ANTHROPOLOGY 202 September 29, 2014
An Introduction to World Prehistory

II. Archaeology

B. Dating and Divisions of Time

5. Dating Methods

III. Processes in World Prehistory

IV. The Beginning: Africa

ANT 202 Monday September 29, 2014

STUDENTS WITH LAST NAMES D-K
PLEASE
STAY FOR A DEMONSTRATION
AT THE END OF CLASS

ALL OTHER STUDENTS WILL BE DISMISSED

10-15 minutes Early!!

II. Archaeology

B. Dating and Divisions of Time

3. Geologic Time Periods

Era:	Cenozoic	65 Million Years Ago- Present
Period:	Tertiary	65-2.0 Million Years Ago
	Quaternary	2.0 Million Years Ago- Present
Epoch:	Miocene	25-5.5 Million Years Ago
	Pliocene	5.5-2.0 Million Years Ago
	Pleistocene	2 million - 12,000 Years Ago
	Holocene	12,000 Years Ago- Present

4. Cultural Divisions of Time

a) Paleolithic= Old Stone Age

b) Neolithic=New Stone Age FARMING!!!!!!!

5. Dating Methods (Assigning, artifacts, features, skeletal remains, and fossils to Absolute Time)

a. Historic Records

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b. Dendrochronology

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b. Dendrochronology

c. Radiocarbon Dating

5. Dating Methods (Assigning, artifacts, features, skeletal remains, and fossils to Absolute Time)

a. Historic Records

b. Dendrochronology

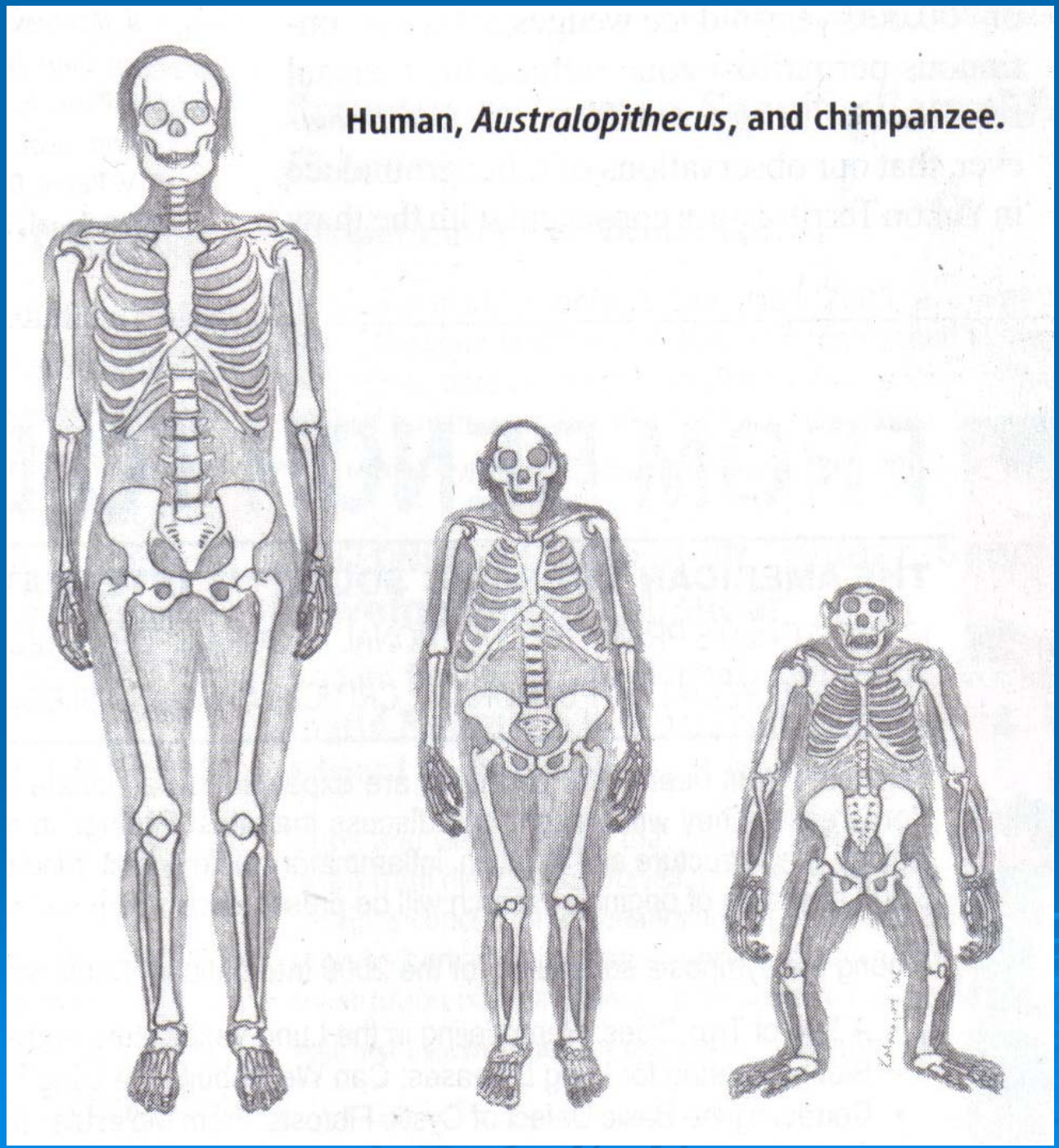
c. Radiocarbon Dating

d. Potassium Argon Dating

III. Processes in World Prehistory

- A. Biological Evolution
- B. Colonization
- C. Adaptation
- D. Technological development
- E. Increasing Social Complexity

The Evolution of *Homo sapiens sapiens*



Human, *Australopithecus*, and chimpanzee.

