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Biologia ewolucyjna Przebieg i zapis kopalny ewolucji

*Wykład dla III roku biologii SGGW
Plan i spis cytowanej literatury*

Część pierwsza: Faktografia

Literatura podstawowa:

D Briggs & PR Crowther (eds), 2001. *Palaeobiology II*.

ISBN-10: 0632051493, ISBN-13: 978-0632051496.

Poprzednie wydanie tej książki („*Palaeobiology - a synthesis*”) można bezpłatnie pobrać ze strony wydawcy:

<http://www.palass.org/modules.php?name=palaeo&sec=publications&page=186>

SM Stanley, 2005. *Historia Ziemi*. 706 pp. Wydawnictwo Naukowe PWN.

M Benton, 2008. *The History of Life. A very short introduction*. 170 pp.

ISBN-10: 0199226320. ISBN-13: 978-0199226320.

I. Wprowadzenie.

1. Dlaczego zapis kopalny?
2. Skala czasu geologicznego.
3. Natura zapisu kopalnego.

II. Podstawowe etapy historii życia (makroekologia historyczna).

1. Powstanie życia.

Literatura podstawowa: J Schopf, 2002. *Kolebka życia*. PWN.

JF Lambert, 2015. *Origins of life: From the mineral to the biochemical world*. BIO Web of Conferences 4, 00012 (2015)

DOI: 10.1051/bioconf/20150400012

Current Biology, numer specjalny *History of Life special issue*

Volume 25, Issue 19

October 05, 2015:

[http://www.cell.com/current-biology/issue?pii=S0960-9822\(14\)X0043-6](http://www.cell.com/current-biology/issue?pii=S0960-9822(14)X0043-6)

Literatura cytowana: SA Tyler & E Barghoorn, 1953. Occurrence of Structurally Preserved Plants in Pre-Cambrian Rocks of the Canadian Shield. *Science* **119**: 606–608.

J Schopf, 2000. Solution to Darwin's dilemma: Discovery of the missing Precambrian record of life. *PNAS* **97** (13): 6947–6953.

Gargaud M et al. 2012. *Young Sun, Early Earth and the Origins of Life*. Springer.

AP Nutman et al. 2016. Rapid emergence of life shown by discovery of 3,700-million-year-old microbial structures. *Nature* **537**: 535–538 (22 September 2016) doi:10.1038/nature19355
A Atwood 2016. Evidence of life in Earth's oldest rocks. *Nature*, **537**: 500–501 (22 September 2016) doi:10.1038/nature19429
Butterfield NJ 2015. Proterozoic photosynthesis... *Palaeontology*, **58** (6): 953–972.
TR Cech. The RNA world in context. *Cold Spring Harb Perspect Biol* published online February 16, 2011
A Pressmann et al. 2015. The RNA World as a Model System ... *Current Biology* 25: R953–R963.
<http://dx.doi.org/10.1016/j.cub.2015.06.016>

2. Fotosynteza.

Literatura cytowana: RE Blankenship, 2010. Early evolution of photosynthesis. *Plant Physiology* **154** (2): 434–438.
HD Holland, 2006. The oxygenation of the atmosphere and oceans. *Phil Trans R Soc B* **361**: 903–915.
J. M. Olson & R. E. Blankenship, 2004. Thinking about the evolution of photosynthesis. *Photosynthesis Research*, **80**: 373–386.

3. Eukarionty i powstanie płci (patrz też IV, 1).

Literatura cytowana: Javaux, Emmanuelle J., 2007. The early eukaryotic fossil record. *Adv Exp Med Biol* **607**:1-19.

