

British Tertiary Stratigraphy

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GCR Editor: **L.P. Thomas**

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References

- Abbott, W.J.L. (1916) The Pliocene deposits of south-east England. *Proceedings of the Prehistoric Society of East Anglia*, **2**, 175–94.
- A'Court Smith, E.J. (1874) Discovery of the remains of plants and insects. *Nature*, **11**, 88.
- Ager, D.V. (1963) *Principles of Palaeoecology*, McGraw Hill, New York.
- Aguirre, E. and Pasini, G. (1985) The Pliocene–Pleistocene boundary. *Episodes*, **8**, 116–20.
- Ali, J.R. and Hailwood, E.A. (1995) Magnetostratigraphy of Upper Paleocene through Lower Middle Eocene strata of northwest Europe. In *Geochronology Time Scales and Global Stratigraphic Correlation*, SEPM Special Publication, **54**, 275–9.
- Ali, J.R. and Jolley, D.W. (1996) Chronostratigraphic framework for the Thanetian and lower Ypresian deposits of southern England. In *Correlation of the Early Paleogene in Northwest Europe* (eds R.W.O'B. Knox, R.M. Corfield and R.E. Dunay), Geological Society of London, Special Publication, **101**, 129–44.
- Ali, J.R., Hailwood, E.A. and King, C. (1996) The 'Oldhaven magnetozone' in East Anglia: a revised interpretation. In *Correlation of the Early Paleogene in Northwest Europe* (eds R.W.O'B. Knox, R.M. Corfield and R.E. Dunay). Geological Society of London, Special Publication, **101**, 195–203.
- Ali, J.R., King, C. and Hailwood, E.A. (1993) Magnetostratigraphic calibration of early Eocene depositional sequences in the southern North Sea Basin. In *High Resolution Stratigraphy* (eds E.A. Hailwood and R.B. Kidd), Geological Society of London, Special Publication, **70**, 99–125.
- Allen, J.R.L. (1981) Lower Cretaceous tides revealed by cross-bedding with mud drapes. *Nature*, **289**, 579–81.
- Allen, J.R.L. (1982) Mud drapes in sand-wave deposits: a physical model with application to the Folkestone Beds (Early Cretaceous, southeast England). *Philosophical Transactions of the Royal Society of London*, Series A, **306**, 291–345.
- Allen, P. (ed.) (1984) *Field Guide to the Gipping and Waveney Valleys, Suffolk. May 1982*, Quaternary Research Association, Cambridge, 116 pp.
- Allen, P., Keen, D. and Lewis, S.G. (in prep.) *Quaternary of East Anglia and the Midlands*, GCR Series, JNCC, Peterborough.
- Allender, R. and Hollyer, S.E. (1972) The sand and gravel resources of the area south and west of Woodbridge, Suffolk: Description of 1:25 000 resource sheet TM24. *Report of the Institute of Geological Sciences*, **72/9**, 128 pp.
- Amorosi, A. and Centineo, M.C. (1997) Glaucony from the Eocene of the Isle of Wight (southern UK): implications for basin analysis and sequence-stratigraphic interpretation. *Journal of the Geological Society*, **154**, 887–896.
- Anderton, R., Bridges, P.H., Leeder, M.R. and Sellwood, B.W. (1979) *A Dynamic Stratigraphy of the British Isles*, Unwin, London.
- Andrew, R. and West, R.G. (1977) Pollen spectra from Pliocene Crag at Orford, Suffolk. *New Phytologist*, **78**, 709–14.
- Andrews, C.A. (1899) On the remains of a new bird from the London Clay of Sheppey. *Proceedings of the Zoological Society of*

References

- London 1899, 776–85.
- Anon. (1709) Fossiliae Sheppeianae Catalogus. *The Monthly Miscellany or Memoirs for the Curious*, 3, 163.
- Arkell, W.J. (1936) Analysis of Mesozoic and Cainozoic folding in England. *Report, International Geological Congress, XVI USA*, 2, 937.
- Arkell, W.J. (1947) *The geology of the country around Weymouth, Swanage, Corfe and Lulworth*. Memoirs of the Geological Survey of Great Britain, England and Wales, HMSO, London.
- Armenteros, I., and Daley, B. (1998) Pedogenic modifications and structure evolution in palustrine facies as exemplified by the Bembridge Limestone (Late Eocene) of the Isle of Wight, southern England. *Sedimentary Geology*, 119, 275–295.
- Armenteros, I., Daley, B. and Garcia, E. (1997) Lacustrine and Palustrine facies in the Bembridge Limestone (late Eocene, Hampshire Basin) of the Isle of Wight, southern England. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 128, 111–32.
- Armenteros, I., Recio, C. and Daley, B. (1992) Sedimentology and stable isotope study of the lacustrine Bembridge Limestone (Upper Eocene), Isle of Wight, southern England. *III Congreso Geológico de España y VIII Congreso Latinoamericano de Geología, Salamanca, (1992)*, 1, 27–38.
- Aubry, M.P. (1983) Biostratigraphie du Paléogène épicontinental de l'Europe du Nord-ouest. Etude fondée sur les nannofossiles calcaires. *Documents des Laboratoires de Géologie de Lyon*, 89.
- Aubry, M.P. (1985) Northwestern European Paleogene magneto-stratigraphy, biostratigraphy and paleogeography: calcareous nannofossil evidence. *Geology*, 13, 198–202.
- Aubry, M.P. (1986) Palaeogene calcareous nannoplankton biostratigraphy of northwestern Europe. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 55, 267–334.
- Aubry, M.P., Hailwood, E.A. and Townsend, H.A. (1986) Magnetic and calcareous-nannofossil stratigraphy of the lower Palaeogene formations of the Hampshire and London Basins. *Journal of the Geological Society of London*, 143, 729–35.
- Axelrod, D.I. and Bailey, H.P. (1969) Palaeotemperature analysis of Tertiary floras. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 6, 163–195.
- Baden-Powell, D.F.W. (1950) The Pliocene–Pleistocene boundary in the British deposits. *Proceedings of the XVIII Geological Congress, (1948) Section H*, 8–10.
- Baden-Powell, D.F.W. (1960) On the nature of the Coralline Crag. *Geological Magazine*, 97, 123–32.
- Balson, P.S. (1980) The origin and evolution of Tertiary phosphorites from eastern England. *Journal of the Geological Society of London*, 137, 723–9.
- Balson, P.S. (1981a) The sedimentology and palaeoecology of the Coralline Crag (Pliocene) of Suffolk. Unpublished PhD dissertation, Polytechnic of North London, 364 pp.
- Balson, P.S. (1981b) Facies-related distribution of Bryozoans of the Coralline Crag (Pliocene) of eastern England. In *Recent and Fossil Bryozoa* (eds G.P. Larwood and C. Nielsen) Olsen and Olsen, Fredensborg, Denmark, pp. 1–6.
- Balson, P.S. (1983) Temperate, meteoric diagenesis of Pliocene skeletal carbonates from eastern England. *Journal of the Geological Society of London*, 140, 377–85.
- Balson, P.S. (1989) Neogene deposits of the UK Sector of the southern North Sea (51°N–53°N). In *The Quaternary and Tertiary Geology of the Southern Bight, North Sea* (eds J.P. Henriot and G. De Moor), Ministry of Economic Affairs, Belgian Geological Survey, pp. 89–95.
- Balson, P.S. (1990a) The 'Trimley Sands': a former marine Neogene deposit from eastern England. *Tertiary Research*, 11, 145–58.
- Balson, P.S. (1990b) The Neogene of East Anglia – A field excursion report. *Tertiary Research*, 11, 179–89.
- Balson, P.S. (1992a) Tertiary. In *The Geology of the Southern North Sea* (eds T.D.J. Cameron, A. Crosby, P.S. Balson, D.H. Jeffery, G.K. Lott, et al.), HMSO, London, 91–100.
- Balson, P.S. (1992b) Holocene. In *The Geology of the Southern North Sea* (eds T.D.J. Cameron, A. Crosby, P.S. Balson, D.H. Jeffery, G.K. Lott, et al.), HMSO, London, pp. 116–30.
- Balson, P.S. (in press) Pliocene. In *Geology of the Country around Lowestoft and Saxmundham* (ed. B. Moorlock, R.J.O.H. Hamblin, S.J. Booth and A.N. Morigi), Memoirs of the British Geological Survey, The Stationery Office, London.

References

- Balson, P.S. and Humphreys, B. (1986) The nature and origin of fissures in the East Anglian Coralline and Red Crag. *Journal of Quaternary Science*, **1**, 13–19.
- Balson, P.S. and Long, P.E. (1988) Rockhall Wood, Sutton. In *Pliocene–Middle Pleistocene of East Anglia. Field Guide* (eds P.L. Gibbard and J.A. Zalasiewicz), Quaternary Research Association, Cambridge, pp. 67–71.
- Balson, P.S. and Taylor, P.D. (1982) Palaeobiology and systematics of large cyclostome bryozoans from the Pliocene Coralline Crag of Suffolk. *Palaeontology*, **25**, 529–54.
- Balson, P.S., Humphreys, B. and Zalasiewicz, J.A. (1991) *Coralline and Red Crag of East Anglia*, Field Guide No.3. British Sedimentological Research Group, Cambridge, 48 pp. Compiled for the 13th International Sedimentological Congress, Nottingham, UK, (1990).
- Balson, P.S., Mathers, S.J. and Zalasiewicz, J.A. (1993) The lithostratigraphy of the Coralline Crag (Pliocene) of Suffolk. *Proceedings of the Geologists' Association*, **104**, 59–70.
- Bandulska, H. (1923a) A preliminary paper on the cuticular structure of certain dicotyledonous and coniferous leaves from the Middle Eocene Flora of Bournemouth. *Journal of the Linnean Society (Botany)*, **46**, 241–69.
- Bandulska, H. (1923b) On the presence of an Albiectinian cone-scale, *Pityolepis durleyensis* sp. n. in the Bournemouth Eocene Beds. *Annals and Magazine of Natural History*, **9**, 705–8.
- Bandulska, H. (1928) A Cinnamon from the Bournemouth Eocene. *Journal of the Linnean Society (Botany)*, **47**, 139–47.
- Banner, F.T. and Blow, W.H. (1965) Progress in the planktonic biostratigraphy of the Neogene. *Nature*, **208**, 1164–6.
- Barrow, G. (1919) Some future work for the Geologists' Association. *Proceedings of the Geologists' Association*, **30**, 1–48.
- Barton, M.E. (1970) The degradation of the Barton Clay Cliffs of Hampshire. *Proceedings of the 1st International Congress of Engineering Geology, Paris*, **1**, 131–40.
- Barton, M.E. (1973) The degradation of the Barton Clay Cliffs of Hampshire. *Quarterly Journal of Engineering Geology*, **6**, 423–40.
- Bateman, R.M. (1988) Relationship of the Woolwich and Reading Formation (Late Palaeocene) to the Upper Chalk (Late Cretaceous) and Clay-with-flints *sensu lato* (Quaternary) in the Chiltern Hills, southern England. *Tertiary Research*, **10**, 53–63.
- Bateman, R.M. and Moffat, A.J. (1987) Petrography of the Woolwich and Reading Formation (Late Palaeocene) of the Chiltern Hills, southern England. *Tertiary Research*, **8**, 75–103.
- Beck, R.B., Funnell, B.M. and Lord, A.R. (1972) Correlation of Lower Pleistocene Crag at depth in Suffolk. *Geological Magazine*, **109**, 137–9.
- Bell, A. (1871) The Butley Crag pits. *Geological Magazine*, **8**, 450–5.
- Bell, A. (1911) On the zones of the East Anglian Crag. *Journal of the Ipswich and District Field Club*, **3**, 5–17.
- Bell, A. (1912) On the zonal stratification of the eastern British Pliocenes. *Essex Naturalist*, **16**, 289–305.
- Bell, A. (1915) A description of the sub-Crag detritus bed. *Proceedings of the Prehistoric Society of East Anglia*, **2**, 139–48.
- Bell, A. (1918) The Suffolk Boxstones and their probable age. *Geological Magazine* (Decade 6) **5**, 15–21.
- Bell, A. and Bell, R. (1872) On the English Crag and the stratigraphical divisions indicated by their invertebrate fauna. *Proceedings of the Geologists' Association*, **2**, 185–218, 270–2.
- Bell, A. and Notcutt, S.A. (1925) Notes on exposures in the Upper Pliocene deposits in the neighbourhood of Ipswich. *Journal of the Ipswich and District Natural History Society*, **1**, 37–44.
- Bell, R.G. (1884) Land shells in the Red Crag. *Geological Magazine*, **3**, 262–4.
- Bell, T. (1858) *A monograph of the fossil malacostracous Crustacea of Great Britain. Part I. Crustacea of the London Clay*. Palaeontographical Society (Monograph).
- Benton, M.J., Cook, E., Schreve, D., Currant, A. and Hooker, J. (in prep.) *Fossil Mammals and Birds of Great Britain*, GCR Series, JNCC, Peterborough.
- Benton, M.J. and Spencer, P.S. (1995) *Fossil Reptiles of Great Britain*, GCR Series No. 10, Chapman and Hall, London, 386 pp.
- Berdinner, H.C. and Hutchings, G.E. (1925) Excursion to Frindsbury and Upnor, Kent. *Proceedings of the Geological Society*, **36**, 432–3.
- Berger, J.F. (1811) A sketch of the geology of some parts of Hampshire and Dorsetshire. *Transactions of the Geological Society* (First

References

- Series), 1, 249–68.
- Berggren, W.A., Kent, D.V., Swisher, C.C. and Aubry, M.-P. (1995) *A revised Cenozoic geochronology and chronostratigraphy*. SEPM Special Publication, 54, 129–212.
- Berry, F. and Cooper, J. (1977) A temporary exposure of the Paludina Band (Woolwich Beds) at Peckham, South London. *Tertiary Research*, 1, 77–82.
- Beyrich, E. (1854) Ueber die Stellung des hessischen Tertiärbildungen. *Monatsberichte-Königlich preussischen Akademie der Wissenschaften zu Berlin*, pp. 640–66.
- Bhatia, S.B. (1955) The foraminiferal fauna of the late Palaeogene sediments of the Isle of Wight, England. *Journal of Paleontology*, 29, 665–93.
- Bhatia, S.B. (1957) The palaeoecology of the late Paleogene sediments of the Isle of Wight, England. *Contributions from the Cushman Foundation for Foraminiferal Research*, 8, 11–29.
- Bingham, R. (1861) On the geology of the Island of Sheppey. *Proceedings of the Geologists' Association*, 1, 92–106.
- Blake (1903) *The Geology of the Country around Reading*. Memoirs of the Geological Survey, England and Wales, HMSO, London.
- Blondeau, A. and Pomerol, C. (1962) Contribution a l'étude sédimentologique de l'Éocène du Kent et du Hampshire. *Extract du Colloque sur le Paléogène* (Bordeaux, Septembre 1962), pp. 579–84.
- Blondeau, A. and Pomerol, C. (1968) A contribution to the sedimentological study of the Palaeogene of England. *Proceedings of the Geologists' Association*, 79, 441–55.
- Bolli, H.M. (1957) Planktonic foraminifera from the Oligocene–Miocene Cipero and Lengua Formations of Trinidad, B.W.I. *Bulletin of the United States National Museum*, 215, 61–81.
- Bolli, H.M. (1966) Zonation of Cretaceous to Pliocene marine sediments based on planktonic foraminifera. *Boletín informativo Asociación Venezolana de Geología, Minería y Petróleo*, 9, 3–32.
- Bone, A. and Bone, D. (1985) *Fossils from Bracklesham to Selsey*, Chichester District Museum, Chichester.
- Bone, D.A. (1978) New horizons in the London Clay of Bognor Regis, Sussex. *Tertiary Research*, 2, 9–16.
- Bone, D.A. (1992a) Edmond Martin Venables, 1901–1990: a Sussex geologist. *Tertiary Research*, 13, 49–58.
- Bone, D.A. (1992b) Extract from the notebooks of E.M. Venables. *Tertiary Research*, 13, 59–66.
- Bone, D.A. and Tracey, S. (1996) Aerial photography and geological mapping of Bracklesham Bay, West Sussex. *Tertiary Research*, 16, 25–40.
- Bosma, A.A. (1974) Rodent biostratigraphy of the Eocene–Oligocene transitional strata of the Isle of Wight. *Utrecht Micropalaeontological Bulletins, Special Paper*, 1, 1–128.
- Bosma, A.A. and Insole, A.N. (1972) Theridomyinae (Rodentia, Mammalia) from the Osborne Beds (Late Eocene), Isle of Wight, England. *Koninklijke Nederlands Akademie van Wetenschappen Proceedings, Series B*, 75, 134–44.
- Boswell, P.G.H. (1915) The petrology of the Suffolk box-stones (Crag). *Geological Magazine*, 52, 250–9.
- Boswell, P.G.H. (1917) The stratigraphy and petrology of the Lower Eocene deposits of the north-eastern part of the London Basin. *Quarterly Journal of the Geological Society of London*, 71 [for 1915], 536–91.
- Boswell, P.G.H. (1928) *The Geology of the Country around Woodbridge, Felixstowe and Orford*. Memoirs of the Geological Survey of Great Britain, England and Wales, HMSO, London, 80 pp.
- Boswell, P.G.H. (1938) Whitsun field meeting 3rd June to 7th June 1938. Ipswich district. *Proceedings of the Geologists' Association*, 49, 410–14.
- Boswell, P.G.H. (1952) The Pliocene–Pleistocene boundary in the east of England. *Proceedings of the Geologists' Association*, 63, 301–12.
- Boulter, M.C., Ford, T.D., Ijtaba, M. and Walsh, P.T. (1971) Brassington Formation: a newly recognised Tertiary Formation in the Southern Pennines. *Nature (Physical Science)*, 231, 134–6.
- Bowden, D.J., Hunt, C.O. and Green, C.P. (1995) The Late Cenozoic deposits of the Naze, Walton, Essex. In *The Quaternary of the Lower Reaches of the Thames. Field Guide*, (eds D.R. Bridgland, P. Allen and B.A. Haggart), Quaternary Research Association, Durham, pp. 299–309.
- Bowen, R.N.C. (1954) Foraminifera from the London Clay. *Proceedings of the Geologists' Association*, 65, 125–74.
- Bowerbank, J.S. (1840a) *A History of the Fossil*