Evolution by Natural Selection:

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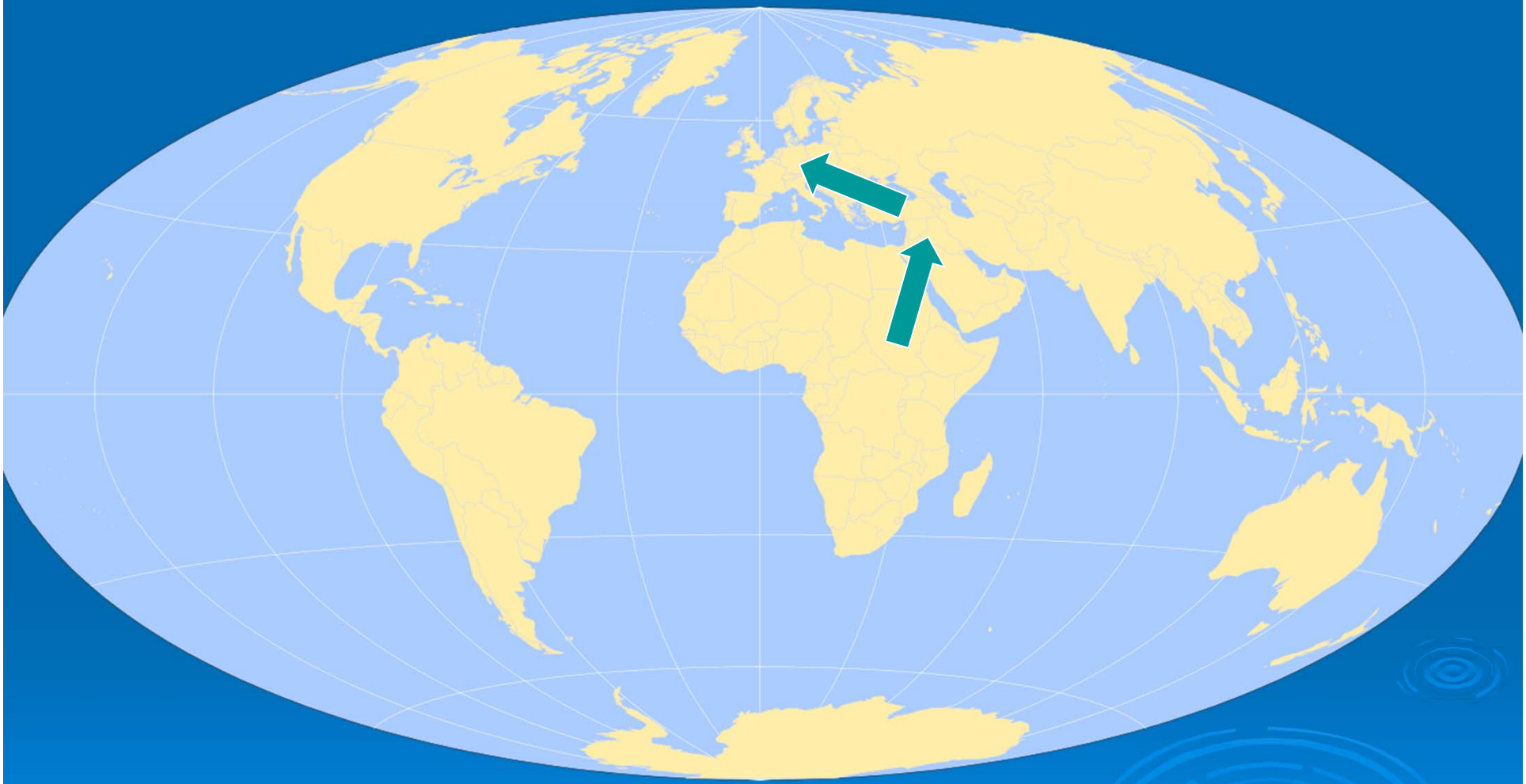
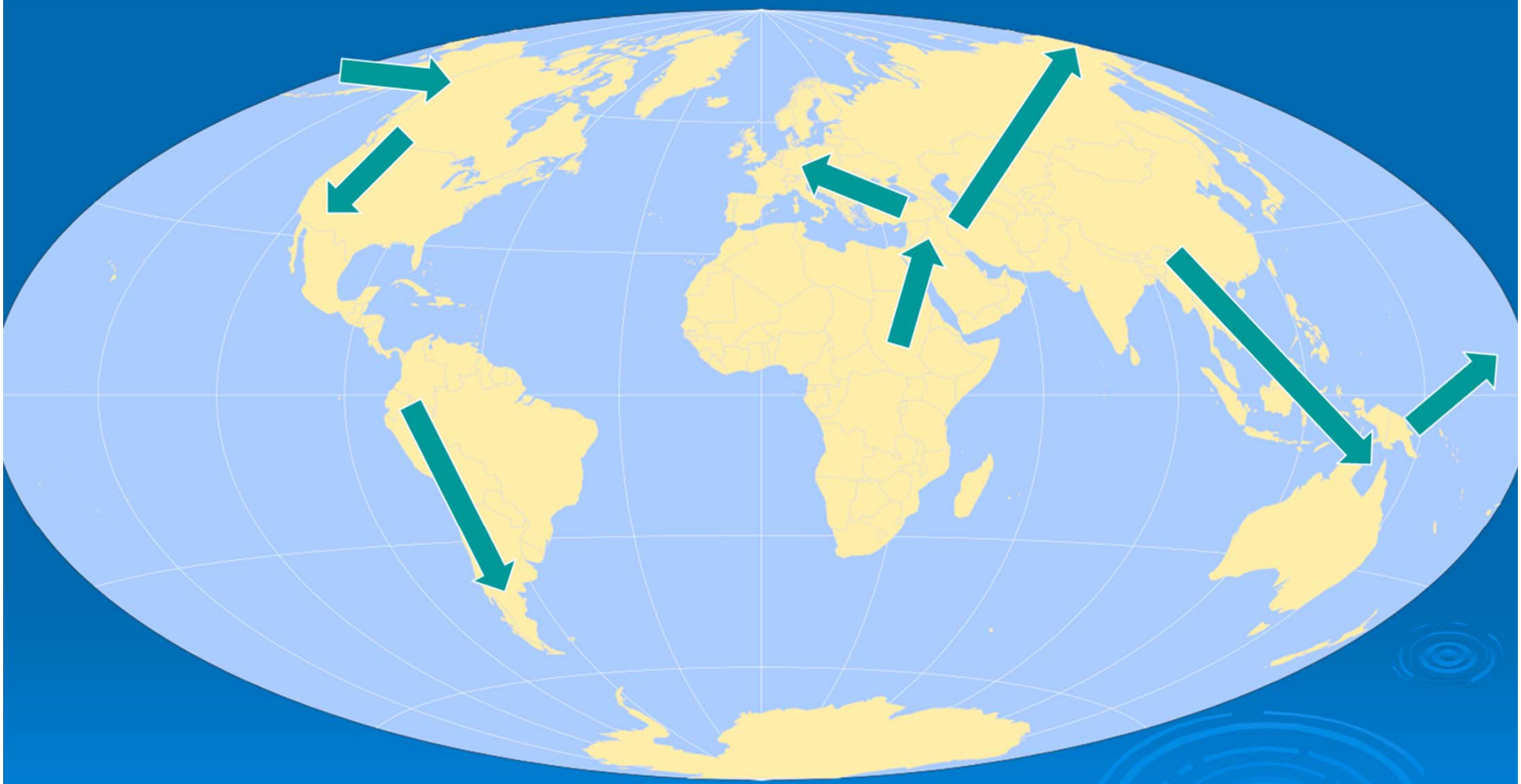
In the struggle for survival, those organisms most well adapted to prevailing conditions will pass on their superior characteristics to succeeding generations with more frequency

