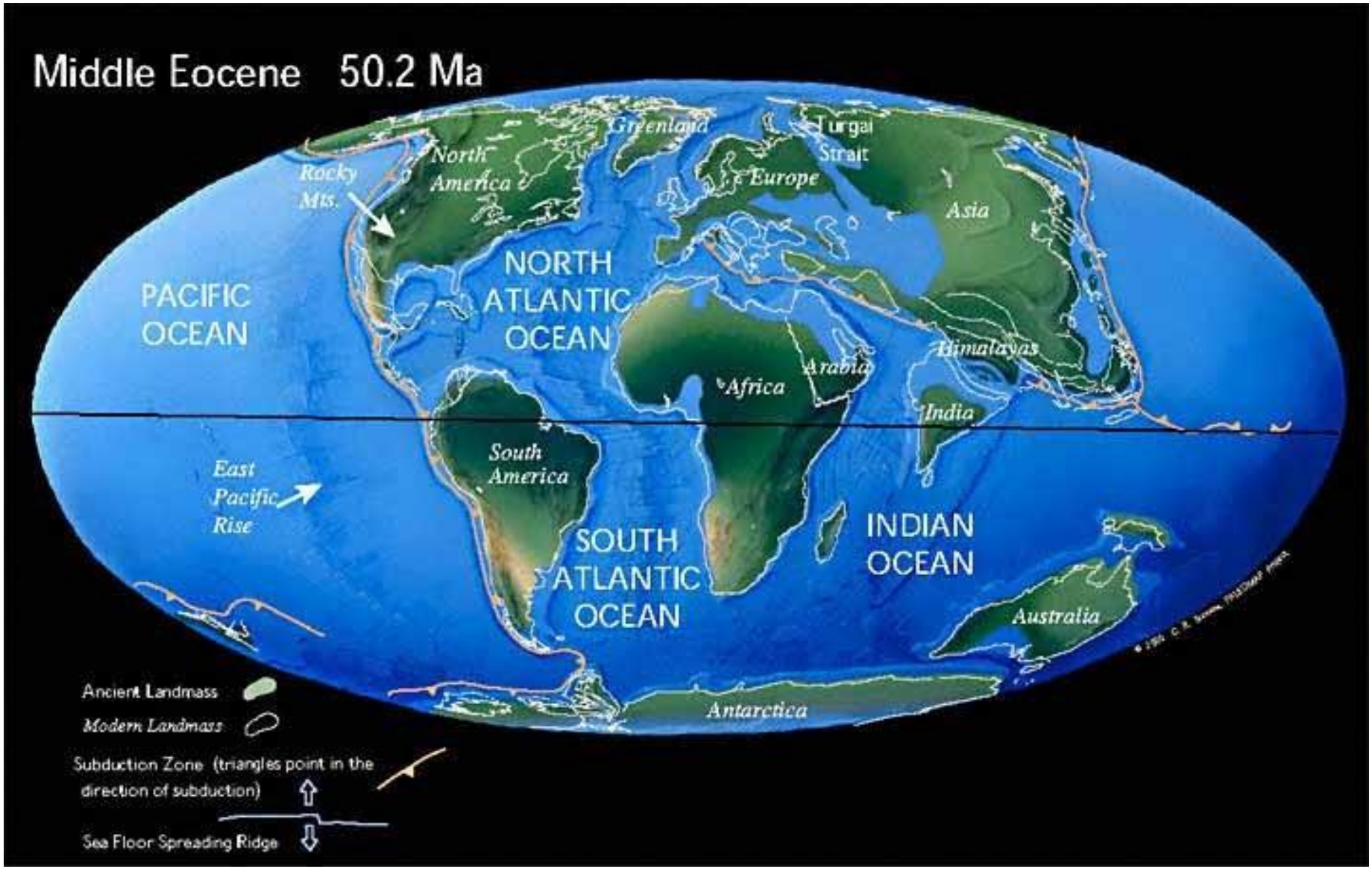
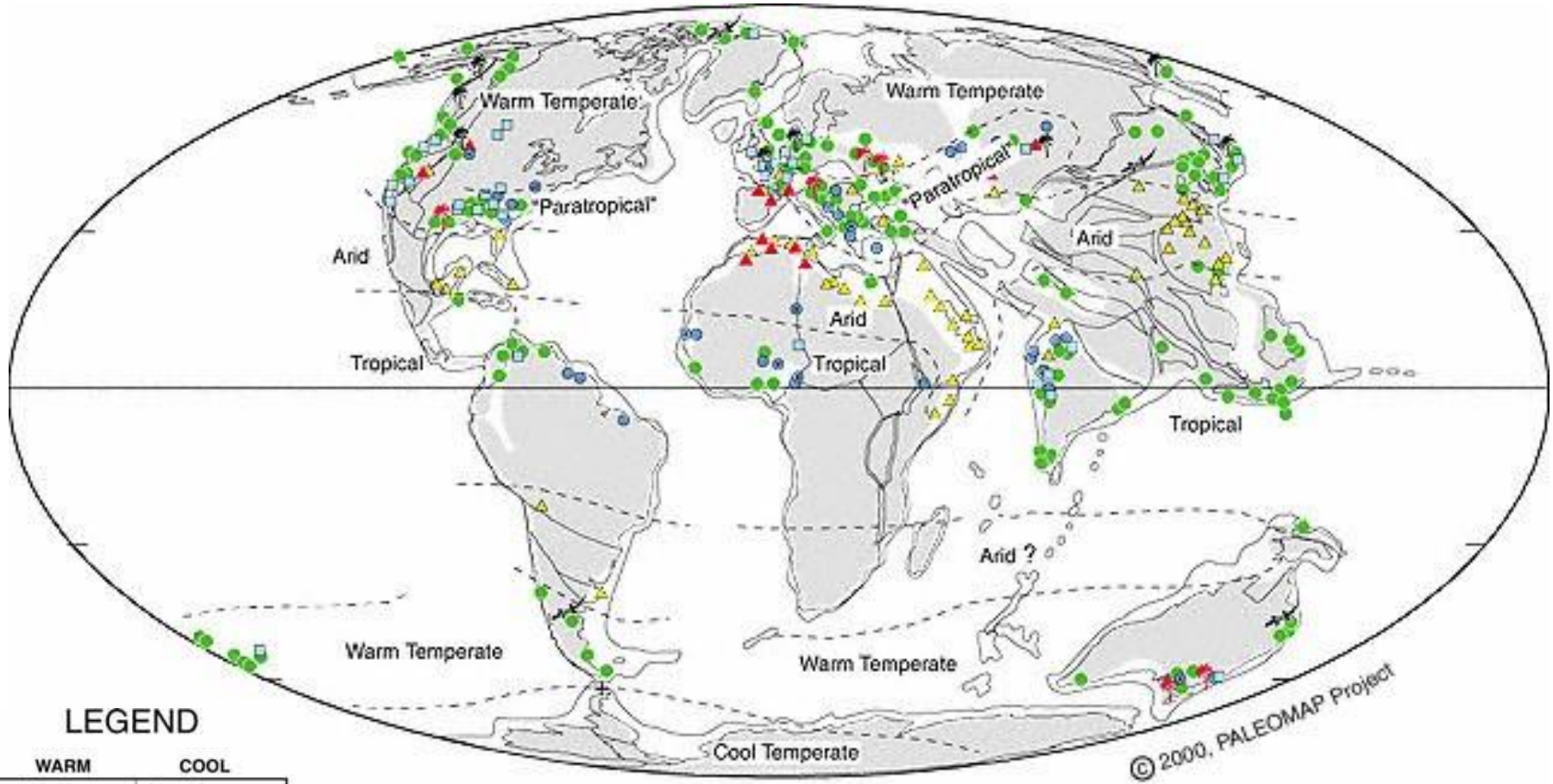
ИСТОРИЧЕСКАЯ ГЕОЛОГИЯ

Палеогеновый период



Палеотектоническая реконструкция Земли

Климат



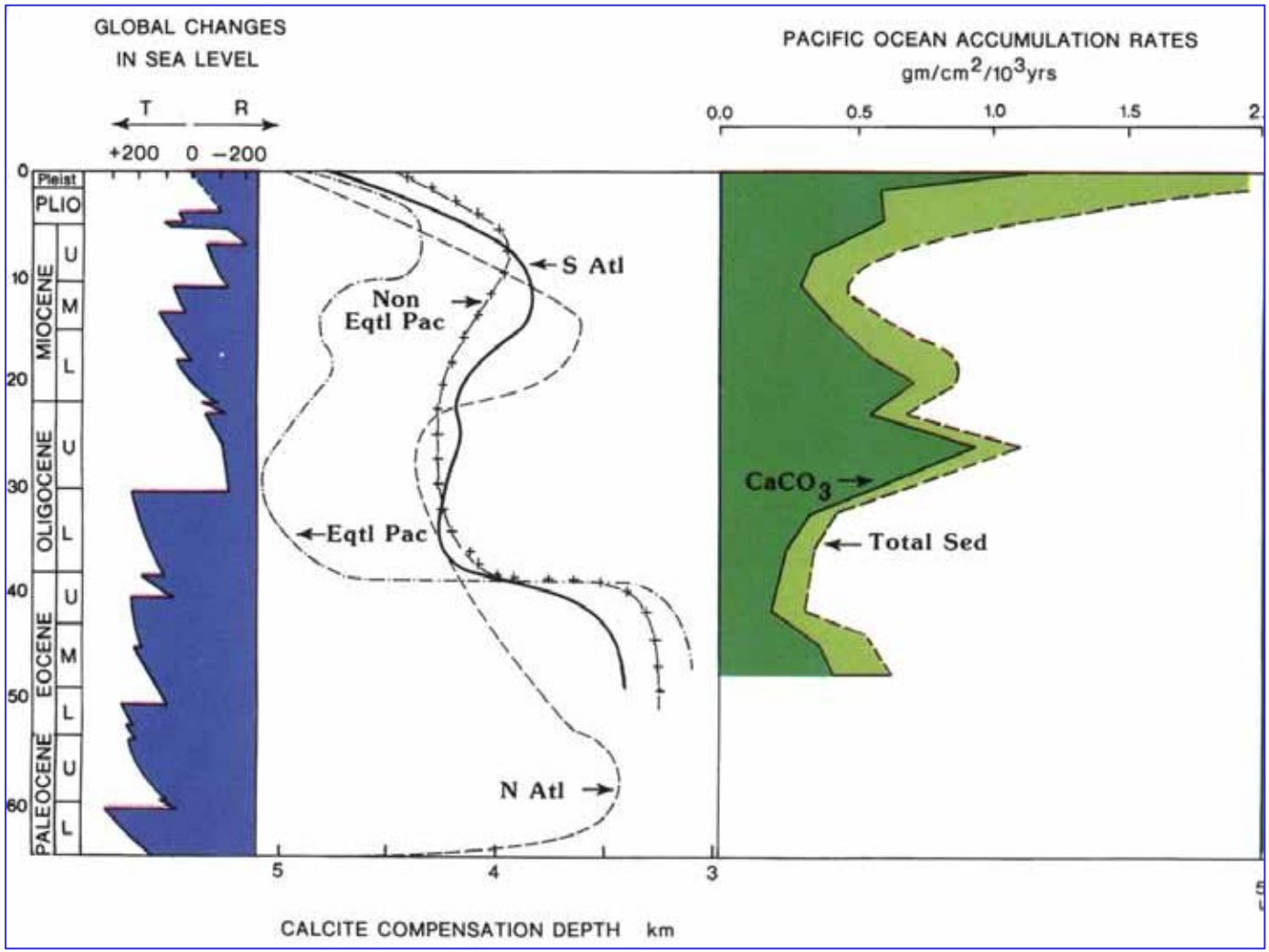
Lower Eocene

LEGEND

	WARM	COOL
WET	*Tropical* Coal Bauxite Laterite	*Cool Temperate* Coal & Tillites
	Warm Temperate Kaolinite (& coal & evaporite) Crocodiles Palms & Mangroves	
DRY	*Arid* Evaporite Calcrete	*Cold* Tillite Dropstone Glendonite

