参 考 文 献（さらに学びたい人のために）

1 章

Carroll, S. (2017). *The Big Picture: On the Origins of Life, Meaning, and the Universe Itself.* London: Oneworld Publications.

Deamer, D. (2011). *First Life: Discovering the Connections Between Stars, Cells, and How Life Formed.* Berkeley: University of California Press.

Knoll, A.H. (2015). *Life on a Young Planet: The First Three Billion Years of Evolution on Earth*, updated edition. Princeton: Princeton University Press.

Ricardo, A. and Szostak, J. (2009). Life on earth. *Scientific American* 301 (3): 54–61.

Szostak, J.W. (2017). The origin of life on Earth and the design of alternative life forms. *Molecular Frontiers Journal* 1: 121–131.

2 章

Arndt, N.T. and Nisbet, E.G. (2012). Processes on the young Earth and the habitats of early life. *Annual Review of Earth & Planetary Sciences* 40: 521–549.

Craddock, P.R. and Dauphas, N. (2011). Iron and carbon isotope evidence for microbial iron respiration throughout the Archean. Earth and Planetary Science Letters 303: 121–132. [Microbes were respiring iron at 3.8 Ga].

Mills, D.B. and Canfield, D.E. (2014). Oxygen and animal evolution: did a rise of atmospheric oxygen “trigger” the origin of animals? *BioEssays* 36: 1145–1155.

Olson, S.L., Kump, L.R., and Kasting, J.F. (2013). Quantifying the areal extent and dissolved oxygen concentrations of Archean oxygen oases. *Chemical Geology* 362: 3543.

Sugitani, K., Mimura, K., Takeuchi, M. *et al.* (2015). Early evolution of large micro-organisms with cytological complexity revealed by microanalyses of 3.4 Ga organicwalled microfossils. *Geobiology* 13: 507–521.

3 章

Cotton, J.A. and McInerney, J.O. (2010). Eukaryotic genes of archaebacterial origin are more important than the more numerous eubacterial genes, irrespective of function. *Proceedings of the National Academy of Sciences of the United States of America* 107: 17252–17255.

Gross, J. and Bhattacharya, D. (2010). Uniting sex and eukaryote origins in an emerging oxygenic world. *Biology Direct* 5: 53.

Longsdon, J.R. (2010). Eukaryotic evolution: the importance of being archaebacterial. *Current Biology* 20: 1078–1079.

4 章

Bobrovskiy, I., Hope, J.M., Ivantsov, A. *et al.* (2018). Ancient steroids establish the Ediacaran fossil *Dickinsonia* as one of the earliest animals. *Science* 361: 1246–1249.

Cohen, P.A. and Macdonald, F.A. (2015). The Proterozoic record of eukaryotes. *Paleobiology* 41: 610–632.

Droser, M.L., Tarhan, L.G., and Gehling, J.G. (2017). The rise of animals in a changing environment: global ecological innovation in the late Ediacaran. *Annual Review of Earth and Planetary Sciences* 45: 593–617.

Dunn, F.S., Liu, A.G., and Donoghue, P.C.J. (2018). Ediacaran developmental biology. *Biological Reviews* 94: 913–932.

Erwin, D.H. and Valentine, J.W. (2013). *The Cambrian Explosion: the Construction of Animal Biodiversity*. Greenwood Village: Roberts.

Hoekzema, R.S., Brasier, M.D., Dunn, F.S. *et al.* (2017). Quantitative study of developmental biology confirms *Dickinsonia* as a metazoan. *Proceedings of the Royal Society B: Biological Sciences* 284: 1862.

Lyons, T.W., Reinhard, C.T., and Planavsky, N.J. (2014). The rise of oxygen in Earth’s early ocean and atmosphere. *Nature* 506: 307–315.

Laflamme, M., Xiao, S., and Kowalewski, M. (2009). From the Cover: Osmotrophy in modular Ediacara organisms. *Proceedings of the National Academy of Sciences of the United States of America* 106: 14438–14443.

5 章

Bengtson, S. and Yue, Z. (1992). Predatorial borings in Late Precambrian mineralized exoskeletons. *Science* 257: 367–369.

Briggs, D.E.G., Collier, F.J., and Erwin, D.H. (1995). *The Fossils of the Burgess Shale*. Washington, DC: Smithsonian Books.

Buatois, L.A. and Mángano, M.G. (2018). The other biodiversity record: innovations in animal-substrate interactions through geologic time. *GSA Today* 28: 4–10.

Deline, B., Greenwood, J.M., Clark, J.W. *et al.* (2018). Evolution of metazoan morphological disparity. *Proceedings of the National Academy of Sciences of the United States of America* 115: E8909–E8918.

Erwin, D.H., Laflamme, M., Tweedt, S.M. *et al.* (2011). The Cambrian conundrum: early divergence and later ecological success in the early history of animals. *Science* 334: 1091–1097.

Erwin, D.H. and Valentine, J.W. (2013). The Cambrian Explosion: *The Construction of Animal Biodiversity*. Greenwood Village: Roberts.

Kouchinsky, A., Bengtson, S., Runnegar, B. *et al.* (2012). Chronology of early Cambrian biomineralisation. *Geological Magazine* 149: 221–251.

Murdock, D.J.E. and Donoghue, P.C.J. (2011). Evolutionary origins of animal skeletal biomineralization. *Cells, Tissue and Organs* 194: 98–102.

Sebe-Pedros, A., Degnan, B.M., and Ruiz-Trillo, I. (2017). The origin of Metazoa: a unicellular perspective. *Nature Reviews Genetics* 18: 498–512.

Telford, M.J., Budd, G.E., and Philippe, H. (2015). Phylogenomic insights into animal evolution. *Current Biology* 25: R876–R887.

Vinther, J. (2015). The origin of molluscs. *Palaeontology* 58: 19–34.