References

- Fruits and Seeds of the London Clay*, Van Voorst, London.
- Bowerbank, J.S. (1840b) On the London Clay Formation at Bracklesham Bay, Sussex. *Annals and Magazine of Natural History*, **4**, 23–7.
- Bowerbank, J.S. (1841) On the London and Plastic Clay Formations of the Isle of Wight. *Transactions of the Geological Society of London*, **6**, 169–72.
- Bowerbank, J.S. (1854) On the remains of a gigantic bird (*Lithornis Emuinus*) from the London Clay of Sheppey. *Annals and Magazine of Natural History*, **2**, (14), 263–4.
- Brander, G. (1766) *Fossilia Hantoniensia Collecta, et in Musaeo Britannico Deposita*, London.
- Brett, D.W. (1956) Fossil wood of *Cercidiphyllum* Sieb & Zucc. from the London Clay. *Annals and Magazine Natural History*, Series 12, **9**, 657–65.
- Brett, D.W. (1972) Fossil wood of *Platanus* from the British Eocene. *Palaeontology*, **15**, 496–500.
- Bristow, C.R., Freshney, E.C. and Penn, I.E. (1991) *Geology of the Country around Bournemouth*. Memoirs of the British Geological Survey, Sheet 329, HMSO, London.
- Bristow, H.W. (1862) *The Geology of the Isle of Wight*. Memoirs of the Geological Survey of Great Britain and the Museum of Practical Geology, Longman, Green, Longman and Roberts (for HMSO), London.
- Bristow, H.W., Reid, C. and Strahan, A. (1889) *The Geology of the Isle of Wight*. Memoirs of the Geological Survey, England and Wales, HMSO, London.
- British Geological Survey (1985) *Sheet 52°N 00° East Anglia. Solid Geology*, 1:250 000 series, NERC.
- British Geological Survey (1989) *Sheet 51°N 00° Thames Estuary. Solid Geology*, 1:250 000 series, NERC.
- Britton, E.B. (1960) Beetles from the London Clay (Eocene) from Bognor Regis, Sussex. *Bulletin of the British Museum (Natural History)*, **4**, 29–50.
- Brodie, P.B. (1842) Notice on the occurrence of plants in the Plastic Clay of the Hampshire Coast. *Proceedings of the Geological Society of London*, **3**, 592–4.
- Brodie, P.B. (1878) On the discovery of a large and varied series of fossil insects and other associated fossils in the Eocene (Tertiary) Strata of the Isle of Wight. *Proceedings of the Warwickshire Naturalists' and Archaeologists' Field Club*, pp. 1–12.
- Bromhead, E.N. (1978) Large landslides in London Clay at Herne Bay, Kent. *Quarterly Journal of Engineering Geology*, **11**, 291–304.
- Bromley, R.G. and Goldring, R. (1992) The palaeoburrows at the Cretaceous to Palaeocene firmground unconformity in southern England. *Tertiary Research*, **13**, 95–102.
- Bronniman, P., Curry, D., Pomerol, C. and Szots, E. (1968) Contribution à la connaissance des Foraminifères planctoniques de l'Eocène, incluent le Paléocène, du Bassin anglo-franco-belge. *Mémoires du Bureau de Recherches géologiques et minières*, **58**, 101–8.
- Brown, E.E.S. (1936) Field meeting at Herne Bay and Reculver. *Proceedings of the Geologists' Association*, **47**, 349–51.
- Brown, G., Catt, J.A. and Weir, A.H. (1969) Zeolites of the clinoptilolite–heulandite type in sediments of south-east England. *Mineralogical Magazine*, **37**, 480–8.
- Brown, J. (1837) Preservation of Sheppey fruits. *Magazine of Natural History*, **1**, 336.
- Brunet, M., Franzen, J.L., Godinot, M., Hooker, J.J., Legendre, S., Schmidt-Kittler, N. and Vianey-Liaud, M. (co-ordinators) (1987) European reference levels and correlation tables. *Münchener Geowissenschaftliche Abhandlungen*, (A)**10**, 13–31.
- Brunsdon, D., Doornkamp, J.C., Green, C.P. and Jones, D.K.C. (1976) Tertiary and Cretaceous sediments in solution pipes in the Devonian Limestone of South Devon, England. *Geological Magazine*, **113**, 441–7.
- Buchardt, B. (1978) Oxygen isotope palaeotemperatures from the Tertiary period in the North Sea area. *Nature*, **275**, 121–3.
- Buckland, W. (1824) *Reliquiae Diluvianae*, 2nd edn, John Murray, London, 303 pp.
- Buckland, W. (1826) On the formation of the Valley of Kingsclere and other valleys by the elevation of the strata that enclose them; and on the evidences of the original continuity of the Basins of London and Hampshire. *Transactions of the Geological Society (Second Series)*, **2**, 119–30.
- Buckland, W. and De la Beche, H.T. (1836) On the geology of the neighbourhood of Weymouth and the adjacent parts of the coast

References

- of Dorset. *Transactions of the Geological Society* (Second Series), **4**, 1–46.
- Bujak, J.P. (1976) An evolutionary series of Late Eocene dinoflagellate cysts from southern England. *Marine Micropalaeontology*, **1**, 101–17.
- Bujak, J.P. (1979) Proposed evolution of the dinoflagellates *Rhombodinium* and *Gochtodinium*. *Micropalaeontology*, **25**, 308–324.
- Bujak, J.P., Downie, C., Eaton, G.L. and Williams, G.L. (1980) Dinoflagellate cysts and acritarchs from the Eocene of Southern England. *Palaeontology Special Paper*, **24**, 1–100.
- Burrows, H.W. (1895a) The stratigraphy of the Crag: with notes on the distribution of its foraminifera. In *The Crag Foraminifera, Part II* (ed. T.R. Jones). Palaeontographical Society (Monograph), Palaeontographical Society, London, pp. 77–88.
- Burrows, H.W. (1895b) On the stratigraphy of the Crag of Suffolk with especial reference to the distribution of the Foraminifera. *Geological Magazine* (Decade 4) **2**, 506–11.
- Burrows, H.W. and Holland, R. (1897) The foraminifera of the Thanet Beds of Pegwell Bay. *Proceedings of the Geologists' Association*, **15**, 19–52.
- Burton, E.St J. (1929) The horizons of Bryozoa (Polyzoa) in the Upper Eocene Beds of Hampshire. *Quarterly Journal of the Geological Society of London*, **85**, 223–39.
- Burton, E.St J. (1933) Faunal horizons of the Barton Beds in Hampshire. *Proceedings of the Geologists' Association*, **44**, 131–67.
- Burton, E.St J. and Curry, D. (1950) Field meeting at Barton and Milford-on-Sea, Hants. *Proceedings of the Geologists' Association*, **61**, 161–2.
- Bury, H. (1934) Creech Barrow. *Proceedings of the Bournemouth Natural Science Society*, **26**, 68–72.
- Butler, P.M. (1972) The problem of insectivore classification. In *Studies in Vertebrate Evolution* (eds K.A. Joysey and T.S. Kemp), Oliver and Boyd, Edinburgh.
- Buurman, P. (1975) Possibilities of palaeopedology. *Sedimentology*, **22**, 289–98.
- Buurman, P. (1980) Palaeosols in the Reading Beds (Paleocene) of Alum Bay, Isle of Wight, UK. *Sedimentology*, **27**, 593–606.
- Cadée, G.C. (1982) Notes on Bryozoa, 2. *Membraniporella gigas* n. sp., and some other additions to the British Coralline Crag Bryozoan fauna. *Mededelingen van de Werkgroep voor Tertiaire en Kwartaire Geologie*, **19**, 127–40.
- Cadée, G.C. and McKinney, F.K. (1994) A coral-bryozoan association from the Neogene of northwestern Europe. *Letbaia*, **27**, 59–66.
- Cambridge, P. (1949) Hascot, a new crag pit. *Transactions of the Suffolk Naturalists' Society*, **7**, 66–7.
- Cambridge, P.G. (1977) Whatever happened to the Boytonian? A review of the marine Plio–Pleistocene of the southern North Sea Basin. *Bulletin of the Geological Society of Norfolk*, **29**, 23–45.
- Cameron, T.D.J., Bonny, A.P., Gregory, D.M. and Harland, R. (1984) Lower Pleistocene dinoflagellate cyst, foraminiferal and pollen assemblages in four boreholes in the southern North Sea. *Geological Magazine*, **121**, 85–97.
- Campbell, S., Hunt, C.O., Scourse, J.D., Keen, D.H. and Stephens, N. (1998) *Quaternary of South-West England*, GCR Series No. 14, Chapman and Hall, London, 439 pp.
- Cande, S.C. and Kent, D.V. (1995) Revised calibration of the geomagnetic polarity timescale for the Late Cretaceous and Cenozoic. *Journal of Geophysical Research*, **100**, 6093–5.
- Carpenter, P. (1865) On the connection between the Crag formations and the recent north Pacific faunas. *Geological Magazine* (Decade 1) **2**, 152–4.
- Carruthers, W. (1875) On the flora of the London Clay of Sheppey. *Proceedings of the Geologists' Association*, **4**, 318–19.
- Carruthers, W., Duncan, F. and Shrubsole, W.H. (1875) Excursion to the Isle of Sheppey. *Proceedings of the Geologists' Association*, **4**, 320–3.
- Carter, J. (1898) A contribution to the palaeontology of the decapod Crustacea of England. *Quarterly Journal of the Geological Society of London*, **54**, 15–44.
- Carter, D.J. (1951) Indigenous and exotic Foraminifera in the Coralline Crag of Sutton, Suffolk. *Geological Magazine*, **88**, 236–48.
- Carter, D.J. (1957) The distribution of the foraminifer *Alliatina excentrica* (di Napoli Alliota) and the new genus *Alliatinella*. *Palaeontology*, **1**, 76–86.
- Casier, E. (1966) *Fauna Ichthyologique du London Clay*, British Museum (Natural History), London.

References

- Castel, M. (1968) Zones de Charophytes pour l'Oligocène d'Europe Occidentale. *Compte rendu Sommaires des Séances de la Société Géologiques de France*, 4, 121–2.
- Catt, J.A. and Hodgson, J.M. (1976) Soils and geomorphology of the Chalk in south-east England. *Earth Surface Processes*, 1, 181–93.
- Cavalier, C. (1964) Sur le classement des 'Upper Hamstead Beds' de l'île de Wight (Angleterre) dans le stampien inférieur et leur parallélisme avec le Bassin de Paris. *Mémoires du Bureau de Recherches Géologiques et Minières*, 28, (1), 585–90.
- Chandler, M.E.J. (1921) Note on the occurrence of *Sequoia* in the Headon Beds of Hordwell, Hants. *Annals of Botany*, 35, 457.
- Chandler, M.E.J. (1925) *The Upper Eocene Flora of Hordle, Hants*, 1. Palaeontographical Society (Monograph), Palaeontographical Society, London.
- Chandler, M.E.J. (1926) *The Upper Eocene Flora of Hordle, Hants*, 2. Palaeontographical Society (Monograph), Palaeontographical Society, London.
- Chandler, M.E.J. (1951) Note on the occurrence of mangroves in the London Clay. *Proceedings of the Geologists' Association*, 62, 271–2.
- Chandler, M.E.J. (1955) The Schizaeaceae of the South of England in early Tertiary times. *Bulletin of the British Museum (Natural History) Geology*, 2, 291–314.
- Chandler, M.E.J. (1960) Plant remains of the Hengistbury and Barton Beds. *Bulletin of the British Museum (Natural History) Geology*, 4, 191–238.
- Chandler, M.E.J. (1961a) Flora of the Lower Headon Beds of Hampshire and the Isle of Wight. *Bulletin of the British Museum (Natural History) Geology*, 5, 91–158.
- Chandler, M.E.J. (1961b) *The Lower Tertiary Floras of Southern England. I Palaeocene Floras. London Clay Flora (Supplement). Text and Atlas*, British Museum (Natural History), London.
- Chandler, M.E.J. (1962) *The Lower Tertiary Floras of Southern England, II. Flora of the Pipe-Clay Series of Dorset (Lower Bagshot)*, British Museum (Natural History), London.
- Chandler, M.E.J. (1963a) Revision of the Oligocene Floras of the Isle of Wight. *Bulletin of the British Museum (Natural History) Geology*, 6, 321–84.
- Chandler, M.E.J. (1963b) *The Lower Tertiary Floras of Southern England III Flora of Bournemouth Beds, The Boscombe and the Highcliffe Sands*, British Museum (Natural History), London.
- Chandler, M.E.J. (1964) *The Lower Tertiary Floras of Southern England. IV. A Summary and Survey of Findings in the Light of Recent Botanical Observations*, British Museum (Natural History), London.
- Chandler, M.E.J. (1978) Supplement to the Lower Tertiary Floras of Southern England, Part 5. *Tertiary Research Special Paper*, 4.
- Chapman, F. (1913) On some foraminifera from the Eocene Beds of Hengistbury Head, Hampshire. *Geological Magazine (Decade 5)* 10, 555–9.
- Chapman, F. and Sherborn, C.D. (1889) Foraminifera from the London Clay of Sheppey. *Geological Magazine (Decade 3)* 6 (11), 498–9.
- Charlesworth, E. (1835) Observations on the Crag-formation and its organic remains; with a view to establish a division of the Tertiary strata overlying the London Clay in Suffolk. *London and Edinburgh Philosophical Magazine (series 3)*, 7, 81–94.
- Charlesworth, E. (1837a) A notice of the remains of vertebrated animals found in the Tertiary beds of Norfolk and Suffolk. *Report of the British Association for the Advancement of Science. Notices and Abstracts of Miscellaneous Communications to the Sections (1836)*, 84–6.
- Charlesworth, E. (1837b) Observations upon *Voluta lamberti* with a description of a gigantic species of *Terebratula* from the Coralline Crag. *Magazine of Natural History (series 2)*, 1, 90–7.
- Châteauneuf, J.J. (1980) Palynostratigraphie et paléoclimatologie de l'Eocène Supérieur et de l'Oligocène du Bassin de Paris (France). *Mémoires du Bureau de Recherches Géologiques Minières (France)*, 116, 1–357.
- Chatwin, C.P. (1927) Fossils from the Ironsands on Netley Heath (Surrey). *Summary of Progress of the Geological Survey, 1926*, 154–7.
- Cheetham, A.H. (1967) Paleoclimatic significance of the Bryozoan *Metrarabdotos*. *Transactions of the Gulf Coast Association of Geological Societies*, 17, 400–7.
- Christy, M. (1914) The Red Crag shell portrait: a comment on the report of the committee. *Proceedings of the Prehistoric Society of East Anglia*, 1, 446–9.