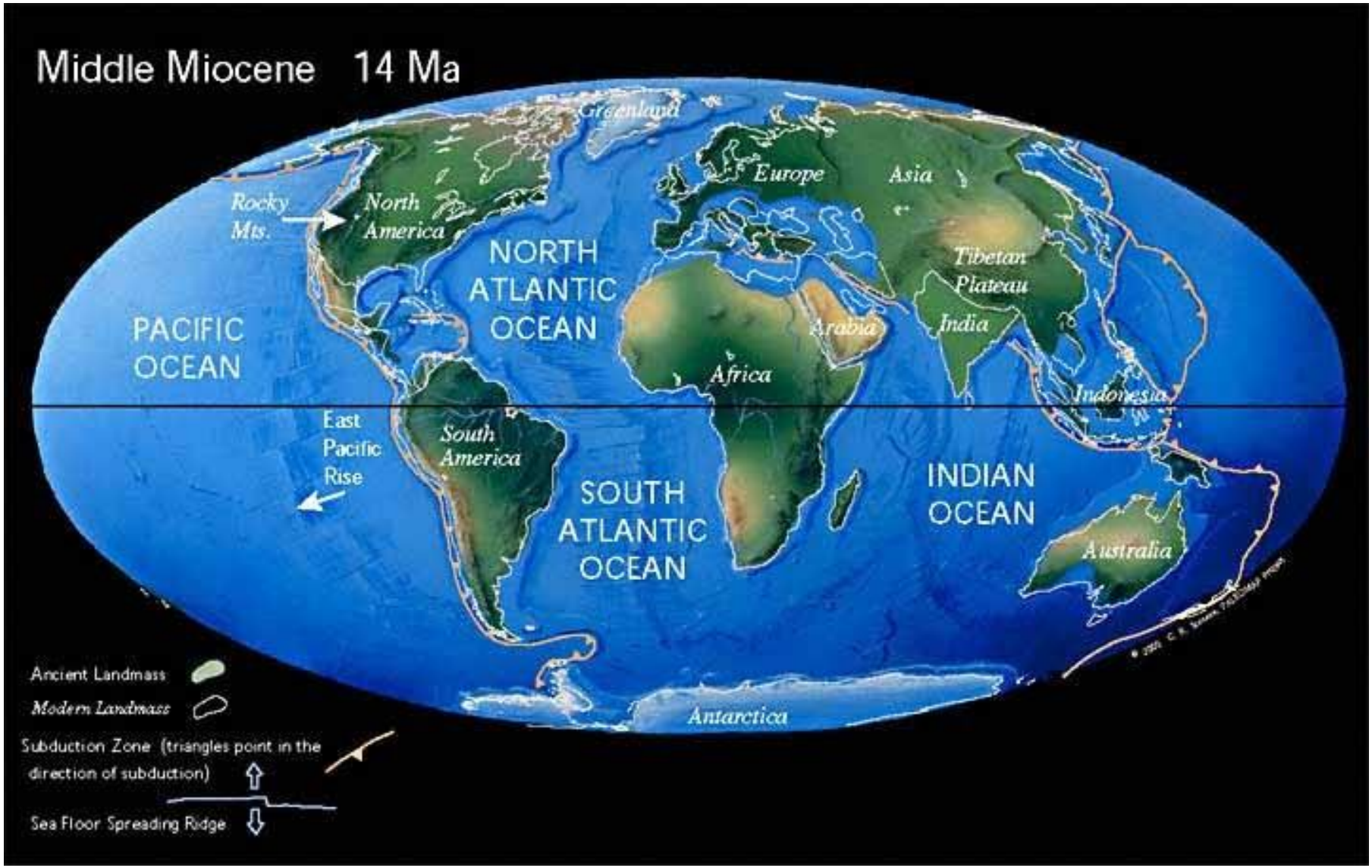
"Paratropical" = High Latitude Bauxites

Палеогеновый период. Палеогеографические события



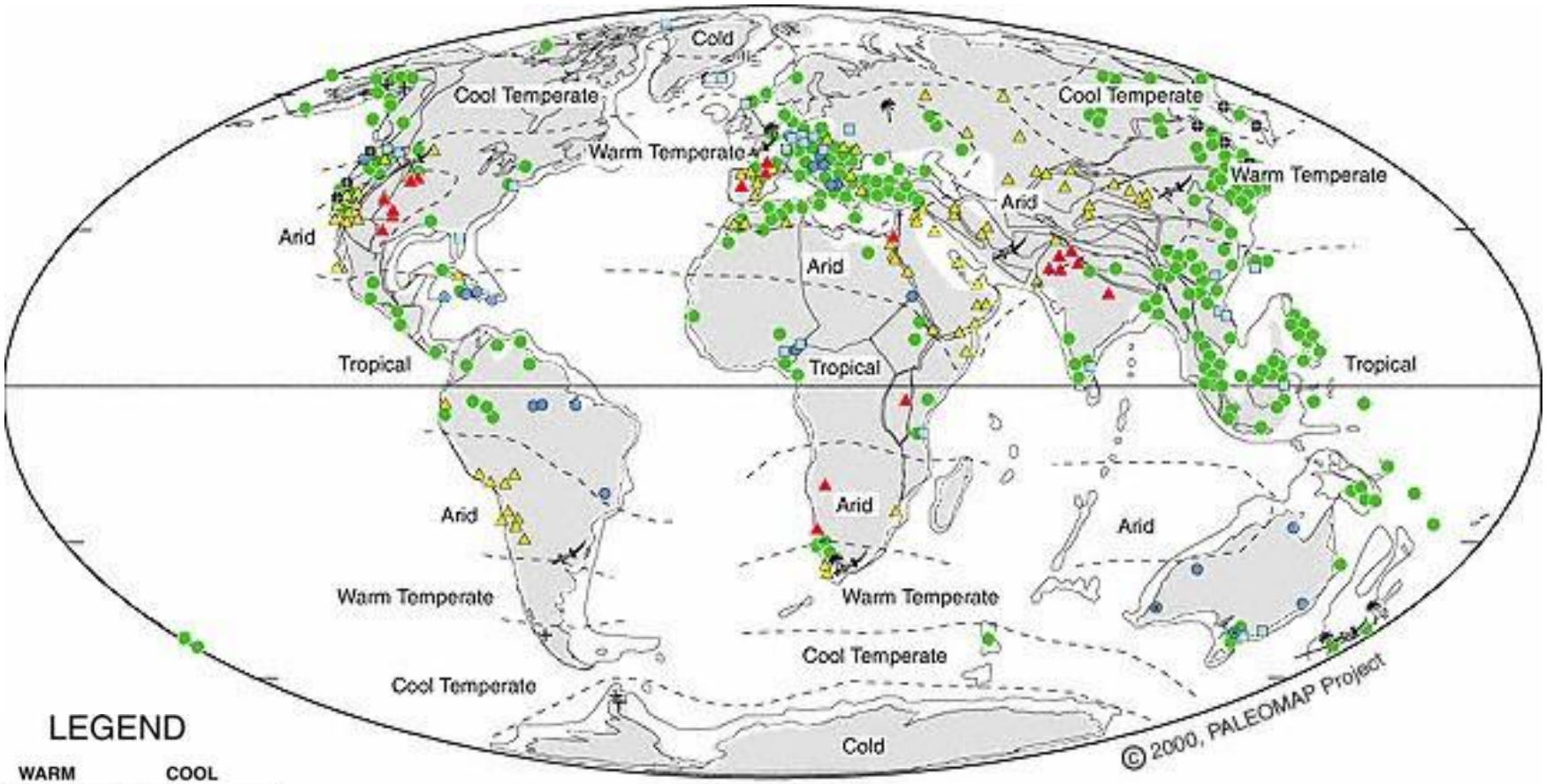
- **Палеоцен - повышение УКК в Атлантике и Пацифике, олигоцен – его снижение; многочисленные OAE; развитие системы апвеллингов и накопление фосфоритов**

Неогеновый период



Палеотектоническая реконструкция Земли

Климат



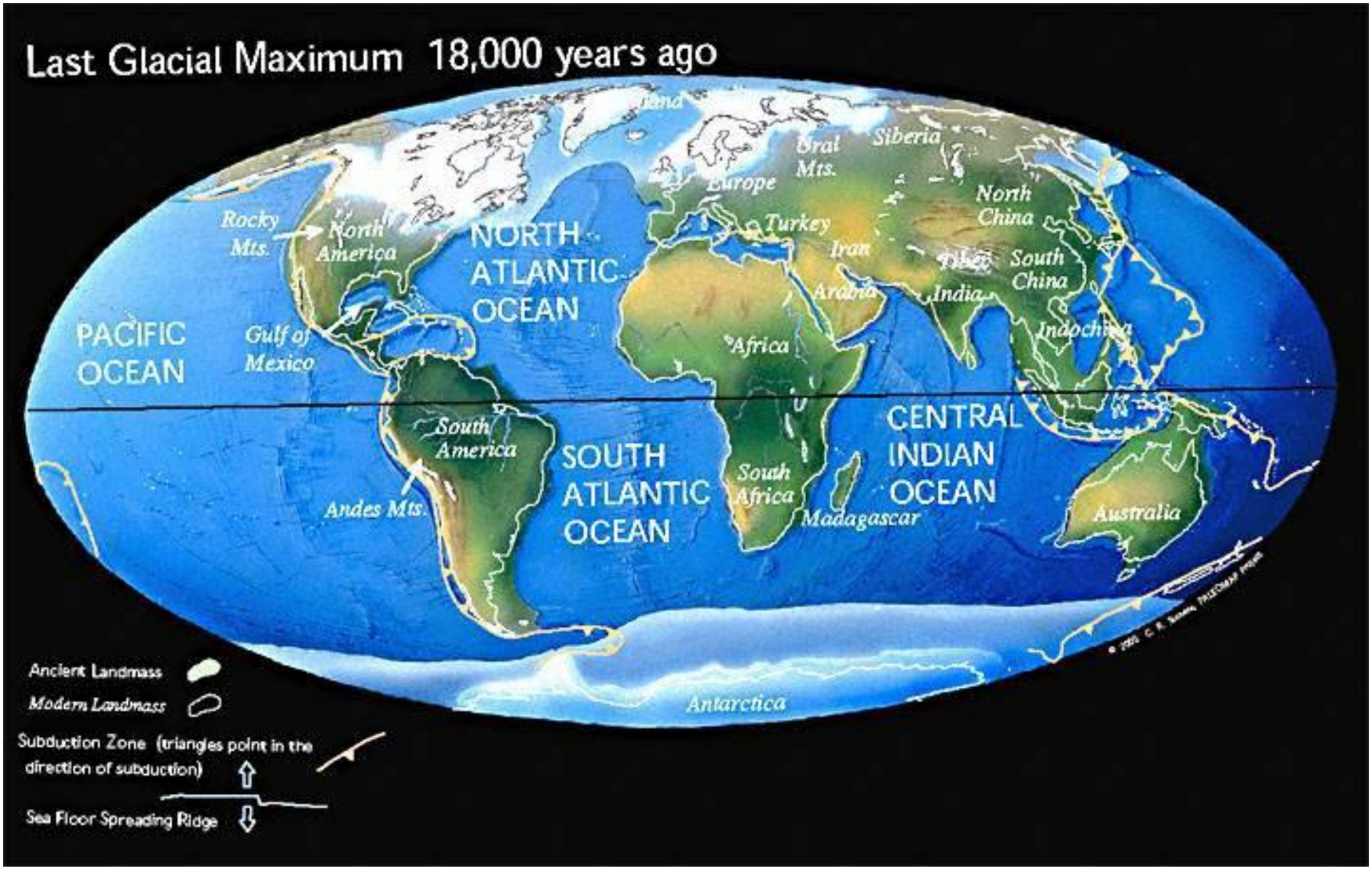
Miocene

LEGEND

	WARM	COOL
WET	*Tropical*: Coal, Bauxite, Laterite	*Cool Temperate*: Coal & Tillites
	Warm Temperate: Kaolinite (& coal & evaporite), Crocodiles, Palms & Mangroves	
DRY	*Arid*: Evaporite, Calcrete	*Cold*: Tillite, Dropstone, Glendonite

