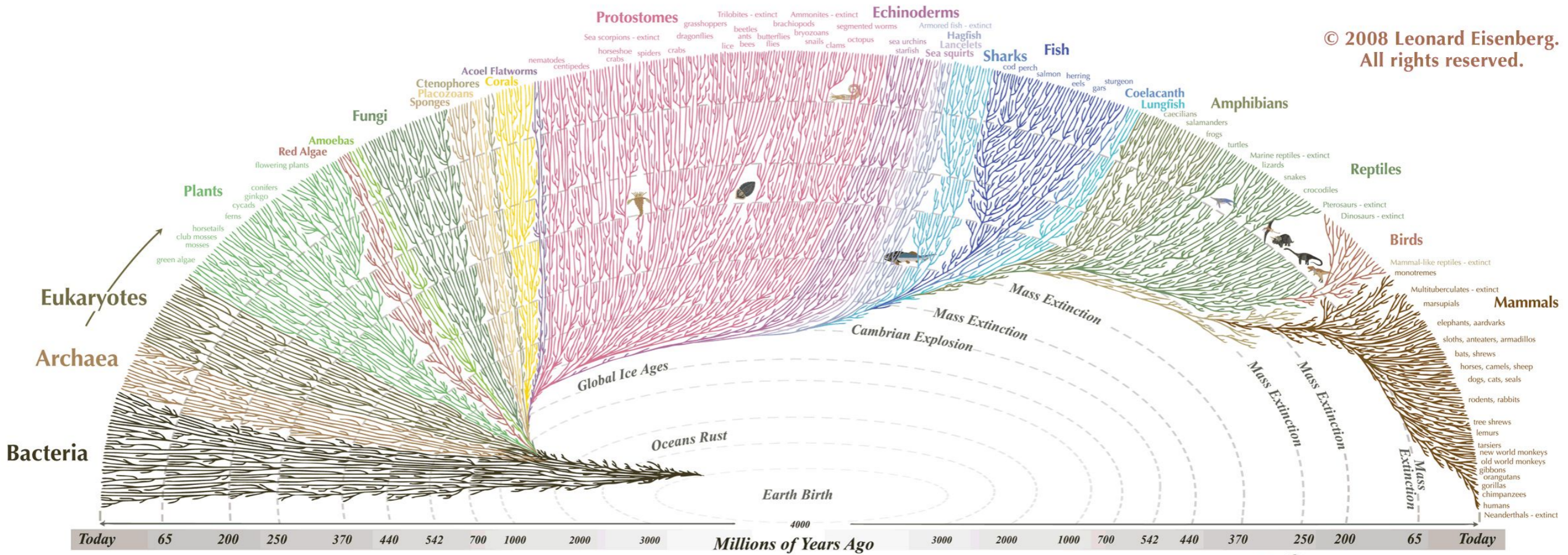



Evolution of microorganisms (and viruses)