Wood, R. (2018). Exploring the drivers of early biomineralization. *Emerging Topics in Life Sciences* 2: 201–212.

6 章

Diversity Through Time

Alroy, J., Aberhan, M., Bottjer, D.J. *et al.* (2008). Phanerozoic trends in the global diversity of marine invertebrates. *Science* 321: 97–100. [Paper using data from the Paleobiology Database, emphasizing bias in the data].

Benton, M.J. (2009). The Red Queen and the Court Jester: species diversity and the role of biotic and abiotic factors through time. *Science* 323: 728–732. [Overview of drivers of large-scale evolution, emphasizing the broad evidence from global paleodiversity curves].

Hannisdal, B. and Peters, S.E. (2011). Phanerozoic earth system evolution and marine biodiversity. *Science* 334: 1121–1124. [Physical drivers of global marine biodiversity].

Paleobiology Database: https://paleobiodb.org [There are some great online tools and R packages to query the database and plot some great graphs, timelines and paleomaps].

Mass Extinctions

Benton, M.J. (2015). *When Life Nearly Died*, 2e. New York: Thames & Hudson.

Benton, M.J. (2018). Hyperthermal-driven mass extinctions: killing models during the Permian–Triassic mass extinction. P*hilosophical Transactions of the Royal Society A – Mathematical Physical and Engineering Sciences* 376: 20170076. [How hyperthermals killed life on land and in the sea].

Bond, D.P.G. and Grasby, S.E. (2017). On the causes of mass extinctions. *Palaeogeography, Palaeoclimatology, Palaeoecology* 478: 3–29. [The common volcanic driver of several mass extinctions].

Burgess, S.D. and Bowring, S.A. (2015). High-precision geochronology confirms voluminous magmatism before, during, and after Earth's most severe extinction. *Science Advances* 1 (7): e1500470. [The link between the Siberian Traps eruptions and mass extinction].

Chen, Z.-Q. and Benton, M.J. (2012). The timing and pattern of biotic recovery following the end-Permian mass extinction. *Nature Geoscience* 5: 375–383.

Davies, J.H.F.L., Marzoli, A., Bertrand, H. *et al.* (2017). End Triassic mass extinction started by intrusive CAMP activity. *Nature Communications* 8: 15596.

Harper, D.A.T., Hammarlund, E.U., and Rasmussen, C.M.Ø. (2014). End Ordovician extinctions: a coincidence of causes. *Gondwana Research* 25: 1294–1307.

Knoll, A.H., Bambach, R.K., Payne, J.L. *et al.* (2007). Paleophysiology and end-Permian mass extinction. *Earth and Planetary Science Letters* 256: 295–313.

McGhee, G.R., Sheehan, P.M., Bottjer, D.J. *et al.* (2004). Ecological ranking of Phanerozoic biodiversity crises: ecological and taxonomic severities are decoupled. *Palaeogeography, Palaeoclimatology, Palaeoecology* 211: 289–297.

Sallan, L.C. and Coates, M.I. (2010). End-Devonian extinction and a bottleneck in the early evolution of modern jawed vertebrates. *Proceedings of the National Academy of Sciences of the United States of America* 107: 10131–10135. [An excellent, statistical study of fish evolution through one of the "big five" mass extinctions].

Saunders, A. and Reichow, M. (2009). The Siberian Traps and the end-Permian extinction: a critical review. *Chinese Science Bulletin* 54: 20–37.

Wignall, P.B. (2017). *The Worst of Times: How Life Survived Eighty Million Years of Extinctions*. Princeton: Princeton University Press. [The hyperthermal killing model applied to a series of five extinction events, from Permian to Jurassic].

7 章

Amaral, D.B. and Schneider, I. (2018). Fins into limbs: recent insights from sarcopterygian fish. *Genesis* 56: e23052.

Brazeau, M.D. and Friedman, M. (2015). The origin and early phylogenetic history of jawed vertebrates. *Nature* 520: 490–497.

Donoghue, P.C.J. and Keating, J.N. (2014). Early vertebrate evolution. *Palaeontology* 57: 879–893.

Friedman, M. and Sallan, L.C. (2012). Five hundred million years of extinction and recovery: a Phanerozoic survey of large-scale diversity patterns in fishes. *Palaeontology* 55: 707–742.

Janvier, P. (1996). *Early Vertebrates*. Oxford: Clarendon Press.

Jorgensen, J.M. and Joss, J. (2016). *The Biology of Lungfishes*. Enfield: CRC Press.

Lowe, C.J., Clarke, D.N., Medeiros, D.M. *et al.* (2015). The deuterostome context of chordate origins. *Nature* 520: 456–465.

Miyashita, T. (2016). Fishing for jaws in early vertebrate evolution: a new hypothesis of mandibular confinement. *Biological Reviews* 91: 611–657.

Sallan, L.C., Friedman, M., Sansom, R.S., Bird, S.M., and Sansom, I.J. (2018). The nearshore cradle of early vertebrate evolution. *Science* 362: 460–464.

Trinajstic, K., Boisvert, C., Long, J., Maksimenko, A., and Johanson, Z. (2015). Pelvic and reproductive structures in placoderms (stem gnathostomes). *Biological Reviews* 90: 467–501.

8 章

Plants

Beerling, D. (2017). *The Emerald Planet: How Plants Changed Earth's History, second edition*. Oxford: Oxford University Press.

McMahon, W.J. and Davies, N.S. (2018). Evolution of alluvial mudrock forced by early land plants. *Science* 359: 1022–1024.

Stein, W.E., Berry, C.M., VanAller Hernick, L. *et al.* (2012). Surprisingly complex community discovered in the mid-Devonian fossil forest at Gilboa. *Nature* 483: 78–81.

