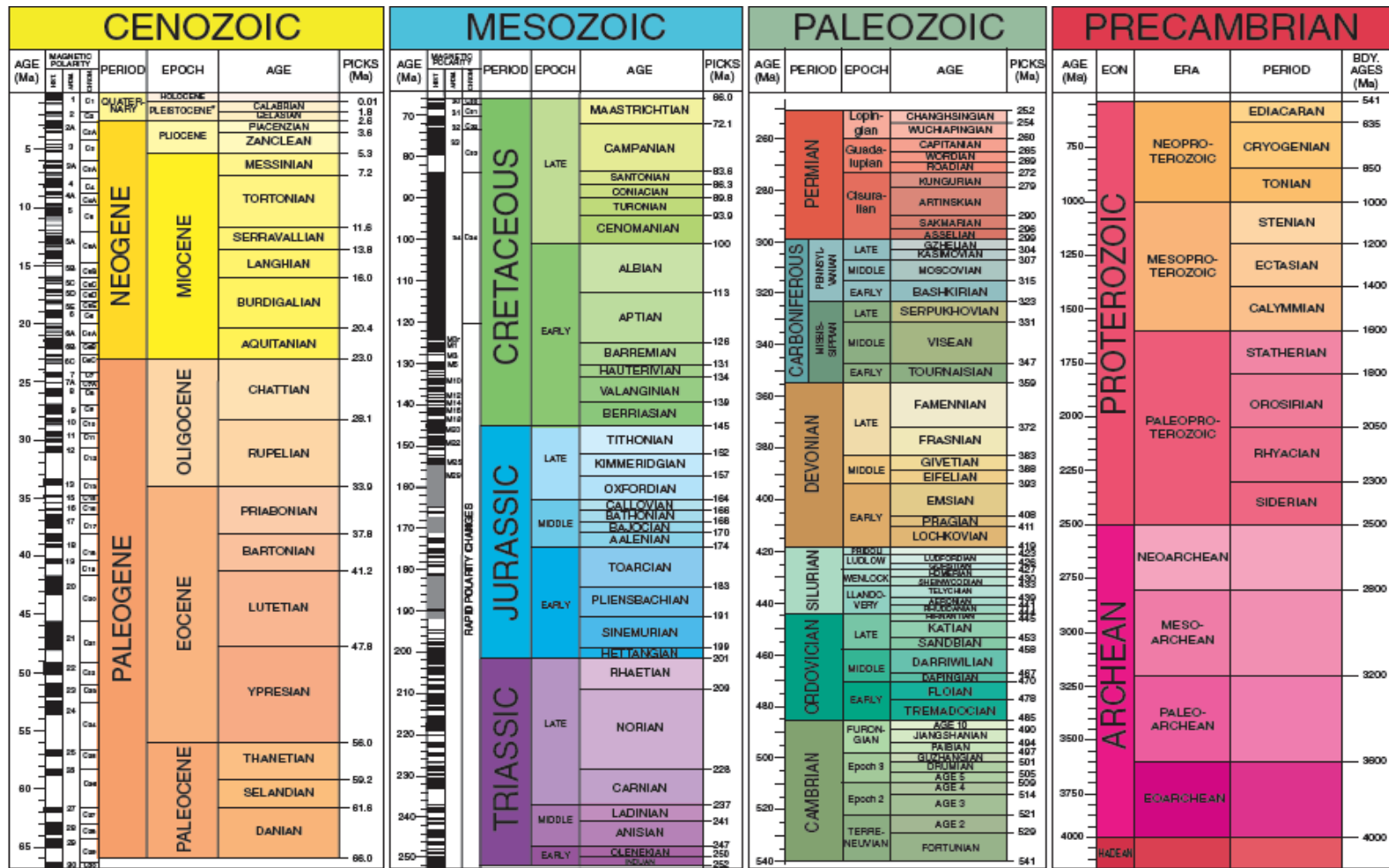


Geological Time Scale, Evolution of Life Through Time

Subhronil Mondal

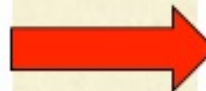
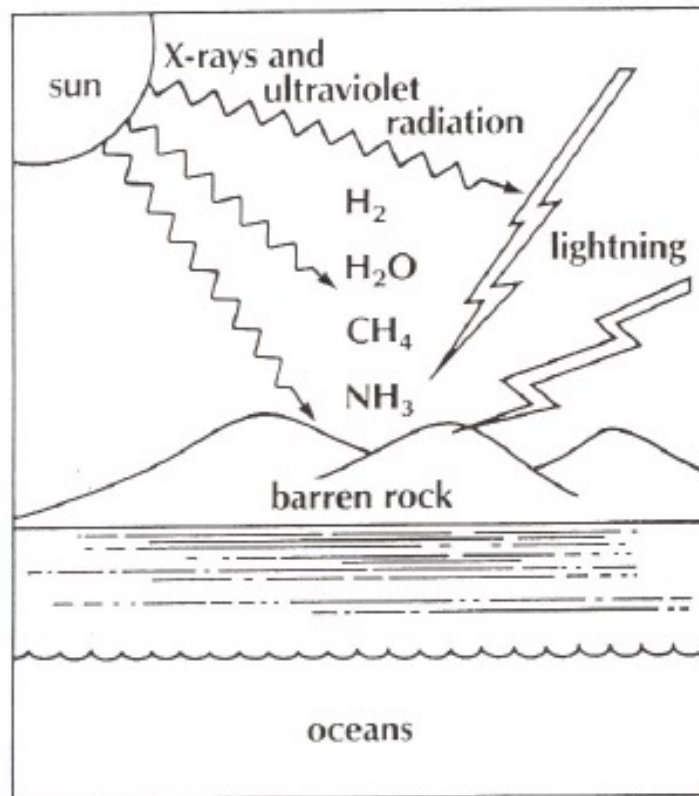
GSA GEOLOGIC TIME SCALE v. 4.0



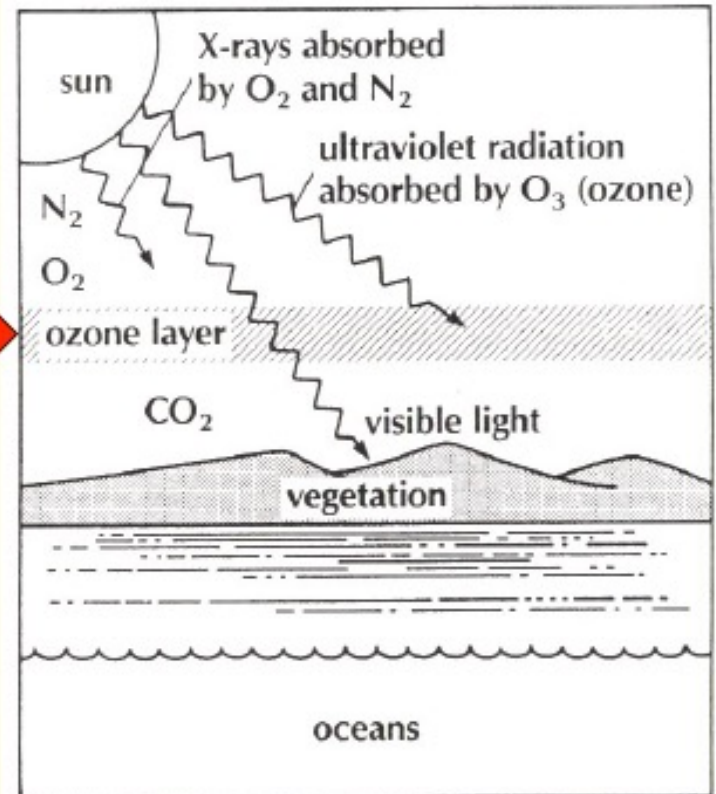
*The Pleistocene is divided into four ages, but only two are shown here. What is shown as Calabrian is actually three ages—Calabrian from 1.8 to 0.78 Ma, Middle from 0.78 to 0.13 Ma, and Late from 0.13 to 0.01 Ma. Walker, J.D., Gotsman, J.W., Bowring, S.A., and Babcock, L.E., compilers, 2012, Geologic Time Scale v. 4.0, Geological Society of America, doi:10.1130/2012.GTS004R3C. ©2012 The Geological Society of America. The Cenozoic, Mesozoic, and Paleozoic are the Eras of the Phanerozoic Eon. Names of units and age boundaries follow the Gradstein et al. (2012) and Cohen et al. (2012) compilations. Age estimates and picks of boundaries are rounded to the nearest whole number (1 Ma) for the pre-Cenozoic, and rounded to one decimal place (100 ka) for the Cenozoic to Pleistocene interval. The numbered epochs and ages of the Cambrian are provisional. REFERENCES CITED Cohen, K.M., Roney, S., and Gibbard, P.L., 2012, International Chronostratigraphic Chart: International Commission on Stratigraphy, www.stratigraphy.org (last accessed May 2012). (Chart reproduced for the 34th International Geological Congress, Brisbane, Australia, 5–10 August 2012.) Gradstein, F.M., Ogg, J.G., Schmitz, M.D., et al., 2012, The Geologic Time Scale 2012, Boston, USA, Elsevier, DOI: 10.1016/B978-0-444-59425-9.00004-4.