Colonization



Colonization



III. Processes in World Prehistory

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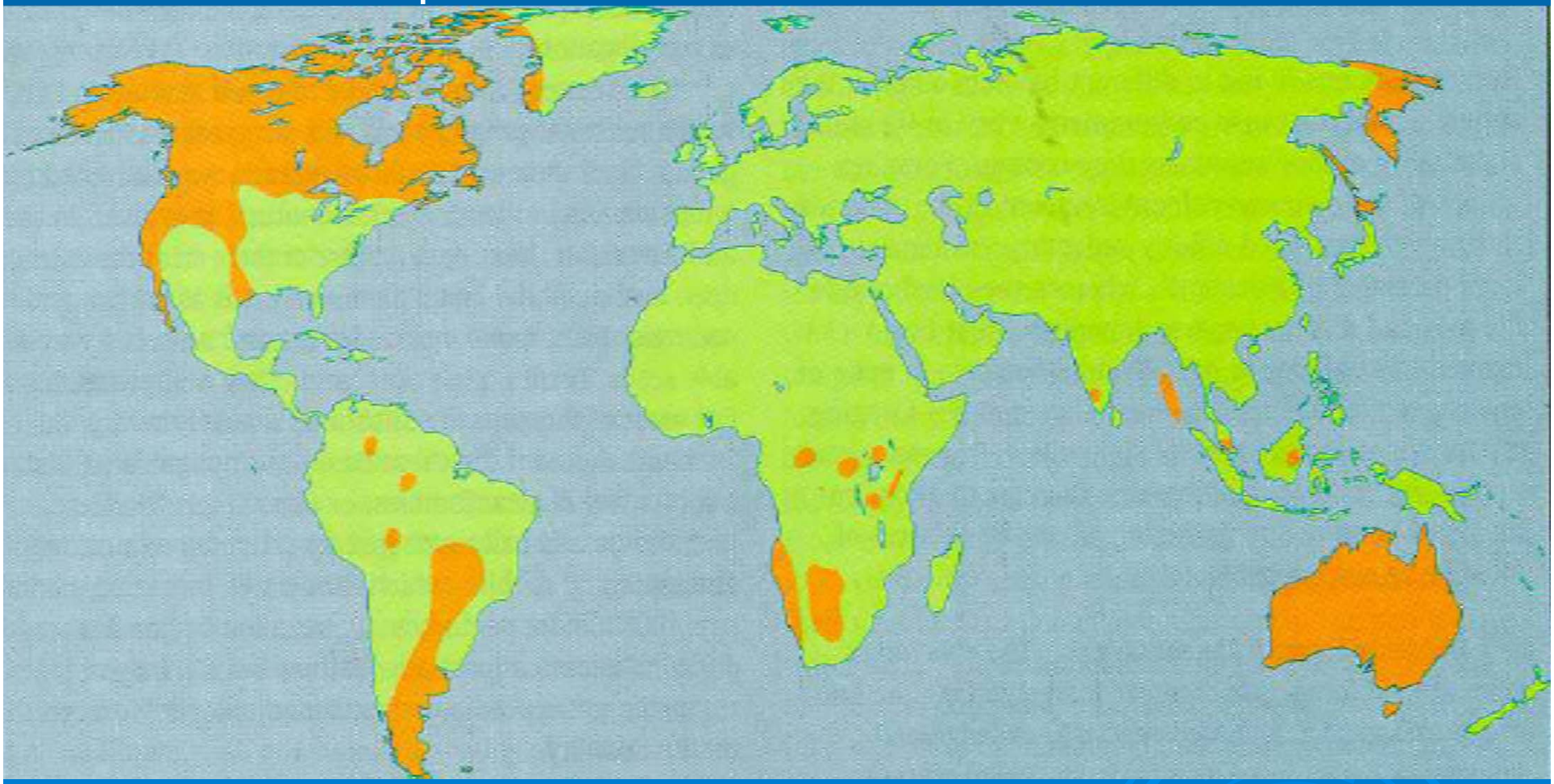
ADAPTATION=The process of adjusting to new environmental circumstances to accomplish subsistence and basic survival.