Animals

Dunlop, J. and Garwood, R.J. (2017). Terrestrial invertebrates in the Rhynie chert ecosystem. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences* 373: 20160493.

Wilson, H.M. and Anderson, L.I. (2004). Morphology and taxonomy of Paleozoic millipedes (Diplopoda: Chilognatha: Archipolypoda) from Scotland. *Journal of Paleontology* 78: 169–184.

9 章

Anderson, J.S., Reisz, R., Scott, D. *et al.* (2008). A stem batrachian from the Early Permian of Texas, and the origin of frogs and salamanders. *Nature* 453: 515–518. [*Gerobatrachus*].

Clack, J.A. (2004). From fins to fingers. *Science* 304: 57–58. [Who ever said fish don't have fingers?].

Clack, J.A. (2012). *Gaining Ground: The Origin and Evolution of Tetrapods*, 2e. Bloomington: University of Indiana Press. [A very well-written and complete picture of research by one of the leading investigators of the earliest tetrapods].

Clack, J.A., Bennett, C.E., Carpenter, D.K. *et al.* (2016). Phylogenetic and environmental context of a Tournaisian tetrapod fauna. *Nature Ecology and Evolution* 1: 0002. [An overview of the fossils and ancient environments of early tetrapods].

Daeschler, E.B., Shubin, N.H., and Jenkins, F.A. Jr. (2006). A Devonian tetrapod-like fish and the evolution of the tetrapod body plan. *Nature* 440: 757–763. [Tiktaalik].

Janis, C.M. and Farmer, C. (1999). Proposed habitats of early tetrapods: gills, kidneys, and the water–land transition. *Zoological Journal of the Linnean Society* 126: 117–126. [Ideas about physiology through the water to land transition].

Pierce, S.E., Clack, J.A., and Hutchinson, J.R. (2012). Three-dimensional limb joint mobility in the early tetrapod *Ichthyostega*. *Nature* 486: 523–526. [Application of CT scanning and computerized 3D reconstruction to find new details of anatomy and function].

Sahney, S., Benton, M.J., and Falcon-Lang, H.J. (2010). Rainforest collapse triggered Pennsylvanian tetrapod diversification in Euramerica. *Geology* 38: 1079–1082. [Evidence that the dramatic climatic switch from humid to dry near the end of the Carboniferous drove tetrapod evolution].

Schoch, R.R. (2014). *Fossil Amphibians: The Life of Early Land Vertebrates*. New York: Wiley. [An excellent account of everything about fossil amphibians].

10 章

Benson, R.B.S. (2012). Interrelationships of basal synapsids: cranial and postcranial morphological partitions suggest different topologies. *Journal of Systematic Palaeontology* 10: 601–624. [An overview of the basal synapsids].

Brocklehurst, N., Day, M.O., Rubidge, B.S. *et al.* (2017). Olson's extinction and the latitudinal biodiversity gradient of tetrapods in the Permian. *Proceedings of the Royal Society B: Biological Sciences* 284: 20170231. [Extinction and paleobiogeography].

Huttenlocker, A.K., Mazierski, D., and Reisz, R.R. (2011). Comparative osteohistology of hyperelongate neural spines in the Edaphosauridae (Amniota: Synapsida). *Palaeontology* 54: 573–590. [Explanation of the pelycosaur sail].

Olivier, C., Houssaye, A., Jalil, N.-E. *et al.* (2017). First palaeohistological inference of resting metabolic rate in an extinct synapsid, *Moghreberia nmachouensis* (Therapsida: Anomodontia). *Biological Journal of the Linnean Society* 121: 409–419. [Evidence from bone histology that some Permian synapsids were warm-blooded].

Rey, K., Amiot, R., Fourel, F. *et al.* (2017). Oxygen isotopes suggest elevated thermometabolism within multiple Permo-Triassic therapsid clades. *elife* 6: e28589. [Evidence from oxygen isotopes that some Permian synapsids were warm-blooded].

Sues, H.-D. and Reisz, R.R. (1998). Origins and early evolution of herbivory in tetrapods. *Trends in Ecology & Evolution* 13: 141–145.

11 章

Bellwood, D.R., Goatley, C.H.R., Bellwood, O. *et al.* (2015). The rise of jaw protrusion in spiny-rayed fishes closes the gap on elusive prey. *Current Biology* 25: 2696–2700. [Reasons for success of the teleost fishes].

Benton, M.J., Zhang, Q.-Y., Hu, S.-X. *et al.* (2013). Exceptional vertebrate biotas from the Triassic of China, and the expansion of marine ecosystems after the Permo-Triassic mass extinction. *Earth-Science Reviews* 123: 199–243. [New evidence from China about Triassic seas, and the early start of the MMR].

Blackburn, D.G. and Sidor, C.A. (2015). Evolution of viviparous reproduction in Paleozoic and Mesozoic reptiles. *International Journal of Developmental Biology* 58: 935–948. [Live birth in marine reptiles].

Buchholtz, E.A. (2001). Swimming styles in Jurassic ichthyosaurs. *Journal of Vertebrate Paleontology* 21: 61–73.

Fischer, V., Bardet, N., Benson, R.B.J. *et al.* (2016). Extinction of fish-shaped marine reptiles associated with reduced evolutionary rates and global environmental volatility. *Nature Communications* 7: 10825. [The last ichthyosaurs].

Moon, B.J. (2019). A new phylogeny of ichthyosaurs (Reptilia: Diapsida). *Journal of Systematic Palaeontology* 2: 129–155.

Motani, R. (2009). The evolution of marine reptiles. *Evolution: Education and Outreach* 2: 224–235.

Muscutt, L.E., Dyke, G., Weymouth, G.D. *et al.* (2017). The four-flipper swimming method of plesiosaurs enabled efficient and effective locomotion. *Proceedings of the Royal Society B* 284: 20170951. [Physical experiments in plesiosaur flipper function].