THE PRIMITIVE EARTH

Primitive Earth

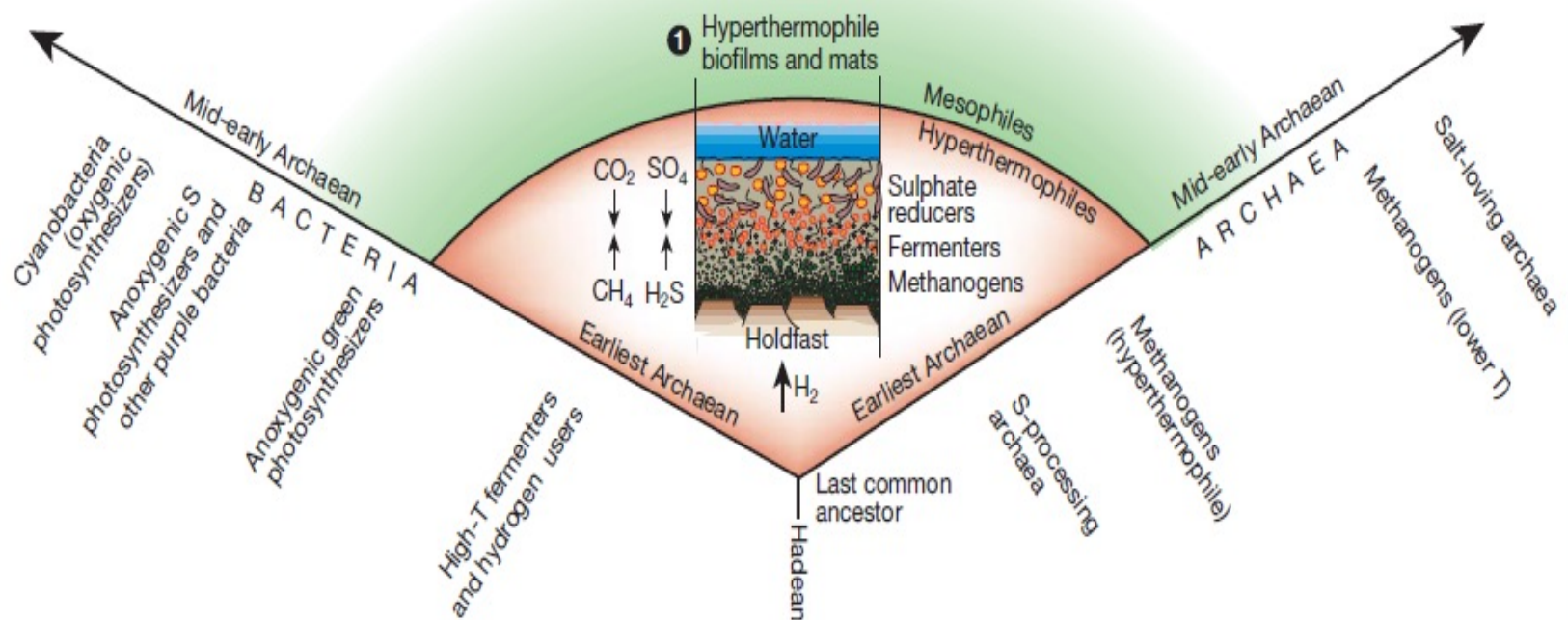


Modern Earth



THE ORIGIN

- A. Ice effect
- B. Extra-terrestrial source [Panspermia] –
- C. *Hydrothermal vents*



THE ORIGIN: WHERE?