Hunting and Gathering

Farming

III. Processes in World Prehistory

- A. Biological Evolution
- B. Colonization
- C. Adaptation
- D. Technological innovation
- E. Increasing Social Complexity

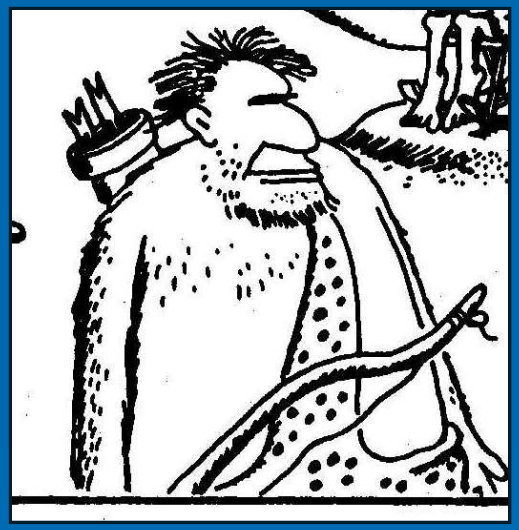
Technological Innovation:

Bow and Arrow

Stone Flakes

Technological Development:

I Phone 6



Bow and Arrow

Stone Flakes

III. Processes in World Prehistory

- A. Biological Evolution
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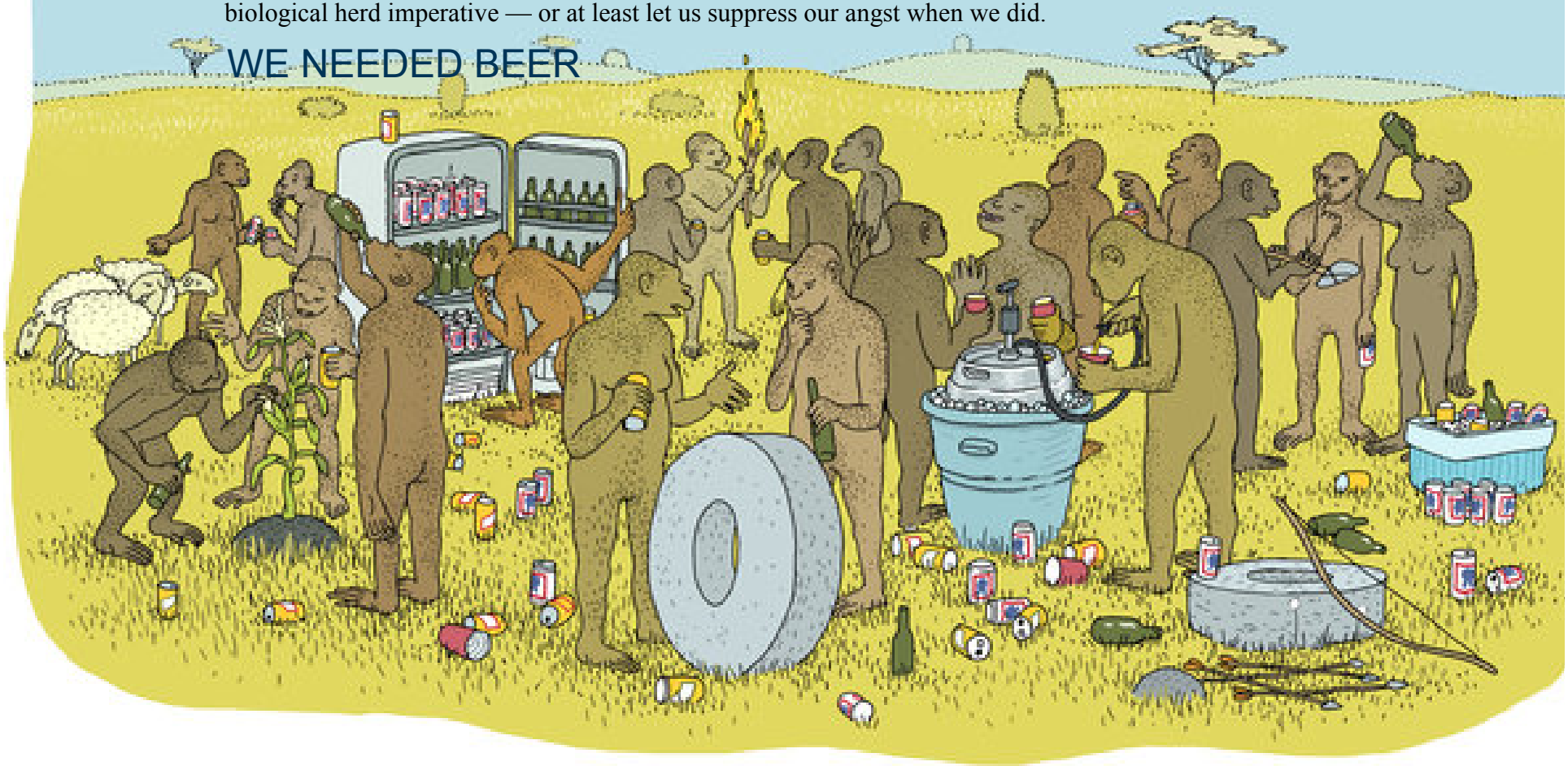
Thus could our ancient forebears cooperate, prosper, multiply — and pass along their DNA to later generations.