Schoch, R.R. and Sues, H.-D. (2015). A Middle Triassic stem-turtle and the evolution of the turtle body plan. *Nature* 523: 584–587.

Stubbs, T.L. and Benton, M.J. (2016). Ecomorphological diversifications of Mesozoic marine reptiles: the roles of ecological opportunity and extinction. *Paleobiology* 42: 547–573. [Changing shape and structure of Mesozoic marine reptiles]. Vermeij, G.J. (1977). The Mesozoic Marine Revolution: evidence from snails, predators and grazers. *Palaeobiology* 3: 245–258. [The paper that set it all off].

Watson, T. (2017). How giant marine reptiles terrorized the ancient seas. *Nature* 543: 603–607.

12 章

Benton, M.J., Bernardi, M., and Kinsella, C. (2018). The Carnian Pluvial Episode and the origin of dinosaurs. *Journal of the Geological Society of London* 175: 1019– 1026. [Evidence that the CPE drove a step-change in the composition of tetrapod faunas].

Benton, M.J., Forth, J., and Langer, M.C. (2014). Models for the rise of the dinosaurs. *Current Biology* 24: R87–R95. [New fossils and new evolutionary models].

Dzik, J. (2003). A beaked herbivorous archosaur with dinosaur affinities from the early Late Triassic of Poland. *Journal of Vertebrate Paleontology* 23: 556–574. [Silesaurus].

Kubo, T. and Benton, M.J. (2009). Tetrapod postural shift estimated from Permian and Triassic trackways. *Palaeontology* 52: 1029–1037. [Evidence that all medium-sized and large tetrapods switched from sprawling to erect gait across the Permian–Triassic boundary].

Nesbitt, S.J., Butler, R.J., Ezcurra, M.D. *et al.* (2017). The earliest bird-line archosaurs and the assembly of the dinosaur body plan. *Nature* 544: 484–487. [Teleocrater and the new picture of avemetatarsalian and dinosaur origins in the Early Triassic].

13 章

Barrett, P.M. and Rayfield, E.J. (2006). Ecological and evolutionary implications of dinosaur feeding behaviour. *Trends in Ecology and Evolution* 21: 217–224.

Benson, R.B.J. (2018). Dinosaur macroevolution and macroecology. Annual Review of Ecology, Evolution, and Systematics 49: 379–408.

Benton, M.J. (2019). *Dinosaurs Rediscovered: How a Scientific Revolution is Rewriting Their Story.* New York: Thames & Hudson. [The application of scientific method to understanding dinosaurian paleobiology].

Brett-Surman, M.K.,.T.H.J.,.J.F.,.B.W. (ed.) (2012). *The Complete Dinosaur,* 2e. Bloomington: Indiana University Press. [Many fine

essays on all aspects].
Brusatte, S.L. (2012). *Dinosaur Paleobiology*. New York: Wiley. [The best textbook on dinosaurs].
Brusatte, S.L. (2018). *The Rise and Fall of the Dinosaurs*. New York: Simon & Schuster. [The best account of what it is like to excavate dinosaurs around the world].
Chiappe, L.M. and Meng, Q.J. (2016). *Birds of Stone: Chinese Avian Fossils from the Age of Dinosaurs*. Pittsburgh: Johns Hopkins University Press.
Fastovsky, D.E. and Weishampel, D.B. (2012). *Dinosaurs: A Concise Natural History.* New York: Cambridge University Press.
Hutchinson, J.R. and Gatesy, S.M. (2006). Dinosaur locomotion: beyond the bones. *Nature* 440: 292–294.
Long, J. and Shouten, P. (2009). *Feathered Dinosaurs: The Origin of Birds*. Oxford: Oxford University Press.
Norell, M.A. and Xu, X. (2005). Feathered dinosaurs. *Annual Reviews of Earth and Planetary Sciences* 33: 277–299.
Rayfield, E.J. (2007). Finite element analysis and understanding the biomechanics and evolution of living and fossil organisms. Annual Review of Earth and Planetary Sciences 35: 541–576.
Reisz, R.R., Evans, D.C., Roberts, E.M. *et al.* (2012). Oldest known dinosaurian nesting site and reproductive biology of the early Jurassic sauropodomorph *Massospondylus. Proceedings of the National Academy of Sciences of the United States of America* 109: 2428–2433.
Sander, P.M., Christian, A., Clauss, M. *et al.* (2010). Biology of the sauropod dinosaurs: the evolution of gigantism. *Biological Reviews* 86: 117–155.
Sellers, W.I., Pond, S.B., Brassey, C.A. *et al.* (2017). Investigating the running abilities of *Tyrannosaurus rex* using stress-constrained multibody dynamic analysis. *PeerJ* 5: e3420. https://doi.org/10.7717/peerj.3420.
Weishampel, D.B. (1997). Dinosaur cacophony. *Bioscience* 47: 150–159.
Weishampel, D.B., Dodson, P., and Osmólska, H. (eds.) (2004). *The Dinosauria*, 2e. Berkeley: University of California Press.
Zhao, Q., Benton, M.J., Sullivan, C. *et al.* (2013). Histology and postural change during the growth of the ceratopsian dinosaur *Psittacosaurus lujiatunensis*. *Nature Communications* 4: 2079.

