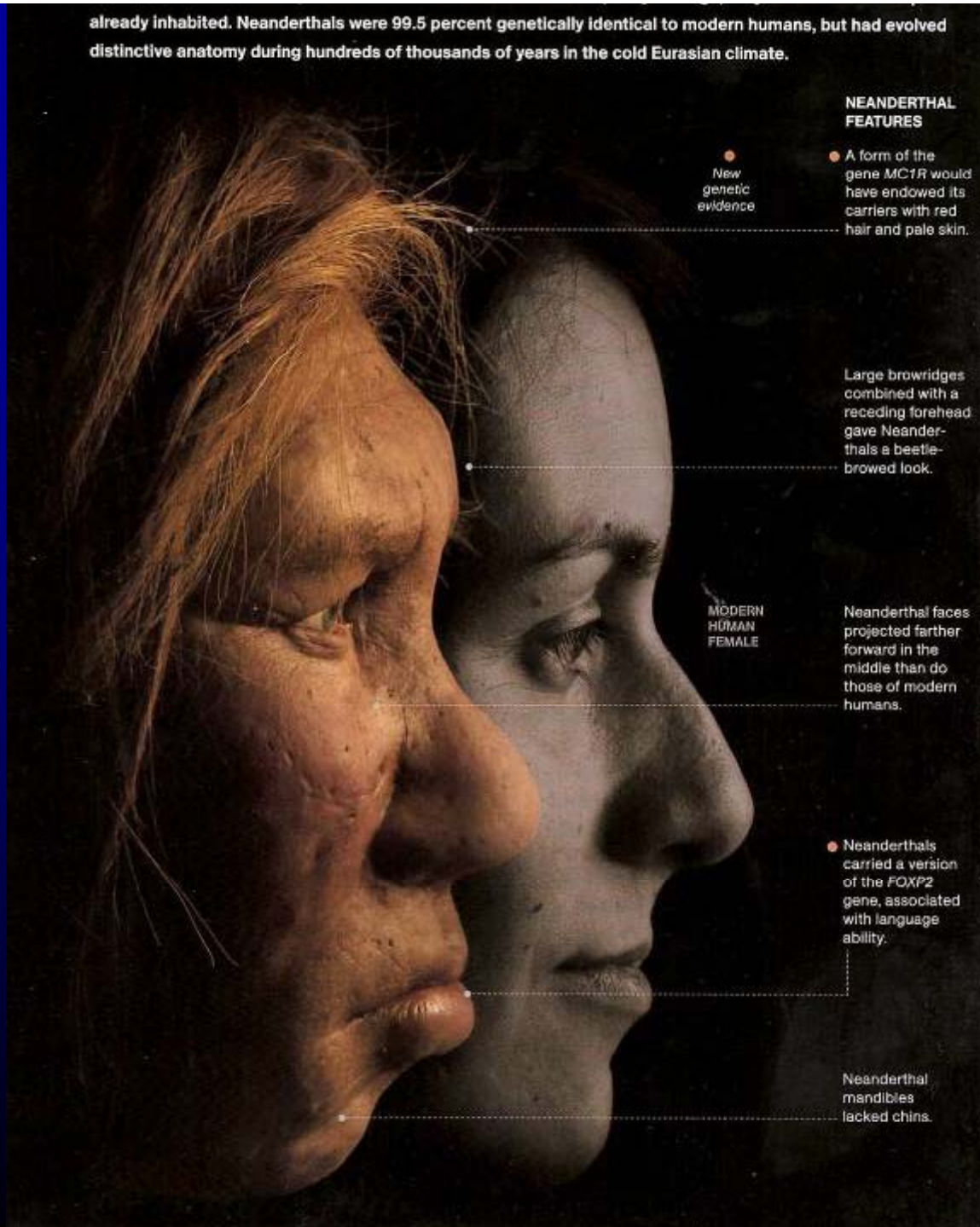
Large browridges combined with a receding forehead gave Neanderthals a beetle-browed look.

MODERN HUMAN FEMALE

Neanderthal faces projected farther forward in the middle than do those of modern humans.

● Neanderthals carried a version of the *FOXP2* gene, associated with language ability.

Neanderthal mandibles lacked chins.

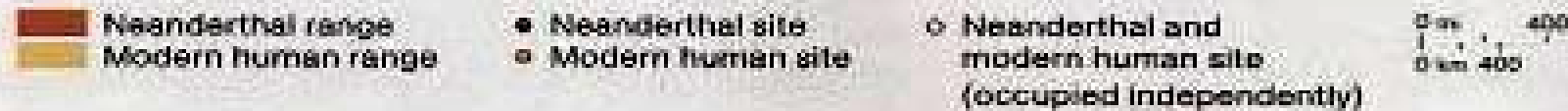




EVOLVING TOOL KIT With edges both sharp and durable, a heavy, well-used flint tool (left) probably served its Neanderthal owner as both a hide scraper and the point of a thrusting spear. Neanderthals advanced the art of toolmaking with their method of preparing carefully shaped stone cores, from which they flaked off pieces of size and weight suitable for diverse tools. Lacking projectile weapons, however, they had to engage large prey at close quarters. Modern humans brought lighter, more specialized tools to Europe—including narrow flint blades (right) that could have been hafted to a throwing spear, making hunting more efficient and less dangerous.

Rise and Fall of Neanderthals

Recent genetic evidence reveals that Neanderthals occupied a wider swath of territory than previously thought, settling as far east as Siberia (top). Some 45,000 years ago, anatomically modern humans from Africa migrated into Eurasia (bottom). Climate swings and competition with the newcomers may have combined to push Neanderthals into a few outposts before they went extinct.