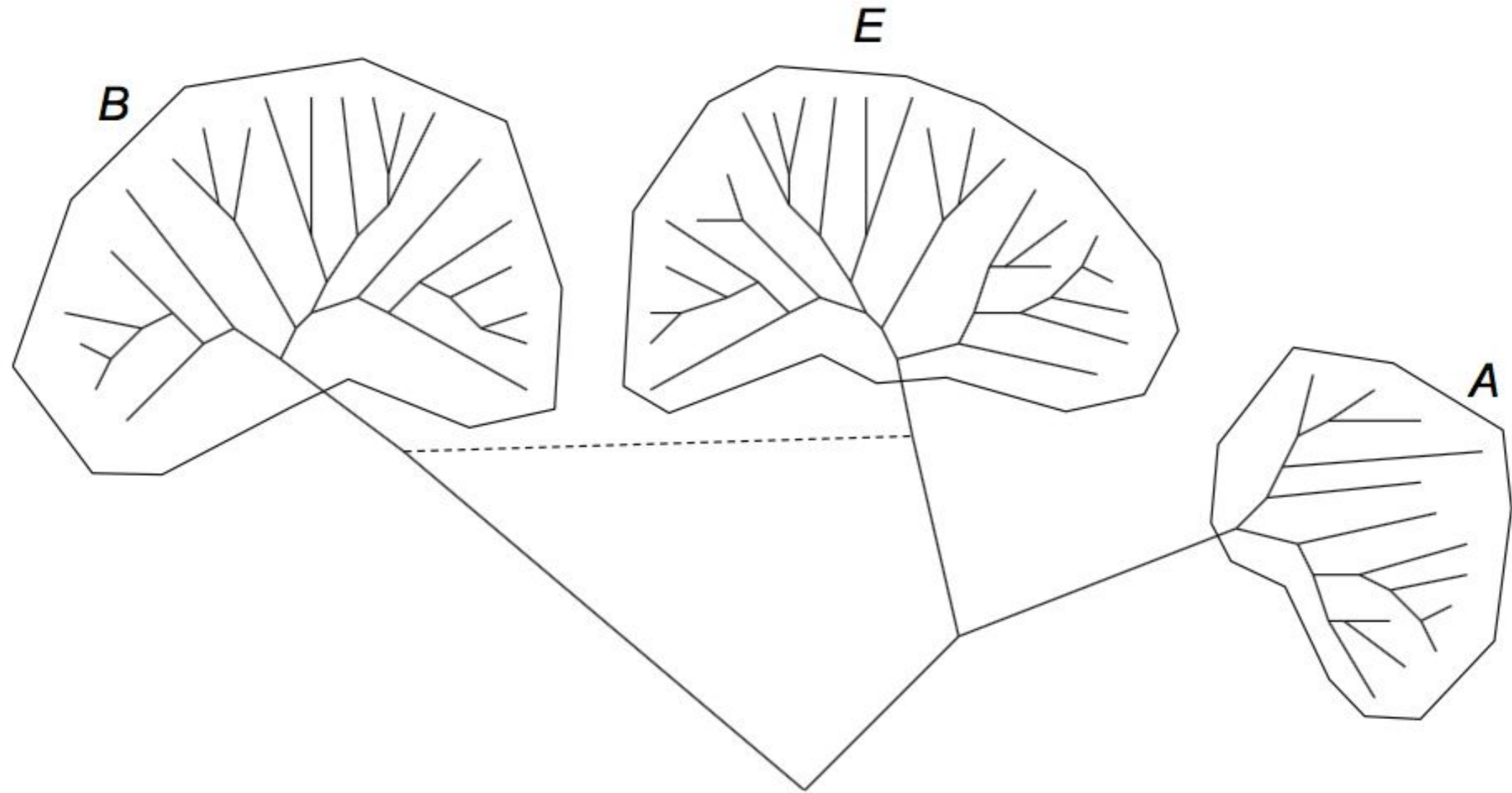
© 2008 Leonard Eisenberg. All rights reserved.



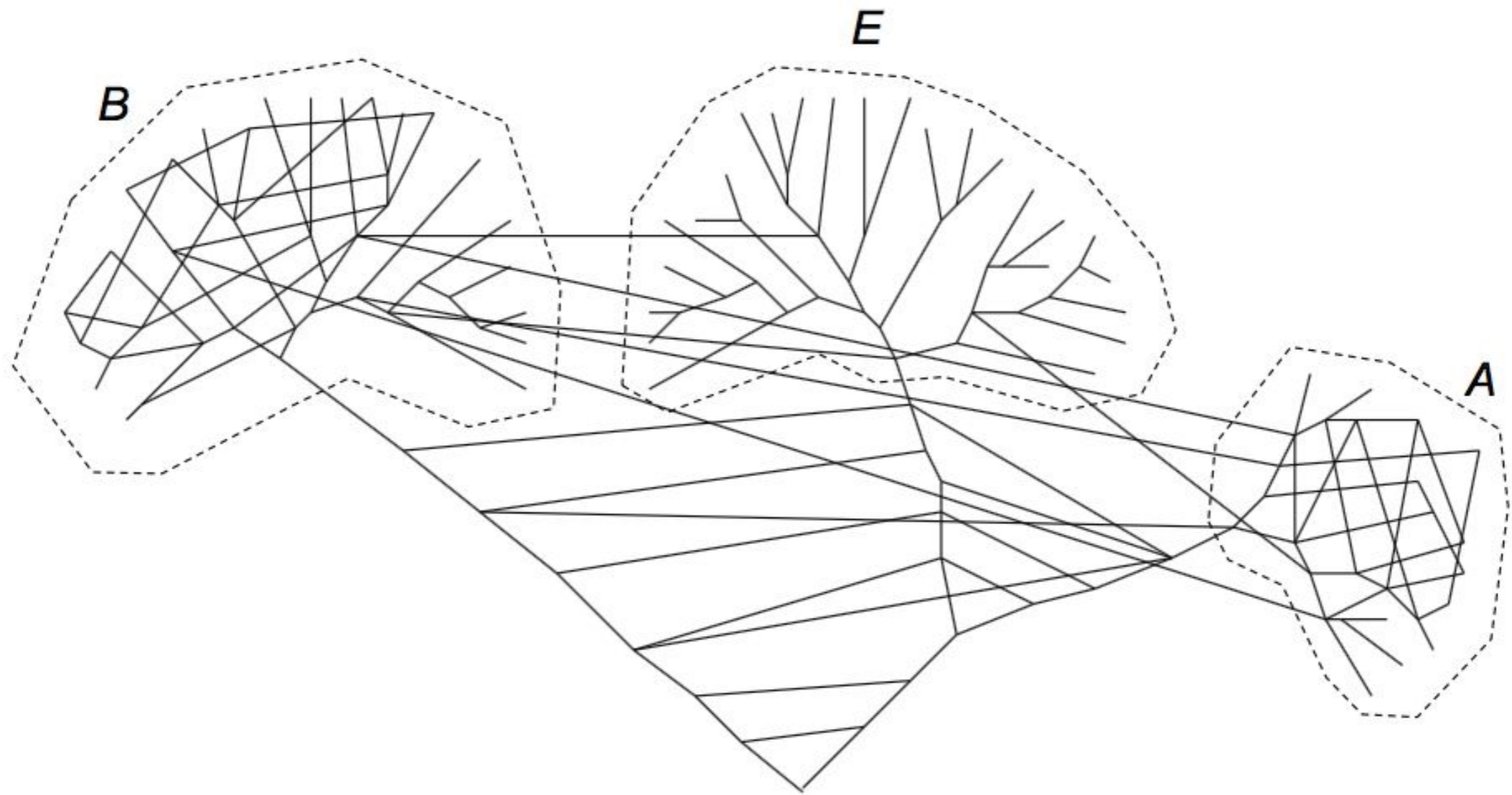
All the major and many of the minor living branches of life are shown on this diagram, but only a few of those that have gone extinct are shown. Example: Dinosaurs - extinct 

