

# Further reading

The literature is too vast to list all sources here. Instead, I provide a select list of the most recent or relevant sources. These sources, and the references they contain, complemented by searches on the Internet, should provide a starting point for those readers interested in delving deeper. Sources are listed in order of the relevant page number (red type) and include the name of the authors (first author only when more than 3 in order to save space), the date and title of the work, the name of the publisher or journal, edition or volume number and page numbers. If you do not have access to the journal, you can email the author to request a complimentary copy. Journal title abbreviations: *EPSL* = *Earth and Planetary Science Letters*; *JAS* = *Journal of Archaeological Science*; *JHE* = *Journal of Human Evolution*; *PNAS* = *Proceedings of the National Academy of Sciences of the United States of America*; *QSR* = *Quaternary Science Reviews*.

**Inside cover:** Walker, J.D., and others, 2012. Geologic Time Scale v. 4.0: Geological Society of America (doi: 10.1130/2012.CTS004R3C); marine oxygen isotope record from Lisiecki, L.E., Raymo, M.E., 2005. A Pliocene-Pleistocene stack of 57 globally distributed benthic  $\delta^{18}\text{O}$  records, *Paleoceanography* 20, PA1003 (doi:10.1029/2004PA001071).

**Preface:** **7** ted.com/talks/david\_christian\_big\_history. **8** Cinematic versions of our origin: Malick, T., 2016. 'The voyage of time'; cassiopeiaproject.com/ (From the big bang to man). **10** Tendency to speculate: Tenenbaum, J.B., and others, 2011. How to grow a mind: statistics, structure, and abstraction. *Science* 331, 1279–1285.

**Chapter 1:** **11** Bryson, B., 2004. *A short history of nearly everything*. Black Swan, London.

**In the beginning:** **12** Rees, M. (ed.), 2005. *Universe, the definitive visual guide*. Dorling Kindersley. **14** Inflationary theory and gravitational waves: Cho, A., 2014. Evidence of cosmic inflation wanes. *Science* 345, 1547. Galaxy superclusters: Boyle-Kolchin, M., 2014. A virtual Universe. *Nature* 509, 170–171. **15** Composition: Spergel, D.N., 2015. The dark side of cosmology: Dark matter and dark energy. *Science* 347, 1100–1102. **16** One supernova/galaxy/century: [http://candels-collaboration.blogspot.com/2012/09/supernova-hunting\\_28.html](http://candels-collaboration.blogspot.com/2012/09/supernova-hunting_28.html).

**Planet Earth:** **17** General textbook on Earth, solar system, Moon and plate tectonics: Marshak, S., 2012. *Earth: Portrait of a planet*. W.W. Norton. Planet formation: Finkbeiner, A., 2014. Planets in chaos. *Nature* 511, 22–24. Age of Earth: Chambers, J., 2014. A chronometer for Earth's age. *Nature* 508, 51–52; Jacobson, S.A., and others, 2014. Highly siderophile elements in Earth's mantle as a clock for the Moon-forming impact. *Nature* 508, 84–87. **18** Origin of our Moon: Young, E.D. and others, 2016. Oxygen isotopic evidence for vigorous mixing during the Moon-forming giant impact. *Science* 351, 493–496. **19** Hellish Hadean: Marchi, S., and others, 2014. Widespread mixing and burial of Earth's Hadean crust by asteroid impacts. *Nature* 511, 578–582. 100 metric tons of debris from space: <http://www.universetoday.com/94392/getting-a-handle-on-how-much-cosmic-dust-hits-earth/>. **20** Plate tectonics: Kerr, R.A., 2013. The deep Earth machine is coming together. *Science* 340, 22–24. **21** Hawkesworth, C., and others, 2013. Continental growth and the crustal record. *Tectonophysics* 609, 651–660. Rey, P.F., and others, 2014. Spreading continents kick-started plate tectonics. *Nature* 513, 405–408.

**First life:** **23** Earliest indirect evidence: Bell, E.A., and others, 2015. Potentially biogenic carbon preserved in a 4.1 billion-year-old zircon. *PNAS* 112, 14518–14521. Earliest fossil evidence: Nutman, A.P., and others, 2016. Rapid emergence of life shown by discovery of 3,700-million-year-old microbial structures. *Nature* 537, 535–538. Sugitani, K., and others, 2015. Early evolution of large micro-organisms with cytological complexity revealed by microanalyses of 3.4 Ga organic-walled microfossils. *Geobiology* 13, 507–521. **25/26** Gollihar, J., and others, 2014. Many paths to the origin of life. *Science* 343, 259–260. Service, R.F., 2013. The life force. *Science* 342, 1032–1034. RNA world: Shelke, S.A., Piccirilli, J.A., 2014. RNA made in its own mirror image. *Nature* 515, 347–348. Black smoker origin: Martin, W.F., and others, 2014. Energy at life's origin. *Science* 344, 1092–1093.