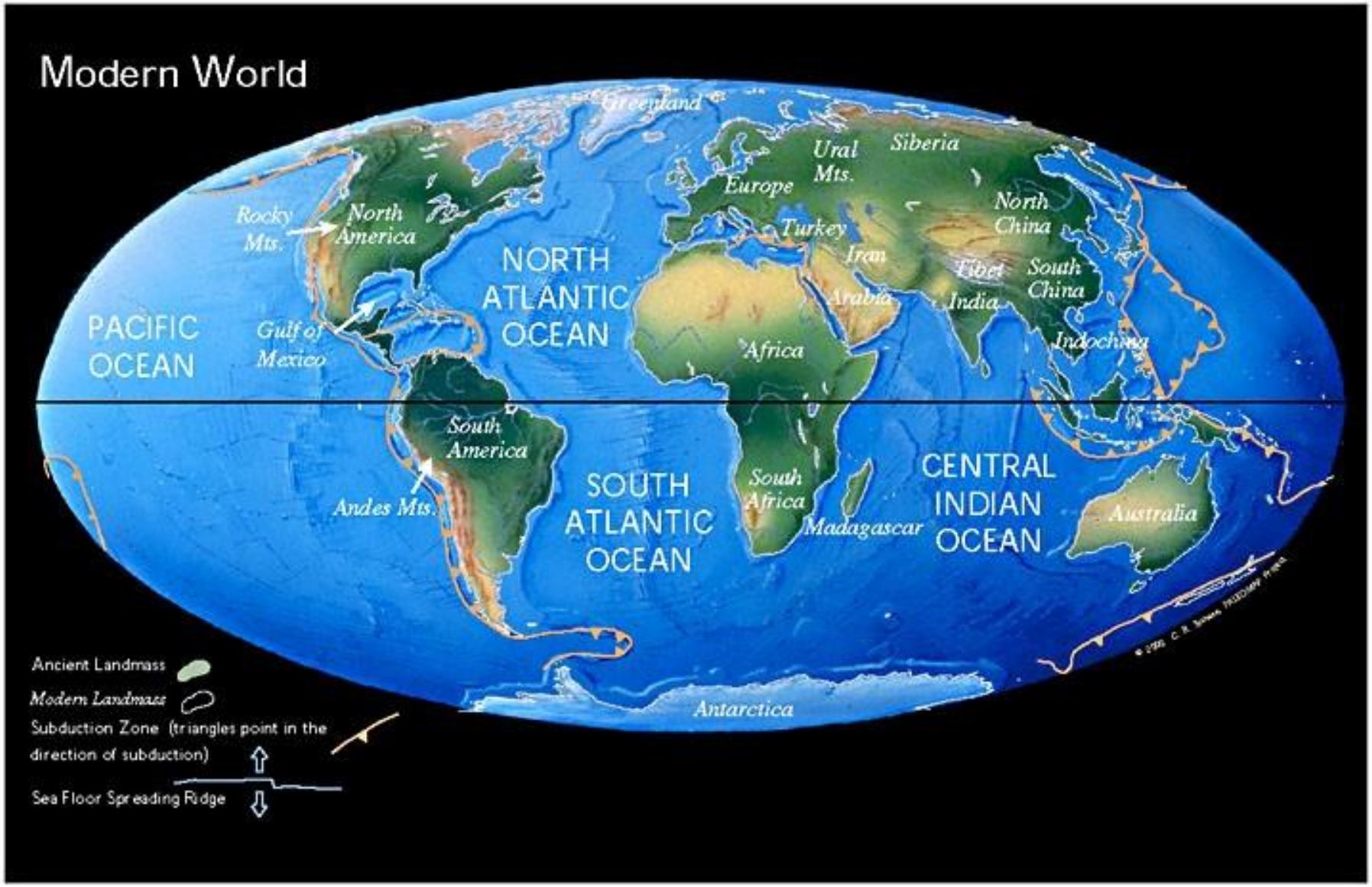
"Paratropical" = High Latitude Bauxites

Четвертичный период

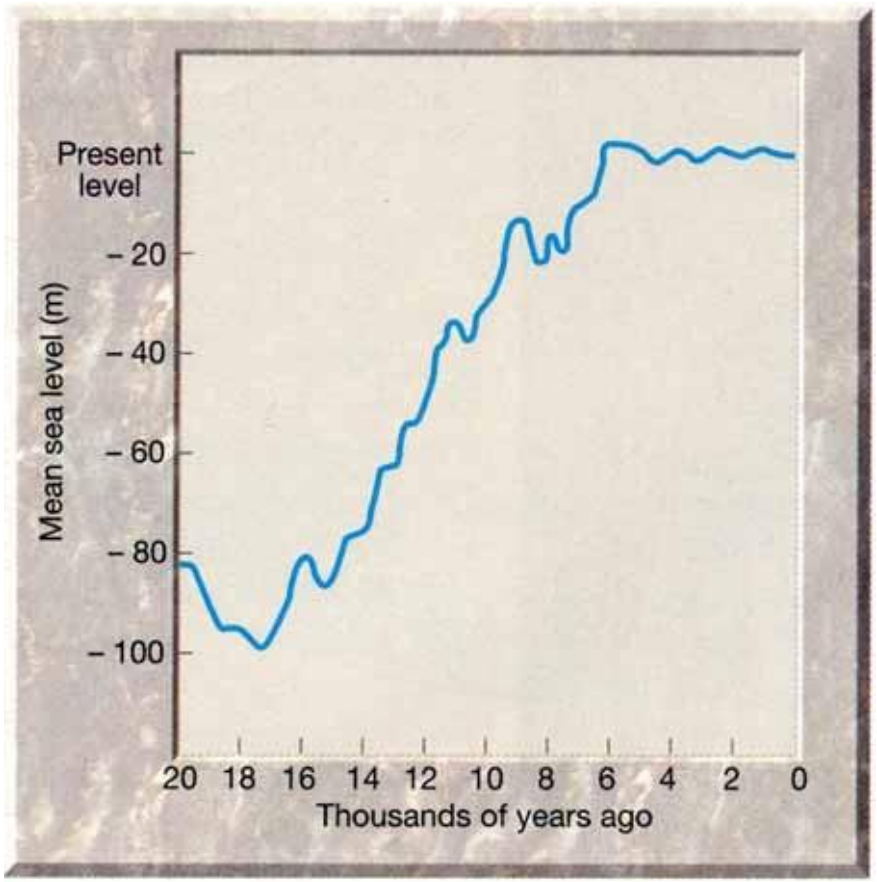


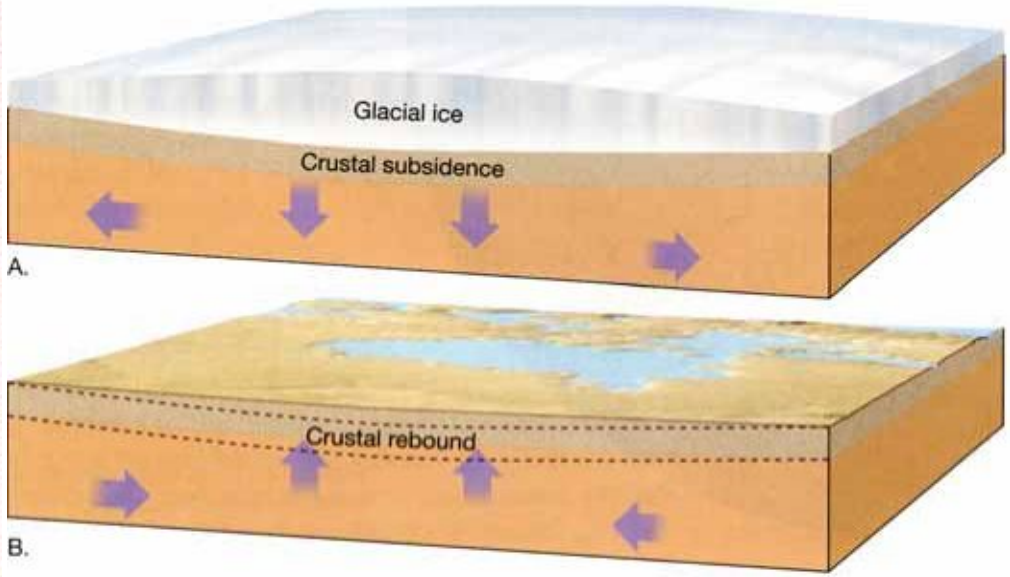
Палеотектоническая реконструкция Земли

Четвертичный период

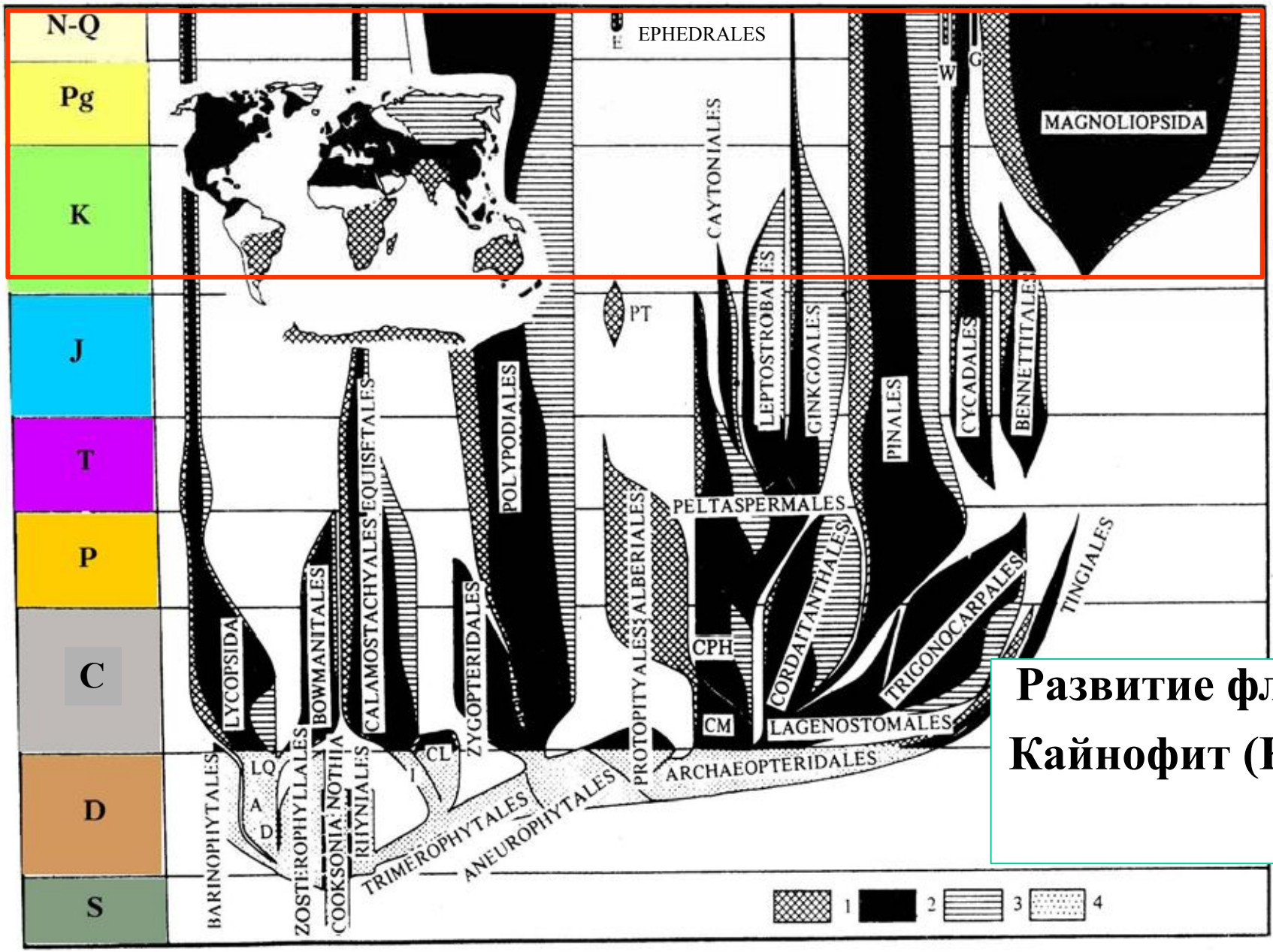


Завершение оледенения





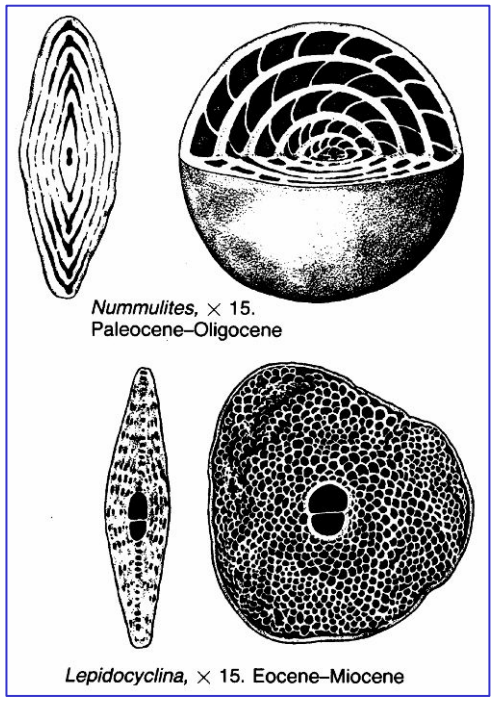
Развитие флоры в кайнозое



Развитие флоры

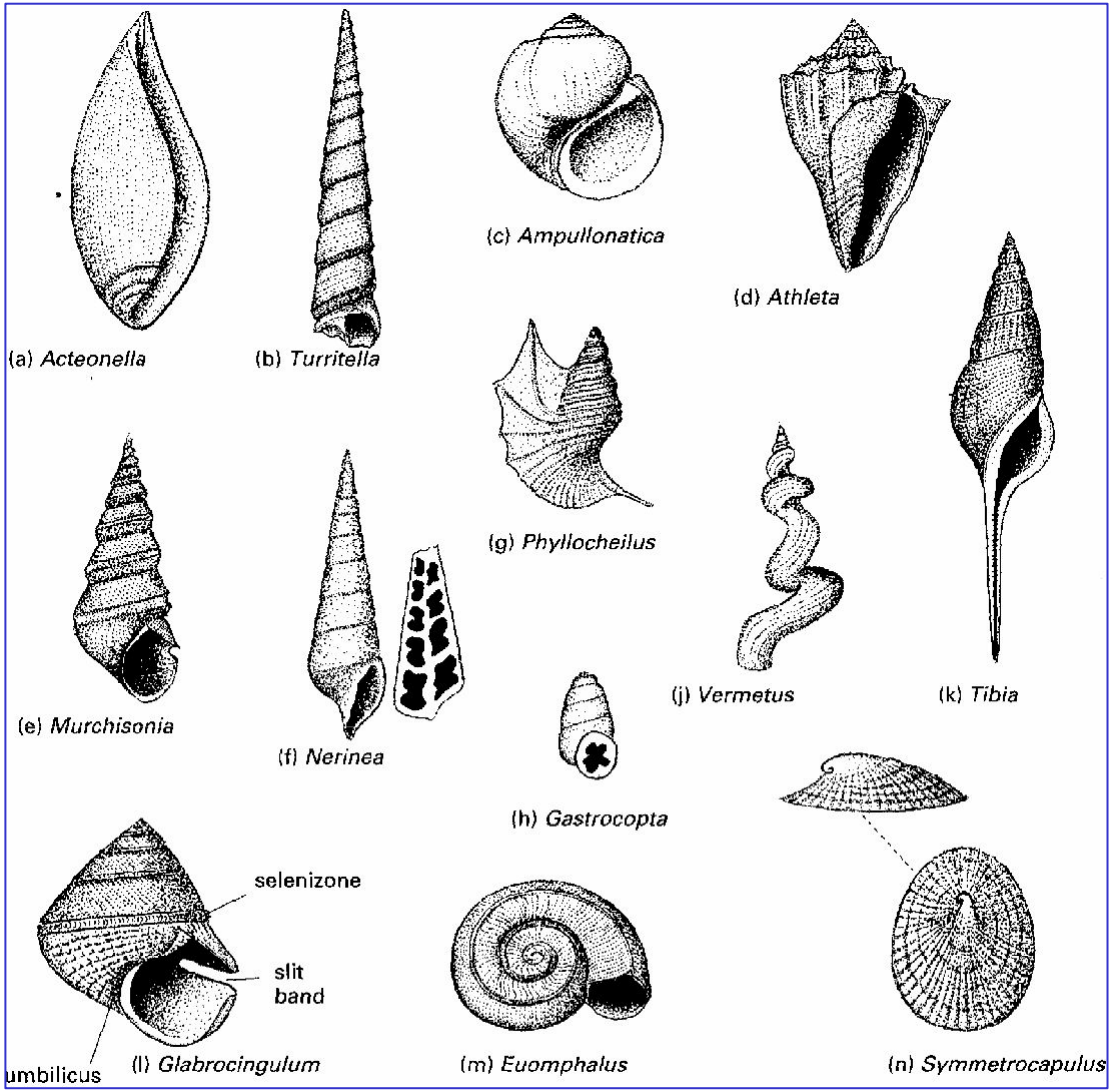
Кайнофит (K_1-Q)

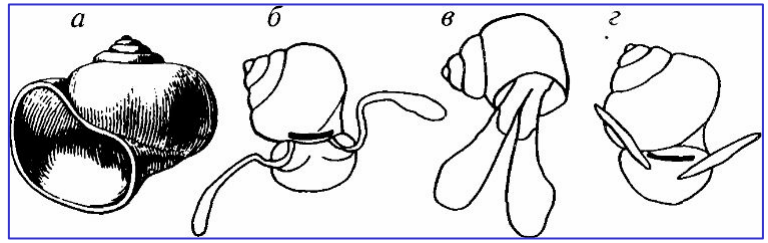
Развитие жизни в кайнозое



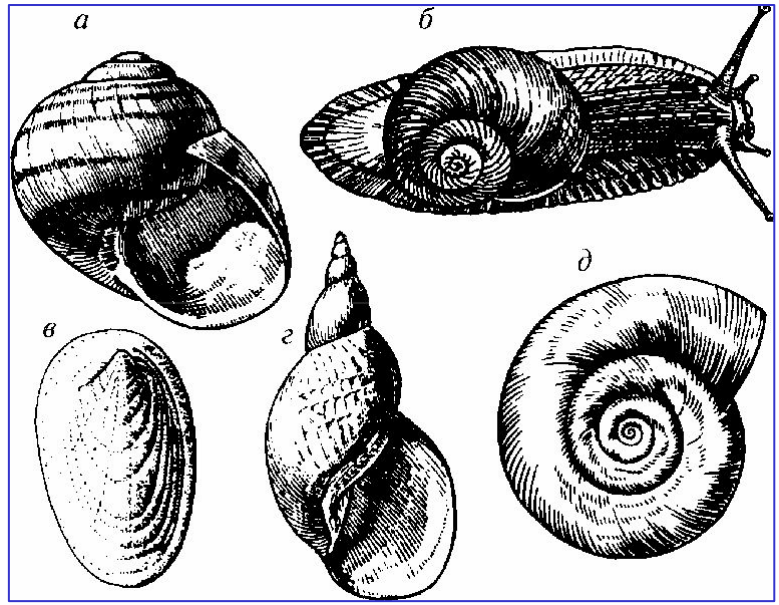
Фораминиферы - *Nummulites*

Развитие жизни в кайнозое. Гастроподы



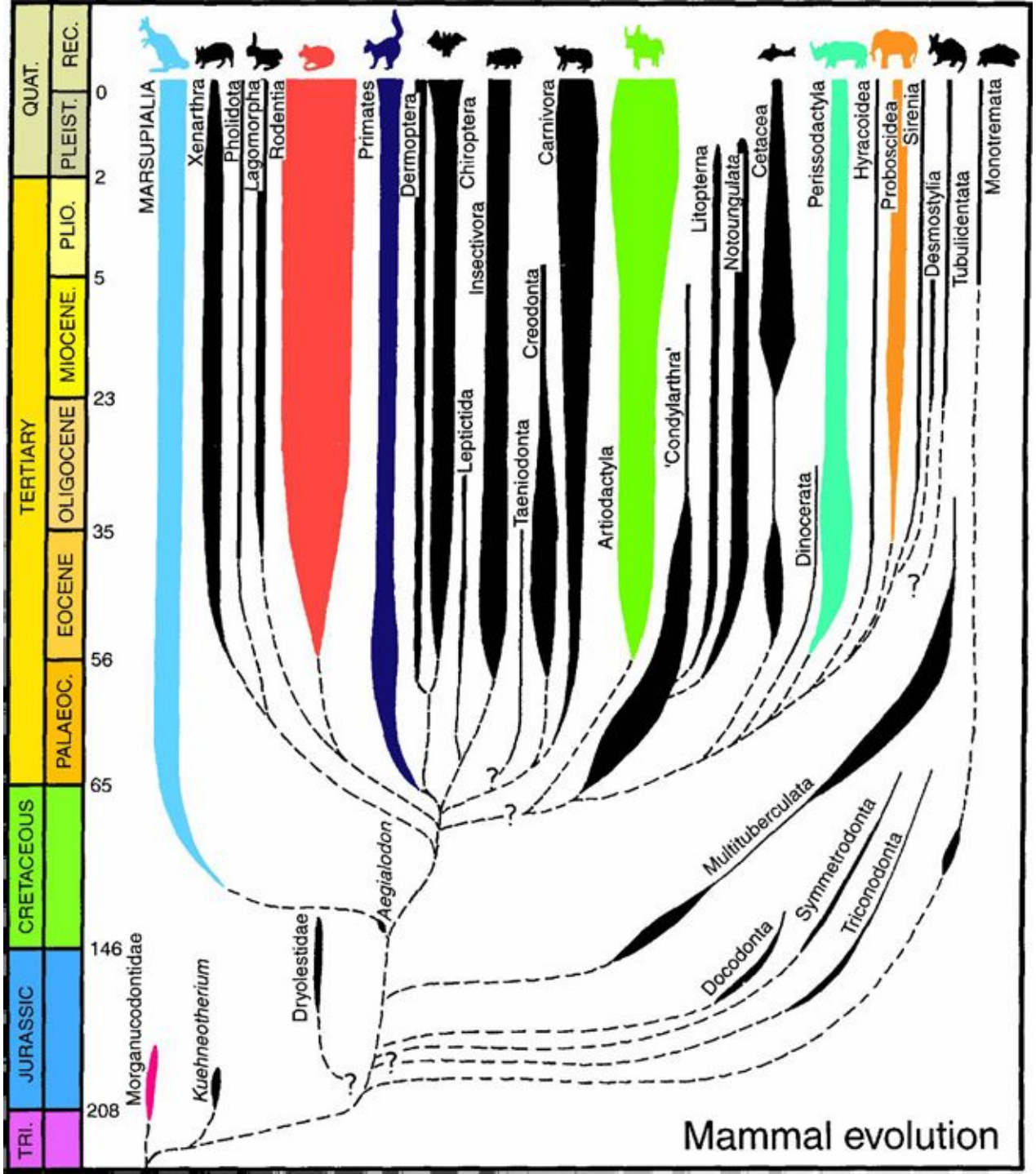


Отряд Pteropoda (Pg-Q)



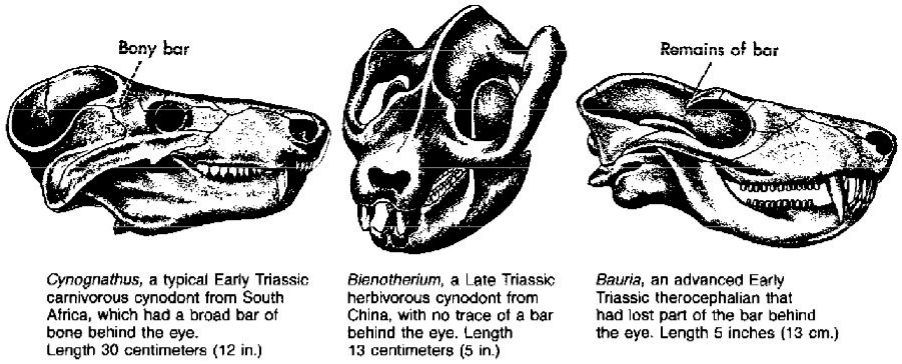
Отряд Mesogastropoda (O-Q)

Подкласс Pulmonata (C-Q)



Развитие жизни в кайнозое

Млекопитающие



Cynognathus, a typical Early Triassic carnivorous cynodont from South Africa, which had a broad bar of bone behind the eye. Length 30 centimeters (12 in.)