References

- Clasby, P.S. (1971) The coast protection works at Barton-on-Sea. *Tertiary Times*, **1**, 77–83.
- Clasby, P.S. (1972) Field meeting to the Barton-on-Sea district of Hampshire 22 V 1971. *Tertiary Times*, **1**, 115–16.
- Clasby, P.S. (1974) Report of field meeting to Barton-on-Sea, Hampshire. *Tertiary Times*, **2**, 51–2.
- Clayden, A.W. (1906) *The History of Devonshire Scenery*, Chatto and Windus, London.
- Cleal, C.J. and Thomas, B.A. (in prep.) *Mesozoic to Tertiary Palaeobotany of Great Britain*, GCR Series, JNCC, Peterborough.
- Cole, W. (1898) Serious subsidence of the cliff at Walton-on-the-Naze. *Essex Naturalist*, **10**, 236–7.
- Collins, J.S.H. (1961) Eocene crabs in a London Clay nodule. *Palaeontology*, **4**, 85–6.
- Collinson, M.E. (1978a) Palaeocarpology and related palaeobotanical studies of Palaeogene sediments from Southern Britain. Unpublished PhD thesis, University of London.
- Collinson, M.E. (1978b) Dispersed fern sporangia from the British Tertiary. *Annals of Botany*, **42**, 233–50.
- Collinson, M.E. (1980a) Recent and Tertiary seeds of the Nymphaeaceae *sensu lato* with a revision of *Brasenia ovula* (Brong.). *Annals of Botany*, **46**, 603–32.
- Collinson, M.E. (1980b) A new multiple-floated *Azolla* from the Eocene of Britain with a brief review of the genus. *Palaeontology*, **23**, 213–29.
- Collinson, M.E. (1983a) *Fossil Plants of the London Clay*, Field Guides to Fossils No. 1, Palaeontological Association, London.
- Collinson, M.E. (1983b) Palaeofloristic assemblages and palaeoecology of the Lower Oligocene Bembridge Marls, Hamstead Ledge, Isle of Wight. *Botanical Journal of the Linnean Society*, **86**, 177–225.
- Collinson, M.E. (1990) Vegetational change during the Palaeogene in the coastal wetlands of southern England. In *Paleofloristic and Palaeoclimatic Changes in the Cretaceous and Tertiary* (eds E. Knobloch and Z. Kraček), Proceedings of the Symposium, Prague, 1990, pp. 135–9.
- Collinson, M.E. (1992) Vegetational and floristic changes around the Eocene–Oligocene boundary in western and central Europe. In *Eocene–Oligocene Climatic and Biotic Evolution* (eds D.R. Prothero and W.A. Berggren), Princeton University Press, pp. 437–50.
- Collinson, M.E. (1996) Plant macrofossils from the Bracklesham Group (Early and Middle Eocene), Bracklesham Bay, West Sussex, England: review and significance in the context of coeval British Tertiary floras. *Tertiary Research*, **16**, 175–202.
- Collinson, M.E. and Hooker, J.J. (1987) Vegetational and mammalian faunal changes in the Early Tertiary of southern England. In *The Origin of Angiosperms and their Biological Consequences* (eds E.M. Friis, W.G. Chaloner and P.R. Crane), Cambridge University Press, Cambridge, pp. 259–303.
- Collinson, M.E. and Ribbins, M.M. (1977) Pyritised fern rhachides in the London Clay. *Tertiary Research*, **1**, 109–13.
- Collinson, M.E., Fowler, K. and Boulter, M.C. (1981) Floristic changes indicate a cooling climate in the Eocene of southern England. *Nature*, **291** (5813), 315–17.
- Collinson, M.E., Singer, R.L. and Hooker, J.J. (1993) Vegetational change in the latest Eocene of southern England. *Proceedings of the International Symposium on Paleofloristic and Paleoclimatic Changes during Cretaceous and Tertiary, Bratislava, September 14–20, 1992*, 81–87.
- Cooper, J. (1970) Report of field meeting to Walton and Frinton, Essex. *Tertiary Times*, **1**, 24–6.
- Cooper, J. (1972) Report of project meeting to Sheppey. *Tertiary Times*, **1**, 112–14.
- Cooper, J. (1976a) Report of field meeting to Harefield, Middlesex. *Tertiary Research*, **1**, 31–5.
- Cooper, J. (1976b) British Tertiary stratigraphical and rock terms. *Tertiary Research, Special Paper*, **1**, 1–37.
- Cooper, J. (1977) The palaeontology of the London Clay from the Herne Bay coastline, Kent, England. *Proceedings of the Geologists' Association*, **88**, 163–78.
- Cooper, J. (1982) Geologists' Association field meeting to Harefield, Middlesex, 21 February 1982. Unpublished handout.
- Cooper, J. (1984) A review of the London Clay (Eocene) Mollusca of the cliffs and shore of the Isle of Sheppey, Kent, England. *Tertiary Research*, **6**, 5–9.
- Cooper, J. and Hackett, K. (1975) Report of field meeting to Sheppey, Kent. *Tertiary Times*, **2**, 108.

References

- Cooper, J. and James, J.P. (1975) Report of field meeting to Harefield, Middlesex. *Tertiary Times*, **2**, 168–72.
- Cooper, J., Gamble, H.J. and King, C. (1984) A bibliography of the Isle of Sheppey: geology, palaeontology, archaeology, topography, history and literature, 1572–1983. *Tertiary Research*, **6**, 35–46.
- Cooper, J., Hooker, J.D.J. and Ward, D.J. (1976) Report of field meeting to east Dorset (including Holt Wood and Studland Bay). *Tertiary Research*, **1**, 3–4.
- Cooper, J.E. (1934) Oldhaven and Thanet Sand mollusca of Herne Bay. *Journal of Conchology*, **20**, 4–8.
- Costa, L.I. and Downie, C. (1976) The distribution of the dinoflagellate *Wetzeliella* in the Palaeogene of North-Western Europe. *Palaeontology*, **19**, 591–614.
- Costa, L., Denison, C. and Downie, C. (1978) The Paleocene/Eocene boundary in the Anglo-Paris Basin. *Journal of the Geological Society of London*, **135**, 261–4.
- Costa, L.I., Downie, C. and Eaton, G.L. (1976) Palinostratigraphy of some Middle Eocene sections from the Hampshire Basin (England). *Proceedings of the Geologists' Association*, **87**, 273–84.
- Cox, F.C., Hailwood, E.A., Harland, R., Hughes, M.J., Johnston, N. and Knox, R.W.O'B. (1985) Palaeocene sedimentation and stratigraphy in Norfolk, England. *Newsletters on Stratigraphy*, **14**, 169–85.
- Cox, L.R. (1954) Obituary notice – Arthur George Wrigley. *Proceedings of the Malacological Society of London*, **30**, 157–60.
- Crane, P.R. (1977) The Alum Bay Plant Beds. *Tertiary Research*, **1**, 95–9.
- Crane, P.R. (1978) Angiosperm leaves from the Lower Tertiary of southern England. *Cour. Forsch. – Inst. Senckenberg*, **30**, 126–32.
- Crane, P.R. and Goldring, R. (1991) The Reading Formation (late Palaeocene to early Eocene) at Cold Ash and Pincent's Kiln (Berks) in the western London Basin. *Tertiary Research*, **12**, 147–58.
- Crane, P.R. and Plint, G. (1979) Calcified Angiosperm roots from the Upper Eocene of Southern England. *Annals of Botany*, **44**, 107–12.
- Cray, P.E. (1964) The mammalian fauna of the Headon Beds of Hampshire and the Isle of Wight. Unpublished PhD thesis, University of Bristol.
- Cray, P.E. (1973) Marsupialia, Insectivora, Primates, Creodonta and Carnivora from the Headon Beds (Upper Eocene) of southern England. *Bulletin of the British Museum (Natural History) Geology*, **23**, 1–102.
- Cronin, T.M. (1991a) Pliocene shallow water paleoceanography of the North Atlantic based on marine ostracodes. *Quaternary Science Reviews*, **10**, 175–88.
- Cronin, T.M. (1991b) Late Neogene marine Ostracoda from Tjörnes, Iceland. *Journal of Paleontology*, **65**, 767–94.
- Crow, F. (1810) *A Catalogue of Rare Fossil Fruits from Sheppey Island etc in the Collection of Francis Crow of Faversham*. Mss sketch-book in Palaeontology Library, British Museum (Natural History).
- Curry, D. (1937) The English Bartonian Nummulites. *Proceedings of the Geologists' Association*, **48**, 229–46.
- Curry, D. (1942) The Eocene succession at Afton Brickyard, Isle of Wight. *Proceedings of the Geologists' Association*, **53**, 88–101.
- Curry, D. (1958a) *The Barton Area*. In *Geologists' Association Guide No. 14* (eds D. Curry and D.E. Wisden), pp. 8–12.
- Curry, D. (1958b) Great Britain – Palaeogene. *Lexique Stratigraphique International*, **1**, (3a), XII.
- Curry, D. (1959) Operculae of calcite in the Bythiniinae. *Journal of Conchology*, **24**, 349–50.
- Curry, D. (1965a) The Palaeogene beds of south-east England. *Proceedings of the Geologists' Association*, **76**, 151–74.
- Curry, D. (1965b) The English Palaeogene pteropods. *Proceedings of the Malacological Society, London*, **36**, 357–71.
- Curry, D. (1966) Problems of correlation in the Anglo-Paris-Belgian Basin. *Proceedings of the Geologists' Association*, **77**, 437–67.
- Curry, D. (1968) Excursion en Angleterre 25–29 avril. *Colloque sur l'Eocène*.
- Curry, D. (1976) The age of the Hengistbury Beds (Eocene) and its significance for the structure of the area around Christchurch, Dorset. *Proceedings of the Geologists' Association*, **87**, 401–8.
- Curry, D. (1986) Foraminiferids from decayed chalk flints and some examples of their use in geological interpretation. In *The Scientific Study of Flint and Chert* (eds G. de G. Sieveking and M.B. Hart), Cambridge University Press, Cambridge, pp. 99–103.

References

- Curry, D. and Hailwood, E.A. (1986) English reference sections which span the Eocene/Oligocene boundary. In *Terminal Eocene Events* (eds C. Pomeroy and I. Premoli-Silva), Elsevier, Amsterdam, pp. 87–90.
- Curry, D. and Wisden, D.E. (1958) *Geology of the Southampton Area, including the Coast-sections at Barton, Hants, and Bracklesham, Sussex*. Geology Association Guide, No. 14.
- Curry, D., Adams, C.G., Boulter, M.C., Dilley, F.C., Eames, F.E. *et al.* (1978) A correlation of Tertiary rocks in the British Isles. *Geological Society of London, Special Report*, **12**, 72 pp.
- Curry, D., Daley, B., Edwards, N., Middlemiss, F.A., Stinton, F.C. *et al.* (1972) *The Isle of Wight*. Geologists' Association Guide, No. 25.
- Curry, D., Hodson, F. and West, I.M. (1968) The Eocene succession in the Fawley Transmission Tunnel. *Proceedings of the Geologists' Association*, **79**, 179–206.
- Curry, D., King, A.D., King, C. and Stinton, F.C. (1977) The Bracklesham Beds (Eocene) of Bracklesham Bay and Selsey, Sussex. *Proceedings of the Geologists' Association*, **88**, 243–54.
- Cuvier, G. and Brongniart, A. (1810) *Essaie sur la géographie minéralogique des environs de Paris, avec une carte géognostique et des coups de terrain. Mémoires de la Classe des Sciences, Mathématique, Physique Institute Impériale de France (1810)*.
- Dale S. (1704) A letter to Mr Edward Lhywd, Keeper of the Ashmolean Repository in Oxford, concerning Harwich Cliff and the fossil shells there. *Philosophical Transactions of the Royal Society*, **24**, 1568–78.
- Dale, S. (1730) The natural history of the sea coast and country about Harwich. In *The History and Antiquities of Harwich and Dovercourt*, S. Taylor, London.
- Daley, B. (1967) Pseudomorphs after gypsum from the Bembridge Marls. *Proceedings of the Geologists' Association*, **78**, 319–24.
- Daley, B. (1968) Sedimentary structures from a non-marine horizon in the Bembridge Marls (Oligocene) of the Isle of Wight, Hampshire, England. *Journal of Sedimentary Petrology*, **38**, 114–27.
- Daley, B. (1969) A palaeoenvironmental study of the Bembridge Marls (Oligocene) of the Isle of Wight, Hampshire. Unpublished PhD thesis, University of Reading.
- Daley, B. (1971) Diapiric and other deformational structures in an Oligocene argillaceous limestone. *Sedimentary Geology*, **6**, 29–51.
- Daley, B. (1972a) Some problems concerning the early Tertiary climate of southern Britain. *Palaeogeography, Palaeoclimatology, Palaeoecology*, **11**, 177–90.
- Daley, B. (1972b) Macroinvertebrate assemblages from the Bembridge Marls (Oligocene) of the Isle of Wight, England, and their environmental significance. *Palaeogeography, Palaeoclimatology, Palaeoecology*, **11**, 11–32.
- Daley, B. (1972c) Slumping and microjointing in an Oligocene lagoonal limestone. *Sedimentary Geology*, **7**, 35–46.
- Daley, B. (1973a) The palaeoenvironment of the Bembridge Marls (Oligocene) of the Isle of Wight. *Proceedings of the Geologists' Association*, **84**, 83–93.
- Daley, B. (1973b) Fluvio-lacustrine cyclothems from the Oligocene of Hampshire. *Geological Magazine*, **110**, 235–42.
- Daley, B. (1974) Shell-encrusting algae from the Bembridge Marls (Oligocene) of the Isle of Wight, Hampshire. *Revue de Micropaléontologie*, **17**, 15–22.
- Daley, B. (1989) Silica pseudomorphs from the Bembridge Limestone (Upper Eocene) of the Isle of Wight, southern England, and their palaeoclimatic significance. *Palaeogeography, Palaeoclimatology, Palaeoecology*, **69**, 233–40.
- Daley, B. (1996) The Tertiary geological succession in Christchurch Bay. In *Coastal defence and Earth Science Conservation. Excursion Guidebook: Poole and Christchurch Bays* (eds M.J. Bray, D.J. Carter and J.M. Hooke), University of Portsmouth, Portsmouth, pp. 5–21, 221–32.
- Daley, B. (1999) Palaeogene sections in the Isle of Wight. A revision of their description and significance in the light of research undertaken in recent decades. *Tertiary Research*, **19**, 1–69.
- Daley, B. and Crewdson, P. (1987) 'Bournemouth Cliffs': a revised cliff profile and an account of the present distribution of exposures. *Tertiary Research*, **8**, 127–32.
- Daley, B. and Edwards, N. (1971) Palaeogene warping in the Isle of Wight. *Geological Magazine*, **108**, 399–405.
- Daley, B. and Edwards, N. (1974). Weekend Field Meeting: the Upper Eocene–Lower Oligocene Beds of the Isle of Wight. *Proceedings of the Geologists' Association*,

References

- 85, 281–92.
- Daley, B. and Edwards, N. (1990) The Bembridge Limestone (Late Eocene), Isle of Wight, southern England. *Tertiary Research*, **12**, 51–64.
- Daley, B. and Insole, A. (1984) *The Isle of Wight*. Geologists' Association Guide, No. 25.
- Daley, B., Edwards, N. and Insole, A. (1979) Lithostratigraphical nomenclature of the English Palaeogene succession. *Geological Magazine*, **116**, 65–6.
- Dalton, W.H. (1900) A brief sketch of the Crag formation of East Anglia. *Essex Field Club, Museum Handbooks*, No. 4, 8 pp.
- Dalton, W.H. (1902) 'Walton and Frinton in 1902'. *Essex Naturalist*, **12**, 217–21.
- Dalton, W.H. and Whitaker, W. (1886) *The Geology of the Country around Aldborough, Framlingham, Orford and Woodbridge*. Memoirs of the Geological Survey, England and Wales, HMSO, London, 59 pp.
- Daniels, M.C. (1970a) Report of Easter Field Meeting to Barton, Hants, and surrounding regions. *Tertiary Times*, **1**, 27–8.
- Daniels, M.C. (1970b) Report on the field trip to Minster, Isle of Sheppey. *Tertiary Times*, **1**, 9.
- Daniels, M.C. (1971) Report of field meeting to Wrabness, Stour Estuary, Essex. *Tertiary Times*, **1**, 67–70.
- Davey, R.J., Downie, C., Sarjeant, W.A.S. and Williams, G.L. (1966) Studies on Mesozoic and Cainozoic dinoflagellate cysts. *Bulletin British Museum Natural History (Geology)*, Supplement 3, 1–248.
- Davis, A.G. (1936) The London Clay of Sheppey and the location of its fossils. *Proceedings of the Geologists' Association*, **47**, 328–45.
- Davis, A.G. (1937) Additional notes on the geology of Sheppey with report of field meetings. *Proceedings of the Geologists' Association*, **48**, 77–81.
- Davis, A.G. and Elliott, G.F. (1951a) The London Clay of coastal Suffolk and Essex. *Geological Magazine*, **88**, 329–37.
- Davis, A.G. and Elliott, G.F. (1951b) Field meeting in Sheppey. *Proceedings of the Geologists' Association*, **62**, 269.
- Davis, A.G. and Elliott, G.F. (1955) Field meeting in Sheppey. *Proceedings of the Geologists' Association*, **65**, 383.
- Davis, A.G. and Elliott, G.F. (1957) The palaeogeography of the London Clay Sea. *Proceedings of the Geologists' Association*, **68**, 255–277.
- De la Beche, H.T. (1839) *Report on the Geology of Cornwall, Devon and West Somerset*, Longman, Orme, Brown, Green and Longmans, London (printed for HMSO).
- De la Harpe, P. and Salter, J.W. (1862) Notes on the Eocene flora of Alum Bay. In *The Geology of the Isle of Wight* (ed. H.W. Bristow), Memoirs of the Geological Survey of Great Britain and the Museum of Practical Geology, Longman, Green, Longman and Roberts (for HMSO), London, pp. 109–20.
- De Raaf, J.F.M. and Boersma, J.R. (1971) Tidal deposits and their sedimentary structures (seven examples from Western Europe). *Geologie en Mijnbouw*, **50**, 479–504.
- Deegan, C.E. and Scull, B.J. (1977) A standard lithostratigraphic nomenclature for the Central and Northern North Sea. *Report of the Institute of Geological Sciences*, **77** (25), *Bulletin of the Norwegian Petroleum Directorate*, **1**.
- Defoe, D. (1724) *A Tour thro' the Whole Island of Great Britain*, G. Strahan, London.
- De Sales, R.F. (1914) Report of an excursion to Harefield. *Proceedings of the Geologists' Association*, **25**, 50–1.
- Dewey, H. and Bromhead, C.E.N. (1921) *The Geology of South London*. Memoirs of the Geological Survey, England and Wales, HMSO, London.
- Dewey, H., Wooldridge, S.W., Cornes, H.W. and Brown, E.E.S. (1925) The geology of the Canterbury district and report of excursion to Canterbury. *Proceedings of the Geologists' Association*, **26**, 257–90.
- Dineley, D.L. and Metcalf, S.J. (1999) *Fossil Fishes of Great Britain*, GCR Series No. 16, JNCC, Peterborough.
- Dines, H.G. and Chatwin, C.P. (1930) Pliocene sandstone from Rothamsted (Hertfordshire). *Summary of Progress of the Geological Survey (1929)*, Part III, 1–7.
- Dines, H.G., Holmes, S.C.A. and Robbie, J.A. (1954) *Geology of the Country around Chatham*. Memoirs of the Geological Survey of Great Britain, England and Wales, HMSO, London.
- Dixon, F. (1850) *The Geology and Fossils of the Tertiary and Cretaceous Formations of Sussex*, Longmans, London.
- Dixon, F. and Jones, T.R. (1878) *The Geology of Sussex*, William J. Smith, Brighton.
- Dixon, R.G. (1977) Neutral Farm Pit, Butley. *Bulletin of the Ipswich Geological Group*, **19**,