But then, these same lifesaving social instincts didn't readily lend themselves to exploration, artistic expression, romance, inventiveness and experimentation — the other human drives that make for a vibrant civilization.

To free up those, we needed something that would suppress the rigid social codes that kept our clans safe and alive. We needed something that, on occasion, would let us break free from our biological herd imperative — or at least let us suppress our angst when we did.

WE NEEDED BEER



IV Beginnings: Africa

A. Biological Classification of Humans and their ancestors

Chimp

Homo

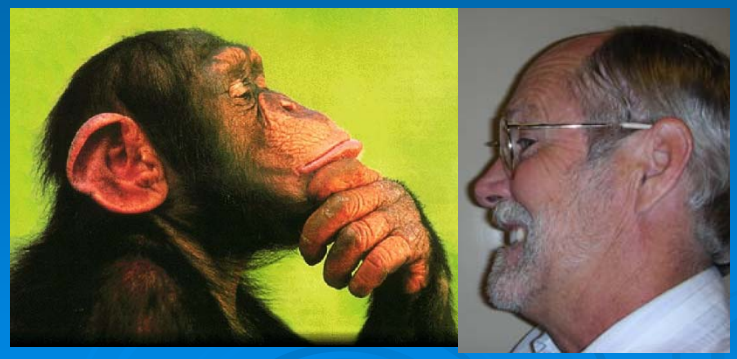
Australopithecus

Ardipithecus (4.4 MYA)

Hominin Line

5-7 MYA

Common human Chimp Ancestor



The Linnean System of Biological Classification

Order: A group of related families descended from a common ancestor

Family: A group of related genera descended from a common ancestor

Genus: A group of related species descended from a common ancestor

Species: Organisms that can successfully breed and produce genetically viable offspring

Subspecies- regional variant

Classification of humans and their ancestors

Order: Primates- Lemurs, monkeys, apes, humans, and human ancestors

Family: Hominidae- Chimps, Gorillas, Humans and human-like ancestors

Tribe (Subfamily): Hominini: Humans and human-like ancestors

Genera: ***Sahelanthropus***
Ardipithecus
Australopithecus
Homo

Chimp

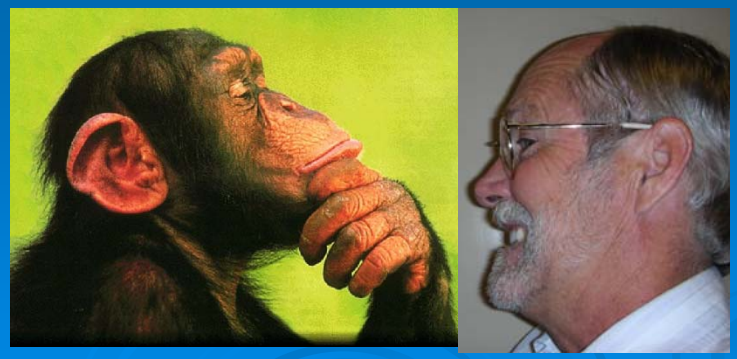
Australopithecus

Ardipithecus (4.4 MYA)