© 2008 Leonard Eisenberg. All rights reserved. evogeneao.com

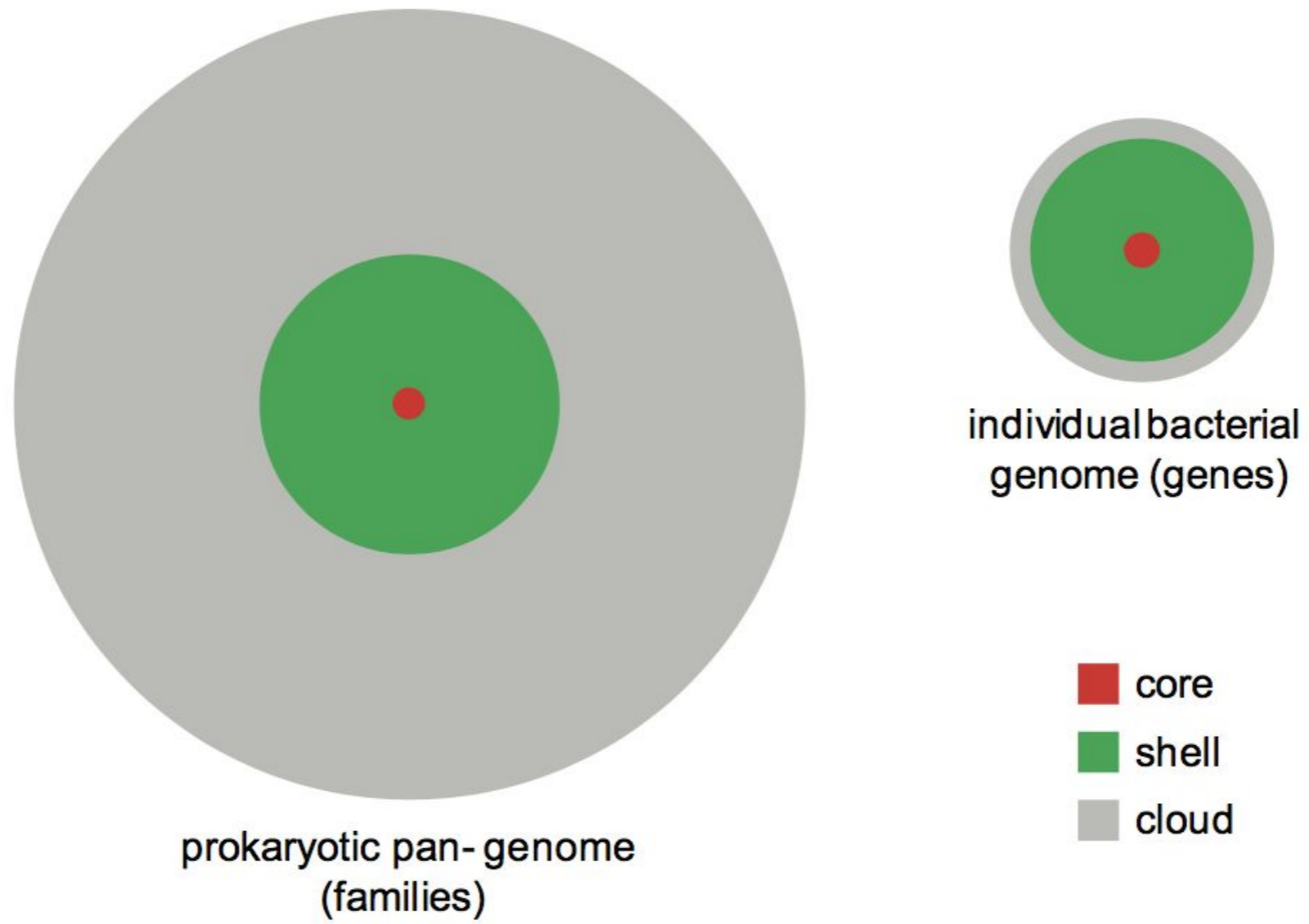
“On the Origin of Species”