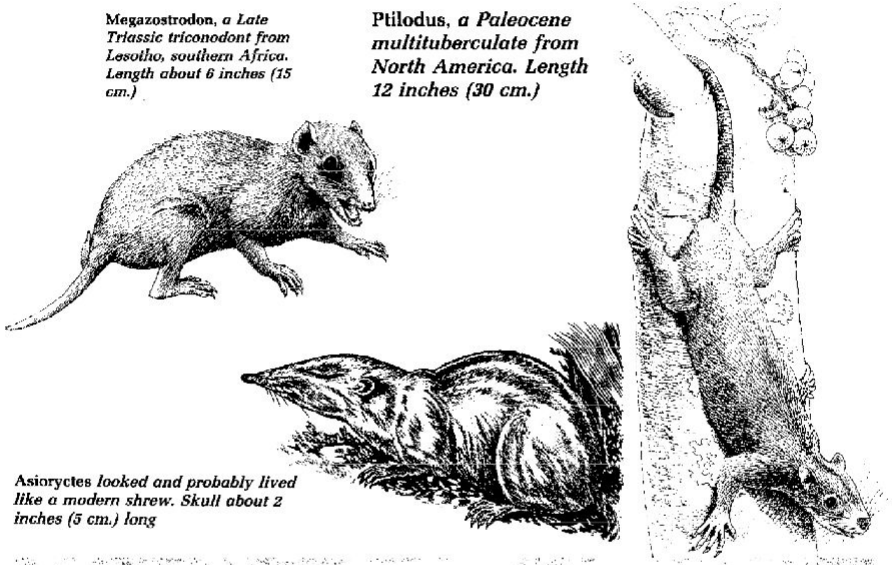
Bienotherium, a Late Triassic herbivorous cynodont from China, with no trace of a bar behind the eye. Length 13 centimeters (5 in.)

Bauria, an advanced Early Triassic therocephalian that had lost part of the bar behind the eye. Length 5 inches (13 cm.)

Three therapsids with varying development of a bar of bone behind the eye

Megazostrodon, *a Late Triassic triconodont from Lesotho, southern Africa. Length about 6 inches (15 cm.)*

Ptilodus, *a Paleocene multituberculate from North America. Length 12 inches (30 cm.)*



***Asioryctes** looked and probably lived like a modern shrew. Skull about 2 inches (5 cm.) long*

The short-legged, wolf-like *Prothylacinus*. Body length about 4 feet (1.2 m.)

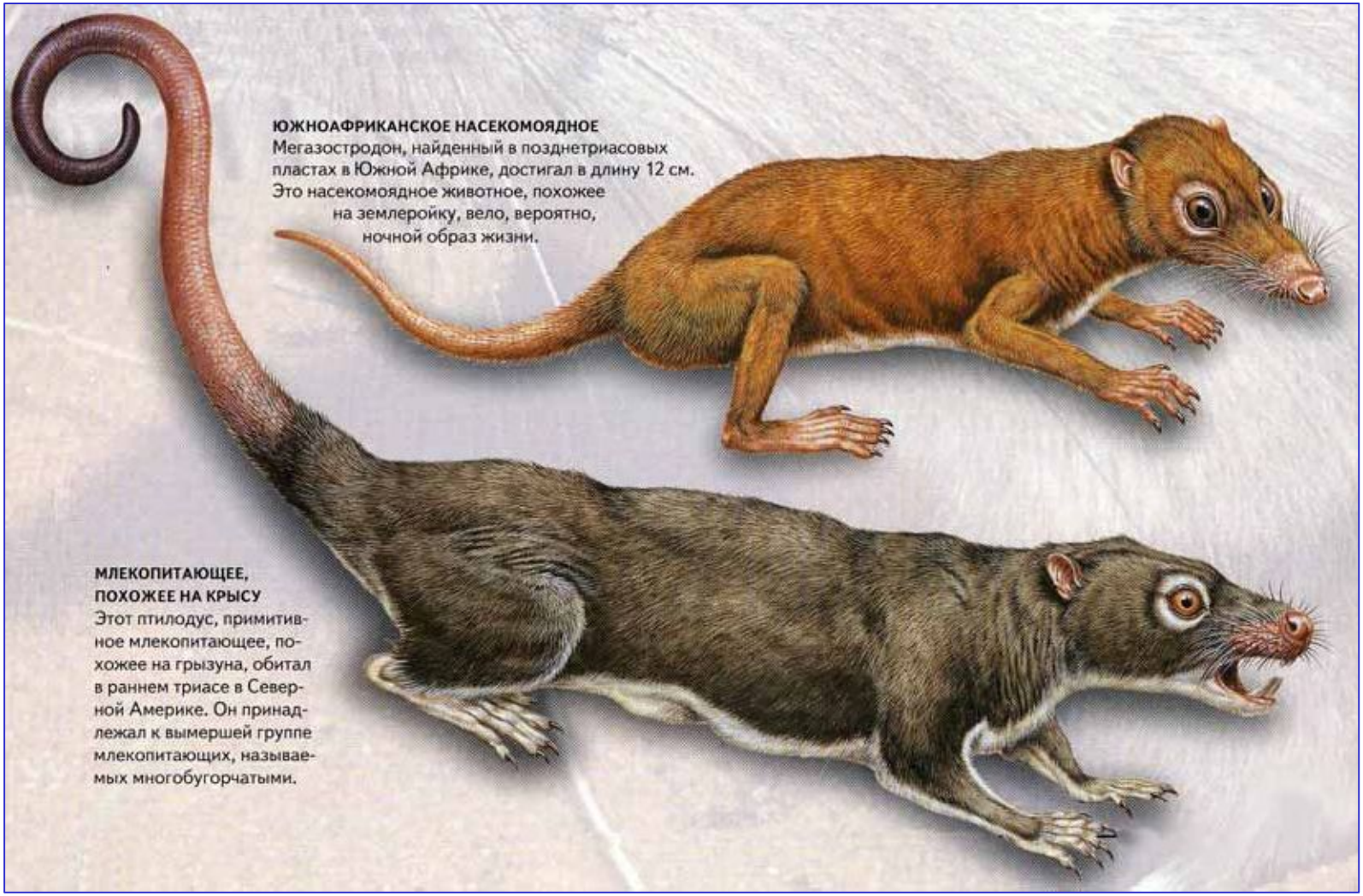
Thylacosmilus was as large as a modern tiger but resembled the saber-toothed cats. Skull length 11 inches (27 cm.)

Two South American marsupials that resembled carnivores

Развитие млекопитающих

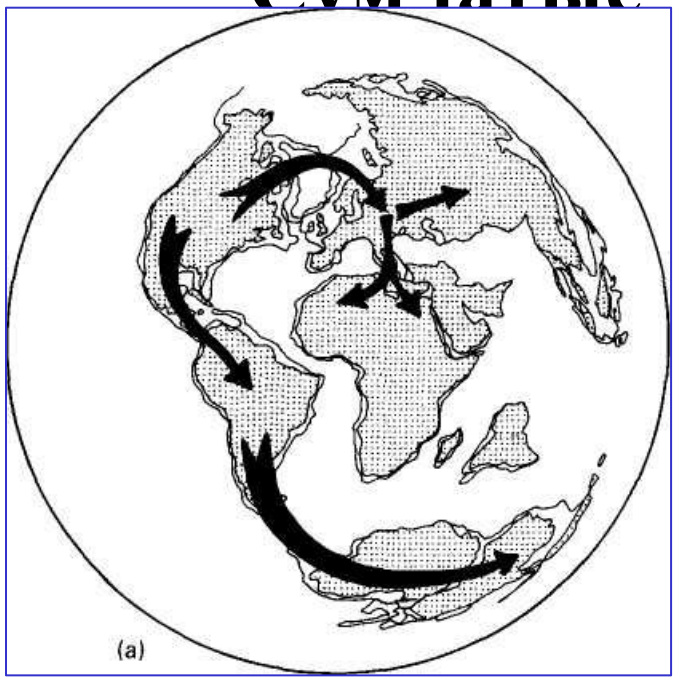
Циногнаты и ранние млекопитающие

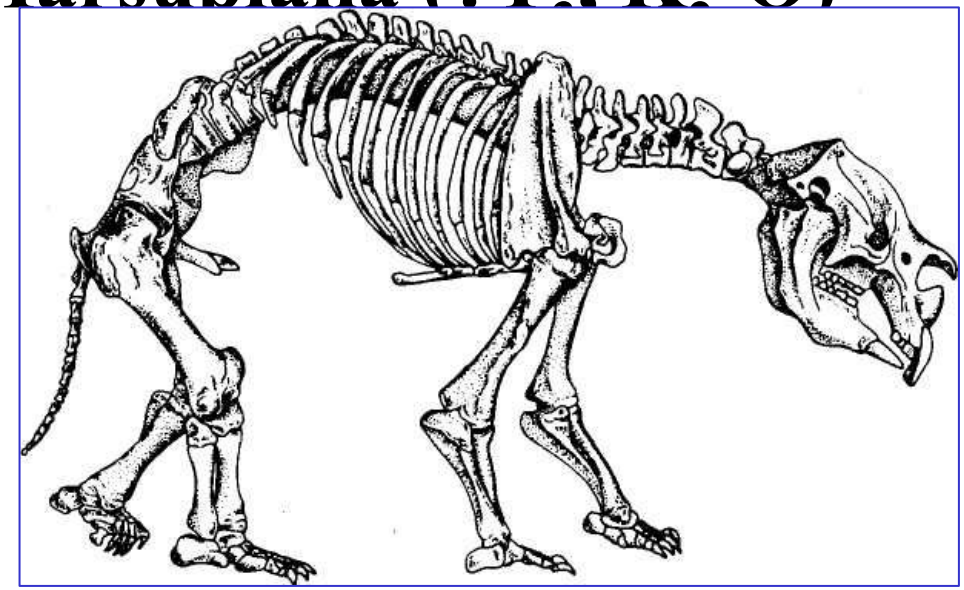
Развитие млекопитающих



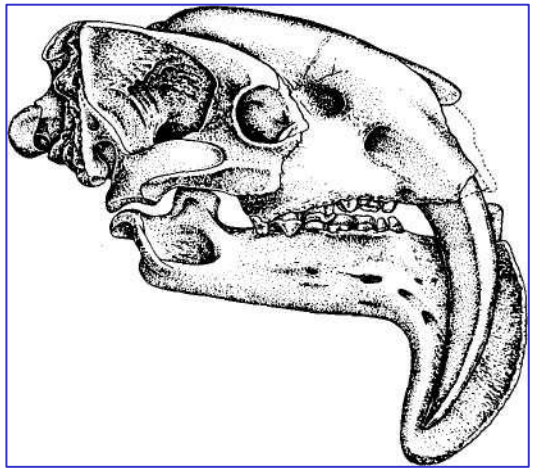
Триасовые млекопитающие – Megazostrodon (T_3), Ptylodus (T_1)

Развитие млекопитающих.
Сумчатые – Marsupialia (?T$_3$, K$_2$-Q)