250,000–45,000 years ago
Neanderthals before the arrival
of modern humans in Eurasia



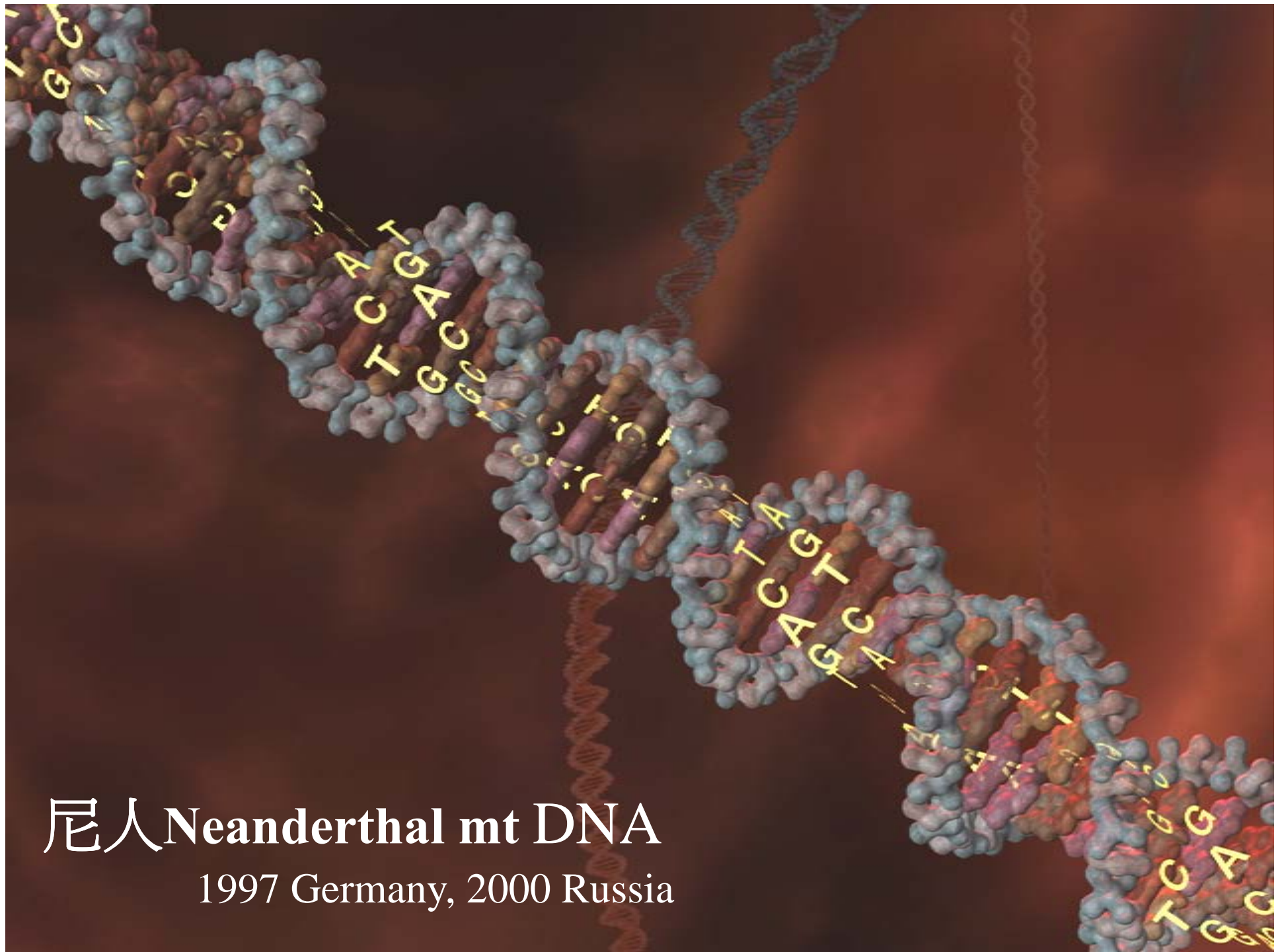
45,000–28,000 years ago
Period of Neanderthal and modern
human overlap in Eurasia







Photograph outside the Vindija cave in Croatia. Please credit Johannes Krause, Max-Planck-Institute of evolutionary Anthropology.



尼人Neanderthal mt DNA

1997 Germany, 2000 Russia

**DNA from 3 Neanderthals
from Germany to Russia showed it was
too distinct to be related to humans...**

與人距離太遠

**...we can't find any evidence of genetic
material being passed from Neanderthals
to modern humans**

並無傳 DNA 給人類的跡像

.....



PRECIOUS FOSSIL Suited up to avoid contaminating her find, researcher Araceli Soto Flórez bags a Neanderthal bone from El Sidrón cave in Spain. Fossils uncovered here have yielded faint traces of ancient DNA. Genetic analysis provides evidence for red hair, and perhaps a capacity for speech.



2006



GENETIC ESSENCE Taking DNA from a 38,000-year-old leg bone fragment (bottom) found in Croatia, scientists are spelling out the complete Neanderthal genetic code. Results from the sample (top, on ice) suggest that Neanderthals and modern humans are separate species, but do not rule out some interbreeding.



Neanderthal (nuclear) DNA ...