References

- 6–12.
- Dixon, R.G. (1978) Deposits marginal to the Red Crag Basin. *Bulletin of the Geological Society of Norfolk*, **30**, 92–104.
- Dixon, R.G. (1979) Sedimentary facies in the Red Crag (Lower Pleistocene), East Anglia. *Proceedings of the Geologists' Association*, **90**, 117–32.
- Dowker, G. (1864) Excursion to Herne Bay and Reculver. *Proceedings of the Geologists' Association*, **1**, 339–44.
- Dowker, G. (1866) On the junction of the Chalk with the Tertiary Beds in East Kent. *Geological Magazine*, **3**, 210–13.
- Downie, C., Hussain, M.A. and Williams, G.L. (1971) Dinoflagellate cyst and acritarch associations in the Palaeogene of southeast England. *Geoscience and Man*, **3**, 29–35.
- Dowsett, H.J. and Cronin, T.M. (1990) High eustatic sea level during the middle Pliocene: evidence from the southeastern US Atlantic Coastal Plain. *Geology*, **18**, 435–8.
- Dowsett, H.J. and Loubere, P. (1992) High resolution late Pliocene sea-surface temperature record from the Northeast Atlantic Ocean. *Marine Micropaleontology*, **20**, 91–105.
- Dowsett, H., Barron, J. and Poore, R. (1996) Middle Pliocene sea temperatures: a global reconstruction. *Marine Micropaleontology*, **27**, 13–25.
- Dowsett, H.J., Cronin, T.M., Poore, R.Z., Thompson, R.S., Whatley, R.C. and Wood, A.M. (1992) Micropaleontological evidence for increased meridional heat transport in the North Atlantic Ocean during the Pliocene. *Science*, **258**, 1133–5.
- Eaton, G.L. (1971a) The use of microplankton in resolving stratigraphical problems in the Eocene of the Isle of Wight. *Journal of the Geological Society of London*, **127**, 281–3.
- Eaton, G.L. (1971b) A morphogenetic series of dinoflagellate cysts from the Bracklesham Beds of the Isle of Wight, Hampshire, England. *Proceedings II Planktonic Conference, Roma*, pp. 355–79.
- Eaton, G.L. (1976) Dinoflagellate cysts from the Bracklesham Beds (Eocene) of the Isle of Wight, southern England. *Bulletin of the British Museum (Natural History) Geology*, **26**, 225–332.
- Edmonds, E.A., McKeown, M.C. and Williams, M. (1975) *British Regional Geology, South West England*, HMSO, London.
- Edmunds, F.H. (1927) Pliocene deposits on the South Downs. *Geological Magazine*, **64**, 287.
- Edwards, E. and Daley, B. (1997) Stratigraphy of the Totland Bay Member (Headon Hill Formation, Late Eocene) at Hordle Cliff, Hampshire, Southern England. *Tertiary Research*, **18**, 35–50.
- Edwards, F.E. and Wood, S.V. (1849–1877) *A Monograph of the Eocene Cephalopods and Univalves of England*. Palaeontographical Society (Monograph), Palaeontographical Society, London.
- Edwards, N. (1967) A study of the Headon Beds, Osborne Beds and Bembridge Limestone (Upper Bartonian and Lattorfian), in the Isle of Wight and Hampshire, England. Unpublished PhD thesis, University of Reading.
- Edwards, N. (1971a) Thomas Webster (circa 1772–1844). *Journal of the Society for the Bibliography for Natural History*, **5**, 468–73.
- Edwards, N. (1971b) Stratigraphy and correlation of the Headon, Osborne, Bembridge and Hamstead Beds (Palaeogene), Hampshire Basin – a bibliography (1814–1970). *Journal of the Society for the Bibliography for Natural History*, **6**, 50–60.
- Edwards, N. (1971c) Report of field meeting to Milford-on-Sea, Hampshire. *Tertiary Times*, **1**, 50–2.
- Edwards, N., Jarzembowski, E.A., Pain, T. and Daley, B. (1998) Cocoon-like trace fossils from the lacustrine–palustrine Bembridge Limestone Formation (Late Eocene), Southern England. *Proceedings of the Geologists' Association*, **109**, 25–32.
- Edwards, R.A. (1973) The Aller Gravels: Lower Tertiary braided river deposits in south Devon. *Proceedings of the Ussher Society*, **2**, 608–16.
- Edwards, R.A. (1976) Tertiary sediments and structure of the Bovey Basin, south Devon. *Proceedings of the Geologists' Association*, **87**, 1–26.
- Edwards, R.A. (1991) *Geology of the Dunchideock District (Devon)*. British Geological Survey Technical Report WA/91/7.
- Edwards, R.A. and Freshney, E.C. (1982) The Tertiary sedimentary rocks. In *The Geology of Devon* (eds E.M. Durrance and D.J.C. Laming), University of Exeter, pp. 204–37.
- Edwards, R.A. and Freshney, E.C. (1987a) *Geology of the Country around Southampton*. Memoirs of the British Geological Survey, Sheet 315 (England and Wales), HMSO, London.

References

- Edwards, R.A. and Freshney, E.C. (1987b) Lithostratigraphical classification of the Hampshire Basin Palaeogene deposits (Reading Formation to Headon Formation). *Tertiary Research*, **8**, 43–73.
- Edwards, W.N. (1936) The flora of the London Clay. *Proceedings of the Geologists' Association*, **47**, 22–31.
- Elliott, G.F. (1938) A London Clay brachiopod. *Proceedings of the Geologists' Association*, **49**, 128–34.
- Elliott, G.F. (1954) New Brachiopoda from the Eocene of England, France and Africa. *Annals and Magazine of Natural History*, **12**, 721–8.
- Elliott, G.F. (1971a) Report of field meeting to Harwich, Essex. *Tertiary Times*, **1**, 55–6.
- Elliott, G.F. (1971b) Eocene volcanics in south-east England. *Nature, Physical Science*, **230**, 9.
- Ellison, R.A. (1979) Report of a field excursion to south Essex. *Tertiary Research*, **2**, 51–6.
- Ellison R.A. (1983) Facies distribution in the Woolwich and Reading Beds of the London Basin, England. *Proceedings of the Geologists' Association*, **94**, 311–19.
- Ellison, R.A., Jolley, D.W., King, C. and Knox, R.W.O'B. (1994) A revision of the lithostratigraphic classification of the early Palaeogene strata in the London Basin and East Anglia. *Proceedings of the Geologists' Association*, **105**, 187–97.
- Elwes, J.W. (1883) The Middle Headon Marine Bed at Hordwell. *Geological Magazine*, **10**, 527–8.
- Elwes, J.W. (1884) The Middle Headon Marine Bed. *Geological Magazine*, **1**, 94–5.
- Emeleus, C.H. and Gyopari, M.C. (1992) *British Tertiary Volcanic Province*, GCR Series No. 4, Chapman and Hall, London, 259 pp.
- Epps, F.J. (1950) Field meeting to Charlton, Plumstead and Abbey Wood. *Proceedings of the Geologists' Association*, **61**, 218.
- Epps, F.J. (1956) Field meeting at Charlton and Bostall Heath. *Proceedings of the Geologists' Association*, **66**, 325–8.
- Evans, G. (1965) Intertidal flat sediments and their environments of deposition in the Wash. *Quarterly Journal of the Geological Society of London*, **121**, 209–45.
- Everden, J.F., Curtis, G.H., Obradovich, J. and Kistler, R.W. (1961) On the evaluation of glauconite and illite for dating sedimentary rocks by the potassium-argon method. *Geochimica et Cosmochimica Acta*, **23**, 78–99.
- Feist-Castel, M. (1977) Evolution of the Charophyte floras in the Upper Eocene and Lower Oligocene of the Isle of Wight. *Palaeontology*, **20**, 143–57.
- Feueur, L. (1963) *L'Ypresian du Bassin de Paris. Essai de monographie stratigraphique*. Mémoires pour Servir à l'explication de la Carte Géologique Détaillée de la France.
- Feueur, L. and Pomerol, C. (1963) L'Éocène de Bassin de Paris. *Bulletin de la Société Belge de Géologie, de Paléontologie et d'Hydrologie* (1962), **71**, 387–446.
- Feueur, L. and Pomerol, C. (1968) *Bassin de Paris, Île de France*. Guides Géologiques Régionaux, Paris.
- Fisher, O. (1862) On the Bracklesham Beds of the Isle of Wight Basin. *Quarterly Journal of the Geological Society of London*, **18**, 65–94.
- Fisher, O. (1882) On the strata of Colwell Bay, Headon Hill and Hordwell Cliff. *Geological Magazine*, **9**, 138–40.
- Fisher, O. (1896) Vertical Tertiaries at Bincombe, Dorset. *Geological Magazine*, **3**, 246–7.
- Fitch, F.J., Hooker, P.J., Miller, J.A. and Bereton, N.R. (1978a) Glauconite dating of Palaeocene–Eocene rocks from East Kent and the timescale of Palaeogene volcanism in the North Atlantic region. *Journal of the Geological Society of London*, **135**, 499–512.
- Fitch, F.J., Hooker, P.J. and Miller, J.A. (1978b) Age of the Thanet Beds (Palaeocene) of East Kent, England. In *Short Papers on the Fourth International Conference, Geochronology, Cosmochronology, Isotope Geology August 20–25 1978, Colorado* (ed. R.E. Zartman), United States Geological Survey Open-File Report, 78–701, 111–14.
- Flenley, J.R. (1979) *The Equatorial Rain Forest: A Geological History*, Butterworth, London.
- Forbes, E. (1846) *On the connexion between the distribution of the existing fauna and flora of the British Isles, and the Geological changes which have affected their area, especially during the epoch of the Northern Drift*. Memoirs of the Geological Survey of Great Britain, HMSO, London, **1**, 336–432.
- Forbes, E. (1852) *Monograph of the Echinodermata of the British Tertiaries*, Palaeontographical Society (Monograph).
- Forbes, E. (1853) On the Fluvio-marine Tertiaries of the Isle of Wight. *Quarterly Journal of the Geological Society of London*, **9**, 259–70.
- Forbes, E. (1856) *On the Tertiary Fluvio-marine Formation of the Isle of Wight*. Memoirs of

References

- the Geological Survey of Great Britain and the Museum of Practical Geology, Longman, Brown, Green and Longman (for HMSO), London.
- Ford, R. (1967) Hampshire's age of crocodiles. *Illustrated London News*, 25th March 18–21.
- Fowler, K. (1975) Megaspores and massulae of *Azolla prisca* from the Oligocene of the Isle of Wight. *Palaeontology*, **18**, 483–507.
- Fowler, K., Edwards, N. and Brett, D.W. (1973) *In situ* coniferous (taxodiaceous) tree remains in the Upper Eocene of southern England. *Palaeontology*, **16**, 205–17.
- Freshney, E.C., Edwards, R.A. and Curry, D. (1990) The boundary between the Selsey Sand and Barton Clay Formations at Whitecliff Bay, Isle of Wight. *Tertiary Research*, **12**, 65–8.
- Frey, R.W., Basan, P.B. and Scott, R.M. (1973) Techniques for sampling salt marsh benthos and burrows. *American Midland Naturalist*, **89**, 228–34.
- Funnell, B.M. (1967) Foraminifera and Radiolaria as depth indicators in the marine environment. *Marine Geology*, **5**, 333–47.
- Funnell, B.M. (1987) Late Pliocene and Early Pleistocene stages of East Anglia and the adjacent North Sea. *Quaternary Newsletter*, **52**, 1–11.
- Funnell, B.M. (1988) Foraminifera in the Late Tertiary and Early Quaternary Crags of East Anglia. In *Pliocene–Middle Pleistocene of East Anglia. Field Guide* (eds P.L. Gibbard and J.A. Zalasiewicz), Quaternary Research Association, Cambridge, pp. 50–2.
- Funnell, B.M. (1995) Global sea-level and the (pen-)insularity of Late Cenozoic Britain. In *Island Britain: A Quaternary Perspective* (ed. R.C. Prece), *Geological Society of London, Special Publication*, **96**, pp. 3–13.
- Funnell, B.M. (1996) Plio–Pleistocene palaeogeography of the southern North Sea Basin (3.75–0.60 Ma). *Quaternary Science Reviews*, **15**, 391–405.
- Funnell, B.M. and West, R.G. (1977) Preglacial Pleistocene deposits of East Anglia. In *British Quaternary Studies. Recent Advances* (ed. F.W. Shotton), Clarendon Press, Oxford, pp. 247–65.
- Gamble, H.J. (1968) Field meeting to East Kent. *Proceedings of the Geologists' Association*, **78**, 587–93.
- Gamble, H.J. (1972) Field meeting to Boughton and Canterbury, Kent. *Proceedings of the Geologists' Association*, **83**, 471–8.
- Gamble, H.J. (1979) Note on London Clay fish remains from Beltinge Cliffs, Herne Bay, Kent. *Tertiary Research*, **2**, 131–3.
- Gamble, H.J. (1981) A critical analysis of certain thickness measurements utilised for correlation of London Clay sections in East Kent. *Tertiary Research*, **3**, 103–10.
- Gamble, H.J. (1982) Essay review and supplementary stratigraphical observations on chapters concerning the Palaeogene deposits in Holmes, S.C.A., 1981, *Geology of the country around Faversham*, Memoir of the Geological Survey of Great Britain. *Tertiary Research*, **4**, 155–164.
- Gamble, H.J. (1983) Essay review. *Tertiary Research*, **5**, 39–42.
- Gamble, H.J. (1984) Relative stratigraphical levels in the Lower Eocene succession above the north Sheppey cliffs: a solution from structural contour data (prepared for publication by J. Cooper). *Tertiary Research*, **6**, 69–70.
- Gardner, J.S. (1877) On the Lower Bagshot Beds of the Hampshire Basin. *Proceedings of the Geologists' Association*, **5**, 51–68.
- Gardner, J.S. (1878) How were the Eocenes of England deposited? *Popular Science*, **2**, 282–92.
- Gardner, J.S. (1879a) On the British Eocenes and their deposition. *Proceedings of the Geologists' Association*, **6**, 83–106.
- Gardner, J.S. (1879b) On the correlation of the Bournemouth Marine Series with the Bracklesham Beds, the Upper and Middle Bagshot Beds of the London Basin, and the Bovey Tracey Beds. *Geological Magazine* (Decade 2) **6**, 148–54.
- Gardner, J.S. (1879c) Description and correlation of the Bournemouth Beds. Part I. Upper Marine Series. *Quarterly Journal of the Geological Society of London*, **38**, 209–28.
- Gardner, J.S. (1881) Geologising at Sheppey. *Nature*, **23**, 293–4.
- Gardner, J.S. (1882) Description and correlation of the Bournemouth Beds. Part II. Lower or Freshwater Series. *Quarterly Journal of the Geological Society of London*, **38**, 1–15.
- Gardner, J.S. (1883) On the Lower Eocene section between Reculvers and Herne Bay and on some modifications in the classification of the Lower London Tertiaries. *Quarterly Journal of the Geological Society of London*, **39**, 197–210.
- Gardner, J.S. (1886) Inquiry concerning the dis-