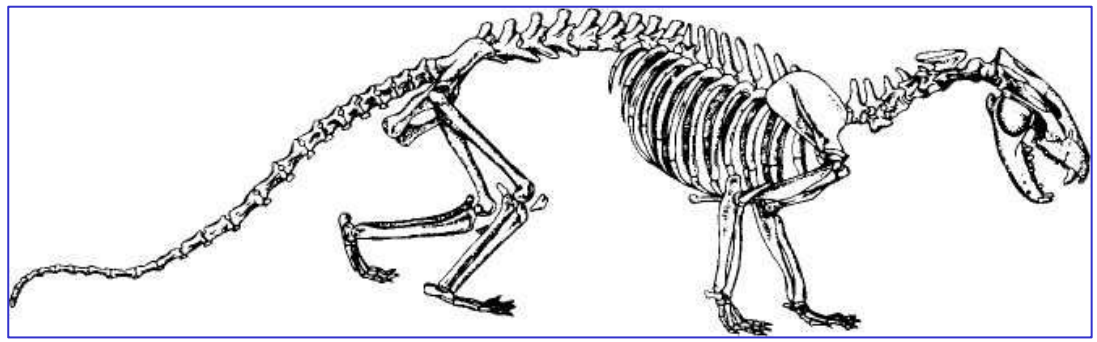




***Diprotodon*, N_1, Австралия**

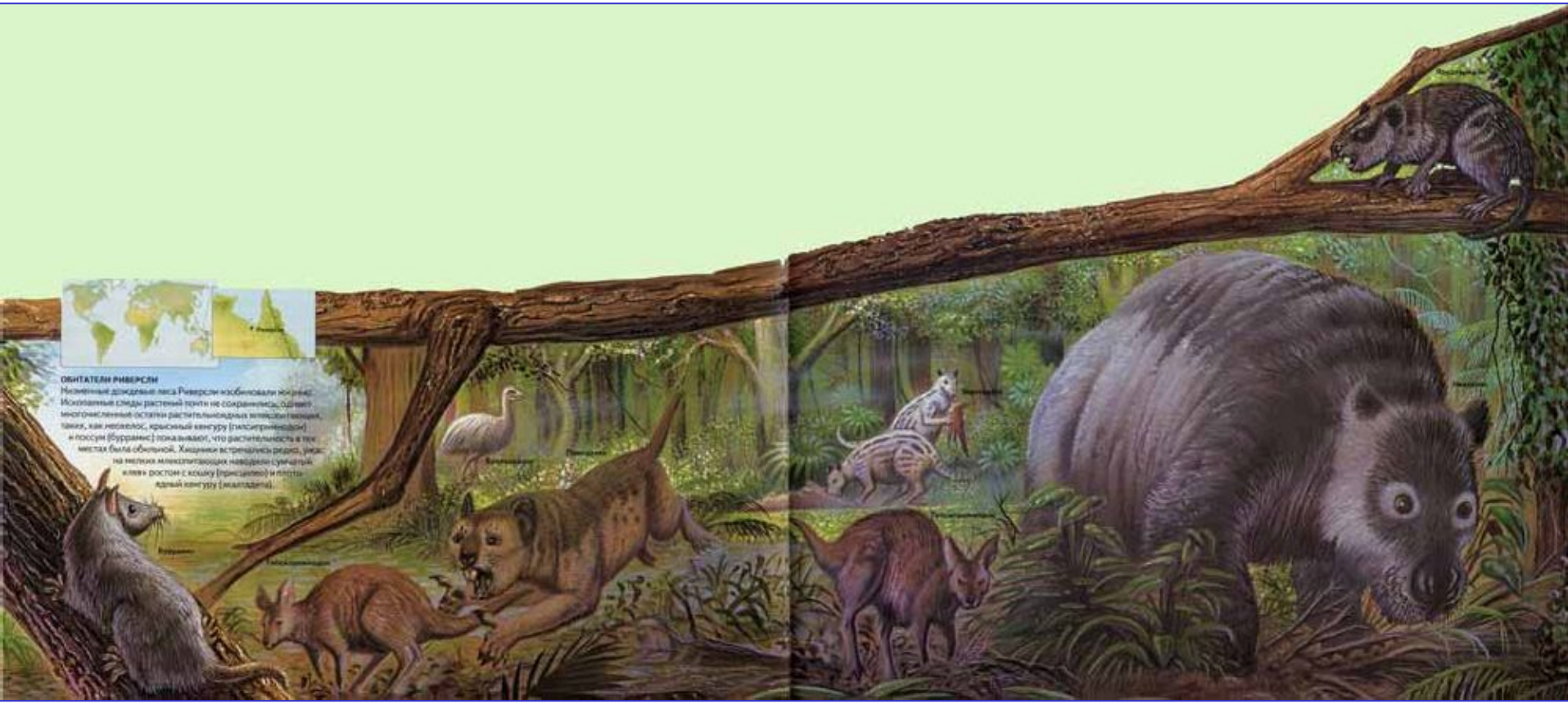


***Thylacosmilus*, N_1, Ю.Америка**

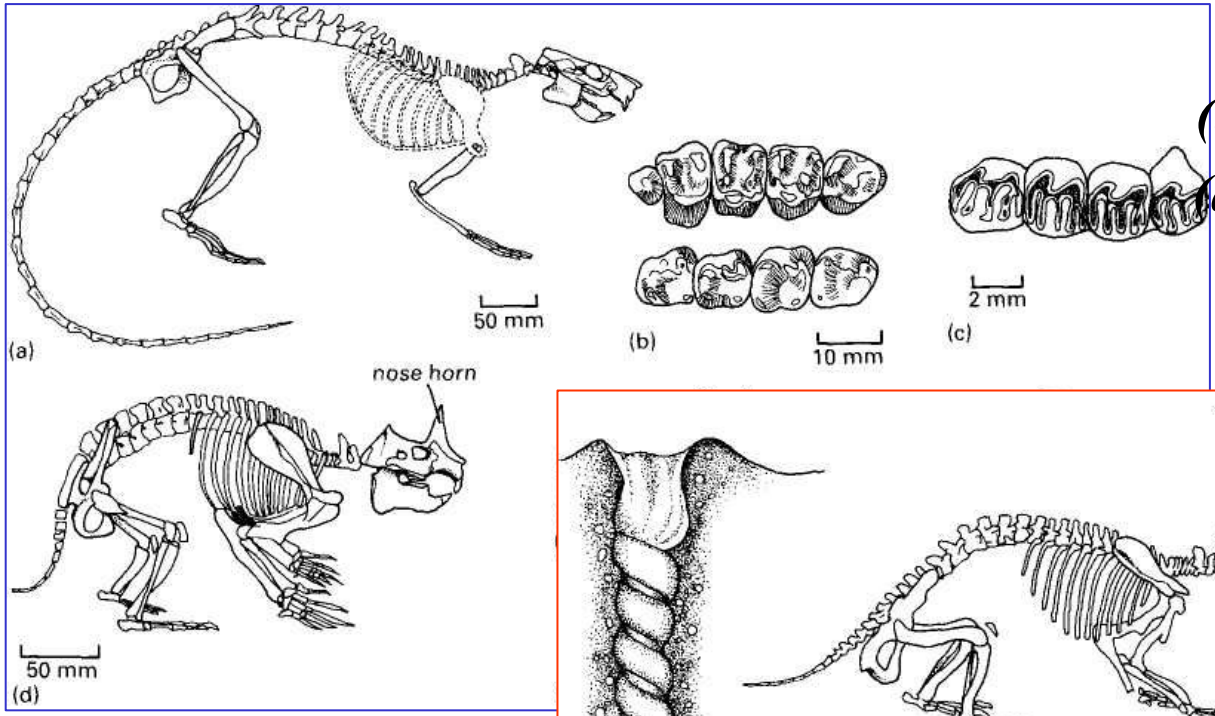


***Prothylacynus*, Pg_3, Ю.Америка**

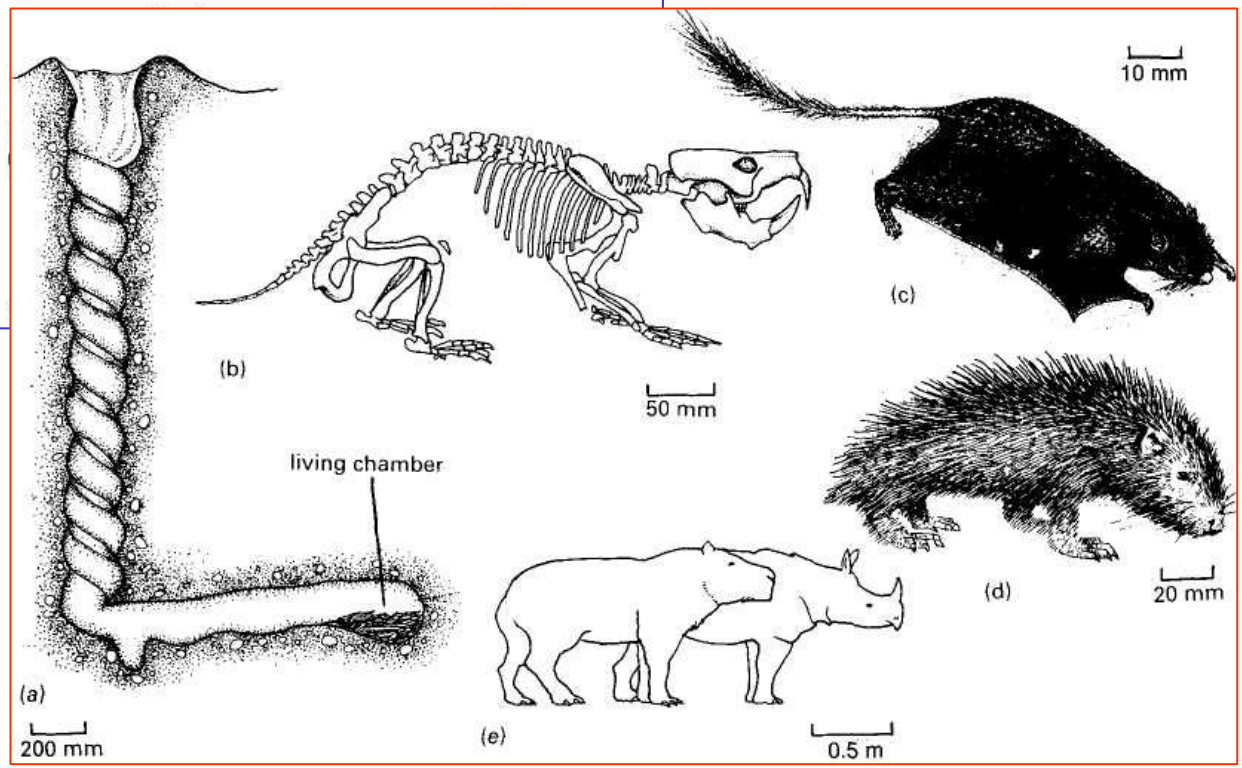
Развитие млекопитающих. Сумчатые - Marsupialia



Развитие млекопитающих



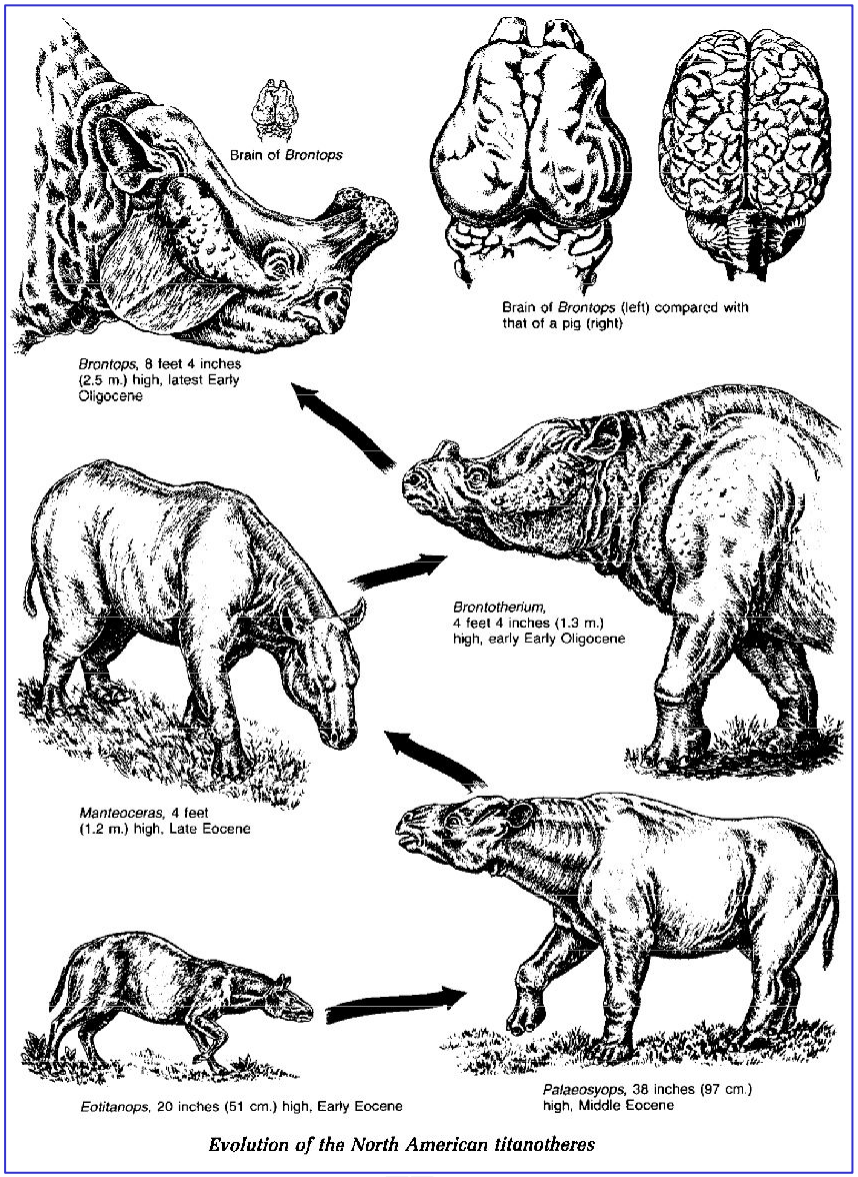
(a, b) *Paramys* (Pg_2);
(c) *Theridomys* (Q);
(d) *Epigaulus* (N_1)



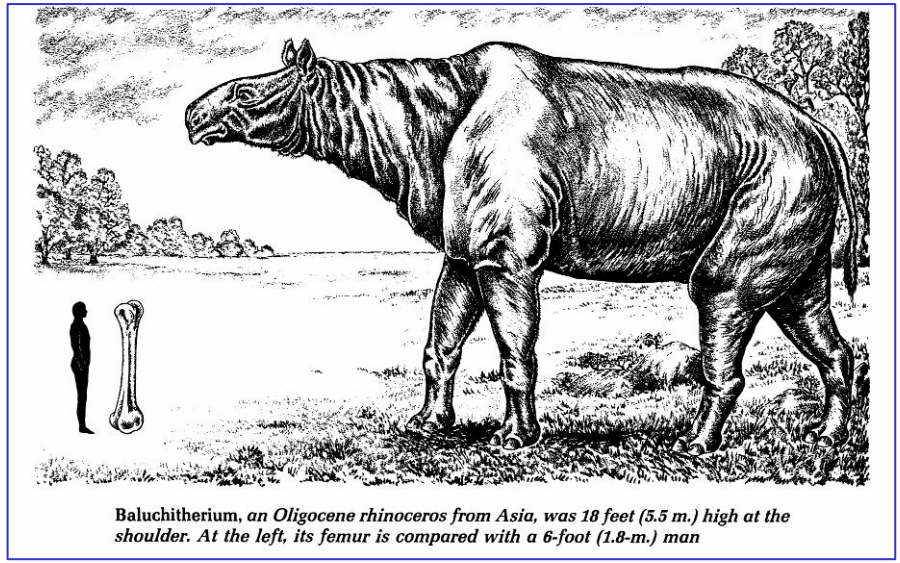
(a, b) Нора *Daimonelix* от *Palaeocastor* (N_1);
(c) *Eomys* (Pg_2);
(d) *Sivacanthion* (N_1);
(e) *Telicomys* (N_1)

Грызуны - *Rodentia* (Pg_1-Q)

Развитие млекопитающих



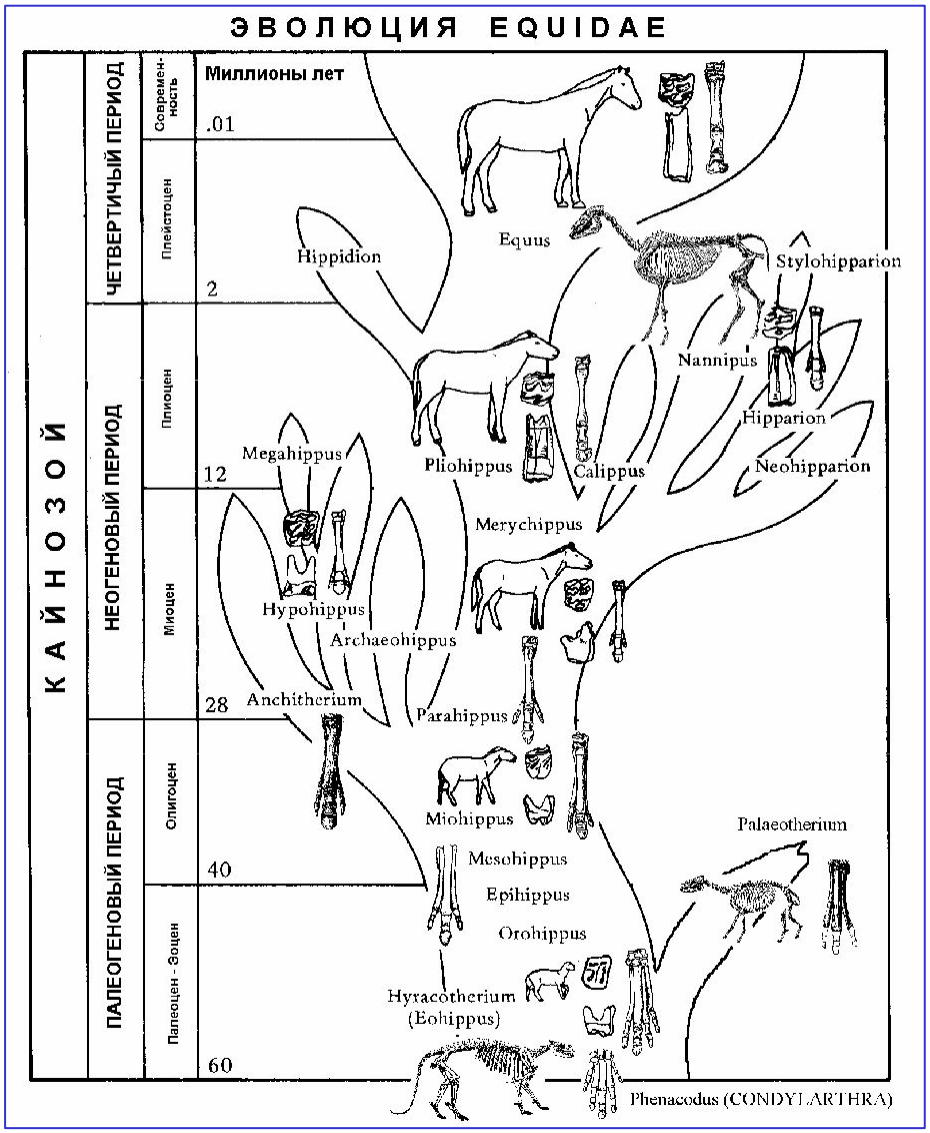
Evolution of the North American titanotheres