Hominin Line

5-7 MYA

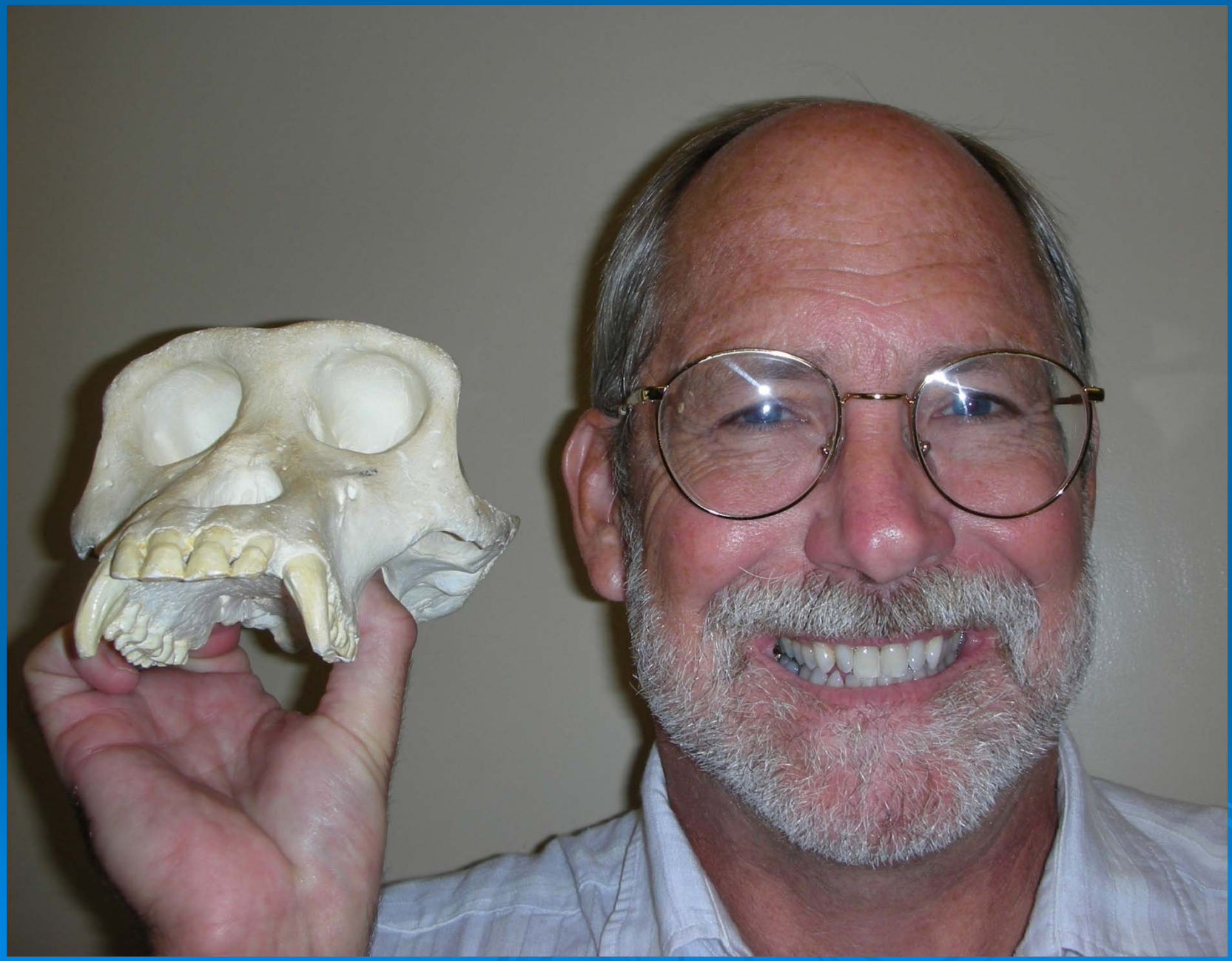
Common human Chimp Ancestor

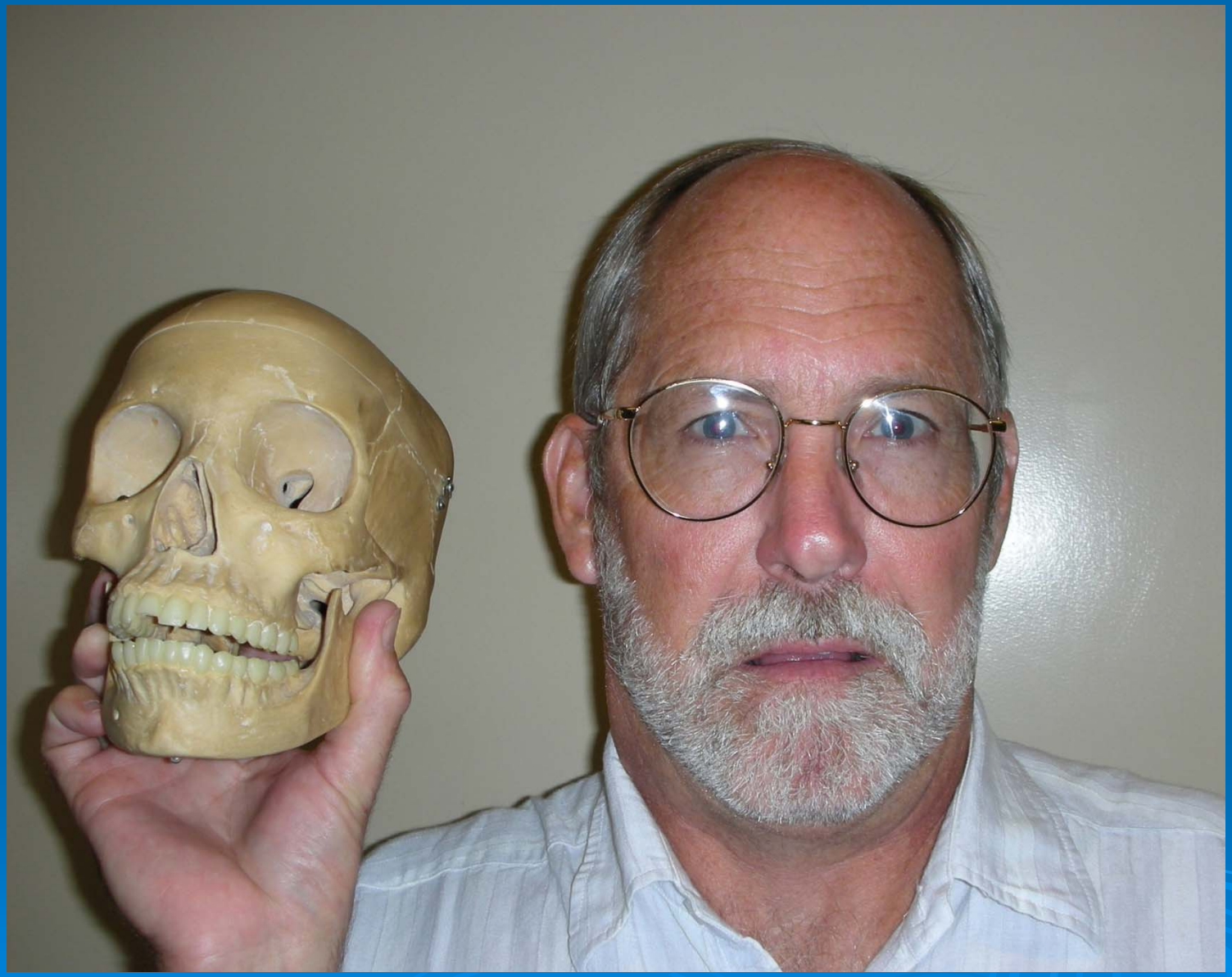


Hominid Family

The Evolution of *Homo sapiens sapiens*

1. Bipedalism
2. Distinctive Teeth
3. Larger brains





Cranial Capacity:

Modern Chimp 400 cc

Modern Human 1400 cc

Walking like a Human

Chimps can walk on two legs, but with a gait that is awkward and precarious. That's largely because their heads and torsos are thrust forward, not balanced over the hips and legs. Humans have evolved to correct that imbalance.

1 SPINE

A chimp's **lumbar region**, or lower spine, is **short and stiff**; a human's is **longer and curved** to push the torso's center of gravity forward so that it lies over the feet

2 PELVIS

Chimps sway when they walk upright because lifting one leg off the ground throws them off balance; humans prevent such swaying with a **broader pelvis** and a **specialized hip joint** and its associated muscles

3 THIGHBONE

In chimps, the **femur runs straight** from hip to knee. The human femur **angles inward**, moving support more directly under the torso

4 KNEE JOINT