尼人細胞核 DNA

11 October 2006

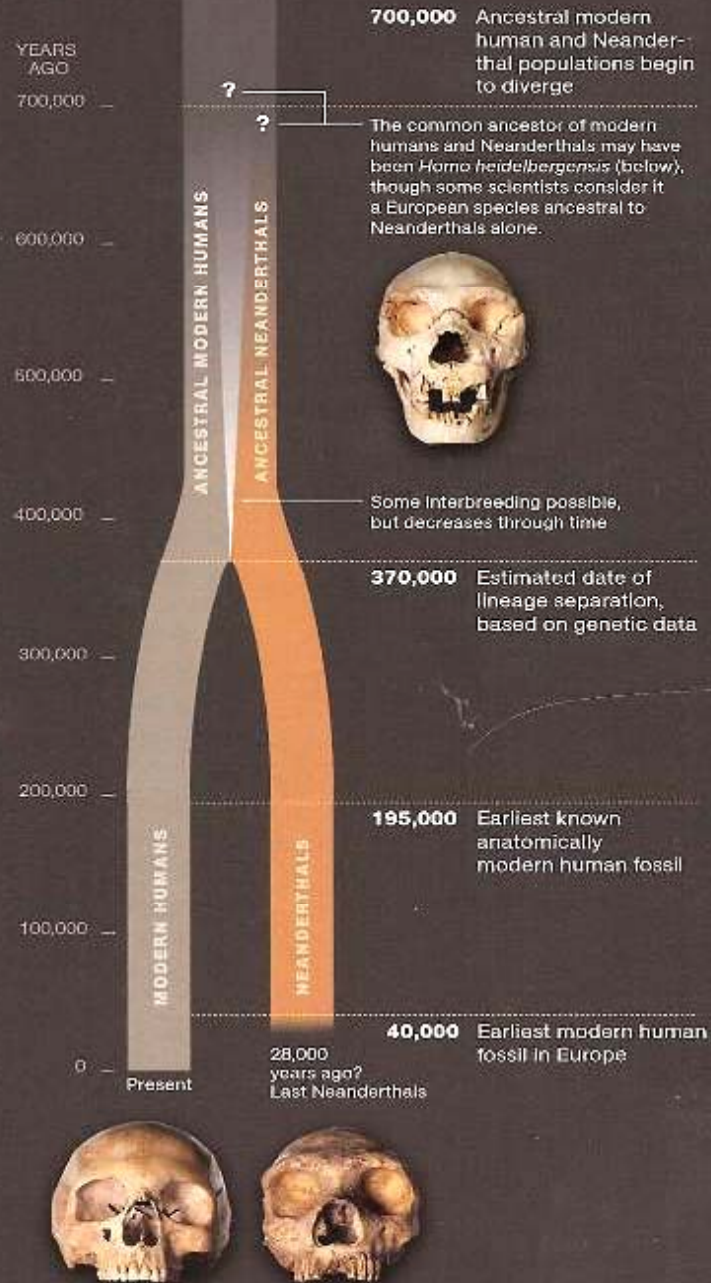
NewScientist.com news service

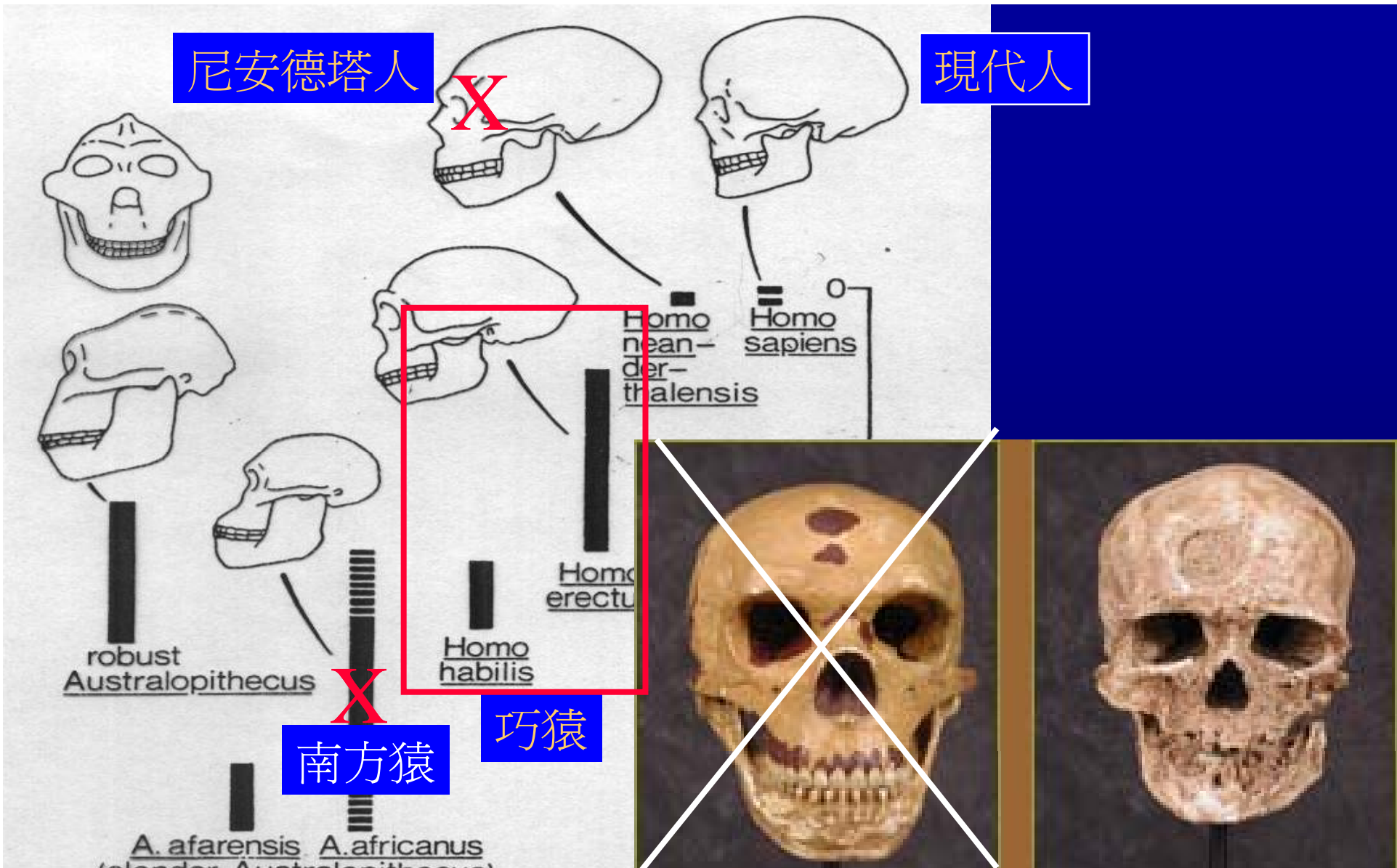
**Neanderthals did not contribute substantially to
the modern human genome**