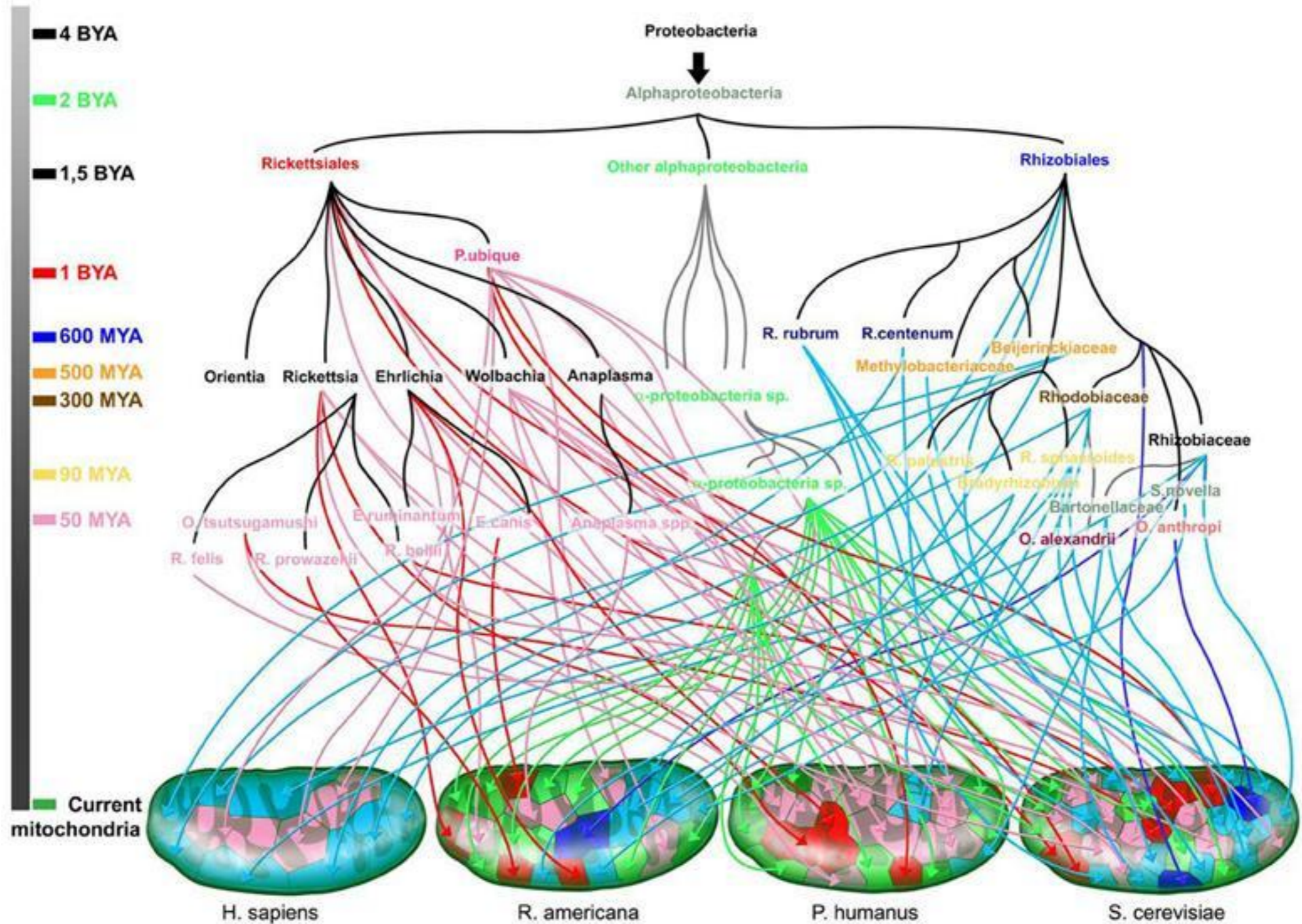
Flow of genetic material



Prokaryotic species?