14 章

Pterosaurs

Bestwick, J., Unwin, D.M., Butler, R.J. *et al.* (2018). Pterosaurs dietary hypotheses: a review of ideas and approaches. *Biological Reviews* 93: 2021–2048.
Claessens, L.P.A.M., O'Connor, P.M., and Unwin, D.M. (2009). Respiratory evolution facilitated the origin of pterosaur fight and aerial gigantism. *PLoS One* 4 (2): e4497.
Li, P.-P., Gao, K.Q., Hou, L.H. *et al.* (2007). A gliding lizard from the Early Cretaceous of China. *Proceedings of the National Academy of Sciences of the United States of America* 104: 5507–5509.
McGuire, J.A. and Dudley, R. (2011). The biology of gliding in flying lizards (genus *Draco*) and their fossil and extant analogs. *Integrative and Comparative Biology* 51: 983–990.
Witmer, L.M., Chatterjee, S., Franzosa, J. *et al.* (2003). Neuroanatomy of flying reptiles and implications for flight, posture and behaviour. *Nature* 425: 950–953.
Witton, M.P. (2013). *Pterosaurs: Natural History, Evolution, Anatomy*. Princeton: Princeton University Press.

Birds

Chiappe, L.M. and Witmer, L.M. (eds.) (2002). *Mesozoic Birds: Above the Heads of Dinosaurs*. Berkeley: University of California Press. [Massive overview in 20 chapters, with full references. See especially chapters by Witmer, Clark *et al.*, Chiappe, and Gatesy].
Lee, M.S.Y., Cau, A., Naish, D. *et al.* (2014). Sustained miniaturization and anatomical innovation in the dinosaurian ancestors of birds. *Science* 345: 562–566.
Murray, P.F. and Vickers-Rich, P. (2004). *Magnificent Mihirungs: The Colossal Flightless Birds of the Australian Dreamtime*. Bloomington: Indiana University Press.
Naish, D. (2014). The fossil record of bird behaviour. *Journal of Zoology* 292: 268–280.
Puttick, M.N., Thomas, G.H., and Benton, M.J. (2014). High rates of evolution preceded the origin of birds. *Evolution* 68: 1497–1510.
Zhou, Z., Barrett, P.M., and Hilton, J. (2003). An exceptionally preserved Lower Cretaceous ecosystem. *Nature* 421: 807–814.

15 章

Barba-Montoya, J., dos Reis, M., Schneider, H. *et al.* (2018). Constraining uncertainty in the timescale of angiosperm evolution and the veracity of a Cretaceous Terrestrial Revolution. *New Phytologist* 218: 819–834. [The definitive paper on phylogeny of angiosperms and other land plants].
Berendse, F. and Scheffer, M. (2009). The angiosperm radiation revisited, an ecological explanation for Darwin's 'abominable mystery'. *Ecology Letters* 12: 865–872. [Presents the evidence that angiosperms outgrow gymnosperms in most situations].
Condamine, F.L., Clapham, M.E., and Kergoat, G.J. (2016). Global patterns of insect diversification: towards a reconciliation of fossil and molecular evidence? *Scientific Reports* 6: 19208. [The fossil record of insects does not support the KTR].
Herendeen, P.S., Friis, E.M., Pedersen, K.R. *et al.* (2017). Palaeobotanical redux: revisiting the age of the angiosperms. *Nature Plants* 3: 17015. [The latest on the fossil evidence].
Lloyd, G.T., Davis, K.E., Pisani, D. *et al.* (2008). Dinosaurs and the Cretaceous Terrestrial Revolution. *Proceedings of the Royal Society B: Biological Sciences* 275: 2483–2490. [The KTR is named].
Peris, D., Pérez-de la Fuente, R., Peñalver, E. *et al.* (2017). False blister beetles and the expansion of gymnosperm-insect pollination modes before angiosperm dominance. *Current Biology* 27: 897–904. [Amazing beetle pollen preservation in amber].
Poinar, G.O. Jr. and Chambers, K.L. (2017). *Tropidogyne pentaptera,* sp. nov., a new mid-Cretaceous fossil angiosperm flower in Burmese amber. *Palaeodiversity* 10: 135–140. [Cretaceous flowers in amber].
Ren, D., Labandeira, C., Santiago-Blay, J.A. *et al.* (2009). A probable pollination mode before angiosperms: Eurasian, long-proboscid scorpionflies. *Science* 326: 840–847.
Sun, G., Ji, Q., Diulcher, D.L. *et al.* (2002). Archaefructaceae, a new basal angiosperm family. *Science* 296: 899–904. [Possibly the oldest decent fossil angiosperm].
Willis, K.J. and McElwain, J.C. (2014). *The Evolution of Plants,* 2e. Oxford: Oxford University Press. [A good overview of the entire history of plants].

16 章

Alegret, L., Thomas, E., and Lohmann, K.C. (2012). End-Cretaceous marine mass extinction not caused by productivity collapse. *Proceedings of the National Academy of Sciences of the United States of America* 109: 728–732.

Alvarez, W. (2015). *T. rex and the Crater of Doom*, 2e. Princeton: Princeton University Press. [The best of many books on the extinction].

Alvarez, L.W., Alvarez, W., Asaro, F. *et al.* (1980). Extraterrestrial cause for the Cretaceous-Tertiary extinction. *Science* 208: 1095–1108. [The paper that started it all].

Field, D.J., Bercovici, A., Berv, J.S. *et al.* (2018). Early evolution of modern birds structured by global forest collapse at the end-Cretaceous mass extinction. *Current Biology* 28: 1825–1831.

Hildebrand, A.R., Penfield, G.T., Kring, D.A. *et al.* (1991). Chicxulub Crater: a possible Cretaceous/Tertiary boundary impact crater on the Yucatán Peninsula, Mexico. *Geology* 19: 867–871. [Recognition of Chicxulub as the K-T asteroid crater].

Johnson, K.R. and Ellis, B. (2002). A tropical rainforest in Colorado 1.4 million years after the Cretaceous-Tertiary boundary. *Science* 296: 2379–2383. [Forest changes following the impact].

Kring, D.A. (2007). The Chicxulub impact event and its environmental consequences at the Cretaceous–Tertiary boundary. *Palaeogeography, Palaeoclimatology, Palaeoecology* 255: 4–21.