Richard Potts, Smithsonian Institution

尼人 給人類的基因組並無大貢獻

Diverging Lineages





極大信心！

Need a lot of *faith to believe!*

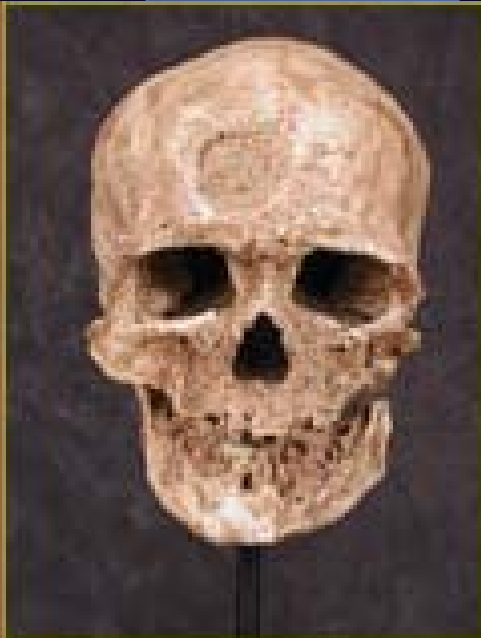
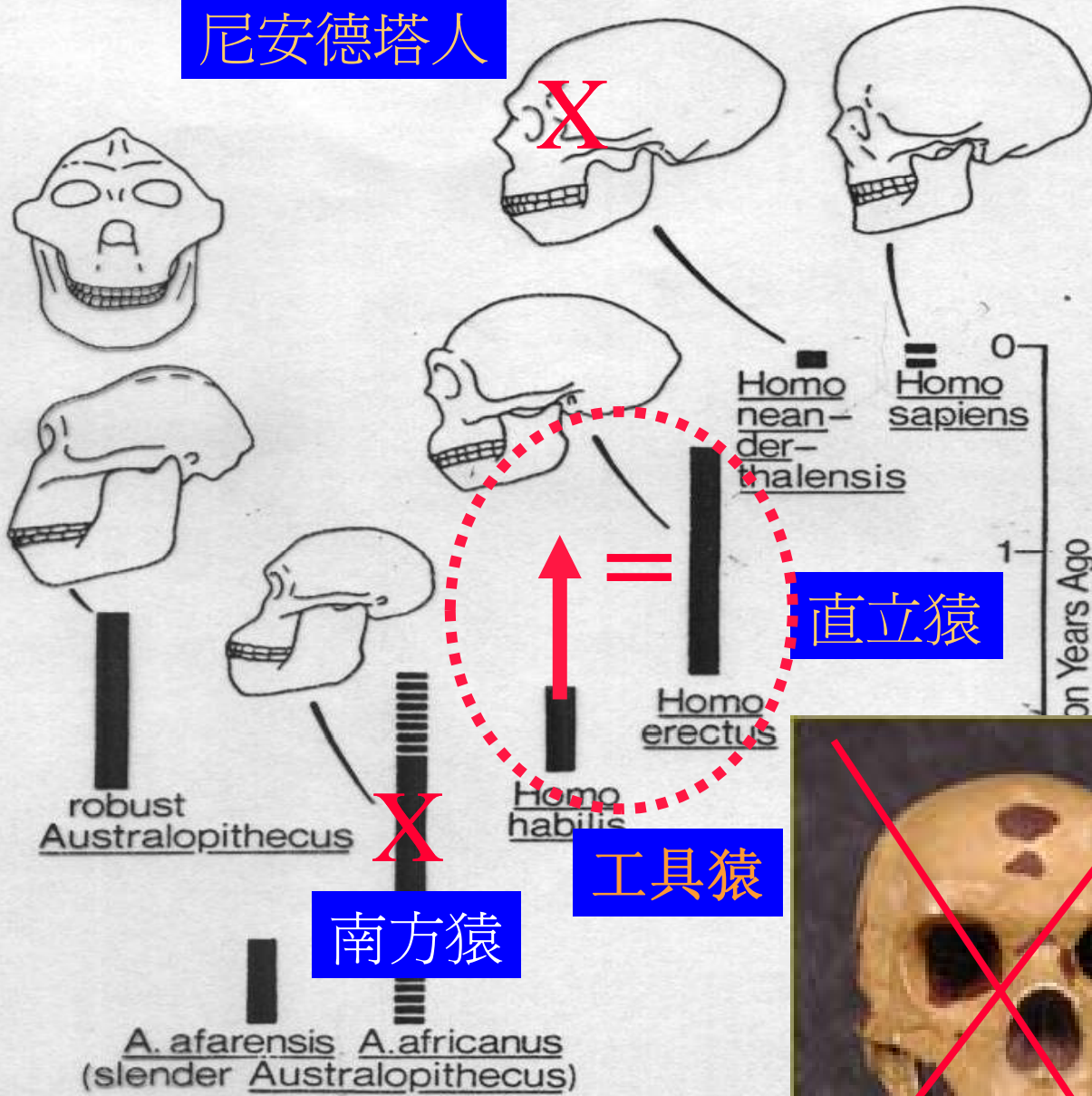
尼安德塔人

現代人

直立猿

工具猿

南方猿



Published online 8 August 2007
Nature News

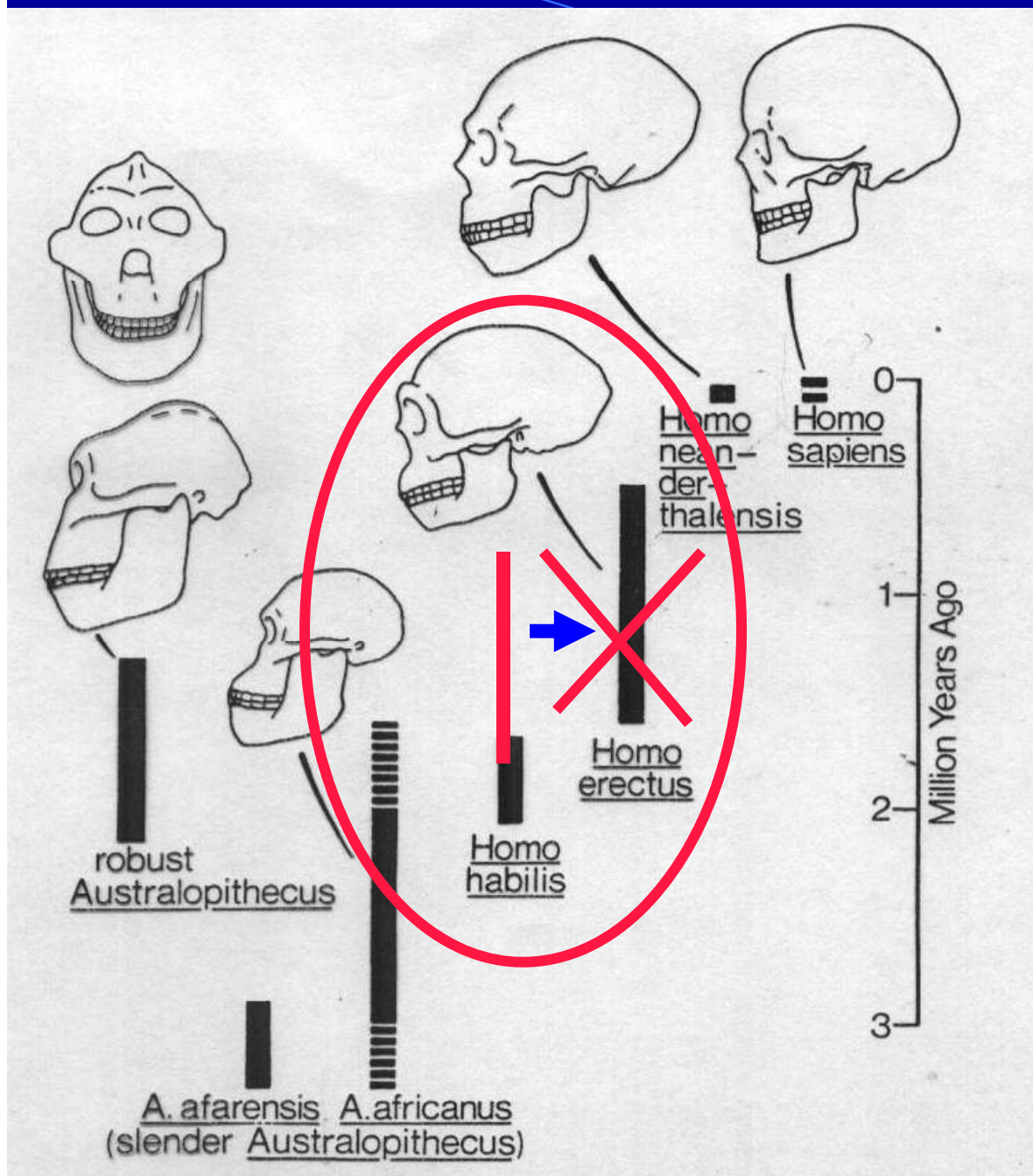
Twin fossil find adds twist to human evolution

兄弟的新麻煩



Homo erectus had an
unexpected neighbor,
and a surprising lifestyle too.