References

- tribution of Teredo-bored wood in the Eocene. *Geological Magazine* (Decade 3) 3, 161–6.
- Gardner, J.S. and von Ettinghausen, C. (1879–1882) *A Monograph of the British Eocene Flora, 1 Filices*. Palaeontographical Society (Monograph), Palaeontographical Society, London.
- Gardner, J.S., Keeping, H. and Monkton, H.L. (1888) The Upper Eocene comprising the Barton and Upper Bagshot Formations. *Quarterly Journal of the Geological Society of London*, 44, 578–635.
- Geikie, A. and Reid, C. (1886) The Pliocene deposits of north-western Europe. *Nature, London*, 34, 341–3.
- George, W. and Packman, A.R. (1970) Report on the field meeting to examine the Waltonian Division of the Red Crag and the London Clay exposure at Walton-on-the-Naze, Essex. *Tertiary Times*, 1, 12–13.
- George, W. and Vincent, S. (1977) Report of field meeting to Walton-on-the-Naze and Wrabness, Essex, 2.X.1976 with notes on the London Clay of Walton. *Tertiary Research*, 1, 83–90.
- George, W.H. (1984a) A short account of the coprolites industry of the Isle of Sheppey, Kent. *Tertiary Research*, 5, 169–72.
- George, W.H. (1984b) A short account of the cement stone industry of the Isle of Sheppey, Kent. *Tertiary Research*, 5, 165–8.
- Gibbard, P.L. (1995) The formation of the Strait of Dover. In *Island Britain: A Quaternary Perspective* (ed. R.C. Preece). *Geological Society of London, Special Publication*, 96, 15–26.
- Gibbard, P.L. and Peglar, S.M. (1988) Pollen analysis. In *Pliocene–Middle Pleistocene of East Anglia* (eds P.L. Gibbard and J.A. Zalasiewicz), Quaternary Research Association, Cambridge, pp. 71–2.
- Gilkes, R.J. (1968) Clay mineral provinces in the Tertiary sediments of the Hampshire Basin. *Clay Minerals*, 7, 351–61.
- Gilkes, R.J. (1978) On the clay mineralogy of upper Eocene and Oligocene sediments in the Hampshire Basin. *Proceedings of the Geologists' Association*, 89, 43–56.
- Glaessner, M.F. and Withers, T.H. (1931) On London Clay crabs of the family Raninidae. *Annals and Magazine of Natural History*, Series 10, 8 (47), 484–93.
- Glibert, M. and De Heinzelin, J. (1957) La limite Plio–Pléistocène dans le Bassin de la Mer du Nord. *Geologie en Mijnbouw*. 19, 267–71.
- Godfrey, A. (1984) Palaeocene calcareous nanofloras from the Thanet Beds (type–Thanetian) of Kent and comparative material from Belgium, the Paris Basin and northern Tunisia. MSc Diploma Project Report, University College, London.
- Godfrey, A. and Lord, A. (1984) *Discoaster multiradiatus* in the Paleocene of SE England. *International Nannofossil Association Newsletter*, 6, 82–3.
- Godwin-Austen, H.H. (1882) On a fossil species of *Camptoceras*, a freshwater mollusk from the Eocene of Sheerness-on-Sea. *Quarterly Journal of the Geological Society of London*, 38, 218–21.
- Grambast, L. (1962) Indications fournies par les charophytes pour la stratigraphie de Paléogène. *Mémoires du Bureau de Recherches géologiques et minières*, 28, 1009–11.
- Gray, J.M. (1988) Coastal cliff retreat at the Naze, Essex since 1874: patterns, rates and processes. *Proceedings of the Geologists' Association*, 99, 335–8.
- Green, C.P. (1974) The Haldon Gravels of south Devon. *Proceedings of the Geologists' Association*, 85, 293–4.
- Green, J.F.N. (1941) The High Platforms of East Devon. *Proceedings of the Geologists' Association*, 52, 36–52.
- Greensmith, J.T., Blezard, R.G., Bristow, C.R., Markham, R. and Tucker, E.V. (1973) *The Estuarine Region of Suffolk and Essex*. Geologists' Association Guide, No. 12.
- Gregory, J.W. (1893) On the British Palaeogene Bryozoa. *Transactions of the Zoological Society of London*, 13, 219–79.
- Groves, A.W. (1931) The unroofing of the Dartmoor Granite and the distribution of its detritus in the sediments of southern England. *Quarterly Journal of the Geological Society of London*, 87, 62–96.
- Groves, J. (1926) Charophyta. In *Catalogue of Cainozoic Plants in the Department of Geology 1 The Bembridge Flora*. (E.M. Reid and M.E.J. Chandler). British Museum (Natural History), London, 165–73.
- Gruas-Cavagnetto, C. (1976) Étude palynologique du Paléogène du sud de l'Angleterre. *Cahiers de Micropaléontologie*, 1, 5–49.
- Gurr, P.R. (1963) A new fish fauna from the

References

- Woolwich Bottom Bed (Sparnacian) of Herne Bay, Kent. *Proceedings of the Geologists' Association*, **73**, 419–47.
- Hails, J.R. and White, P.C.S. (1970) Periglacial features at Walton-on-Naze, Essex. *Proceedings of the Geologists' Association*, **81**, 205–19.
- Halstead, L.B. and Middleton, J. (1972) Notes on fossil whales from the Upper Eocene of Barton, Hampshire. *Proceedings of the Geologists' Association*, **83**, 185–90.
- Hamblin, R.J.O. (1969) The geology of the Haldon Hills, Exeter. Unpublished PhD thesis, University of Exeter.
- Hamblin, R.J.O. (1973a) The Haldon Gravels of south Devon. *Proceedings of the Geologists' Association*, **84**, 459–76.
- Hamblin, R.J.O. (1973b) The clay mineralogy of the Haldon Gravels. *Clay Minerals*, **10**, 87–97.
- Hamblin, R.J.O. (1974) On the correlation of the Haldon and Aller Gravels, south Devon. *Proceedings of the Ussher Society*, **3**, 103–10.
- Hamilton, G.B. and Hojjatzadeh, M. (1982) Cenozoic calcareous nannofossils – a reconnaissance. In *A Stratigraphical Index of Calcareous Nannofossils* (ed. A.R. Lord), Ellis Horwood, Chichester, pp. 136–67.
- Haq, B.U., Hardenbol, J. and Vail, P.R. (1987) Chronology of fluctuating sea levels since the Triassic. *Science*, **235**, 1156–67.
- Harland, W.B., Armstrong, R.L., Craig, L.E., Smith, A.G. and Smith, D.G. (1990) *A Geologic Time Scale* [wall chart], Cambridge University Press, Cambridge.
- Harmer, F.W. (1898) The Pliocene deposits of the east of England. The Lenham Beds and the Coralline Crag. *Quarterly Journal of the Geological Society of London*, **54**, 308–56.
- Harmer, F.W. (1900a) On a proposed new classification for the Pliocene deposits of the east of England. *Report of the British Association for the Advancement of Science (1899)*, pp. 751–3.
- Harmer, F.W. (1900b) The Pliocene deposits of the east of England. Part II. The Crag of Essex (Waltonian) and its relation to that of Suffolk and Norfolk. With a report on the inorganic constituents of the Crag by Joseph Lomas. *Quarterly Journal of the Geological Society of London*, **56**, 705–44.
- Harmer, F.W. (1902) A sketch of the later Tertiary history of East Anglia. *Proceedings of the Geologists' Association*, **17**, 416–79.
- Harmer, F.W. (1910) The Pliocene deposits of the eastern counties of England. In *Geology in the Field. Jubilee Volume of the Geologists' Association* (eds H.W. Monckton and R.S. Herries), Edward Stanford, London, pp. 86–102.
- Harmer, F.W. (1914–1925) *The Pliocene Mollusca*, Palaeontographical Society (Monograph), Palaeontographical Society, London.
- Harris, G.F. (1887) A revision of our Lower Eocenes. *Proceedings of the Geologists' Association*, **10**, 40–58.
- Harrison, C.J.O. and Walker, C.A. (1979) Birds of the British Middle Eocene. *Tertiary Research Special Paper*, **5**, 29–43.
- Harrison, M.D. (1983) Red Crag (Lower Pleistocene) gastropods. A computer aided palaeoecological study of selected genera. Unpublished PhD dissertation, Polytechnic of North London.
- Haskins, C.W. (1968a) Tertiary ostracoda from the Isle of Wight and Barton, Hampshire, Part I. *Revue de Micropaléontologie*, **10**, 250–60.
- Haskins, C.W. (1968b) Tertiary ostracoda from the Isle of Wight and Barton, Hampshire, Part II. *Revue de Micropaléontologie*, **11**, 3–12.
- Haskins, C.W. (1968c) Tertiary ostracoda from the Isle of Wight and Barton, Hampshire, Part III. *Revue de Micropaléontologie*, **11**, 161–75.
- Haskins, C.W. (1969) Tertiary ostracoda from the Isle of Wight and Barton, Hampshire, Part IV. *Revue de Micropaléontologie*, **12**, 149–70.
- Haskins, C.W. (1970) Tertiary ostracoda from the Isle of Wight and Barton, Hampshire, Part V. *Revue de Micropaléontologie*, **13**, 13–29.
- Haskins, C.W. (1971a) Tertiary ostracoda from the Isle of Wight and Barton, Hampshire, Part VI. *Revue de Micropaléontologie*, **13**, 207–21.
- Haskins, C.W. (1971b) Tertiary ostracoda from the Isle of Wight and Barton, Hampshire, Part VII. *Revue de Micropaléontologie*, **14**, 147–56.
- Hastings, Marchioness of (1848) On the fresh-water Eocene beds of Hordle Cliff, Hampshire. *Report of the British Association for the Advancement of Science. Transactions of Sections*, pp. 63–4.
- Hastings, Marchioness of (1853) On the Tertiary beds of Hordwell, Hampshire. *Philosophical Magazine*, **6**, 1–11.
- Hastings, Marquise d' (1852) Description géologique des falaises d'Hordle, sur la côte du Hampshire, en Angleterre. *Bulletin de la*

References

- Société Géologique de France*, 9, 191–203.
- Hawkins, H.L. (1934) Field meeting at the Pang Valley, Berkshire: Report by the Director. *Proceedings of the Geologists' Association*, 45, 420–3.
- Hawkins, H.L. (1946) Field meeting at Reading: Report by the Director. *Proceedings of the Geologists' Association*, 57, 164–71.
- Haynes, J. (1955) Pelagic foraminifera in the Thanet Beds, and the use of Thanetian as a stage name. *Micropalaeontology*, 1, 189.
- Haynes, J. (1956–1958) Certain smaller British Paleocene Foraminifera, Pts I–V. *Contributions from the Cushman Foundation for Foraminiferal Research*, 7, 79–101; 8, 45–53; 9, 58–77; 9, 83–92.
- Haynes, J. and El-Naggar, Z.R.M. (1964) Reworked Upper Cretaceous and Danian planktonic foraminifera in the type Thanetian. *Micropalaeontology*, 10, 354–6.
- Head, M.J. (1997) Thermophilic dinoflagellate assemblages from the mid-Pliocene of eastern England. *Journal of Palaeontology*, 71, 165–93.
- Hedberg, H. (ed.) (1976) *International Stratigraphic Guide: A Guide to Stratigraphic Classification, Terminology and Procedure*, Wiley Interscience, New York and London.
- Heron-Allen, E. (1911) *Selsey Bill: Historic and Prehistoric*, Duckworth, London.
- Hepworth, J.V. (1998) Aspects of the English Silcretes and comparison with some Australian occurrences. *Proceedings of the Geologists Association*, 109, 271–88.
- Hester, S.W. (1965) Stratigraphy and palaeogeography of the Woolwich and Reading Beds. *Bulletin of the Geological Survey of Great Britain*, 23, 117–37.
- Hewitt, R.A. (1988a) Outline of research on the ecology and evolution of the Eocene nautiloid cephalopods from the London Clay, England. *Tertiary Research*, 10, 65–81.
- Hewitt, R.A. (1988b) The London Clay Formation (Eocene) of the country around Southend (Essex, England). *Tertiary Research*, 10, 83–6.
- Highley, S. (1861) Excursion to the Isle of Sheppey, 1 August 1861. *Proceedings of the Geologists' Association*, 1, 166–7.
- Hill, M.L. (1986) The morphometrics, palaeobiology and taxonomy of some fossil neretid gastropods. Unpublished MPhil thesis, CNA.
- Hodgson, G.E. and Funnell, B.M. (1987) Foraminiferal biofacies of the early Pliocene. In *Micropalaeontology of Carbonate Environments* (ed. M.B. Hart), Ellis Horwood, Chichester, pp. 44–73.
- Holcombe, C. (1966) Section through junction of Red and Coralline Craggs, 'the Rocks', Ramsholt. *Bulletin of the Ipswich Geological Group*, 1, 10–12.
- Hollingworth, N.T.J. and Barker, M.J. (1991) Colour pattern preservation in the fossil record: taphonomy and diagenetic significance. In *Fossilisation: The Process of Taphonomy* (ed. S.K. Donovan), Belhaven Press, London, pp. 105–19.
- Hollyer, S.E. and Allender, R. (1982) The Sand and Gravel Resources of the country around Hollesley, Suffolk. *Institute of Geological Sciences. Mineral Assessment Report, No.83*, 70pp.
- Holman, J.A. (1993) A new genus of primitive colubroid snake from the Upper Eocene, Isle of Wight, England. *Tertiary Research*, 4, 151–4.
- Holmes, S.C.A. (1981) *Geology of the Country around Faversham*. Memoirs of the Geological Survey of Great Britain, England and Wales, HMSO, London.
- Holmes, T.V. (1890) Field meeting at Walton-on-Naze. *Essex Naturalist*, 4, 129–32.
- Holmes, T.V. (1891) Excursion to Walton-on-Naze. *Proceedings of the Geologists' Association*, 11, 150–3.
- Holmes, T.V. (1895) Excursion to Charlton (Kent). *Proceedings of the Geologists' Association*, 14, 111–14.
- Holmes, T.V. (1900) Cutting south of Grove Park Station S.E.R. Excursion to the railway. *Proceedings of the Geologists' Association*, 16, 522–3.
- Holmes, T.V. (1901) Excursion to Grove Park and Chislehurst. Saturday. *Proceedings of the Geologists' Association*, 17, 136–7.
- Holmes, T.V. and Osman, C.W. (1902a) Excursion to S.E.R. main line widening at Elmstead Cutting and to Chislehurst Caves. *Proceedings of the Geologists' Association*, 17, 368–70.
- Holmes, T.V. and Osman, C.W. (1902b) Excursion to the S.E.R. main line widening at Elmstead Cutting. *Proceedings of the Geologists' Association*, 17, 489.
- Holmes, T.V. and Whittaker, W. (1910) Excursion to Sheppey. *Proceedings of the Geologists' Association*, 21, 486–8.