Longrich, N.R., Bhullar, B.-A.S., and Gauthier, J.A. (2012). Mass extinction of lizards and snakes at the Cretaceous–Paleogene boundary. *Proceedings of the National Academy of Sciences of the United States of America* 109: 21396–21401.

MacLeod, K.G., Quinton, P.C., Sepúlveda, J. *et al.* (2018). Postimpact earliest Paleogene warming shown by fish debris oxygen isotopes (El Kef, Tunisia). *Science* 360: 1467–1469. [Evidence for 100 000 years of global warming following the impact].

Mitchell, J.S., Roopnarine, P.D., and Angielczyk, K.D. (2012). Late Cretaceous restructuring of terrestrial communities facilitated the end-Cretaceous mass extinction in North America. *Proceedings of the National Academy of Sciences of the United States of America* 109: 18857–18861.

Morgan, J.V., Gulick, S.P.S., Bralower, T. *et al.* (2016). The formation of peak rings in large impact craters. *Science* 354: 878–882. [Reports the latest geophysical surveys of Chicxulub].

Renne, P.R., Sprain, C.J., Richards, M.A. *et al.* (2015). State shift in Deccan volcanism at the Cretaceous–Paleogene boundary, possibly induced by impact. *Science* 350: 76–78. [Dating of the Deccan Traps, and possible link to the Chicxulub impact].

Sakamoto, M., Benton, M.J., and Venditti, C. (2016). Dinosaurs in decline tens of millions of years before their final extinction. *Proceedings of the National Academy of Sciences of the United States of America* 113: 5036–5040. [Evidence for long-term decline in dinosaurs before the impact].

Schulte, P., Alegret, L., Arenillas, I. *et al.* (2010). The Chicxulub asteroid impact and mass extinction at the Cretaceous-Paleogene boundary. *Science* 327: 1214– 1217. [The case for impact as main driver of the mass extinction].

17 章

McInerney, F.A. and Wing, S.L. (2011). The Paleocene-Eocene Thermal Maximum: a perturbation of carbon cycle, climate and biosphere with implications for the future. *Annual Review of Earth and Planetary Sciences* 39: 489–516.

Ridgwell, A. (2005). A mid-Mesozoic revolution in the regulation of ocean chemistry. *Marine Geology* 217: 339–357.

Ruddiman, W.F. (2007). *Earth's Climate: Past and Future*, 2e. New York: W. H. Freeman.

Thomas, E., Brinkhuis, H., Huber, M. *et al.* (2006). An ocean view of the Early Cenozoic Greenhouse World. *Oceanography* 19 (4): 94–103.

Zachos, J., Pagani, M., Sloan, L. *et al.* (2001). Trends, rhythms, and aberrations in global climate 65 Ma to present. *Science* 292: 686–693.

18 章

Bajdek, P., Qvarnström, M., Owocki, K. *et al.* (2017). Microbiota and food residues including possible evidence of pre-mammalian hair in Upper Permian coprolites from Russia. *Lethaia* 49: 455–477.

Brawand, D., Wahli, W., and Kaessman, H. (2008). Loss of egg yolk genes in mammals and the origin of lactation and placentation. *PLoS Biology* 6: e63.

Benoit, J., Manger, P.R., and Rubidge, B.S. (2016). Palaeoneurological clues to the evolution of defining mammalian soft tissue traits. *Scientific Reports* 6: 25604.

Bi, S., Zheng, X., Wang, X. *et al.* (2018). An Early Cretaceous eutherian and the placental-marsupial dichotomy. *Nature* 558: 390–395.

Botha-Brink, J. and Modesto, S.P. (2007). A mixed-age classed 'pelycosaur' aggregation from South Africa:earliest evidence of parental care in amniotes? *Proceedings of the Royal Society B: Biological Sciences* 274: 2829–2834.

Crompton, A.W., Owerkowicz, T., Bhullar, B.A.S. *et al.* (2017). Structure of the nasal region of non-mammalian cynodonts and mammaliaforms: speculations on the evolution of mammalian endothermy. *Journal of Vertebrate Paleontology* 37: e1269116.

Farmer, C. (2000). Parental care: the key to understanding endothermy and other convergent features in birds and mammals. *American Naturalist* 155: 326–334.

Gill, P.G., Purnell, M.A., Crumpton, N. *et al.* (2014). Dietary specializations and diversity in feeding ecology of the earliest stem mammals. *Nature* 512: 303–307.

Grossnickle, D.M. and Newham, E. (2016). Therian mammals experience an ecomorphological radiation during the Late Cretaceous and selective extinction at the K-Pg boundary. *Proceedings of the Royal Society B: Biological Sciences* 283: 20160256.

Hu, Y., Meng, J., Wang, Y. *et al.* (2005). Large Mesozoic mammals fed on young dinosaurs. *Nature* 433: 149–152. [*Repenomamus*].

Kim, J.-W., Yang, H.J., Oel, A.P. *et al.* (2016). Recruitment of rod photoreceptors from short-wavelength-sensitive cones during the evolution of nocturnal vision in mammals. *Developmental Cell* 37: 520–532.

Lee, M.S.Y. and Beck, R.M.D. (2015). Mammalian evolution: a Jurassic spark. *Current Biology* 25: R753–R773.

Luo, Z.-X. (2007). Transformation and diversification in early mammal evolution. *Nature* 450: 1011–1019.

Maier, W. and Ruf, I. (2016). Evolution of the mammalian middle ear: a historical review. *Journal of Anatomy* 228: 270–283.

Meng, J. (2014). Mesozoic mammals of China: implications for phylogeny and early evolution of mammals. *National Science*

Review 1: 521–542.

Oftedal, O.T. (2011). The evolution of milk secretion and its ancient origins. *Animal* 6: 355–368.