祖先腦更大 *H. erectus*
skulls considerably smaller.

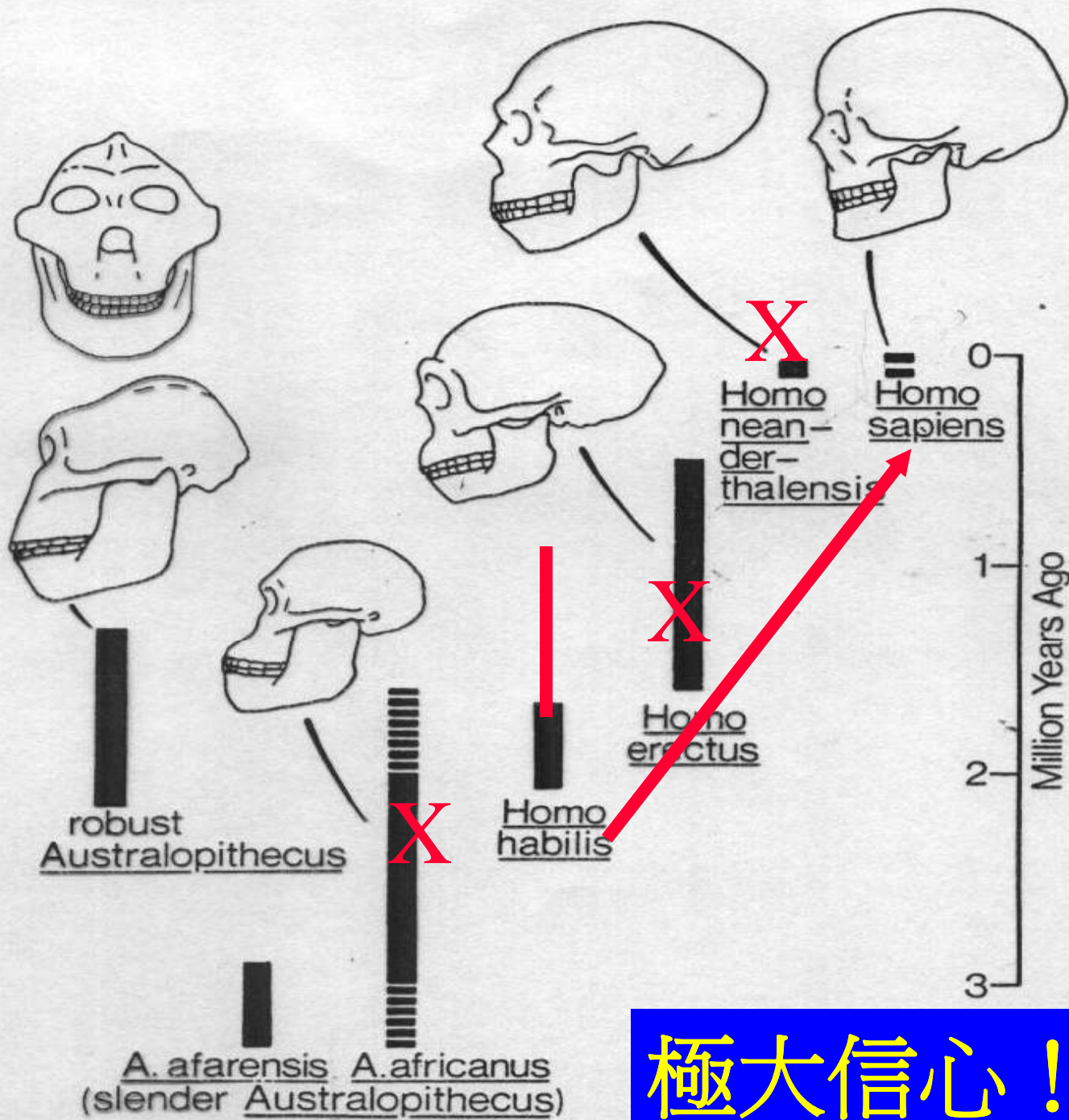


"co-existence
(50,000 years),

unlikely that *Homo erectus* evolved from *Homo habilis*"

said Professor
Meave Leakey

李奇夫人



極大信心！

Henry Gee, the chief science writer
for Nature writes,

- “The intervals of time that separate fossils
are so huge that

化石在時間上隔離太遠

- we cannot say anything definite about their
possible connection through ancestry and
descent.”不能確定是祖先或後代

- Why our species appeared so suddenly ,
我們為何如此突然出現
- no fossil hominid species can be established
as our direct ancestor.

又不能建立任何直接的祖先

- The appearance of human beings—is that a
miracle?” Naturally!
- 人類出現是神蹟嗎？（當然！）

14 JULY 2015

nature

The earliest known hominid



NEWS

Climate change

Metabolic microorganisms | [How plants break down](#)