The Rhizome of Life



Systema naturae

CAROLI LINNAEI

I. QUADRUPEDIA.

Corpus hirsutum. Pedes quatuor. Femina vivipara. Lactiferæ.

II. AVES.

Corpus plumosum. Alæ duæ. Pedes duo. Refrang. osium.

III. AMPHIBIA.

Corpus nudum, vel squamosum. Dentes molares nulli: reliqui semper. Pinnae nullæ.

REGNUM ANIMALE.

IV. PISCES.

Corpus apodum, planis veris instructum, nudum, vel squamosum.

V. INSECTA.

Corpus crassa ossa cutis loco tegum. Caput antennis instructum.

VI. VERMES.

Corporis Mufosi ab una parte basi cuidam solidæ affixi.

Table listing animal orders and genera under 'I. QUADRUPEDIA'. Includes Homo, Simia, Bradypus, Ursus, Leo, Tigris, Felis, Mustela, Didelphia, Lutra, Odobenus, Phoca, Hyæna, Canis, Meles, Talpa, Erinaceus, Vespertilio, Hyflux, Scurus, Castor, Mus, Lepus, Sorex, Equus, Hippopotamus, Elephas, Sus, Camelus, Cervus, Capra, Ovis, Bos, and others.

Table listing bird orders and genera under 'II. AVES'. Includes Pittacus, Strix, Falco, Paradisus, Coracias, Corvus, Cuculus, Picus, Cerchia, Sitta, Upupa, Ispida, Grus, Ciconia, Ardea, Plataea, Pelocanus, Cygnus, Anas, Mergus, Graculus, Colymbus, Larus, Hæmaropus, Charadrius, Vanellus, Tringa, Numenius, Fulica, Struthio, Casuarius, Otis, Pavo, Meleagris, Gallina, Tetroo, Columba, Turdus, Sturnus, Alauda, Motacilla, Lufcinia, Parus, Hirundo, Loxia, Ampelis, Fringilla.

Table listing amphibian orders and genera under 'III. AMPHIBIA'. Includes Toftudo, Rana, Lacerta, Anguis.

AMPHIBIORUM Classem ulterius continere noluimus. Cretoria; Et enim si tot Generibus, quot relique Animalium Classis comprehendunt, addideris, vel si vera essent que de Diabolis, Basilicis, ac ejusmodi monstris vulgæ fabulatur, certe humanum genus terram inhabitare vix posset.

Table listing orders and genera under 'PARADOXA'. Includes Hydra, Rana, Piscis, Salamandra, Triton, Salamandra atra, Salamandra atra, Salamandra atra, Salamandra atra.

Table listing orders and genera under 'VII. PISCES'. Includes Thrichachus, Catodon, Monodon, Balana, Delphinus, Raja, Squalus, Acipenser, Petromyzon, Lophius, Cyclopterus, Ostracion, Balistes, Gasterosteus, Zeus, Cottus, Trigla, Trachinus, Perca, Sparus, Labrus, Mugil, Scomber, Xiphias, Gobius, Gymnocus, Muræna, Blennius, Gadus, Pleuronectes, Ammodytes, Coryphæna, Echenis, Efox, Salmo, Omerus, Coregonus, Clupea, Cyprinus, Cubitus, Syngnathus.

Table listing orders and genera under 'VIII. PISCES'. Includes Raja, Squalus, Acipenser, Petromyzon, Lophius, Cyclopterus, Ostracion, Balistes, Gasterosteus, Zeus, Cottus, Trigla, Trachinus, Perca, Sparus, Labrus, Mugil, Scomber, Xiphias, Gobius, Gymnocus, Muræna, Blennius, Gadus, Pleuronectes, Ammodytes, Coryphæna, Echenis, Efox, Salmo, Omerus, Coregonus, Clupea, Cyprinus, Cubitus, Syngnathus.

Table listing orders and genera under 'IX. INSECTA'. Includes Blattella, Dytiscus, Meleis, Forficula, Notopeda, Mordella, Curculio, Baccros, Lucanus, Scarabæus, Dermestes, Caffida, Chryfomela, Coccionella, Gyritus, Nedydalis, Atalabus, Cantharis, Carabus, Cicindela, Leptura, Cerambyx, Buprestis, Papiilio, Libellula, Ephemera, Hemerobius, Panorpa, Raphidia, Apis, Ichneumon, Mufca, Gryllus, Lampyris, Formica, Cimex, Notonecta, Nepa, Scorpio, Pediculus, Monoculus, Acarus, Araneus, Cancer, Oniscus, Scolopendria.