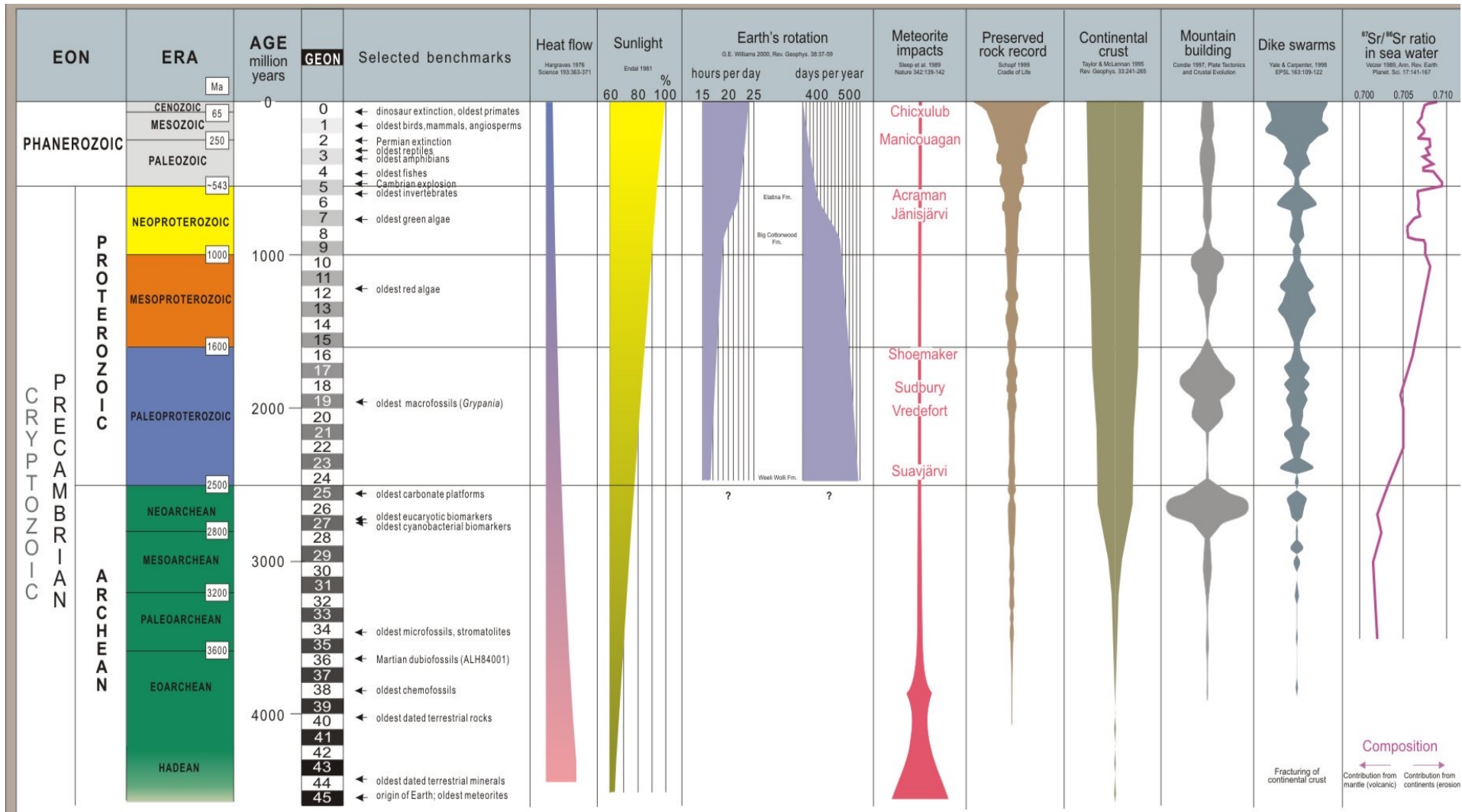
Origin of life: <https://www.youtube.com/watch?v=QE5Js-9AzHo>