Renfree, M.B. (2010). Review: marsupials: placentals with a difference. *Placenta* 31 (suppl A, vol 24): S21–S26.

19 章

dos Reis, M., Inoue, J., Hasegawa, M. *et al.* (2012). Phylogenomic datasets provide both precision and accuracy in estimating the timescale of placental mammal phylogeny. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences* 279: 3491–3500.

Fitzgerald, E.M.G. (2012). Archaeocete-like jaws in a baleen whale. *Biology Letters* 8: 94–96.

Foley, N.M., Springer, M.S., and Teeling, E.C. (2016). Mammal madness: is the mammal tree of life still not resolved? *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences* 371: 20150140.

Goswami, A. (2012). A dating success story: genomes and fossils converge on placental mammal origins. *EvoDevo* 3: 18. [A readable short review of the often dense literature on molecules versus morphology in mammal evolution].

McGowen, M.R., Gatesy, J., and Wildman, D.E. (2014). Molecular evolution tracks macroevolutionary transitions in Cetacea. *Trends in Ecology and Evolution* 29: 336–345.

Phillips, M.J. and Fruciano, C. (2018). The soft explosive model of placental mammal evolution. *BMC Evolutionary Biology* 18: 104.

Pyenson, N.D. (2017). The ecological rise of whales chronicled by the fossil record. *Current Biology* 27: R558–R564.

Simmons, N.B., Seymour, K.L., Habersetzer, J. *et al.* (2008). Primitive Early Eocene bat from Wyoming and the evolution of flight and echolocation. *Nature* 451: 818–821.

Strömberg, C.A.E. (2011). Evolution of grasses and grassland ecosystems. *Annual Review of Earth and Planetary Science* 39: 517–544.

Thewissen, J.G.M., Cooper, L.N., George, J.C. *et al.* (2009). From land to water: the origin of whales, dolphins, and porpoises. *Evolution: Education and Outreach* 2: 272–288.

Uhen, M.D. (2010). The origin(s) of whales. *Annual Review of Earth and Planetary Science* 38: 189–219.

20 章

Bacon, C.D., Molnar, P., Antonelli, A. *et al.* (2016). Quaternary glaciation and the Great American Biotic Interchange. *Geology* 44: 375–378.

Black, K.H., Archer, M., Hand, S.J. *et al.* (2012). The rise of Australian marsupials: a synopsis of biostratigraphic, phylogenetic, palaeoecologic, and palaeobiogeographic understanding. In: *Earth and Life* (ed. J.A. Talent). New York: Springer.

Bond, M., Tejedor, M.F., Campbell, K.E. Jr. *et al.* (2015). Eocene primates of South America and the African origin of New World monkeys. *Nature* 520: 538–541.

Buckley, M. (2015). Ancient collagen reveals evolutionary history of the South American ungulates. *Proceedings of the Royal Society B: Biological Sciences* 282: 20142651.

Carrillo, J.D., Forasiepi, A., Jaramillo, C. *et al.* (2015). Neotropical mammal diversity and the Great American Biotic Interchange. *Frontiers in Genetics* 5: 451.

Croft, D.A. and Simeonovski, V. (2016). *Horned Armadillos and Rafting Monkeys: The Fascinating Fossil Mammals of South America.* Bloomington: Indiana University Press. [A popular account of the extinct South American mammals, with wonderful illustrations].

Faurby, S. and Svenning, J.-C. (2016). Resurrection of the Island Rule: human-driven extinctions have obscured abasic evolutionary pattern. *American Naturalist* 187: 812–820.

Flannery, T.F. (1995). *The Future Eaters: An Ecological History of the Australasian Lands and People.* New York: George Braziller. [Part I is the story of Australasian life before the arrival of humans].

Kappelman, J., Rasmussen, D.T., Sanders, W.J. *et al.* (2003). Oligocene mammals from Ethiopia and faunal exchange between Afro-Arabia and Eurasia. *Nature* 426: 549–552.

Sánchez-Villagra, M.R. (2013). Why are there fewer marsupials than placentals? On the relevance of geography and physiology to evolutionary patterns of mammalian diversity and disparity. *Journal of Mammalian Evolution* 20: 279–290.

Samonds, K.E., Godfrey, L.R., Ali, J.R. *et al.* (2012). Spatial and temporal patterns of Madagascar's vertebrate fauna explained by distance, ocean currents, and ancestor type. *Proceedings of the National Academy of Sciences of the United States of America* 109: 5352–5357.

Sen, S. (2013). Dispersal of African mammals in Eurasia during the Cenozoic: ways and whys. *Geobios* 46: 159–192.

Strömberg, C.A., Dunn, R.E., Madden, R.H. *et al.* (2013). Decoupling the spread of grasslands from the evolution of grazer-type herbivores in South America. *Nature Communications* 4: 1478.

Worthy, T.H., Tennyson, A.J.D., Archer, M. *et al.* (2006). Miocene mammal reveals a Mesozoic ghost lineage on insular New Zealand, southwest Pacific. *Proceedings of the National Academy of Sciences of the United States of America* 103: 19419–19423.

Wroe, S., McHenry, C., and Thomason, J. (2005). Bite club: comparative bite force in big biting mammals and the prediction of predatory behaviour in fossil taxa. *Proceedings of the Royal Society B: Biological Sciences* 272: 619–625. [*Thylacoleo*].

21 章

Begun, D. (2010). Miocene hominids and the origins of the African apes and humans. *Annual Review of Anthropology* 39: 67–84.

Bloch, J.I., Silcox, M.T., Boyer, D.M. *et al.* (2007). New Paleocene skeletons and the relationship of plesiadapiforms to crown-clade primates. *Proceedings of the National Academy of Sciences of the United States of America* 104: 1159–1164.