4. Wielokomórkowość.

Literatura cytowana: Butterfield et al., *Science* **250**: 104-106, 1990.
Zhu SX et al. 2016. Decimetre-scale multicellular eukaryotes from the 1.56-billion-year-old Gaoyuzhuang Formation in North China *Nature Communications* 7:11500
DOI: 0.1038/ncomms11500
Yuan, X. et al., 2011. An early Ediacaran assemblage of macroscopic and morphologically differentiated eukaryotes. *Nature*, **470**: 390–393 (17 February 2011) doi:10.1038/nature09810

5. Eksplozja kambryjska.

Literatura cytowana: NJ Butterfield 2007. Macroevolution and macroecology in deep time. *Palaeontology* **50** (1): 41–55.
J Wiese & J Reitner, 2011. Critical intervals in Earth history. In: J Reitner & V Thiel (eds), *Encyclopedia of Geobiology*. Springer.
Maloof AC 2010. The earliest Cambrian record of animals and ocean geochemical change. *Geol Soc Am Bull* **122**: 1731–1774.
Li et al. 2011 Animal skeletons, advent. In: J Reitner & V Thiel (eds), *Encyclopedia of Geobiology*. Springer.
Erwin DH et al. 2011. The Cambrian Conundrum: Early Divergence and Later Ecological Success in the Early History of Animals. *Science*, **334**: 1091–1097 (24 Nov 2011) doi: 10.1126/science.1206375
Erwin DH 2015. Was the Ediacaran–Cambrian radiation a unique evolutionary event? *Paleobiology*, **41** (1): 1–15.

6. Radiacja ordowicka.

Literatura cytowana: Servais T et al. 2010. The Great Ordovician Biodiversification Event (GOBE): The palaeo-ecological dimension. *Palaeogeography, Palaeoclimatology, Palaeoecology* **294**: 99–119.
R Bambach et al. 2007. Autecology and the filling of ecospace. *Palaeontology* **50** (1): 1–22.

7. Wyjście roślin i zwierząt na ląd (~400 Ma).

Literatura cytowana: Wellman et al., *Nature*, **425**: 282-284, 2003.
K. A. Pirozynski & D. W. Malloch, 1975. The origin of land plants: a matter of mycotrophism? *BioSystems*, **6**: 153-164.
Duckett, J.G. Carafa, A. & Ligrone, R. 2006. *Am. J. Bot.*, **93**: 797-813.
D. Redecker, R. Kodner & L. E. Graham, 2000. *Science*, **289**: 1920-1921.
Simon L., Bousquet, J., Levesque, R. C. & Lalonde, M., 1993. Origin and diversification of endomycorrhizal Fungi and coincidence with vascular land plants origin. *Nature*, **363** (6424): 67–69.
Meyer-Berthaud, B. & Decombeix, A.-L., 2007. A tree without leaves. *Nature*, **446**: 861–862.
Stein, W.E. et al., 2007. Giant cladoxylipsoid trees resolve the enigma of the Earth's earliest forest stumps at Gilboa. *Ibid.*, 904–907.
Meyer-Berthaud, B. et al., 1999. *Archaeopteris* is the earliest known modern tree. *Nature*, **398**: 700–701.

8. Umiejętność aktywnego pływania (400 Ma).

Literatura cytowana: Klug C & Korn D, 2004. The origin of ammonoid locomotion. *Acta Palaeont Pol* 49 (2): 235–242.
Klug C et al. 2010. The Devonian nekton revolution. *Lethaia* 43: 465–477.

9. Wielkie wymieranie na granicy perm–trias (251 Ma).

Literatura cytowana: Gould SJ & Calloway CB 1980. Clams and brachiopods – ships that pass in the night. *Paleobiology* **6** (4): 383–396.
Wagner PJ et al. 2006. Abundance Distributions Imply Elevated Complexity of Post-Paleozoic Marine Ecosystems. *Science* **314** (5803): 1289–1292.

10. Powstanie roślin okrytozalążkowych (140 Ma).

Literatura cytowana: Schneider, H., et al., 2004. Ferns diversified in the shadow of angiosperms. *Nature*, **428**: 553–557.

11. Ochłodzenie i osuszenie klimatu Ziemi (35 Ma).

Literatura cytowana: Edwards EJ et al. 2010 The Origins of C4 Grasslands: Integrating Evolutionary and Ecosystem Science *Science* **328** (5978): 587–591.
Strömberg CAE 2006. Evolution of hypsodonty in equids: testing a hypothesis of adaptation. *Paleobiology* **32** (2): 236–258.