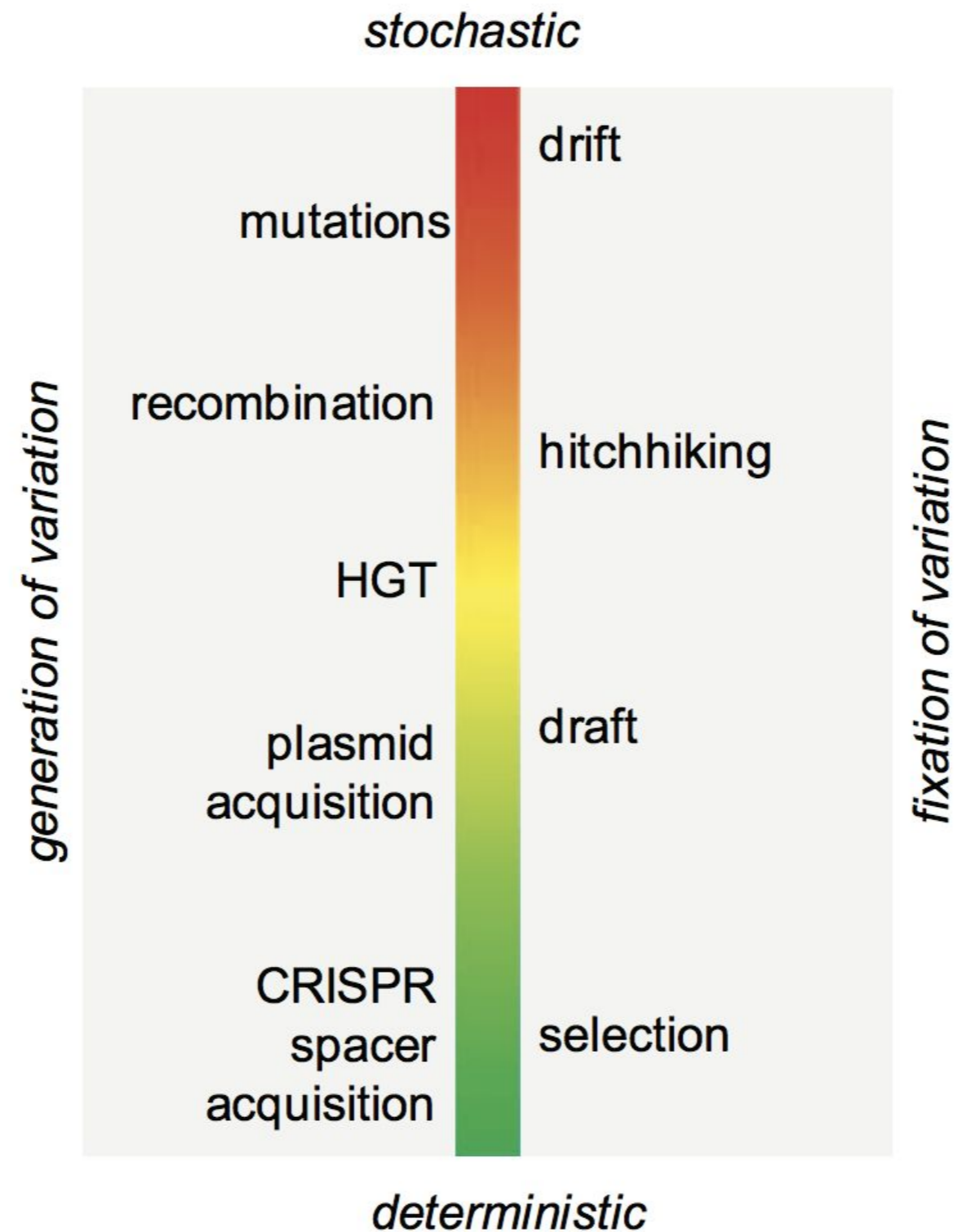
Table listing orders and genera under 'X. INSECTA'. Includes Blattella, Dytiscus, Meleis, Forficula, Notopeda, Mordella, Curculio, Baccros, Lucanus, Scarabæus, Dermestes, Caffida, Chryfomela, Coccionella, Gyritus, Nedydalis, Atalabus, Cantharis, Carabus, Cicindela, Leptura, Cerambyx, Buprestis, Papiilio, Libellula, Ephemera, Hemerobius, Panorpa, Raphidia, Apis, Ichneumon, Mufca, Gryllus, Lampyris, Formica, Cimex, Notonecta, Nepa, Scorpio, Pediculus, Monoculus, Acarus, Araneus, Cancer, Oniscus, Scolopendria.

Table listing orders and genera under 'XI. INSECTA'. Includes Blattella, Dytiscus, Meleis, Forficula, Notopeda, Mordella, Curculio, Baccros, Lucanus, Scarabæus, Dermestes, Caffida, Chryfomela, Coccionella, Gyritus, Nedydalis, Atalabus, Cantharis, Carabus, Cicindela, Leptura, Cerambyx, Buprestis, Papiilio, Libellula, Ephemera, Hemerobius, Panorpa, Raphidia, Apis, Ichneumon, Mufca, Gryllus, Lampyris, Formica, Cimex, Notonecta, Nepa, Scorpio, Pediculus, Monoculus, Acarus, Araneus, Cancer, Oniscus, Scolopendria.