References

- Hooker, J.J. (1972) The first land mammals from the marine Barton Beds (Upper Eocene) of Hampshire. *Proceedings of the Geologists' Association*, **83**, 179–84.
- Hooker, J.J. (1975a) Report of field meeting to Hengistbury Head and adjacent areas, Dorset; with an account of published work and some new exposures. *Tertiary Times*, **2**, 109–21.
- Hooker, J.J. (1975b) Report of field meeting to Barton Hampshire. *Tertiary Times*, **2**, 163–7.
- Hooker, J.J. (1976) Joint Tertiary Research Group/Geologists' Association meeting to Barton, Hants. Unpublished handout.
- Hooker, J.J. (1977a) A mammal from the Upper Eocene of Hengistbury, Dorset. *Tertiary Research*, **1**, 91–4.
- Hooker, J.J. (1977b) The Creechbarrow Limestone – its biota and correlation. *Tertiary Research*, **1**, 139–45.
- Hooker, J.J. (1978) *The London Clay of Sheppey*. Joint Geologists' Association and Tertiary Research Group field meeting handbook (unpublished).
- Hooker, J.J. (1982) Mammals from the Bartonian (Middle–Late Eocene) of the Hampshire Basin, Southern England. Unpublished PhD thesis, University of London.
- Hooker, J.J. (1986) Mammals from the Bartonian (Middle–late Eocene) of the Hampshire Basin, southern England. *Bulletin of the British Museum of Natural History (Geology)*, **39**, 191–478.
- Hooker, J.J. (1987) Mammalian faunal events in the English Hampshire Basin (late Eocene–early Oligocene) and their application to European biostratigraphy. *Münchener Geowissenschaftliche Abhandlungen*, **10**, 109–16.
- Hooker, J.J. (1989) British mammals in the Tertiary period. *Biological Journal of the Linnean Society*, **38**, 9–21.
- Hooker, J.J. (1992) British mammalian paleocommunities across the Eocene–Oligocene transition and their environmental implications. In *Eocene–Oligocene Climatic and Biotic Evolution* (eds D.R. Prothero and W.A. Berggren), Princeton University Press, pp. 494–515.
- Hooker, J.J. (1994). Mammalian taphonomy and palaeoecology of the Bembridge Limestone Formation (Late Eocene, S. England). *Historical Biology*, **8**, 49–69.
- Hooker, J.J. and Insole, A.N. (1980) The distribution of mammals in the English Palaeogene. *Tertiary Research*, **3**, 31–45.
- Hooker, J.J., Collinson, M.E., van Bergen, P.F., Singer, R.L., de Leeuw, J.W. *et al.* (1995) Reconstruction of land and freshwater palaeoenvironments near the Eocene–Oligocene boundary, southern England. *Journal of the Geological Society of London*, **152**, 449–68.
- Hooker, J.J., Insole, A.N., Moody, R.T.J., Walker, C.A. and Ward, D.J. (1980) The distribution of cartilaginous fish, turtles, birds and mammals in the British Palaeogene. *Tertiary Research*, **3**, 1–45.
- Houghton, S.D. (1991) Coccolith sedimentation and transport in the North Sea. *Marine Geology*, **99**, 267–74.
- House, M.R. (1993) *Geology of the Dorset Coast*. Geologists' Association Guide, No. 22.
- Hudleston, W.H. (1876) Excursion to Reading. *Proceedings of the Geologists' Association*, **4**, 519–23.
- Hudleston, W.H. (1901) Creech Barrow. In West Purbeck Meeting (Anonymous), *Proceedings of the Dorset Natural History and Antiquarian Field Club*, **22**, 54–60.
- Hudleston, W.H. (1902a) Creechbarrow in Purbeck. *Geological Magazine*, **4** (9), 241–56.
- Hudleston, W.H. (1902b) Creechbarrow: an essay in Purbeck geology. *Proceedings of the Dorset Natural History and Antiquarian Field Club*, **23**, 146–90.
- Hudleston, W.H. (1903) Creechbarrow in Purbeck – No. 2. *Geological Magazine*, decade 4, **10**, 197–203.
- Huggett, J.M. and Gale, A.S. (1997) Petrology and palaeoenvironmental significance of glaucony in the Eocene succession of Whitecliff Bay, Hampshire Basin, UK. *Journal of the Geological Society*, **154**, 897–912.
- Hughes, T.McK. (1866) Note on the junction of the Thanet Sand and the Chalk, and of the Sandgate Beds and Kentish Reg. *Quarterly Journal of the Geological Society of London*, **22**, 402–4.
- Hughes, T.McK. (1872) Man in the Crag. *Geological Magazine* (Decade 1) **9**, 247–50.
- Hull, E. and Whitaker, W. (1861) *The Geology of Parts of Oxfordshire and Berkshire*. Memoirs of the Geological Survey of Great Britain and the Museum of Practical Geology, Longman, Green, Longman and Roberts (for HMSO), London.

References

- Humphreys, B. and Balson, P.S. (1988) *Psilonichnus* (Fürsich) in late Pliocene subtidal marine sands of eastern England. *Journal of Paleontology*, **62**, 168–72.
- Hunt, C.O. (1989) The palynology and correlation of the Walton Crag (Red Crag Formation, Pliocene). *Journal of the Geological Society of London*, **146**, 743–5.
- Hunter, W.P. (1836) The Isle of Sheppey, facts and questions, on the geological conditions of. *Magazine of Natural History*, **9**, 380–2.
- Hutchinson, J.N. (1968) Field meeting on the coastal landslides of Kent. *Proceedings of the Geologists' Association*, **79**, 227–38.
- Ilott, J.W. and Coles-Child, (1872) Excursion to Bromley and Chislehurst. *Proceedings of the Geologists' Association*, **3**, 114–15.
- Insole, A. (1972) Upper Eocene and Lower Oligocene mammal faunas from Southern England. Unpublished PhD thesis, University of Bristol.
- Insole, A. and Daley, B. (1985) A revision of the lithostratigraphical nomenclature of the Late Eocene and Early Oligocene strata of the Hampshire Basin, southern England. *Tertiary Research*, **7**, 67–100.
- Insole, A., Daley, B. and Gale, A. (1998) *The Isle of Wight*. Geologists' Association Guide, No. 60.
- Irving, E. (1967) Palaeomagnetic evidence for shear along the Tethys. In *Aspects of Tethyan Biogeography* (eds C.G. Adams and D.V. Ager), Systematics Association, London, pp. 59–76.
- Isaac, K.P. (1979) Tertiary silcretes of the Sidmouth area, east Devon. *Proceedings of the Ussher Society*, **4**, 341–54.
- Isaac, K.P. (1983) Discussion on Eocene sedimentation and tectonics in the Hampshire Basin. *Journal of the Geological Society of London*, **140**, 319–20.
- Islam, M.A. (1981) Early and Middle Eocene microplankton of the Anglo-Belgian Basins. Unpublished PhD thesis, University of Sheffield.
- Islam, M.A. (1983a) Dinoflagellate cyst taxonomy and biostratigraphy of the Eocene Bracklesham Group in southern England. *Micropalaeontology*, **29**, 328–53.
- Islam, M.A. (1983b) Dinoflagellate cysts from the Eocene cliff sections of the Isle of Sheppey, Southeast England. *Revue de Micropaléontologie*, **25**, 231–50.
- Islam, M.A. (1984) A study of early Eocene palaeoenvironments in the Isle of Sheppey as determined from microplankton assemblage composition. *Tertiary Research*, **6**, 11–21.
- Jackson, J.F. (1925) Notes on the Upper Headon Beds at Headon Hill, Isle of Wight. *Proceedings of the Isle of Wight Natural History and Archaeological Society*, **1**, 275–89.
- Jacobs, E. (1777) *Plantae Favershamiensis: A Catalogue of the Most Perfect Plants Growing Spontaneously about Favershamb; With an Appendix Exhibiting a Short View of the Fossil Bodies of the Adjacent Island of Sheppey*, London.
- Jacqué, M. and Thouvenin, J. (1975) Lower Tertiary tuffs and volcanic activity in the North Sea. In *Petroleum and Continental Shelf of Northwest Europe*, **1**, Geology (ed. A.W. Woodland), Applied Science Publishers, London, pp. 455–65.
- James, J.P. and George, W.H. (1970) A report on the Elmstead Rock Pit, Chislehurst, Kent. *Tertiary Times*, **1**, 33.
- Jarzemowski, E.A. (1976) Report of Easter field meeting: the Lower Tertiaries of the Isle of Wight. *Tertiary Research*, **1**, 11–16.
- Jarzemowski, E.A. (1980) Fossil insects from the Bembridge Marls, Palaeogene of the Isle of Wight, Southern England. *Bulletin of the British Museum Natural History (Geology)*, **33**, 239–93.
- Jarzemowski, E.A. (1992) Fossil insects from the London Clay (Early Eocene) of southern England. *Tertiary Research*, **13**, 87–94.
- Jarzemowski, E.A. (1993) Fossil insects from the London Clay (Early Eocene) of southern England. *Tertiary Research*, **13**, 87–94.
- Jenkins, D.G. and Houghton, S.D. (1987) Age, correlation and paleoecology of the St Erth Beds and the Coralline Crag of England. *Mededelingen van de Werkgroep voor Tertiaire en Kwartaire Geologie*, **24**, 147–56.
- Jenkins, D.G., Curry, D., Funnell, B.M. and Whittaker, J.E. (1988) Planktonic foraminifera from the Pliocene Coralline Crag of Suffolk, Eastern England. *Journal of Micropalaeontology*, **7**, 1–10.
- John, D.T. and Fisher, P.F. (1984) The stratigraphical and geomorphological significance of the Red Crag fossils at Netley Heath, Surrey, a review and re-appraisal. *Proceedings of the Geologists' Association*, **95**, 235–47.
- Johnson, J.P. (1901) The Eocene flora and fauna

References

- of Walton-on-Naze. *Essex Naturalist*, **11**, 284–7.
- Jolley, D.W. (1992) Palynofloral association sequence stratigraphy of the Palaeocene Thanet Beds and equivalent sediments in eastern England. *Review of Palaeobotany and Palynology*, **74**, 207–37.
- Jolley, D.W. (1996) The earliest Eocene sediments of eastern England: an ultra-high resolution palynological correlation. In *Correlation of the Early Paleogene in Northwest Europe* (eds R.W.O'B. Knox, R.M. Corfield and R.E. Dunay), Geological Society of London, Special Publication, **101**, pp. 219–54.
- Jolley, D.W. and Spinner, E.G. (1989) Some dinoflagellate cysts from the London Clay (Paleocene–Eocene) near Ipswich, Suffolk, England. *Review of Palaeobotany and Palynology*, **60**, 361–73.
- Jolley, D.W. and Spinner, E.G. (1991) Spore-pollen association from the lower London Clay (Eocene), East Anglia, England. *Tertiary Research*, **13**, 11–25.
- Jones, D.K.C. (1980) The Tertiary evolution of south-east England with particular reference to the Weald. In *The Shaping of Southern England* (ed. D.K.C. Jones), Institute of British Geographers Special Publication, **11**, Academic Press, London, pp. 13–47.
- Jones, D.K.C. (1981) *Southeast and Southern England (The Geomorphology of the British Isles)*. Methuen, London.
- Jones, T.R. and Parker, W.K. (1864) On the foraminifera of the Crag. *Annals and Magazine of Natural History*, Series 3, **13**, 64–8.
- Jones, T.R. and Sherborn, C.D. (1889) *A Supplementary Monograph of the Tertiary Entomostraca of England*. Palaeontographical Society (Monograph), Palaeontographical Society, London.
- Jones, T.R., Parker, W.K. and Brady, H.B. (1866) *The Foraminifera of the Crag. Part I*. Palaeontographical Society (Monograph), Palaeontographical Society, London, pp. 1–72.
- Judd, J.W. (1880) On the Oligocene strata of the Hampshire Basin. *Quarterly Journal of the Geological Society of London*, **36**, 137–77.
- Judd, J.W. (1882a) On the relations of the Eocene and Oligocene strata in the Hampshire Basin. *Quarterly Journal of the Geological Society of London*, **38**, 461–86.
- Judd, J.W. (1882b) The Headon Hill section. *Geological Magazine*, **9**, 189–90.
- Judd, J.W. (1883) The Oligocene strata of the Hampshire Basin. *Geological Magazine*, **10**, 525–27.
- Jukes-Browne, A.J. (1907) The age and origin of the plateaus around Torquay. *Quarterly Journal of the Geological Society of London*, **63**, 106–21.
- Jukes-Browne, A.J. and White, H.J.O. (1908) *The Geology of the Country around Henley-on-Thames and Wallingford*. Memoirs of the Geological Survey, England and Wales, HMSO, London.
- Kaasschieter, J.P.H. (1961) Foraminifera of the Eocene of Belgium. *Mémoires de l'Institut recherches des Sciences Naturelles de Belgique*, **147**.
- Keen, M.C. (1968) Ostracodes de 'Éocène supérieur et l'Oligocène inférieur dans les Bassins de Paris, du Hampshire et de la Belgique. *Extraits du Mémoire de Bureau de Recherches Géologiques et Minières*, **58**, 137–45.
- Keen, M.C. (1971) A palaeoecological study of the ostracod *Hemicyprideis montosa* (Jones and Sherborn) from the Sannoisian of NW Europe. *Bulletin – Centre de Recherches Pau Société Nationale des Pétroles d'Aquitaine*, Suppl. **5**, 523–43.
- Keen, M.C. (1972a) The Sannoisian and some other Upper Palaeogene Ostracoda from north-west Europe. *Palaeontology*, **15**, 267–325.
- Keen, M.C. (1972b) Mid-Tertiary Cytherettinae of north-west Europe. *Bulletin of the British Museum of Natural History (Geology)*, **21**, 261–347.
- Keen, M.C. (1977) Ostracod assemblages and the depositional environments of the Headon, Osborne and Bembridge Beds (upper Eocene) of the Hampshire Basin. *Palaeontology*, **20**, 405–45.
- Keen, M.C. (1978) The Tertiary-Palaeogene. In *A Stratigraphical Index of British Ostracoda* (eds R. Bate and E. Robinson), Geological Journal Special Issue, **8**, 385–450.
- Keeping, H. (1883) Section at Hordwell Cliffs. *Geological Magazine*, **10**, 428–9.
- Keeping, H. (1910) On the discovery of Bembridge Limestone fossils on Creechbarrow Hill, Isle of Purbeck. *Geological Magazine*, **7** (5), 436–9.
- Keeping H. (1912) *On the Results of the Further*

References

- Examination of Creechbarrow Hill*. Report of the British Association for the Advancement of Science, pp. 129–31.
- Keeping, H. and Tawney, E.B. (1881) On the beds at Headon Hill and Colwell Bay in the Isle of Wight. *Quarterly Journal of the Geological Society of London*, **37**, 85–127.
- Kemp, D.J. (1975) Report of field meeting to Lee-on-Solent, Hants. *Tertiary Times*, **2**, 173–4.
- Kemp, D.J. (1976) Account of excavations into the *Campanile* Bed (Eocene), Selsey Formation at Stubbington, Hants. *Tertiary Research*, **1**, 41–5.
- Kemp, D.J. (1982) *Fossil sharks, rays and chimaeroids of the English Tertiary Period*. Gosport Museum Special Paper.
- Kemp, D.J. (1984) Temporary excavations in the Bracklesham Group near Southampton (Hampshire). *Tertiary Research*, **6**, 87–91.
- Kemp, D.J. (1985) The Selsey Division (Bracklesham Group) at Lee-on-Solent, Gosport, (Hants). *Tertiary Research*, **7**, 35–44.
- Kemp, D.J., King, A., King, C. and Quayle, W.J. (1979) Stratigraphy and biota of the Elmore Formation (Huntingbridge division, Bracklesham Group), Lee-on-the-Solent, Hampshire. *Tertiary Research*, **2**, 93–103.
- Kendall, P.F. (1931) The Red Crag of Walton-on-the-Naze. *Geological Magazine*, **68**, 405–20.
- Kennard, A.S. and Woodward, B.B. (1900) The non-marine mollusca of the Walton Crag. *Essex Naturalist*, **11**, 216–18.
- Kennedy, W.J. and Sellwood, B.W. (1970) *Ophiomorpha nodosa* Lundgren, a marine indicator from the Sparnacian of south-east England. *Proceedings of the Geologists' Association*, **81**, 99–110.
- Kent, P.E. (1975) The tectonic development of Great Britain and the surrounding seas. In *Petroleum and the Continental Shelf of Northwest Europe* (ed. A.W. Woodland), Applied Science Publishers, London, pp. 3–28.
- King, A.D. and King, C. (1977) The stratigraphy of the Earnley 'division' (Bracklesham Group) at Copythorne, Hampshire. *Tertiary Research*, **1**, 115–18.
- King, C. (1981) The stratigraphy of the London Clay and associated deposits. *Tertiary Research Special Paper*, **6**.
- King, C. (1984) The stratigraphy of the London Clay Formation and Virginia Water Formation in the coastal sections of the Isle of Sheppey (Kent, England). *Tertiary Research*, **5**, 121–60.
- King, C. (1991) Stratigraphy of the London Clay (Early Eocene) in the Hampshire Basin. Unpublished PhD thesis, Kingston University.
- King, C. (1996) The stratigraphy of the Bracklesham Group of Bracklesham Bay and Selsey (West Sussex, England): an update 1977–1995. *Tertiary Research*, **16**, 15–23.
- King, C. and Hooker, J.J. (1995) *The Palaeogene of the Isle of Wight (Hampshire Basin, England)*. Field excursion guide. Regional Committees on Northern Palaeogene–Neogene Stratigraphy meeting, Southampton, 1995.
- King, C. and Kemp, D.J. (1982) Stratigraphy of the Bracklesham Group in recent exposures near Gosport, (Hants). *Tertiary Research*, **3**, 171–87.
- Kirby, J. (1764) *The Suffolk Traveller: Or, a Journey through Suffolk*, Longmans, London, 340 pp.
- Knox, R.W.O'B. (1979) Igneous grains associated with zeolites in the Thanet Beds of Pegwell Bay, north-east Kent. *Proceedings of the Geologists' Association*, **90**, 55–9.
- Knox, R.W.O'B. (1983) Volcanic ash in the Oldhaven Beds of southeast England, and its stratigraphical significance. *Proceedings of the Geologists' Association*, **94**, 245–50.
- Knox, R.W.O'B. (1984) Nannoplankton zonation of the Palaeocene–Eocene boundary beds of NW Europe; an indirect correlation by means of volcanic ash layers. *Journal of the Geological Society of London*, **141**, 993–9.
- Knox, R.W.O'B. (1990) Thanetian and early Ypresian stratigraphy in south-east England. *Tertiary Research*, **11**, 57–64.
- Knox, R.W.O'B. (1996) Correlation of the early Paleogene in northwest Europe: an overview. In *Correlation of the Early Paleogene in Northwest Europe* (eds R.W.O'B. Knox, R.M. Corfield and R.E. Dunay), Geological Society of London, Special Publication, **101**, pp. 1–11.
- Knox, R.W.O'B. and Ellison, R.A. (1979) A Lower Eocene ash sequence in SE England. *Journal of the Geological Society of London*, **136**, 251–3.
- Knox, R.W.O'B. and Harland, R. (1979) Stratigraphical relationships of the early Palaeogene ash series of NW Europe. *Journal of the Geological Society of London*, **136**, 463–70.
- Knox, R.W.O'B., Corfield, R.M. and Dunay, R.E.