Introduction: 17:41-21:45 (Miller Experiment)

Smokers: 22:40-23:54

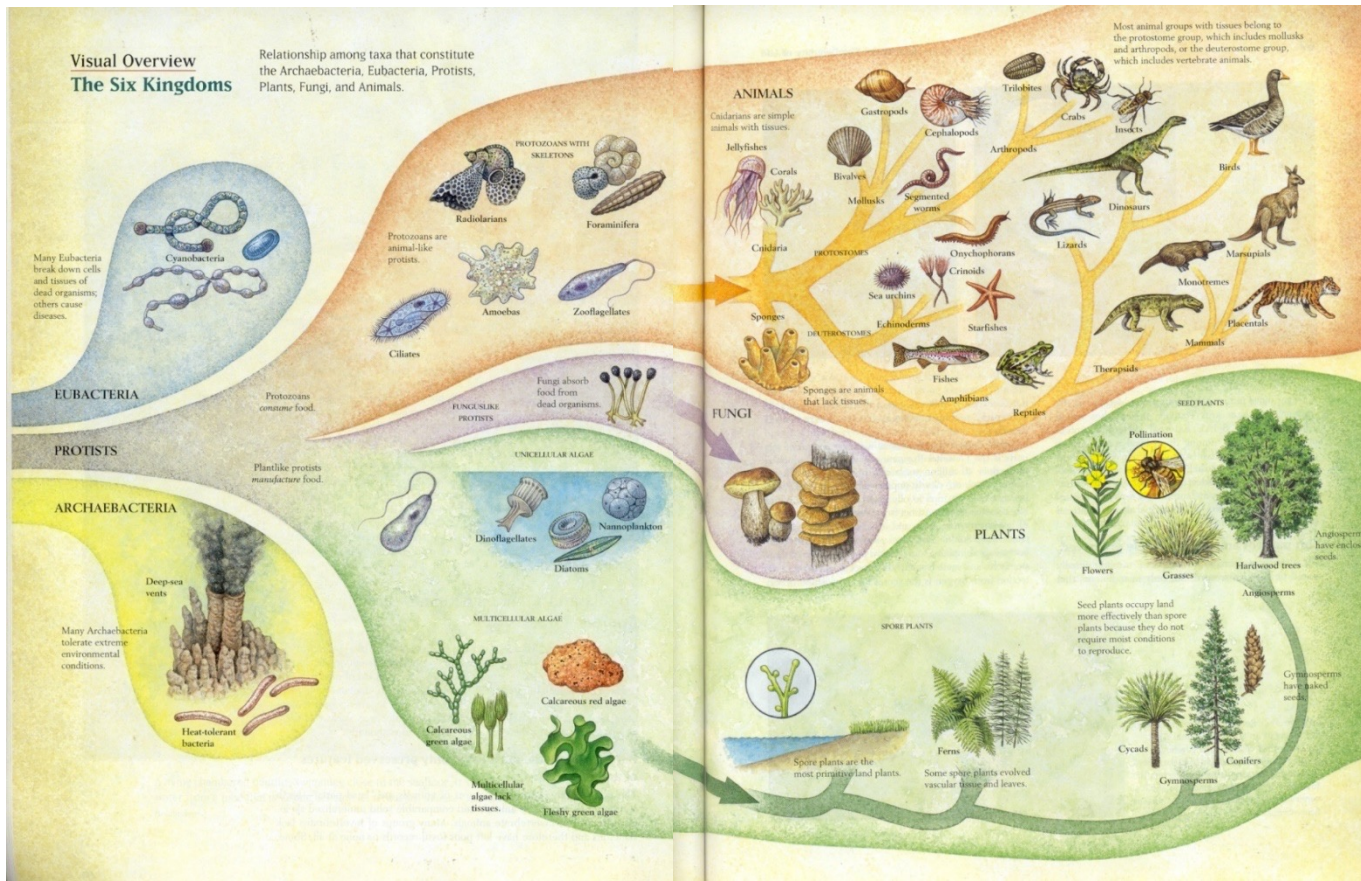
Stromatolite: 31:10-32:44

PHYSICO-CHEMICAL CHANGES



RESULT: LIFE

THE TREE OF LIFE



Most of these life forms are extinct → fossils