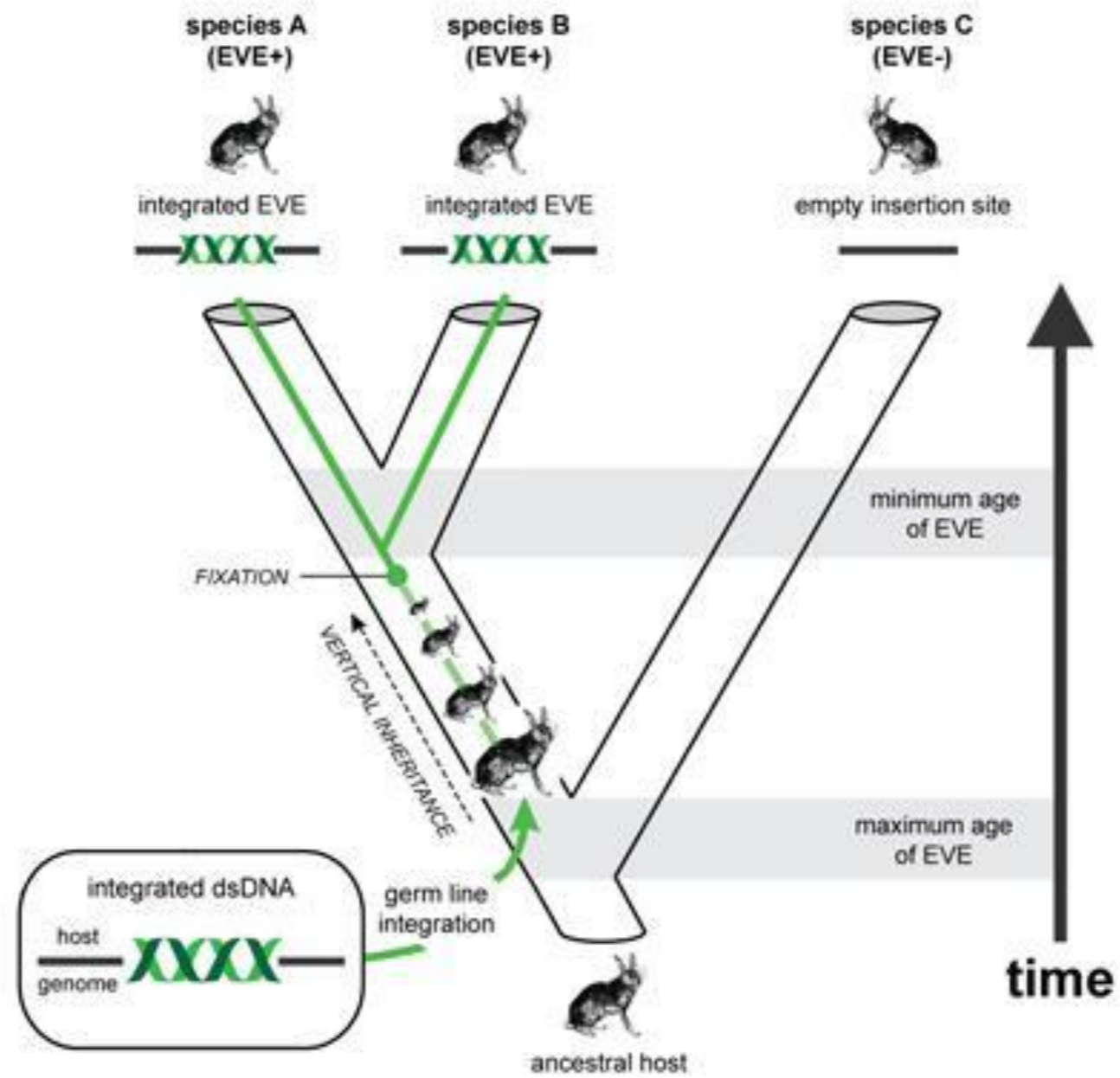
Table listing orders and genera under 'XII. VERMES'. Includes Gordius, Tænia, Lumbricus, Hirudo, Limax, Cochlea, Nautilus, Cypræa, Halioris, Patelletta, Dentalium, Concha, Lepus.

Table listing orders and genera under 'XIII. VERMES'. Includes Gordius, Tænia, Lumbricus, Hirudo, Limax, Cochlea, Nautilus, Cypræa, Halioris, Patelletta, Dentalium, Concha, Lepus.