References

- (eds) (1996) *Correlation of the Early Paleogene in Northwest Europe*. Geological Society of London, Special Publication, 101.
- Knox, R.W.O'B., Harland, R. and King, C. (1983) Dinoflagellate cyst analysis of the basal London Clay of southern England. *Newsletters on Stratigraphy*, 12, 71-4.
- Knox, R.W.O'B., Hine, N.M. and Ali, J.R. (1994) New information on the age and sequence stratigraphy of the type Thanetian of south-east England. *Newsletters on Stratigraphy*, 30, 45-60.
- Knox, R.W.O'B., Morigi, A.N., Ali, J.R., Hailwood, E.A. and Hallam, J.R. (1990) Early Palaeogene stratigraphy of a cored borehole at Hales, Norfolk. *Proceedings of the Geologists' Association*, 101, 145-51.
- Knox, R.W.O'B. and Morton, A.C. (1988) The record of early Tertiary N Atlantic volcanism in sediments of the North Sea Basin. In *Early Tertiary volcanism and the opening up of the N E Atlantic*, (eds A.C. Morton and L.M. Parsons), Geological Society of London, Special Publication, 39, 407-419.
- Krantz, D.E. (1991) A chronology of Pliocene sea-level fluctuations: The US Middle Atlantic coastal plain record. *Quaternary Science Reviews*, 10, 163-74.
- Lagaaij, R. (1952) The Pliocene Bryozoa of the Low Countries and their bearing on the marine stratigraphy of the North Sea region. *Mededelingen van de Geologische Stichting*, ser c-v-no.5, 1-233.
- Lagaaij, R. (1963) *Cupuladria canariensis* (BUSK) - portrait of a bryozoan. *Palaeontology*, 6, 172-217.
- Lake, S.D. and Karner, G.D. (1987) The structure and evolution of the Wessex Basin, southern England: an example of inversion tectonics. *Tectonophysics*, 137, 347-78.
- Lankester, E.R. (1868) The Suffolk Bone Bed and the Diestian or Black Crag in England. *Geological Magazine* (Decade 1) 5, 254-8.
- Lankester, E.R. (1912) On the discovery of a novel type of flint implements below the base of the Red Crag of Suffolk, proving the existence of skilled workers of flint in the Pliocene age. *Philosophical Transactions of the Royal Society of London*, Series B, 202, 283-336.
- Lavis, H.J.J. (1876) Notes on the geology of Lewisham. *Proceedings of the Geologists' Association*, 4, 528-43.
- Leach, A.L. (1908) Excursion to Charlton and Erith. *Proceedings of the Geologists' Association*, 20, 505-8.
- Leach, A.L. (1910) North Kent and adjoining parts of Surrey. In *Geology in the field*, (eds H.W. Monkton and R.S. Herries), Standford, London, pp. 236-55.
- Leach, A.L. (1915) Report of an excursion to Charlton and Shooter's Hill. *Proceedings of the Geologists' Association*, 26, 274-5.
- Leach, A.L. (1920) Excursion to Charlton. *Proceedings of the Geologists' Association*, 31, 154-5.
- Leach, A.L. (1930) Report of a field meeting at Charlton and Blackheath. *Proceedings of the Geologists' Association*, 41, 361-2.
- Leach, A.L. (1939) Field meeting at Charlton and Blackheath. *Proceedings of the Geologists' Association*, 50, 355-6.
- Lee, A.J. and Ramster, J.W. (eds) (1981) *Atlas of the seas around the British Isles*. Ministry of Agriculture, Fisheries and Food, Lowestoft.
- Lees, B.J. (1982) Quaternary sedimentation in the Sizewell-Dunwich Banks area, Suffolk. *Bulletin of the Geological Society of Norfolk*, 32, 1-35.
- Leighton, T. (1894) Excursion to Herne Bay. *Proceedings of the Geologists' Association*, 13, 375-7.
- Lewis, D.N. (1989) Fossil Echinoidea from the Barton Beds (Eocene, Bartonian) of the type locality at Barton-on-Sea in the Hampshire Basin, England. *Tertiary Research*, 11, 1-54.
- Liengjaren, M., Costa, L. and Downie, C. (1980) Dinoflagellate cysts from the Upper Eocene-Lower Oligocene of the Isle of Wight. *Palaeontology*, 23, 475-99.
- Lobley, J.L. (1876) Excursion to Bromley, Sundridge and Chislehurst. *Proceedings of the Geologists' Association*, 4, 498-502.
- Lobley, J.L. (1881) Excursion to Charlton, Blackheath and Lewisham. *Proceedings of the Geologists' Association*, 7, 142-5.
- Lord, A.R., Horne, D.J. and Robinson, J.E. (1988) An introductory guide to the Neogene and Quaternary of East Anglia for Ostracod workers. *British Micropalaeontological Society Field Guide*, No.5, 10 pp.
- Lovell, J.P.B. (1977) *The British Isles through Geological Time: A Northward Drift*, Allen and Unwin, London.
- Lovell, J.P.B. (1983) Cenozoic. In *Introduction to the Petroleum Geology of the North Sea* Joint Association for Petroleum Exploration Courses (UK), Course Notes No. 16, London,

References

- pp. 11–143.
- Lucy, G. (1989) Essex internationalism. *Geologists' Association Circular*, No. 873, 36.
- Lyell, C. (1827) On the strata of the Plastic Clay Formation exhibited in the Cliffs between Christchurch Head, Hampshire and Studland Bay, Dorsetshire. *Transactions of the Geological Society, London*, Series 2, 2, 279–86.
- Lyell, C. (1829) On the freshwater strata of Hordwell Cliff, Beacon Cliff and Barton Cliff, Hampshire. *Transactions of the Geological Society, London*, Series 2, 2, 287–92.
- Lyell, C. (1830–1833) *Principles of Geology*, 3 vols., John Murray, London.
- Lyell, C. (1839) On the relative ages of the Tertiary deposits commonly called 'crag' in the counties of Norfolk and Suffolk. *Magazine of Natural History*, series 2, 3, 313–30.
- Lyell, C. (1852) On the occurrence of a stratum of stones covered with barnacles in the Red Crag at Wherstead, near Ipswich. *Report of the British Association for the Advancement of Science*, (1851), pp. 65–6.
- McCook, H.C. (1888a) A new fossil spider *Eoatypus woodwardii*. *Proceedings of the Academy of Natural Sciences of Philadelphia* (1888), 200–2.
- McCook, H.C. (1888b) A new fossil spider (*Eoatypus woodwardii*). *Annals and Magazine Natural History London*, 2, 366–9.
- M'Coy, F. (1849) On the classification of some British fossil cape crustacea, with notices of new forms in the University collection at Cambridge. *Annals and Magazine Natural History, London*, 4 (2), 161–79.
- MacNeil, F.S. (1965) Evolution and Distribution of the Genus *Mya*, and Tertiary Migrations of Mollusca. *US Geological Survey Professional Paper*, 483-G, 51 pp.
- Machin, J. (1971) Plant microfossils from the Tertiary deposits of the Isle of Wight. *New Phytologist*, 70, 851–72.
- Mantell, G. (1822) *Fossils of the South Downs, or Illustrations of the Geology of Sussex*, Lupton Relfe, London.
- Markham, R. (1966) Waldringfield Crag. *Bulletin of the Ipswich Geological Group*, 1, 24–5.
- Markham, R. (1967) Battisford Red Crag 'dig'. *Bulletin of the Ipswich Geological Group*, 3, 1–4.
- Markham, R. (1973) Suffolk and East Essex. In *The Estuarine Region of Suffolk and Essex* (eds J.T. Greensmith, R.G. Blezard, C.R. Bristow, R. Markham and E.V. Tucker), Geologists' Association Guides, No.12, pp. 2–11.
- Markham, R. (1975) Notes on some Red Crag exposures. *Bulletin of the Ipswich Geological Group*, 15, 2–4.
- Markham, R. (1976) Notes on Geological Group 'digs' at Gedgrave, Battisford, and Wangford. *Bulletin of the Ipswich Geological Group*, 18, 6–9.
- Markham, R.A.D. (1971) Notes on some Suffolk Crag localities. *Transactions of the Suffolk Naturalists' Society*, 15, 520–4.
- Marshall, J.D., Paul, C.R.C. and Wright, V.P. (1987) *Biotas, formation and diagenesis of Tertiary palustrine palaeosols [Abstract]*. 8th Meeting of Carbonate Sedimentologists, University of Liverpool, July 1987, pp. 14–18.
- Marshall, J.D., Paul, C.R.C. and Wright, V.P. (1988) *Diagenesis in Tertiary palustrine carbonate palaeosols [Abstract]*. Society of Economic Palaeontologists and Mineralogists, Midyear Meeting, Columbus, Ohio, August 1988.
- Martini, E. (1970a) Standard Palaeogene calcareous nannoplankton zonation. *Nature*, 226 (5245) (May 9, 1970), 560–1.
- Martini, E. (1970b) The Upper Eocene Brockenhurst Bed. *Geological Magazine*, 107, 225–8.
- Martini, E. (1971) Standard Tertiary and Quaternary calcareous nannoplankton zonation. In *Proceedings II Planktonic Conference, Roma 1970* (ed. A. Farinacci), pp.739–85.
- Martini, E. (1972) Die Gattung *Eosphaeroma* (Isopoda) im europäischen Alttertiär. *Senckenbergiana Lethaea*, 53, 65–79.
- Martini, E. and Ritzkowski, S. (1968) Was ist das 'Unter Oligocän'? Eine Analyse der Beyrich'schen und v. Koenen'schen Fassung der Stufe mit Hilfe des fossilen Nannoplanktons. *Nachrichten. Akademie der Wissenschaften in Göttingen*, II Mathematisch-physikalische Klasse, 13, 231–50.
- Mathers, S.J. and Zalasiewicz, J.A. (1985) Producing a comprehensive geological map. A case study – the Aldeburgh–Orford area of East Anglia. *Modern Geology*, 9, 207–20.
- Mathers, S.J. and Zalasiewicz, J.A. (1988) The Red and Norwich Crag formations of south-

References

- ern East Anglia. *Proceedings of the Geologists' Association*, **99**, 261–78.
- Mayer-Eymar, K. (1857) Versuch einer neuen Klassifikation der Tertiär Gibilde Europas. *Verhandlungen der Schweizerischen Naturforschenden Gesellschaft*, **42**, 165–99.
- Melville, R.V. and Freshney, E.C. (1982) *British Regional Geology. The Hampshire Basin and adjoining areas*, HMSO London.
- Miller, G.H., Hollin, J.T. and Andrews, J.T. (1979) Aminostratigraphy of UK Pleistocene deposits. *Nature*, **281**, 539–43.
- Millot, G. (1970) *Geology of Clays*, Chapman and Hall, London.
- Milne Edwards, H. and Haime, J. (1850) *The Fossil Corals. Part 1. Crag, London Clay, Cretaceous*, Palaeontographical Society (Monograph), Palaeontographical Society, London, 1–72.
- Milner, A.C., Milner, A.R. and Estes, R. (1982) Amphibians and squamates from the Upper Eocene of Horale Cliff, Hampshire – a preliminary report. *Tertiary Research*, **4**, 149–54.
- Mitchell, G.F., Catt, J.A., Weir, A.H., McMillan, N.F., Margerel, J.P. *et al.* (1973a) The Late Pliocene marine formation at St. Erth, Cornwall. *Philosophical Transactions of the Royal Society, London, Series B*, **266**, 1–37.
- Mitchell, G.F., Penny, L.F., Shotton, F.W. and West, R.G. (1973b) A correlation of Quaternary deposits in the British Isles. *Geological Society of London, Special Report*, **4**, 99 pp.
- Moffat, A.J. and Catt, J.A. (1986) A re-examination of the evidence for a Plio–Pleistocene transgression on the Chiltern Hills. III. Deposits. *Earth Surface Processes and Landforms*, **11**, 233–47.
- Moir, J.R. (1911) The flint implements of sub-crag man. *Proceedings of the Prehistoric Society of East Anglia*, **1**, 17–24.
- Moir, J.R. (1915a) On the further discoveries of flint implements of man beneath the base of the Red Crag of Suffolk. *Proceedings of the Prehistoric Society of East Anglia*, **6**, 12–31.
- Moir, J.R. (1915b) A series of mineralised bone implements of a primitive type from below the base of the Red and Coralline Crags of Suffolk. *Proceedings of the Prehistoric Society of East Anglia*, **2**, 116–31.
- Monckton, H.W. (1904) On some examples of the different types of geological deposits. *Proceedings of the Geologists' Association*, **18**, 351–74.
- Monckton, H.W. (1910) Studland Bay. In *Excursion to Swanage, Lulworth Cove and Bournemouth* (eds F. Hovenden, H.W. Monckton, W.T. Ord and A. Woodward), *Proceedings of the Geologists' Association*, **21**, 515–17.
- Moody, R.T.J. (1980) The distribution of turtles in the British Palaeogene. *Tertiary Research*, **3**, 21–4.
- Moody, R.T.J. and Walker, C. (1970) A new trionychid turtle from the British Lower Eocene. *Palaeontology*, **13**, 303–10.
- Morris, J. (1837) On the strata usually termed Plaiestic Clay. *Proceedings of the Geological Society*, **2**, 450–2.
- Mortimer, J.R. (1863) The bone spear-head from the Essex Coprolite Pits, figured in the 'Geologist' for 1861, page 558. *The Geologist*, **6**, 298–9.
- Morton, A.C. (1982a) The provenance and diagenesis of Palaeogene sandstones of south-east England as indicated by heavy mineral analysis. *Proceedings of the Geologists' Association*, **93**, 263–74.
- Morton, A.C. (1982b) Heavy minerals of Hampshire Basin Palaeogene strata. *Geological Magazine*, **119**, 463–76.
- Movius, H.L. (1949) Villafranchian stratigraphy in southern and southwestern Europe. *Journal of Geology*, **57**, 380–412.
- Muir-Wood, H.M. (1938) Notes on British Eocene and Pliocene Terebratulids. *Annals and Magazine of Natural History. Series 2*, **2**, 154–81.
- Muir-Wood, H.M. (1939) Four species of *Discinisca* [Brachiopoda] from the Eocene of the Hampshire Basin. *Proceedings of the Geologists' Association*, **50**, 149–58.
- Murray, J.W. (1992) Palaeogene and Neogene. In *Atlas of Palaeogeography and Lithofacies*, (eds J.C.W. Cope, J.K. Ingham and P.F. Rawson), Geological Society, London. *Memoir* **13**, 141–7.
- Murray, J.W. and Wright, C.A. (1974) Palaeogene Foraminiferida and palaeoecology, Hampshire and Paris Basins and the English Channel. *Palaeontology, Special Paper*, **14**, 1–129.
- Murray, J.W., Curry, D., Haynes, J.R. and King, C. (1989) Palaeogene. In *Stratigraphical atlas of fossil Foraminifera*, (eds D.G. Jenkins and J.W. Murray), Ellis Horwood, Chichester, pp. 490–536.
- Nature Conservancy Council (1987) *Charlton*