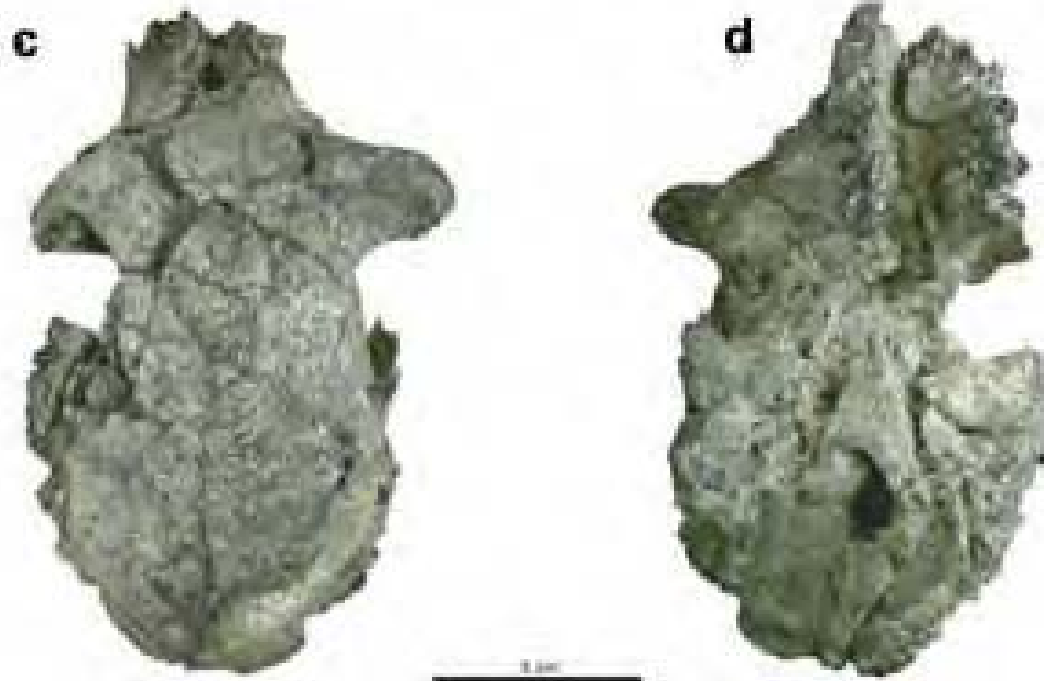
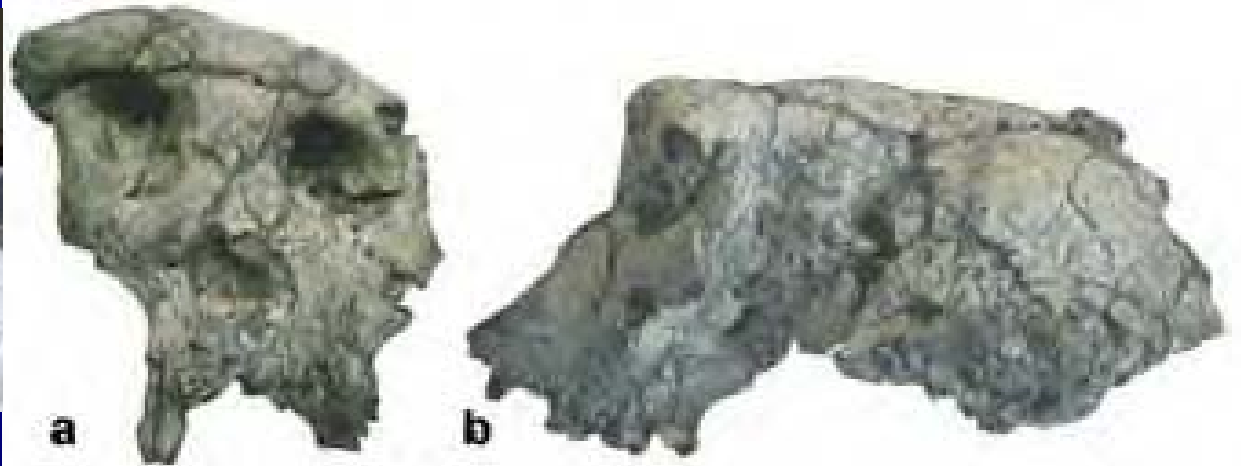
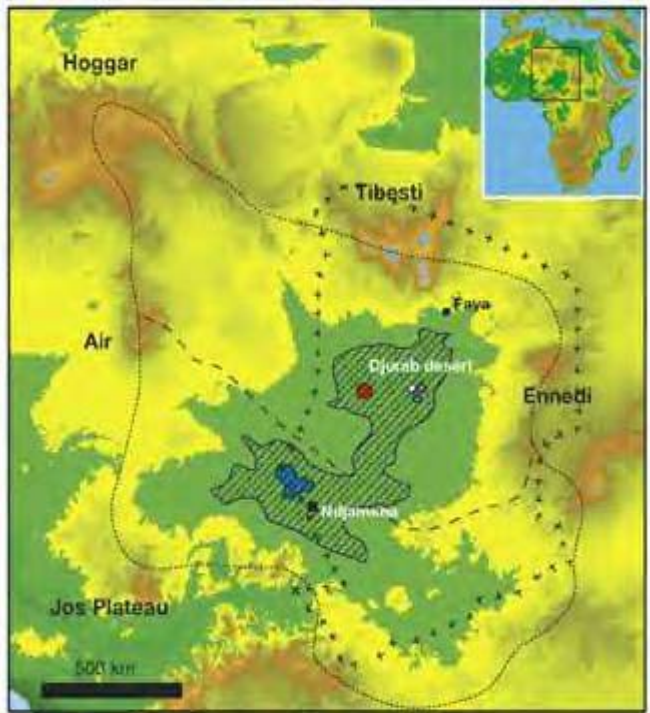
Ecological cooperation | [Learning to pack](#)

Catalytic conversion | [The road to biofuels](#)

RESEARCH

Microbiology

French in central Africa:





Female
Chimp?



French scientist, Michel Brunet:

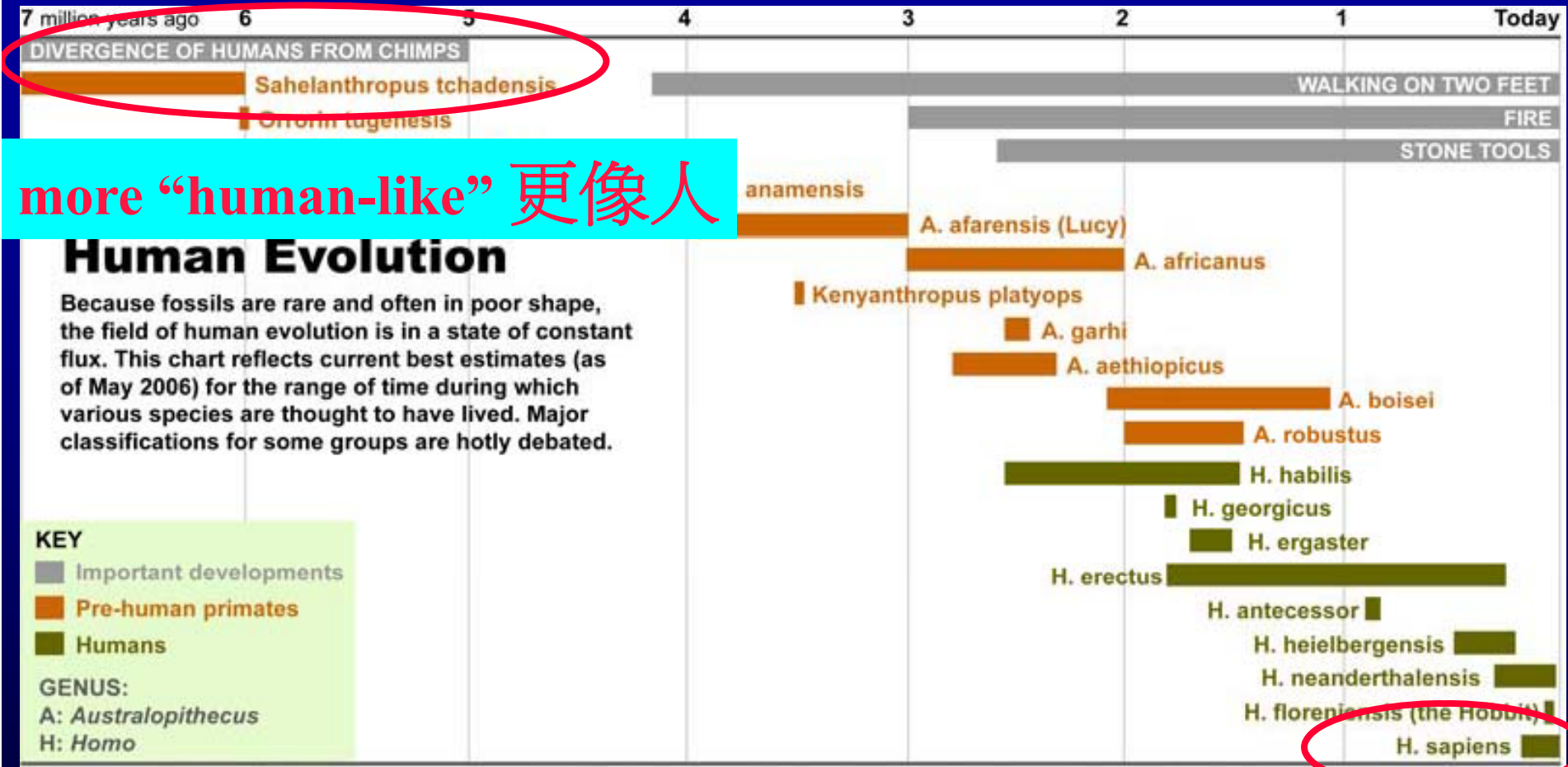
Sahelanthropus “沙丘人”

7 million years old 七百万年前

more “human-like” 更像人

Nature admitted that "New-found skull
could sink our current ideas about
human evolution."

能打倒目前人類進化的思想



more “human-like” 更像人

Human Evolution

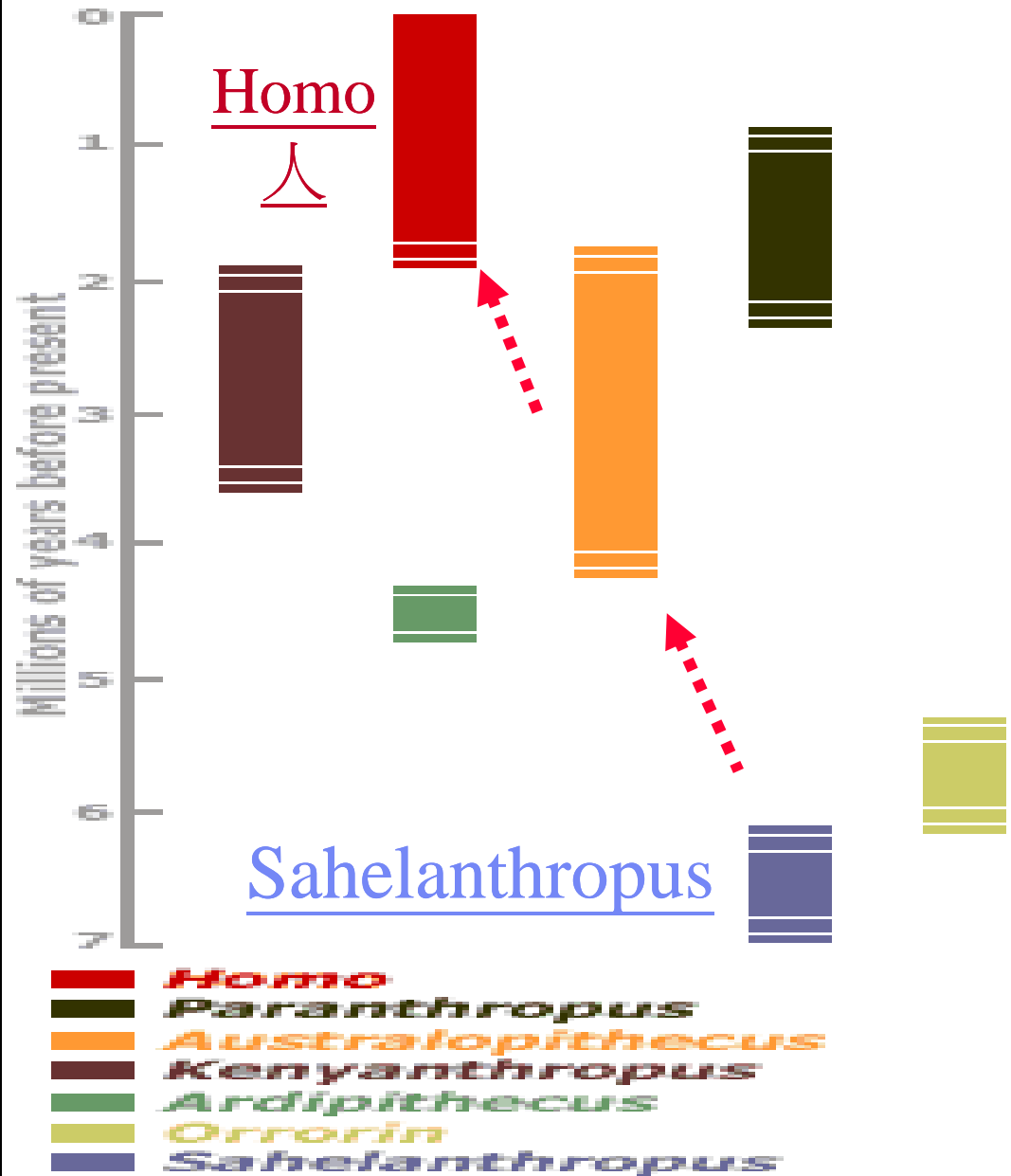
Because fossils are rare and often in poor shape, the field of human evolution is in a state of constant flux. This chart reflects current best estimates (as of May 2006) for the range of time during which various species are thought to have lived. Major classifications for some groups are hotly debated.