To support the human body's weight, the **femur is larger** at the bottom and the **tibia is larger** at the top. A groove at the bottom of the inward-angled femur keeps the **patella** from sliding off

5 FOOT

A chimp's **big toe is opposable**, like a thumb, allowing the chimp to grasp with its feet. A human's big toe is **lined up** with the other four toes—bad for climbing but good for forming an arch that runs from front to back. The arch acts as a shock absorber, deflecting impacts that would otherwise travel up the leg. This enables humans to walk long distances and run with less chance of injury

Adult chimpanzee

Adult human

Chimpanzee foot *Human foot*

Chimpanzee foot when walking

Human foot when walking

Sources: Kent State University; American Museum of Natural History

TIME Graphics by Ed Segal

Advantages of Bipedalism:

- Long distance walking=- not speed

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- Long distance walking=- not speed
- Frees Hands
- Can View Surroundings
- Efficiency

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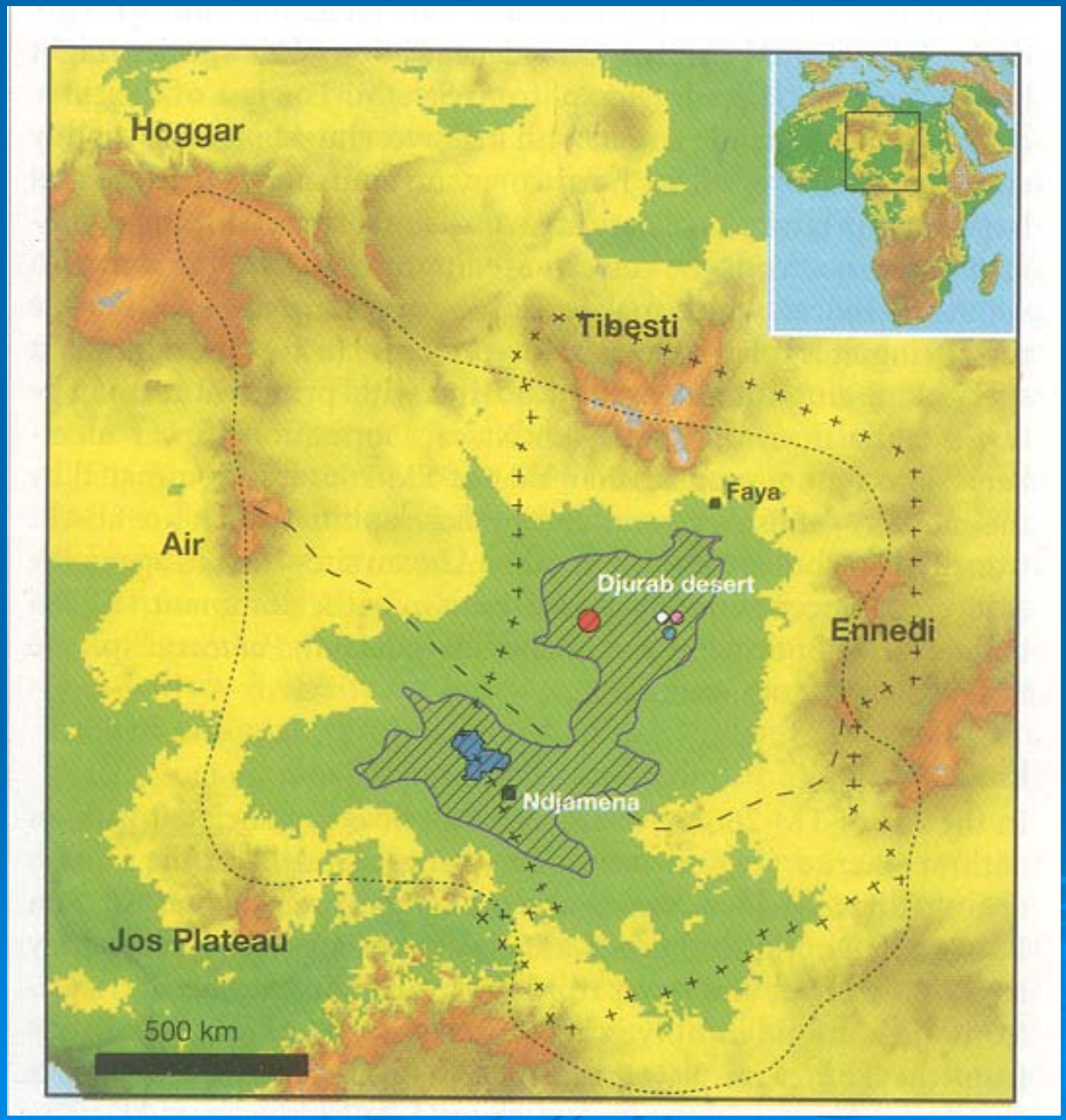
TIME Graphics by Ed Segal