The continuum of evolutionary processes



Viruses



The origin of viruses

Progressive: mobile genetic elements become autonomous

Retrotransposons

Regressive: derived from a more complex progenitor

Complex viruses

Mitochondria

Virus First: predate cells

RNA World

Ribozymes

None of the above

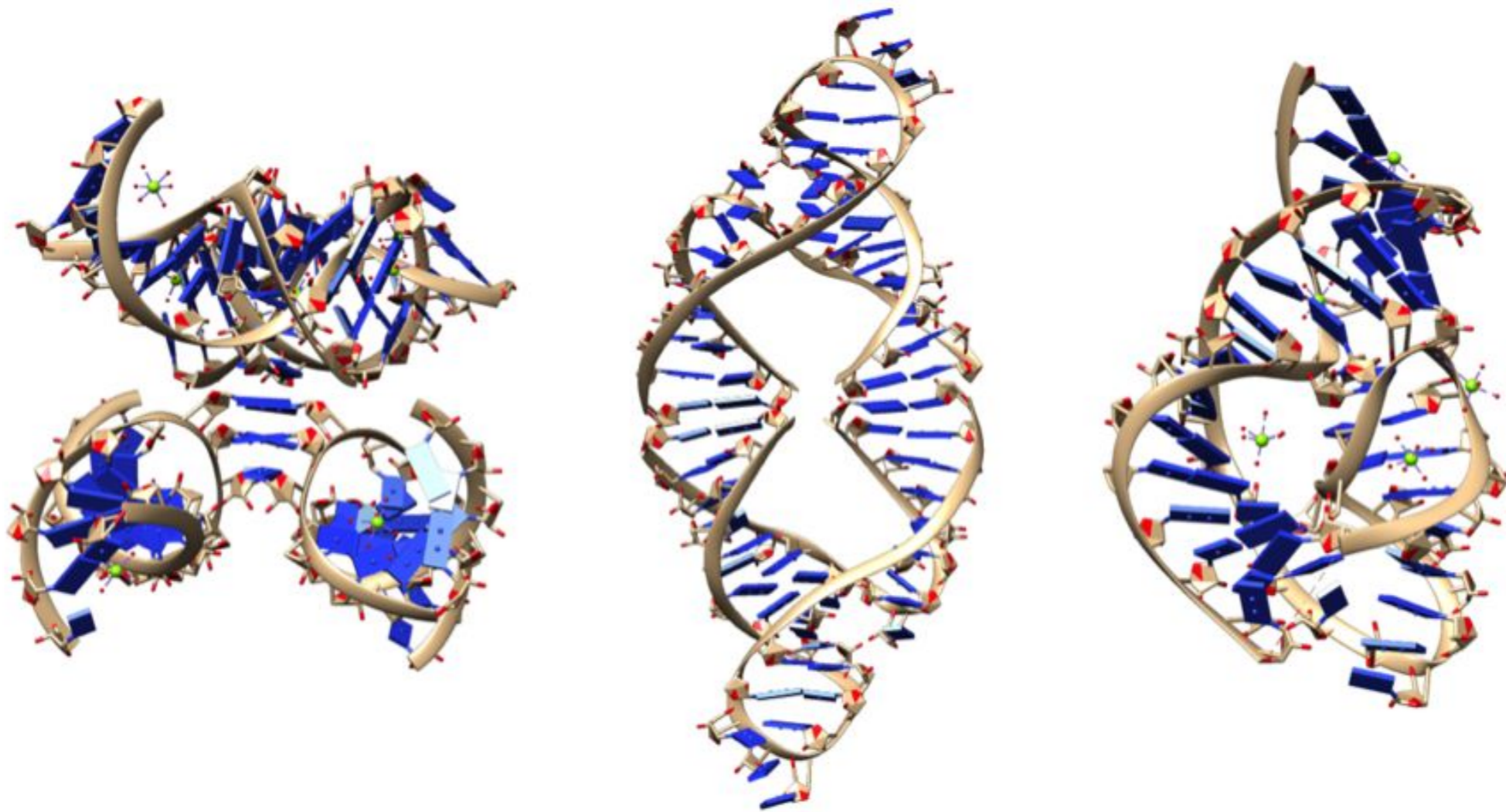
All of the above

Trilobite



<http://www.guardian.co.uk/books/2012/mar/09/mullan-ten-best-fossils-literature>

Ribozymes



Предки человека заимствовали полезные гены у вирусов

22.10.2008 • АЛЕКСАНДР МАРКОВ • ГЕНЕТИКА, ЭВОЛЮЦИЯ • 10 КОММЕНТАРИЕВ

syncytin 1, syncytin 2, EnvPb1

http://elementy.ru/novosti_nauki/430886/Predki_cheloveka_zaimstvovali_poleznye_geny_u_virusov