KEY

- Important developments
- Pre-human primates
- Humans

GENUS:
 A: *Australopithecus*
 H: *Homo*

Complex hominid tree



Scientists are having difficulty working out how the different hominids relate to each other.

- Darwinist scientists confess that this fossil has rocked the very foundations of the theory of evolution.

搖動進化論的基礎

- Daniel Lieberman (Harvard): "This [discovery] will have the impact of a small nuclear bomb."

其威力有如一小核彈

Henry Gee, editor of Nature

"The very idea of the missing link,
always shaky, is now
COMPLETELY UNTENABLE."

本來就搖搖欲墜, 現在完全站不住了

Henry Gee (Nature 編者):

All fossils of human ancestors put
together cannot fill a box

所有找到的 “人類祖先” 化石都
裝不滿一個盒子

在任何其他科學來說，都不夠
證據，不能下定論的。

Not enough to make scientific conclusions

現有結論科學嗎？

人從那裡來？
科學沒有漸進的證據！
**No scientific proof of gradual
human evolution!**

學說紛紜
all theories

信不信由你！
Believe it or not!

人體應像猿猴!?

DNA 99, 97% → 95%?

共同祖先？

共同設計！

相似性的解釋： Similarities: Interpretations

● 進化 Evolution

共同祖先

Common Descent

隨機、偶然

Random, chance

無設計，無神

No design, no God

● 創造 Creation

共同設計

Common Design

可隨機、有偶然

Can be random

同一設計，有神

One design, by God

人與猿基因組的相似性

基因組

已降到 <70%了!

基因组的基因字母並列

- 24 億字母 ÷ 31 億字母 = 76%
- 減一些缺口導致了 3%
- 單個“字母”差異 1.23%
- “副本數量差異性” 2.7%

< 70% 相似

人爲萬物之靈

聖經：人是照神的形像、樣式造

有靈的活人！

Living Soul with a body !

肉身只是暫時的載體！

Body is only a medium!

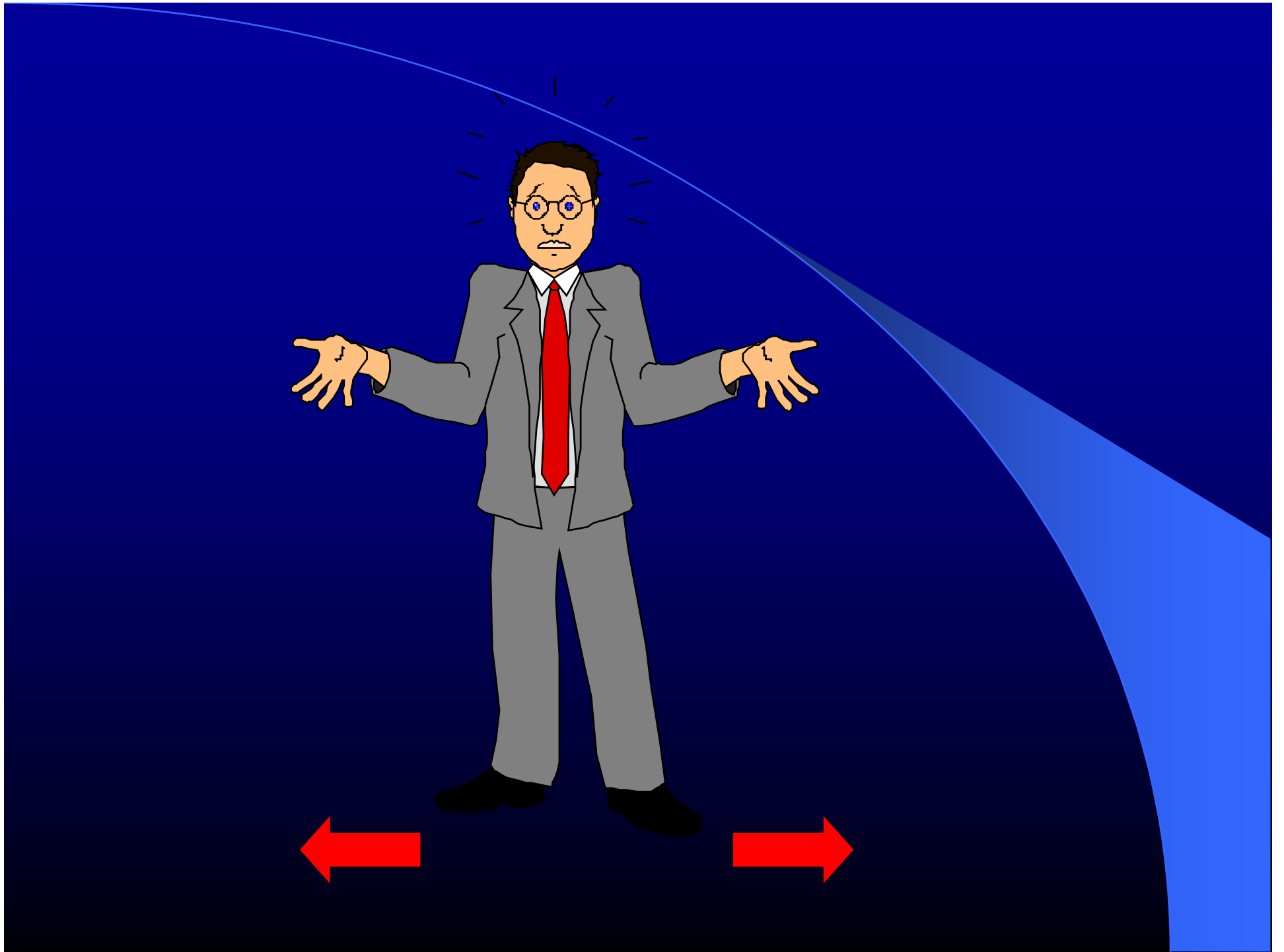
我從那裡來？

有沒有漸進的證據？

Any scientific proof of gradual
human evolution!

high school students to “analyze and evaluate” the
evidence for major evolutionary concepts

美國學生要“分析和評估”
進化思想的證據！



對進化論正確的看法

1. 生物學唯一、初步、綜合性理論

2. 可用於種、屬、科的層面:

微進化 micro-evolution ✓

3. 不能用於界、門、綱的層面:

廣進化 macro-evolution X

4. 接近“各從其類”！

不要盲目反進化、反科學!

需要更多中國人投身生物學！