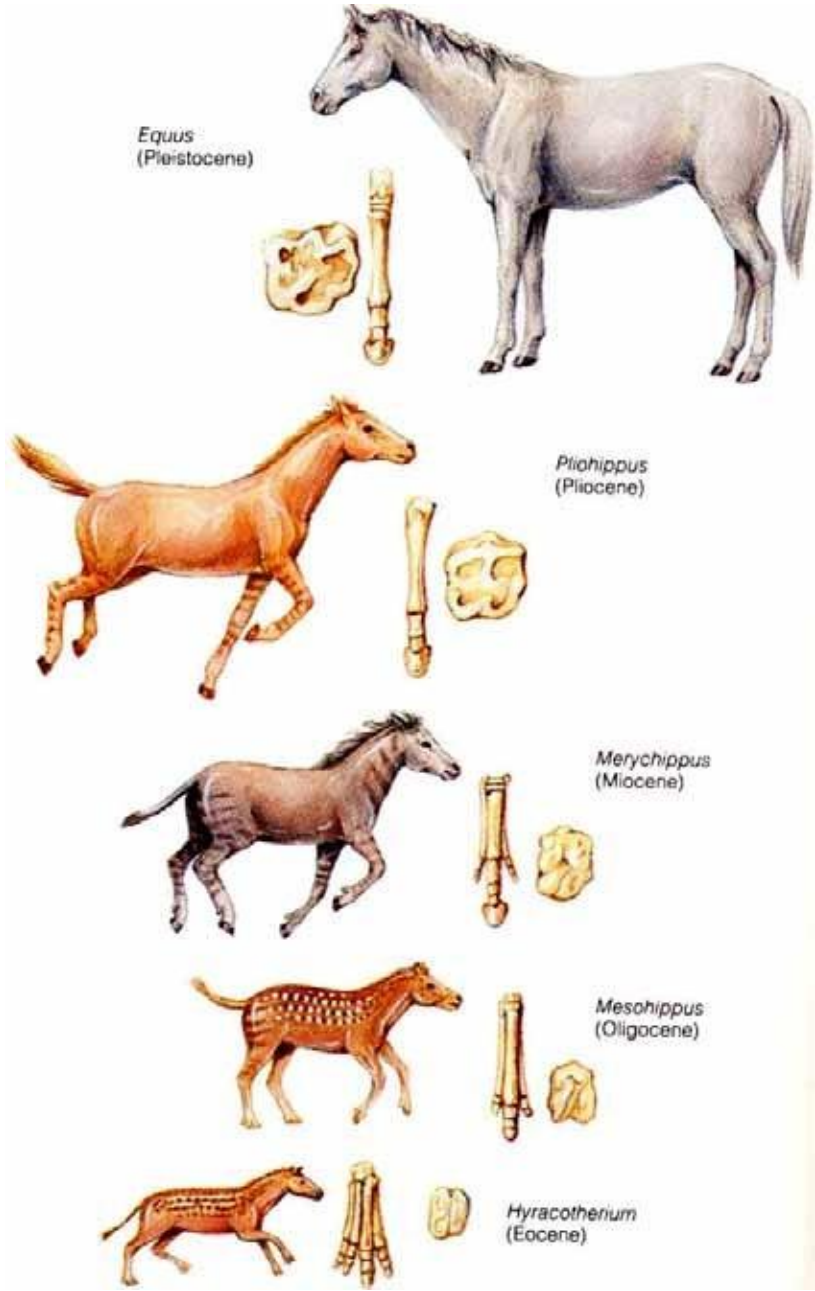

Baluchitherium, *an Oligocene rhinoceros from Asia, was 18 feet (5.5 m.) high at the shoulder. At the left, its femur is compared with a 6-foot (1.8-m.) man*

Непарнокопытные (Perissodactyla):

Rhinocerotoidea и Brontotheroidea

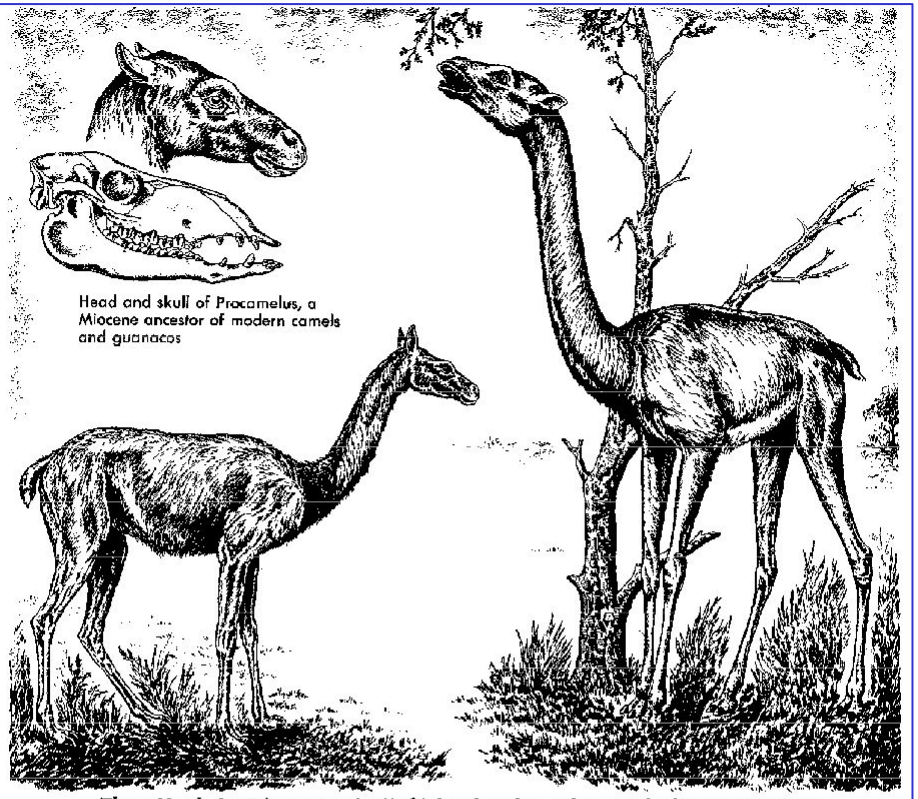
Развитие млекопитающих



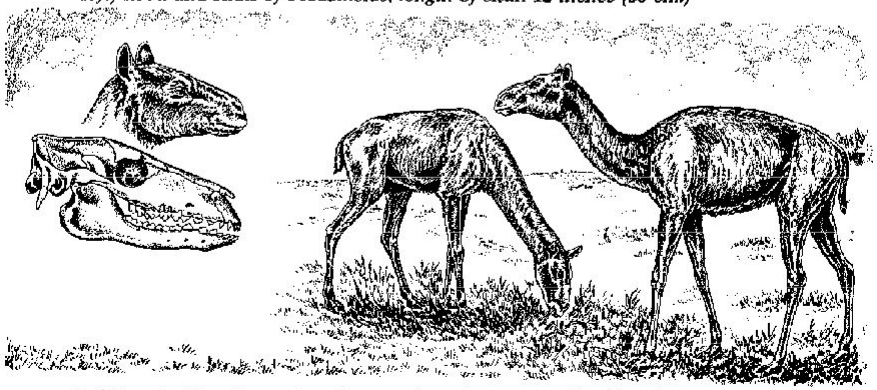


Непарнокопытные (Perissodactyla). Лошадиные - Equidae (Pg-Q)

Развитие млекопитающих



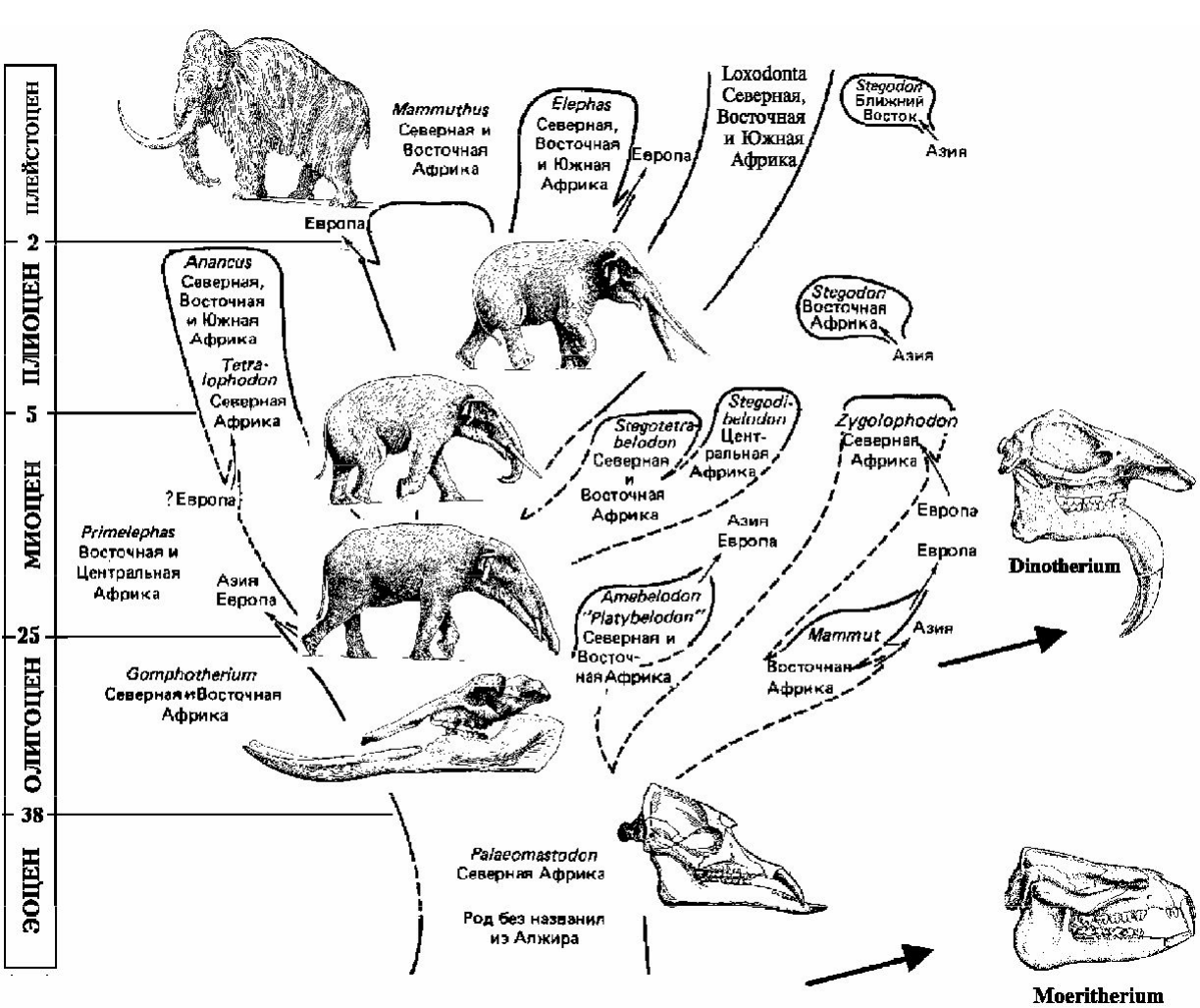
Three North American camels. (Left) Oxydactylus, *a long-necked Miocene camel 4 feet 6 inches (137 cm.) at the shoulder. (Right)* Aepycamelus, *a Miocene beast with such long legs and neck that it has been nicknamed the "giraffe camel." (Top left) head and skull of* Procamelus, *length of skull 12 inches (30 cm.)*

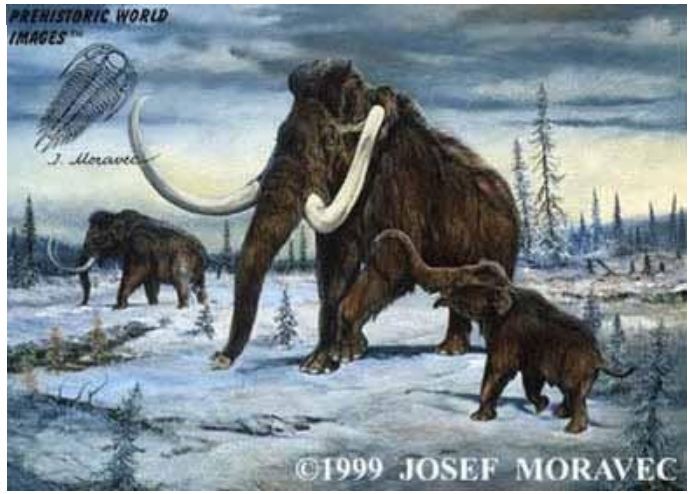


(Left) head of Protylopus, *Late Eocene of North America, the oldest known member of the camel family; length of skull 4.7 inches (12 cm.). (Right)* Stenomylus, *an Early Miocene camel from North America, stood 27 inches (69 cm.) high at the*

Парнокопытные (Artiodactyla)
Верблюдовые – Camelidae (N-Q)

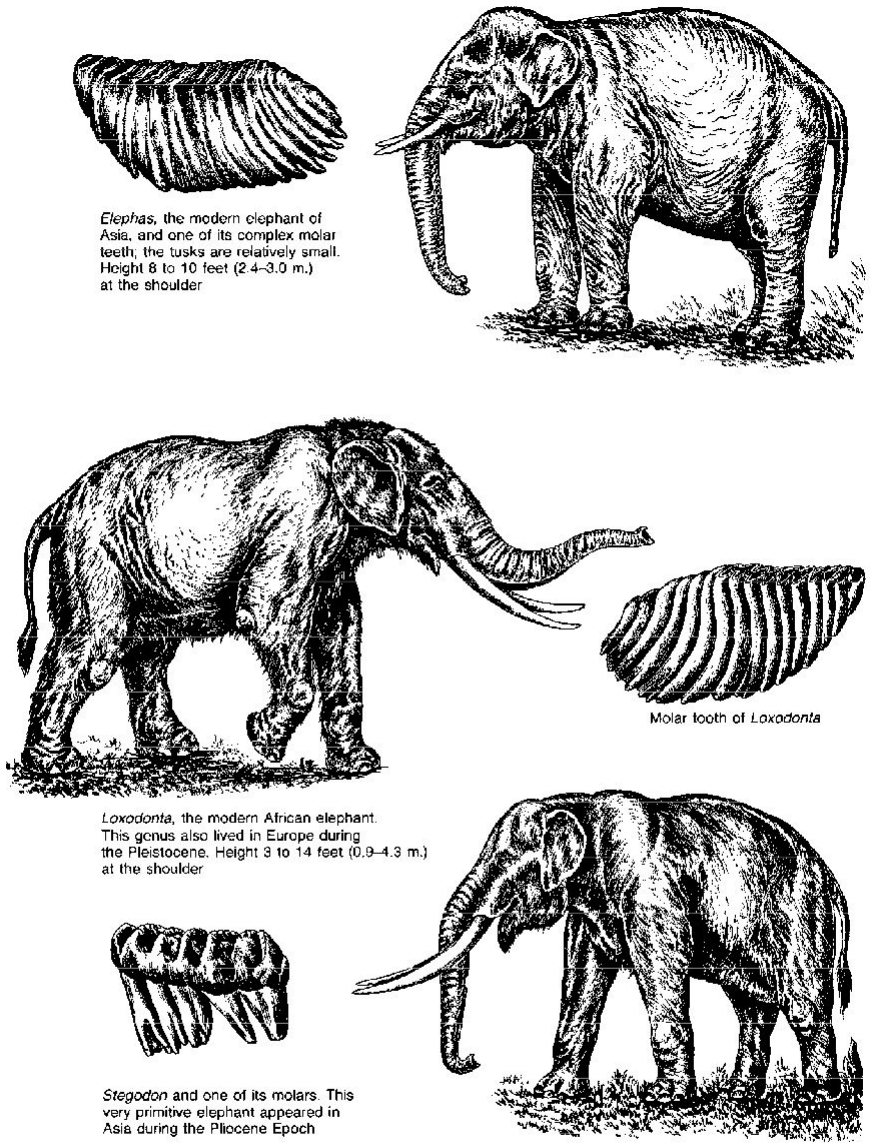
Развитие млекопитающих



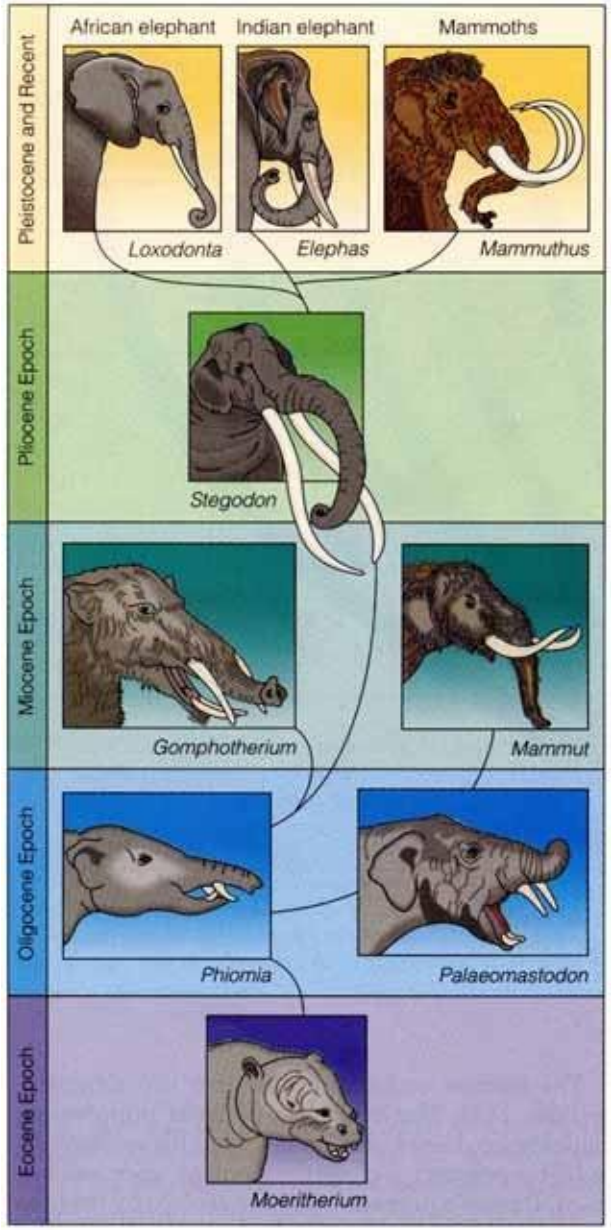


Хоботные – Proboscidea (Pg_2-Q)