Sahelanthropus tchadensis 6-7 MYA

Decidedly NON-PROGNATHIC!!!!!

Toro-Menalla Location, Chad, Africa



A Simplified Phylogeny of Early Hominins

MYA

0

1

2

3

4

5

6

7

Sahelathropus tchadensis

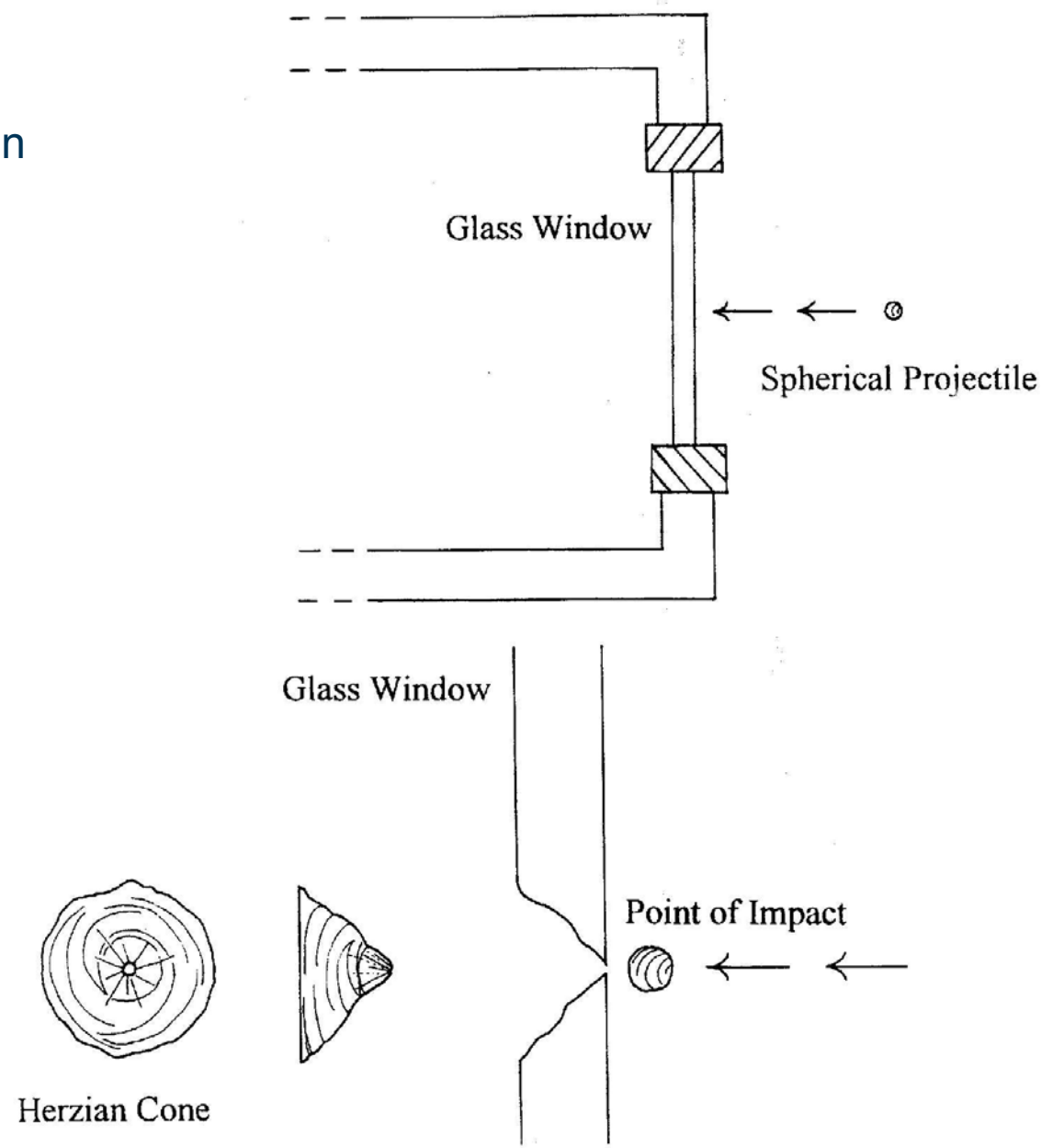


Figure 2.12 Schematic illustration of spherical projectile impacting a pane of glass at a 90° angle to produce a Hertzian cone.