Ciochon, R., Long, V.T., Larick, R. *et al.* (1996). Dated co-occurrence of *Homo erectus* and *Gigantopithecus* from Tham Khuyen cave, Vietnam. *Proceedings of the National Academy of Sciences of the United States of America* 93: 3016–3020.

Fleagle, J.G. (2013). *Primate Adaptation and Evolution,* 3e. Philadelphia: Elsevier.

Kay, R. (2015). New World monkey origins. *Science* 347: 1068–1069.

Silcox, M.T. and López-Torres, S. (2017). Major questions in the study of primate origins. *Annual Review of Earth and Planetary Sciences* 45: 113–137.

Simons, E.L., Plavcan, J.M., and Fleagle, J.S. (1999). Canine sexual dimorphism in Egyptian Eocene anthropoid primates: *Catopithecus* and *Proteopithecus*. *Proceedings of the National Academy of Sciences of the United States of America* 96: 2559–

2562.
Williams, B.A., Kay, R.F., and Kirk, E.C. (2010). New perspectives on anthropoid origins. *Proceedings of the National Academy of Sciences of the United States of America* 107: 4797–4804.

22 章

Anton, S.C., Potts, R., and Aiello, L.C. (2014). Evolution of early *Homo*: an integrated biological perspective. *Science* 345: 1236828.
Asfaw, B., White, T., Lovejoy, O. *et al.* (1999). *Australopithecus garhi*: a new species of early hominin from Ethiopia. *Science* 284: 629–635.
Berger, L.R., de Ruiter, D.J., Churchill, S.E. *et al.* (2010). *Australopithecus sediba*: a new species of Homo-like australopith from South Africa. Science 328: 19–204.
Klein, R.G. (2009). *The Human Career: Human Biological and Cultural Origins*, 3e. Chicago: University of Chicago Press.
Lordkipanidze, D., de León, M.S.P., Margvelashvili, A. *et al.* (2013). A complete skull from Dmanisi, Georgia, and the evolutionary biology of early *Homo*. *Science* 342: 326–331.
Marzke, M.W. (2013). Tool making, hand morphology and fossil hominins. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences* 368: 20120414.
Raichlen, D.A., Gordon, A.D., Harcourt-Smith, W.E.H. *et al.* (2010). Laetoli footprints preserve earliest direct evidence of human-like bipedal biomechanics. *PLoS One* 5 (3): e9769.
Stewart, J.R. and Stringer, C.B. (2012). Human evolution out of Africa: the role of refugia and climate change. *Science* 335: 1317–1321.
Wolf, A.B. and Akey, J.M. (2018). Outstanding questions in the study of archaic hominin admixture. *PLoS Genetics* 14 (5): e1007349.
Wood, B. (2010). Reconstructing human evolution: achievements, challenges, and opportunities. *Proceedings of the National Academy of Sciences of the United States of America* 107 (Supplement 2): 8902–8909.

23 章

Barnosky, A.D. and Lindsey, E.L. (2010). Timing of Quaternary megafaunal extinction in South America in relation to human arrival and climate change. *Quaternary International* 217: 10–29.
Burney, D.A. and Flannery, T.F. (2005). Fifty millennia of catastrophic extinctions after human contact. *Trends in Ecology & Evolution* 20: 395–401.
Cafaro, P. (2015). Three ways to think about the sixth mass extinction. *Biological Conservation* 192: 387–393.
Cooper, A., Turney, C., Hughen, K.A. *et al.* (2015). Abrupt warming events drove Late Pleistocene Holarctic megafaunal turnover. *Science* 349: 602–606.
Diamond, J. (2011). *Collapse: How Societies Choose to Fail or Succeed.* London: Penguin Books. [Jared Diamond has written extensively about the interaction between human history, nature, and geography].
Flannery, T.F. (1995). *The Future Eaters*. New York: George Braziller. [The history of Meganesia (Australasia and associated islands). This book has much deeper significance than simply a regional history].
Guthrie, R.D. (1990). *Frozen Fauna of the Mammoth Steppe: The Story of Blue Babe*. Chicago: University of Chicago Press.
Johnson, C.N., Alroy, J., Beeton, N.J. *et al.* (2016). What caused extinction of the Pleistocene megafauna of Sahul. *Proceedings of the Royal Society B: Biological Sciences* 283: 20152399. [Sahul is the name given to the combined landmasses of Australia, New Guinea and Tasmania].
Lister, A.M. and Stuart, A.J. (2008). The impact of climate change on large mammal distribution and extinction: evidence from the last glacial/interglacial transition. *Comptes Rendus Geoscience* 340: 615–620.
Martin, P.S. (2005). *Twilight of the Mammoths*. Berkeley: University of California Press.
Meltzer, D.J. (2015). Pleistocene over-kill and North American mammalian extinctions. *Annual Review of Anthropology* 44: 33–53.
Nagaoka, N., Torben, R., and Wolverton, S. (2018). The overkill model and its impact on environmental research. *Ecology and Evolution* 2018: 1–14.
Owen-Smith, N. (1987). Pleistocene extinctions: the pivotal role of megaherbivores. *Paleobiology* 13: 351–362.
Price, G.J., Louys, J., Faith, J.T. *et al.* (2018). Big data little help in megafauna mysteries. *Nature* 558: 23–25.
Stewart, J.R., Lister, A.M., Barnes, I. *et al.* (2010). Refugia revisited: individualistic responses of species in space and time. *Proceedings of the Royal Society of London B: Biological Sciences* 277: 661–671.
Stuart, A.J. (2015). Late Quaternary megafaunal extinctions on the continents: a short review. *Geological Journal* 50: 338–363.
Zimov, S.A., Zimov, N.S., Tikhonov, A.N. *et al.* (2012). The Mammoth steppe: a high-productivity phenomenon. *Quaternary Science Reviews* 57: 26–45.