Развитие млекопитающих

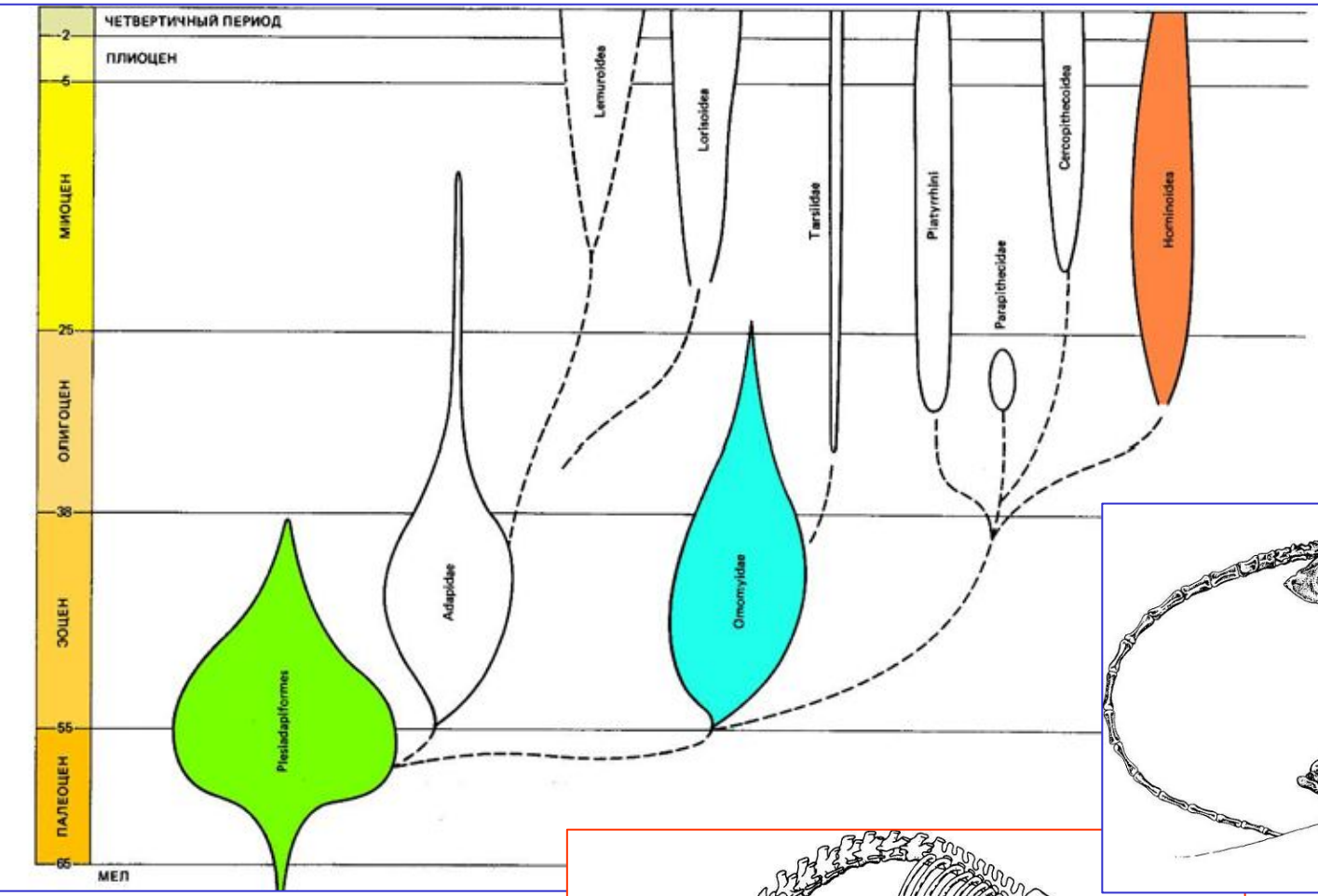


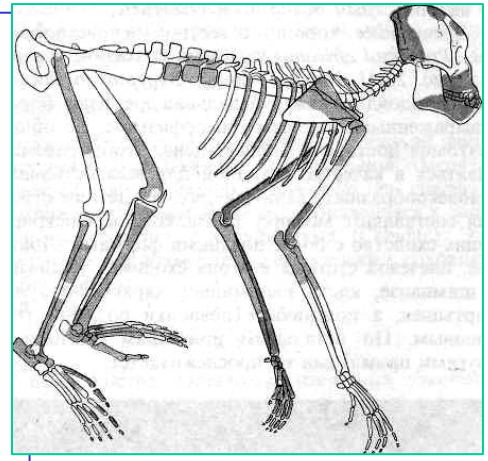
Three stages in the evolution of elephants, showing the increasing size and complexity of molar teeth and the reduction of tusks in the modern Elephas



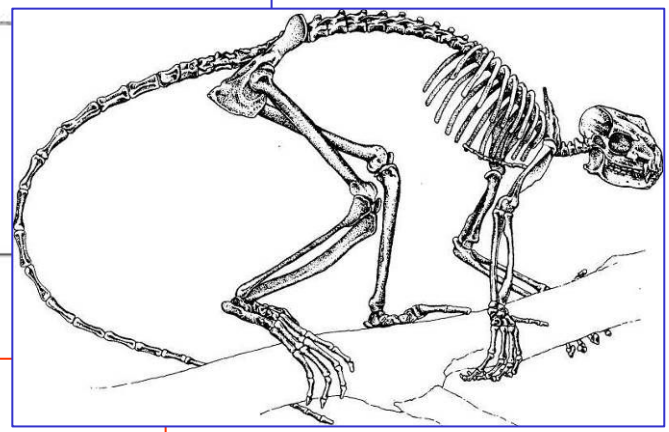
Хоботные – Proboscidea (Pg_2-Q)