**Microbial world:** **27** Knoll, A., 2003. *Life on a young planet, the first three billion years of evolution on Earth*. Princeton University Press. Bacteria outnumber our cells by up to a ratio of 10 to 1: Sender, R., and others, 2016. Revised estimates for the number of human and bacteria cells in the body (bioRxiv, doi: <http://dx.doi.org/10.1101/036103>). Microbiome: Yong, E. 2016, *I contain multitudes, the microbes within us and a grander view of life*. Harper Collins. Pennisi, E., 2012, Microbial survey of human body reveals extensive variation. *Science* 336, 1369–1371. **28** Stromatolites: Allwood, A.C., and others, 2009. Controls on development and diversity of Early Archean stromatolites. *PNAS* 106, 9548–9555. **29** Schopf, J.W., and others, 2002. Laser-Raman imagery of Earth's earliest fossils. *Nature* 416, 73–76. **30** Rise in oxygen: Canfield, D.E., 2014. *Oxygen, a four billion year history*.

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**Chapter 2:** For the story of our descent told in reverse: Dawkins, R., 2004. *The Ancestor's Tale*. Weidenfeld & Nicolson, and for a general summary of the evolution of life: Fortey, R., 2010. *Life: an unauthorized biography*. Harper Collins.

**Cambrian explosion:** **46** Conway Morris, S., 1999. *The crucible of creation, the Burgess Shale and the rise of animals*. Oxford University Press. Erwin, D.H., and others, 2011. The Cambrian conundrum: early divergence and later ecological success in the early history of animals. *Science* 334, 1091–1097. Erwin, D.H., Valentine, J.W., 2013. *The Cambrian explosion, the construction of animal diversity*. Roberts and Company. Sperling, E.A., and others, 2013. Oxygen, ecology, and the Cambrian radiation of animals. *PNAS* 110, 13446–13451. Vinther, J., and others, 2014. A suspension-feeding anomalocaris from the Early Cambrian. *Nature* 507, 496–499. Origin and evolution of vertebrates, 2015, *Nature Insight* 520, 449–497. **47** 5 to 10 million species: Costello, M.J., and others, 2013. Can we name Earth's species before they go extinct? *Science* 339, 413–416.

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**Your inner fish:** **55** Shubin, N., 2008. *Your inner fish*. Allen Lane. Shu, D.-G., and others, 1999. Lower Cambrian vertebrates from south China. *Nature* 402, 42–46. **57** Conodonts: Murdock, D.J.E., and others, 2013. The origin of conodonts and of vertebrate mineralized skeletons. *Nature* 502, 546–549. Purnell, M.A., Donoghue, C.J., 1997. Architecture and functional morphology of the skeletal apparatus of ozarkodinid conodonts. *Phil. Trans. R. Soc. B* 352, 1545–1564. **59** First jaw: Friedman, M., Brazeau, M.D., 2013. A jaw-dropping fossil fish. *Nature* 502, 175–177. Pradel, A., and others, 2014. A Palaeozoic shark with osteichthyan-like branchial arches. *Nature* 509, 608–611. Dupret, V., and others, 2014. A primitive placoderm sheds light on the origin of the jawed vertebrate face. *Nature* 507, 500–503. **60** Coelacanth, the 'living fossil': Woolston, C.,

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**Primates – apes: 73** Morris, D., with Parker, S., 2009. *Planet Ape*. Octopus. **74** Ni, X., and others, 2013. The oldest known primate skeleton and early haplorhine evolution. *Nature* 498, 60–64. Prado-Martinez, J., and others, 2013. Great ape genetic diversity and population history. *Nature* 499, 471–475. **76** Ice on Antarctica: Lear, C.H., Lunt, D.J., 2016. How Antarctica got its ice. *Science* 352, 34–35. **77** Age of Sahara: Zhang, Z., and others, 2014. Aridification of the Sahara desert caused by Tethys Sea shrinkage during the Late Miocene. *Nature* 513, 401–404.

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