Развитие млекопитающих



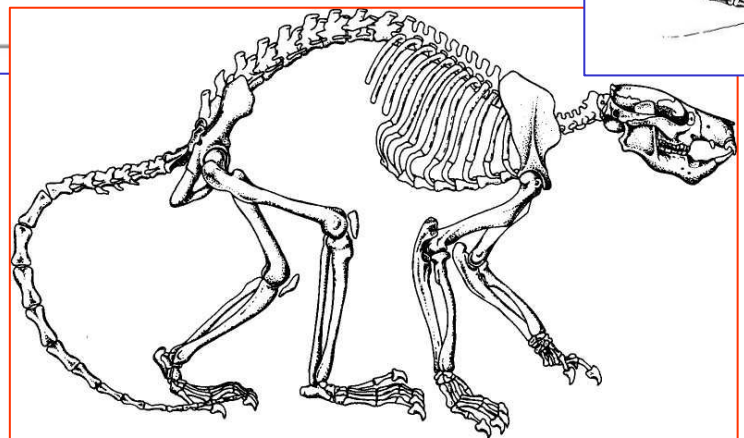


Proconsul **(N_1)**



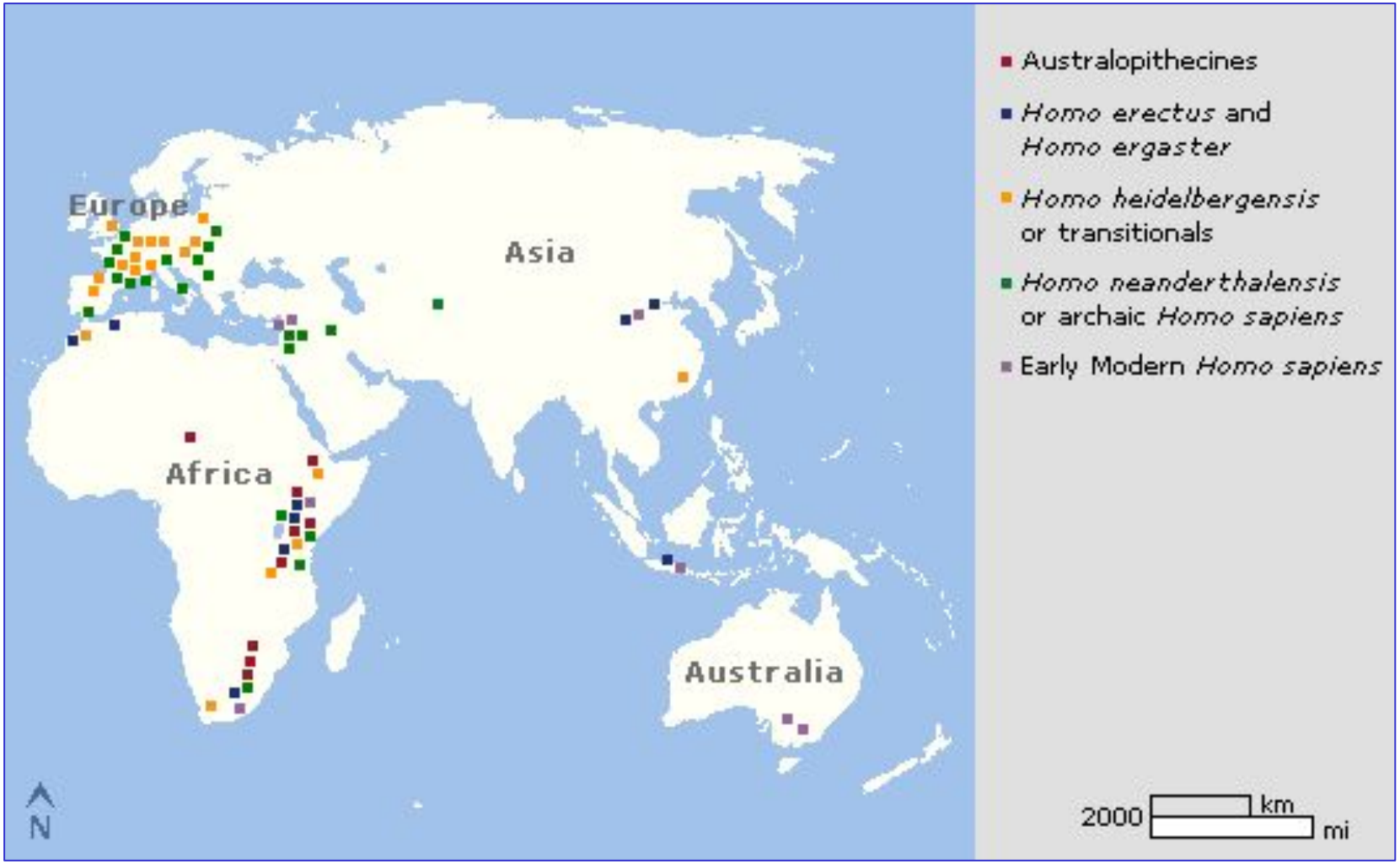
Smilodectes **(Pg_2)**

Приматы



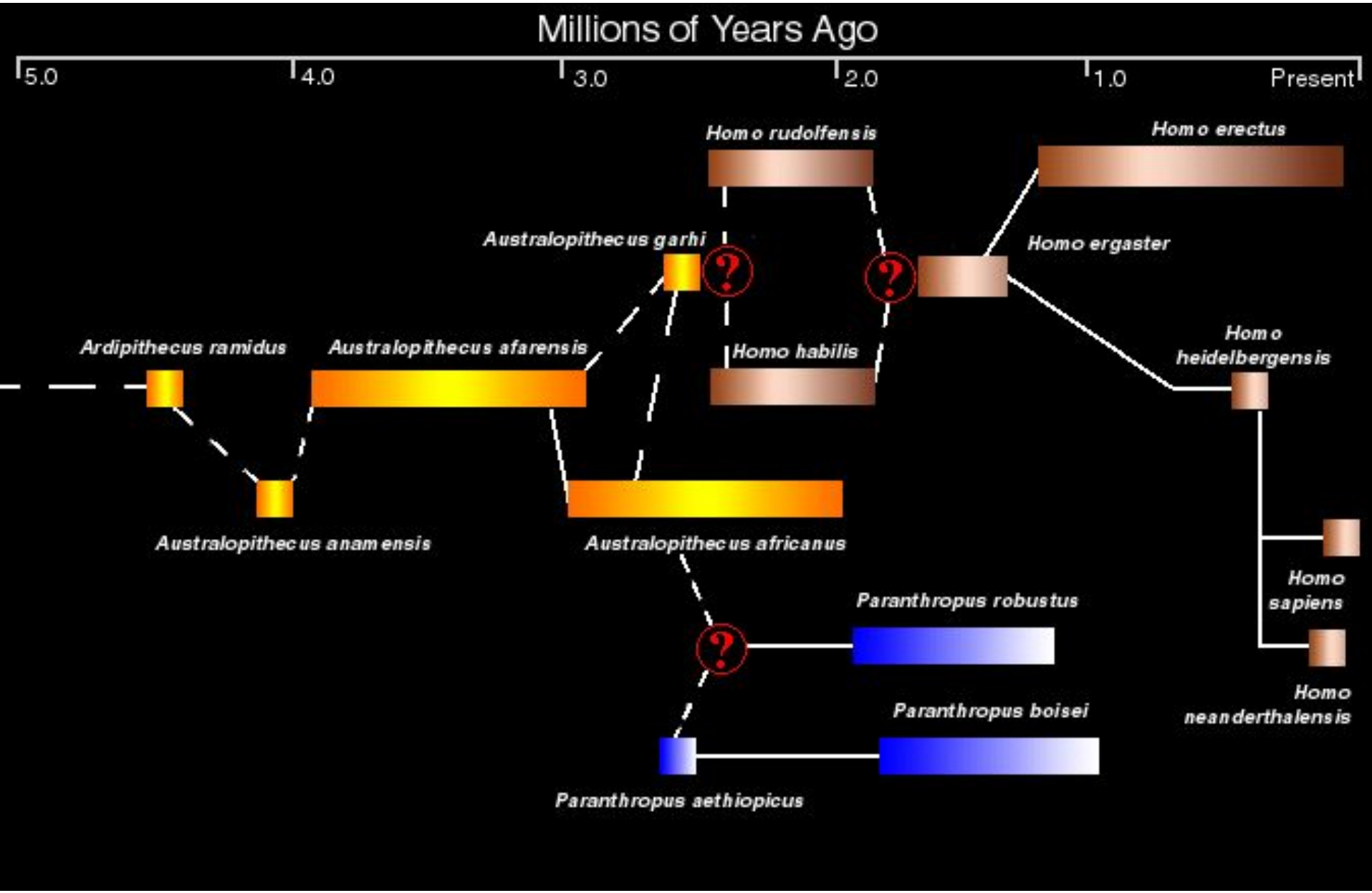
Plesiadapis **(Pg_1)**

Происхождение человека



Находки древних гоминид

Развитие млекопитающих



Происхождение человека

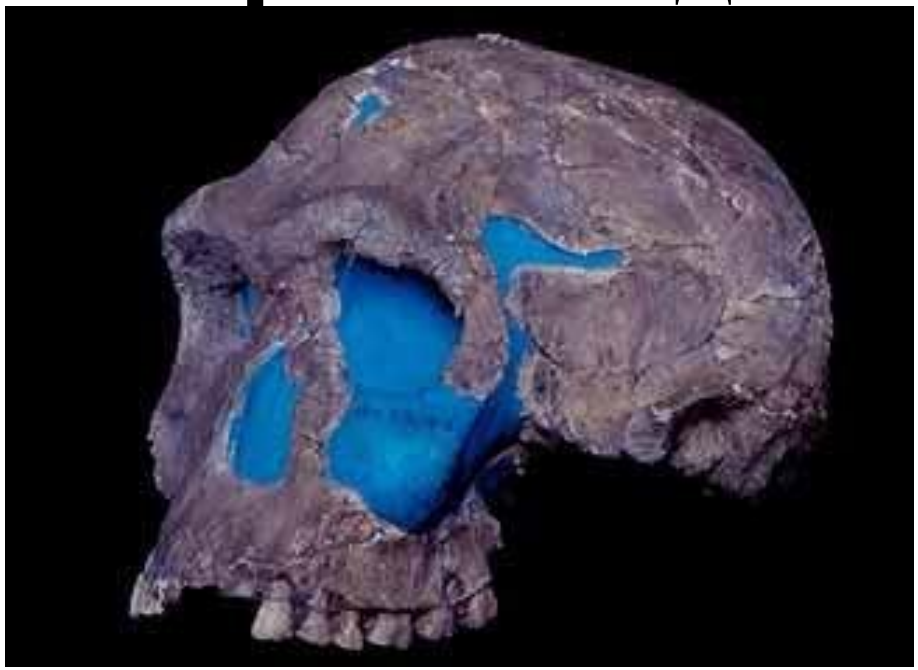
Происхождение человека

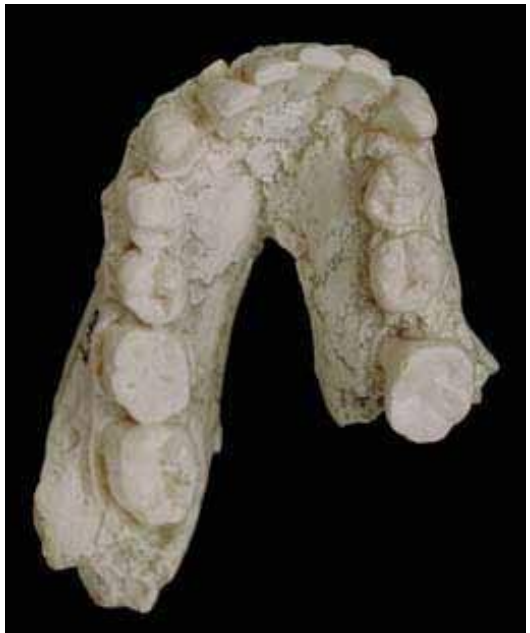
***Australopithecus afarensis* (4 - 3 млн. лет)**

Происхождение человека

Paranthropus boisei **(2.3 - 1.2 млн. лет)**

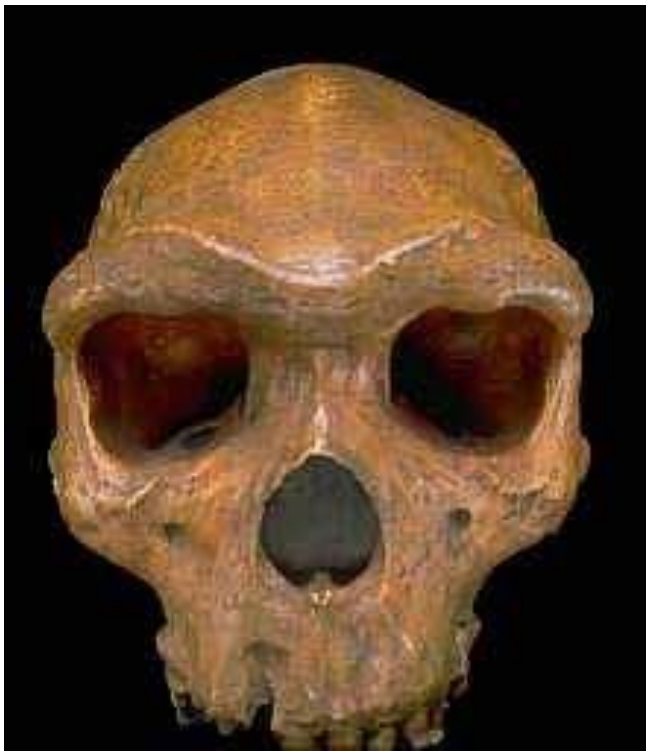
Происхождение человека





***Homo habilis* (2.4 - 1.5 млн. лет)**

Происхождение человека

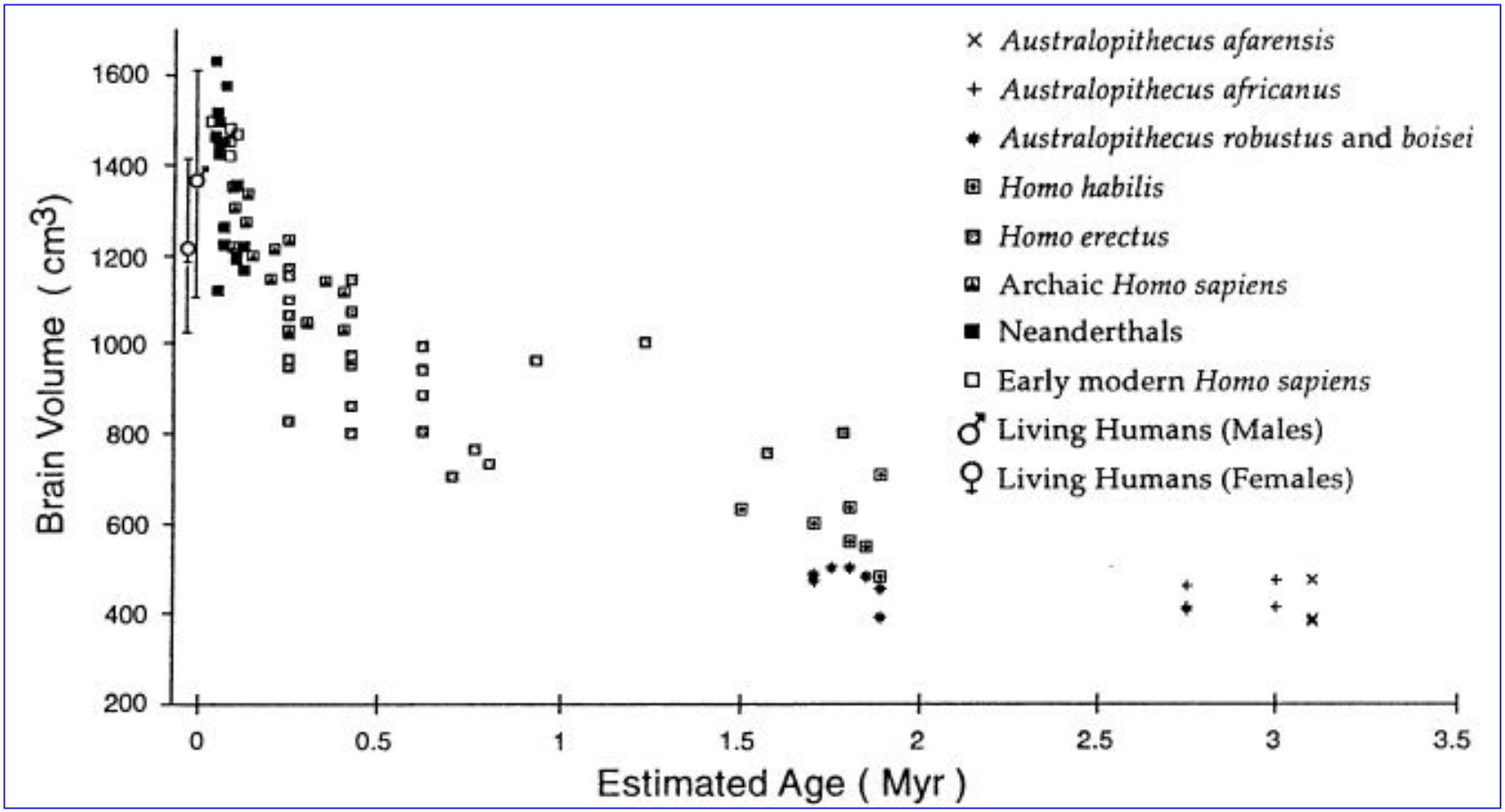


***Homo heidelbergensis* (0.5 млн. лет)**

Происхождение человека

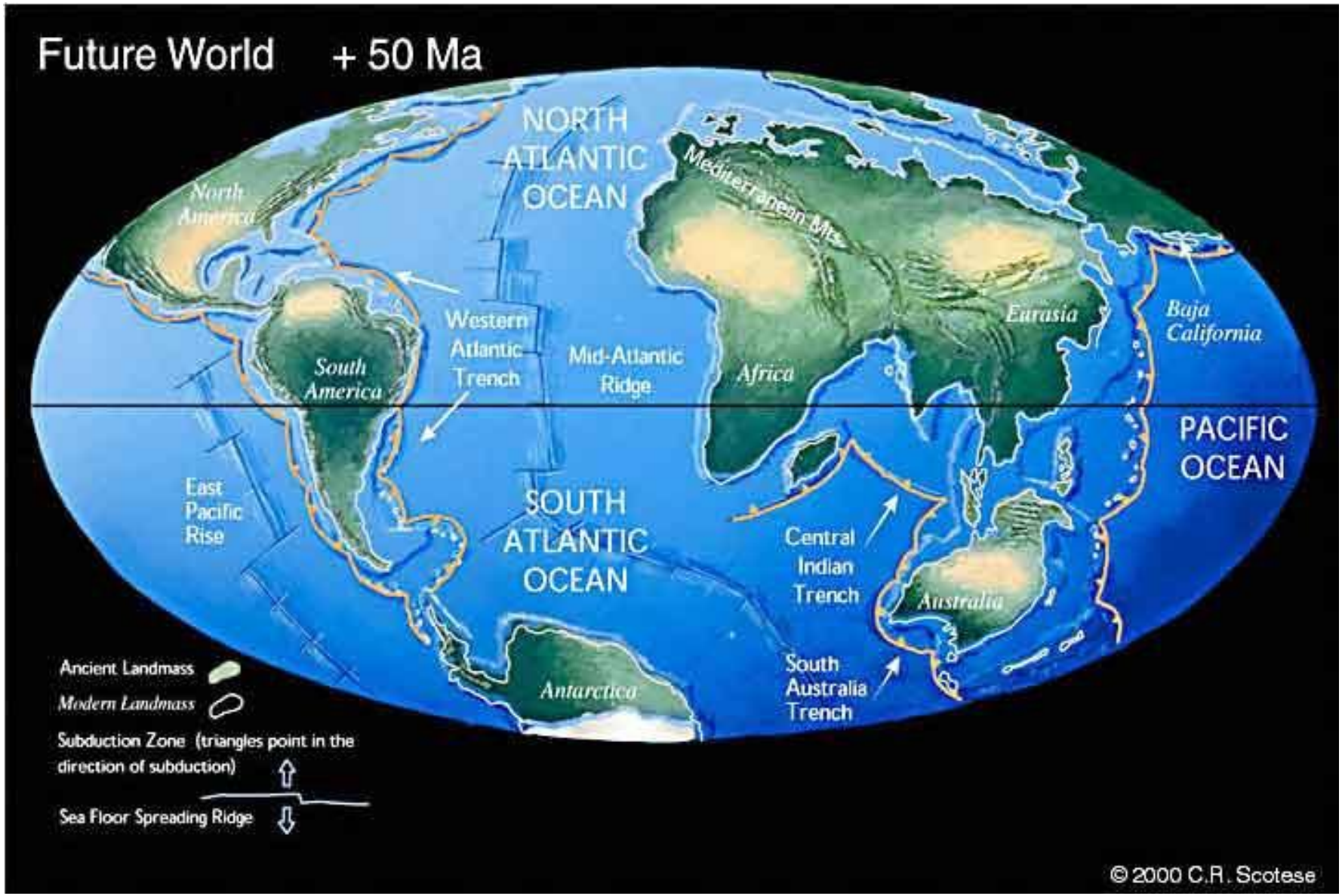
***Homo neanderthalensis* (230 – 30 тыс. лет)**

Происхождение человека

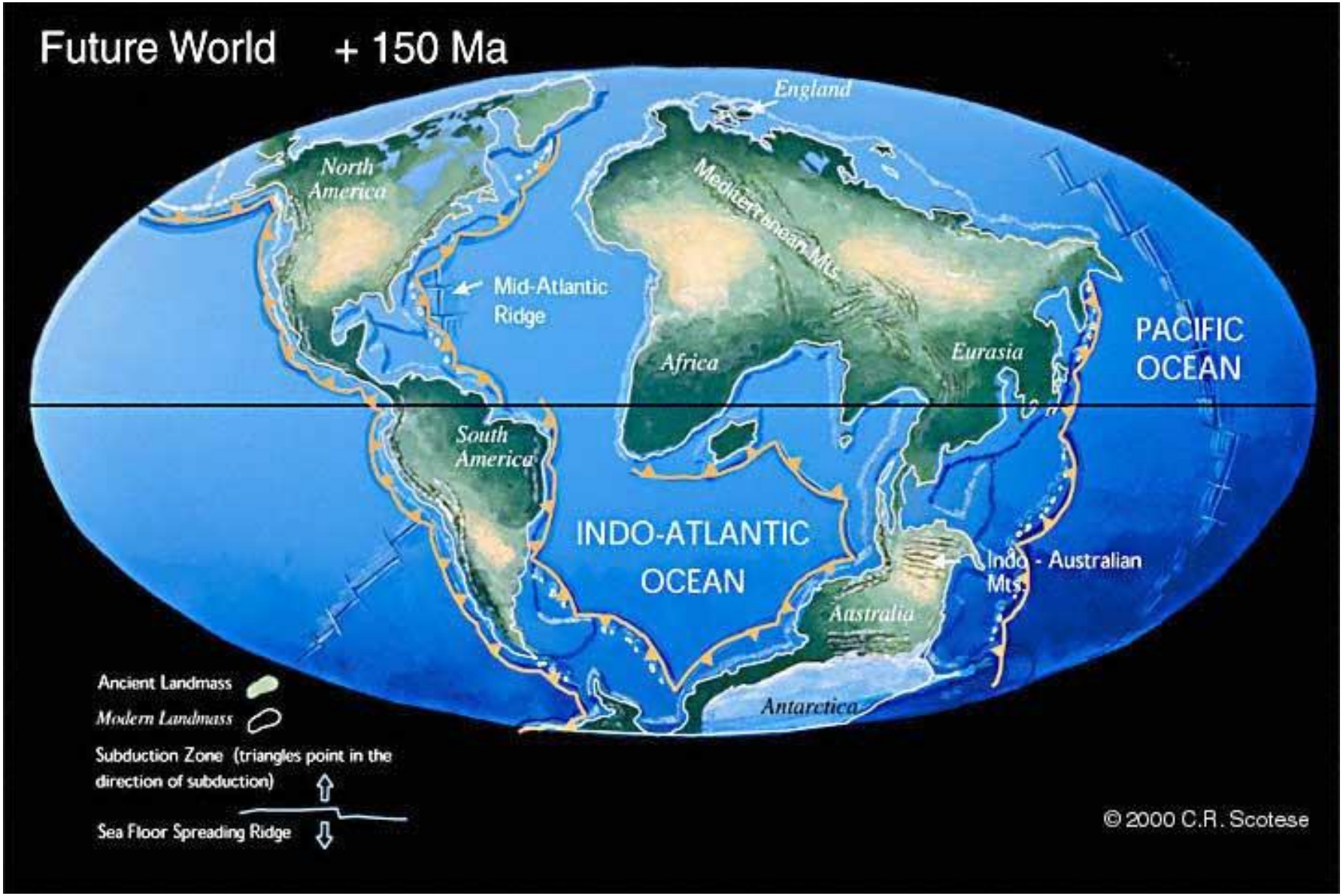


Развитие головного мозга у гоминид

Прогноз: 50 млн лет



Прогноз: 150 млн



Прогноз: 250 млн лет