References

- Sand Pit*, Geological site description, NCC, Peterborough (Unpublished).
- Nauman, C. (1866) *Lehrbuch der Geognosie*. Wilhelm Engelmann, Leipzig.
- Neal, J.E. (1996) A summary of Paleogene sequence stratigraphy in northwest Europe and the North Sea. In *Correlation of the Early Paleogene in Northwest Europe* (eds R.W.O'B. Knox, R.M. Corfield and R.E. Dunay), Geological Society of London, Special Publication, **101**, 15–42.
- Neal, J.E., Stein, J.A. and Gamber, J.H. (1994) Graphic correlation and sequence stratigraphy in the Paleogene of NW Europe. *Journal of Micropalaeontology*, **13**, 55–80.
- Newton, E.T. (1899) The evidence for the existence of Man in the Tertiary period. *Proceedings of the Geologists' Association*, **15**, 63–82.
- Newton, R.B. (1916) On the conchological features of the Lenham sandstones of Kent and their stratigraphical importance. *Journal of Conchology*, **15**, 56–84, 97–118, 137–49.
- Newton, R.B. (1917) The conchological features of the Lenham sandstones of Kent, and their stratigraphical importance. *Geological Magazine* (Decade 6) **4**, 259–326.
- Nio, S.D., Van Den Berg, J.H., Goesten, M. and Smulders, F. (1980) Dynamics and sequential analysis of a mesotidal shoal and intershoal channel complex in the eastern Scheldt (southwestern Netherlands). *Sedimentary Geology*, **26**, 263–79.
- Oakley, K.P. (1949) The Plio–Pleistocene boundary. Proceedings of the XVIII Geological Congress. Section H. *Geological Magazine*, **86**, 18–21.
- Odin, G.S. and Curry, D. (1985) The Palaeogene time scale: radiometric dating versus magnetostratigraphic approach. *Journal of the Geological Society of London*, **142**, 1179–88.
- Odin, G.S., Curry, D., Bodelle, J., Lay, C. and Pomerol, C. (1969) Geochronologie de niveaux glauconieux tertiaires des bassins de Londres et du Hampshire (méthode potassium-argon). *Sommaire des Séances Société Géologiques de France*, **8**, 309–10.
- Odin, G.S., Curry, D. and Hunziker, J.C. (1978) Radiometric dates from NW European glauconites and the Palaeogene time scale. *Journal of the Geological Society of London*, **135**, 481–97.
- Ord, W.T. (1910) An Excursion to Swanage, Lulworth Cove and Bournemouth. Report by the Directors (eds F. Hovenden, F. Monkton, W.T. Ord and A.S. Woodward). *Proceedings of the Geologists' Association*, **21**, 510–21.
- Ord, W.T. (1913) The geology of the Bournemouth to Boscombe Cliff Section. *Proceedings of the Bournemouth Natural Science Society*, **5**, 118–35.
- Osborn, H.F. (1922) The Pliocene Man of Foxhall in East Anglia. *Natural History*, **21**, 565–76.
- Ovey, C.D. and Pitcher, W.S. (1948) Observations on the geology of east Suffolk. *Proceedings of the Geologists' Association*, **59**, 23–34.
- Owen, R. (1848a) On the fossils obtained by the Marchioness of Hastings from the freshwater Eocene beds of Hordle Cliffs. *Report of the British Association for the Advancement of Science*, 65–6.
- Owen, R. (1848b) On the fossil remains of Mammalia referable to the genus Palaeotherium, and to two genera Paloplotherium and Dichodon, hitherto undefined, from the Eocene Sand at Hordle, Hampshire. *Quarterly Journal of the Geological Society of London*, **4**, 17–42.
- Owen, R. (1850) *The fossil Reptilia of the London Clay. Part II Crocodilia, Ophidia*. Palaeontographical Society (Monograph), Palaeontographical Society, London.
- Owen, R. and Bell, T. (1849–1850) *Monograph of the Fossil Reptilia of the London Clay*. Palaeontographical Society (Monograph), Palaeontographical Society, London.
- Pain, T. and Preece, R.C. (1968) The land Mollusca of the Bembridge Limestone. *Proceedings of the Isle of Wight Natural History and Archaeological Society*, **6**, 101–11.
- Parkinson, J. (1811) Observations on some of the strata in the neighbourhood of London, and on the fossil remains contained in them. *Transactions of the Geological Society of London*, Series 1, **1**, 324–54.
- Parsons, J. (1757) An account of some fossil fruits and other bodies, found in the Island of Sheppey. *Philosophical Transactions of the Royal Society of London*, **50**, 396–407.
- Partridge, T.C. (1997) Reassessment of the position of the Plio–Pleistocene boundary: is there a case for lowering it to the Gauss–Matuyama palaeomagnetic reversal? *Quaternary International*, **40**, 5–10.
- Paul, C.R.C. (1989) The molluscan faunal succession in the Hatherwood Limestone Member (Upper Eocene), Isle of Wight,

References

- England. *Tertiary Research*, **10**, 147–62.
- Phillips, W.J. (1964) The structures in the Jurassic and Cretaceous rocks on the Dorset coast between White Nothe and Mupe Bay. *Proceedings of the Geologists' Association*, **75**, 373–405.
- Pickard, R. (1949) The geology of Milber Down. *Report and Transactions of the Devonshire Association for the Advancement of Science*, **81**, 217–26.
- Pickering, R. (1745) A letter concerning the manuring of land with fossil shells. *Philosophical Transactions of the Royal Society of London*, **93**, 191–3.
- Pitcher, W.S. (1948) Field meeting at Charlton, Plumstead and Abbey Wood. *Proceedings of the Geologists' Association*, **59**, 172–3.
- Pitcher, W.S., Peake, N.B., Carreck, J.N., Kirkaldy, J.F., Hester, S.W. and Hancock, J.M. (1958) *The London Region*. Geologists' Association Guide, No. 30B.
- Pitcher, W.S., Peake, N.B., Carreck, J.N., Kirkaldy, J.F. and Hancock, J.M. (1967) *The London Region (South of the Thames)*. Geologists' Association Guide, No. 30B.
- Plint, A.G. (1982) Eocene sedimentation and tectonics in the Hampshire Basin. *Journal of the Geological Society of London*, **139**, 239–54.
- Plint, A.G. (1983a) Facies, environments and sedimentary cycles in the Middle Eocene, Bracklesham Formation of the Hampshire Basin: evidence for global sea-level changes? *Sedimentology*, **30**, 625–53.
- Plint, A.G. (1983b) Sandy fluvial point-bar sediments from the Middle Eocene of Dorset, England. *Special Publication International Association of Sedimentologists*, **6**, 355–68.
- Plint, A.G. (1983c) Liquefaction, fluidization and erosional structures associated with bituminous sands of the Bracklesham Formation (Middle Eocene) of Dorset, England. *Sedimentology*, **10**, 107–45.
- Plint, A.G. (1983d) Discussion on Eocene sedimentation and tectonics in the Hampshire Basin. *Journal of the Geological Society of London*, **139**, 249–54.
- Plint, A.G. (1984) A regressive coastal sequence from the Upper Eocene of Hampshire, southern England. *Sedimentology*, **31**, 213–25.
- Plint, A.G. (1988a) Global eustasy and the Eocene sequence in the Hampshire Basin, England. *Basin Research*, **1**, 11–22.
- Plint, A.G. (1988b) Sedimentology of the Eocene Strata exposed between Poole Harbour and High Cliff, Dorset, UK. *Tertiary Research*, **10**, 107–45.
- Pomerol, C. (1982a) *The Cenozoic Era*. Ellis Horwood, Chichester.
- Pomerol, C. (ed.) (1982b) Stratotypes of Palaeogene stages. *Bulletin d'Information Géologiques du Bassin de Paris*, **2**, 1–301.
- Poole, I. (1992) Pyritised twigs from the London Clay, Eocene, of Great Britain. *Tertiary Research*, **13**, 71–85.
- Porrenga, D.H. (1968) Non-marine glauconitic illite in the Lower Oligocene of Aardebrug, Belgium. *Clay Minerals*, **7**, 421–30.
- Powell, A.J. (1988) A modified dinoflagellate cyst biozonation for latest Palaeocene and earliest Eocene sediments from the central North Sea. *Review of Palaeobotany and Palynology*, **56**, 327–44.
- Powell, A.J. (1992) Dinoflagellate cysts of the Tertiary System. In *A Stratigraphic Index of Dinoflagellate Cysts* (ed. A.J. Powell), British Micropalaeontological Publication Series, Chapman and Hall, London, pp. 155–251.
- Powell, A.J., Brinkhuis, H. and Bujak, J.P. (1996) Upper Paleocene–Lower Eocene dinoflagellate sequence biostratigraphy of southeast England. In *Correlation of the Early Paleogene in Northwest Europe* (eds R.W.O'B. Knox, R.M. Corfield and R.E. Dunay), Geological Society of London, Special Publication, **101**, pp. 145–83.
- Preece, R. (1976) A note on the terrestrial Gastropoda of the Bembridge Limestone (Upper Eocene–Lower Oligocene) of the Isle of Wight, England. *Tertiary Research*, **1**, 17–19.
- Preece, R. (1980) The mollusca of the Creechbarrow Limestone Formation (Eocene) of Creechbarrow Hill, Dorset. *Tertiary Research*, **2**, 169–84.
- Preece, R. (1984) Two land snails from the London Clay of Sheppey. *Tertiary Research*, **5**, 199–203.
- Prestwich, J. (1846) On the Tertiary or Supracretaceous Formations of the Isle of Wight, as exhibited in the sections at Alum Bay and Whitecliff Bay. *Quarterly Journal of the Geological Society of London*, **2**, 223–59.
- Prestwich, J. (1847a) On the probable age of the London Clay and its relations to the Hampshire and Paris Tertiary systems. *Quarterly Journal of the Geological Society of London*, **3**, 354–77.
- Prestwich, J. (1847b) On the main points of

References

- structure and the probable age of the Bagshot Sands and their presumed equivalents in Hampshire and France. *Quarterly Journal of the Geological Society of London*, **3**, 378–99.
- Prestwich, J. (1849a) On the position and general characters of the strata exhibited in the coast section from Christchurch Harbour to Poole Harbour. *Quarterly Journal of the Geological Society of London*, **5**, 435–54.
- Prestwich, J. (1849b) On some fossiliferous beds overlying the Red Crag at Chillesford, near Orford, Suffolk. *Quarterly Journal of the Geological Society of London*, **5**, 345–54.
- Prestwich, J. (1850) On the structure of the strata between the London Clay and the Chalk in the London and Hampshire Tertiary systems, Part I, The London Clay Basement Bed. *Quarterly Journal of the Geological Society of London*, **6**, 252–81.
- Prestwich, J. (1852) On the structure of the strata between the London Clay and the Chalk in London and Hampshire Tertiary systems, Part III Thanet Sands. *Quarterly Journal of the Geological Society of London*, **8**, 235–68.
- Prestwich, J. (1854a) On the structure of the strata between the London Clay and the Chalk in the London and Hampshire Tertiary systems, Part II, The Woolwich and Reading Series. *Quarterly Journal of the Geological Society of London*, **10**, 75–157.
- Prestwich, J. (1854b) On the thickness of the London Clay; on the relative position of the fossiliferous beds of Sheppey, Highgate, Harwich, Newnham, Bognor etc; and on the probable occurrence of the Bagshot Sands in the Isle of Sheppey. *Quarterly Journal of the Geological Society of London*, **10**, 401–19.
- Prestwich, J. (1855) On the origin of the sand and gravel-pipes in the Chalk of the London Tertiary district. *Quarterly Journal of the Geological Society of London*, **11**, 64–84.
- Prestwich, J. (1857a) On the correlation of the Eocene Tertiaries of England, France and Belgium. Part 2 – the Paris Group. *Quarterly Journal of the Geological Society of London*, **13**, 89–134.
- Prestwich, J. (1857b) On some fossiliferous ironstone occurring on the North Downs. *Quarterly Journal of the Geological Society of London*, **13**, 212–13.
- Prestwich, J. (1858) On the age of some sands and iron-sandstones on the North Downs; with a note on the fossils, by S.V. Wood. *Quarterly Journal of the Geological Society of London*, **14**, 322–35.
- Prestwich, J. (1871a) On the structure of the Crag-beds of Suffolk and Norfolk with some observations on their organic remains. Part I. The Coralline Crag of Suffolk. *Quarterly Journal of the Geological Society of London*, **27**, 115–46.
- Prestwich, J. (1871b) On the structure of the Crag-beds of Suffolk and Norfolk, with some observations on their organic remains. Part II. The Red Crag of Essex and Suffolk. *Quarterly Journal of the Geological Society of London*, **27**, 325–56.
- Prestwich, J. (1875) Notes on the phenomena of the Quaternary Period in the Isle of Portland and around Weymouth. *Quarterly Journal of the Geological Society of London*, **31**, 29–54.
- Quayle, J. (1984) A new crab, *Portunites stintoni* (Crustacea, Decapoda) from the London Clay. *Tertiary Research*, **5**, 173–8.
- Quayle, W.J. and Collins, J.S.H. (1981) New Eocene crabs from the Hampshire Basin. *Palaeontology*, **24**, 733–58.
- Raffi, S., Stanley, S.M. and Marasti, R. (1985) Biogeographic patterns and Plio–Pleistocene extinction of *Bivalvia* in the Mediterranean and southern North Sea. *Paleobiology*, **11**, 368–88.
- Rage, J.-C. and Ford, R.L.E. (1980) Amphibians and squamates from the Upper Eocene of the Isle of Wight. *Tertiary Research*, **3**, 47–60.
- Rasmussen, H.E. (1972) Lower Tertiary Crinoidea, Asteroidea and Ophiuroidea from northern Europe and Greenland. *Biologiske Skrifter*, **197**, 1–83.
- Rasmussen, L.B. (1966) Molluscan faunas and biostratigraphy of the marine Younger Miocene Formations in Denmark. *Danmarks Geologiske Undersøgelse*, **88** (2).
- Rayner, G. (1971) Recent coastal evolution at Walton-on-the-Naze. Unpublished BSc dissertation, University of Wales.
- Reed, F.R.C. (1913) Note on the Eocene beds of Hengistbury Head. *Geological Magazine*, **50**, 101–3.
- Reid, C. (1890) *The Pliocene deposits of Britain*, Memoirs of the Geological Survey of the United Kingdom, HMSO, London, 326 pp.
- Reid, C. (1896) The Eocene deposits of Dorset. *Quarterly Journal of the Geological Society of London*, **52**, 490–5.
- Reid, C. (1897) *The Geology of the Country around Bognor*. Memoirs of the Geological

References

- Survey, England and Wales, HMSO, London.
- Reid, C. (1898) The Eocene deposits of Devon. *Quarterly Journal of the Geological Society of London*, **54**, 234–8.
- Reid, C. (1899) *The Geology of the Country around Dorchester (explanation of Sheet 328)*. Memoirs of the Geological Survey, England and Wales, HMSO, London.
- Reid, C. (1913) Tertiary. In *The Geology of the Country around Newton Abbot*. (ed. W.A.E. Ussher), Memoirs of the Geological Survey, England and Wales, HMSO, London, pp. 102–17.
- Reid, C. and Groves, J. (1921) On the Charophyta of the Lower Headon Beds of Hordle Cliff (Hampshire). *Quarterly Journal of the Geological Society of London*, **77**, 175–92.
- Reid, E.M. and Chandler, M.E.J. (1926) *Catalogue of Cainozoic Plants in the Department of Geology*. 1, The Bembridge Flora. British Museum (Natural History), London.
- Reid, E.M. and Chandler, M.E.J. (1933) *The Flora of the London Clay*. British Museum (Natural History), London.
- Ribbins, M.M. and Collinson, M.E. (1978) Further notes on pyritised fern phachides from the London Clay. *Tertiary Research*, **2**, 47–50.
- Rio, D., Sprovieri, R. and Di Stefano, E. (1994) The Gelasian stage: a proposal of a new chronostratigraphic unit of the Pliocene Series. *Rivista Italiana di Paleontologia e Stratigrafia*, **100**, 103–24.
- Rogers, I. and Simpson, B. (1937) The flint gravels of Orleigh Court, Buckland Brewer, north Devon. *Geological Magazine*, **74**, 309–16.
- Rose, J. (1986) Weekend field excursion to southern East Anglia. *Mercian Geologist*, **10**, 135–41.
- Rowell, A.J. and Rundle A.J. (1967) Lophophore of the Eocene brachiopod *Terebratulina wardenensis* Elliott. *Palaeontological Contributions of the University of Kansas*, Paper 15, University of Kansas Palaeontological Institute, Lawrence.
- Rundle, A.J. (1970a) Report of field meeting to Herne Bay, Kent. *Tertiary Times*, **1**, 7–9.
- Rundle, A.J. (1970b) Report of field meeting to Charlton, Kent. *Tertiary Times*, **1**, 26–7.
- Rundle, A.J. (1972) Report of project meeting to Charlton, Kent. *Tertiary Times*, **1**, 96–104.
- Rundle, A.J. and Cooper, J. (1971) Occurrence of a fossil insect larva from the London Clay of Herne Bay. *Proceedings of the Geologists' Association*, **82**, 293–6.
- Schimper, W.P. (1874) *Traité de Paléontologie Végétale*. J.B. Baillière et Fils, Paris.
- Schneider, W. (1992) Floral successions in Miocene swamps and bogs of central Europe. *Zeitschrift Geologische Wissenschaften*, **20**, 555–70.
- Scott, A.C. and de Klerk, R. (1974) A preliminary study of London Clay pyritised 'twigs' from the Isle of Sheppey. *Tertiary Times*, **2**, 73–82.
- Scrivener, R.C. and Beer, K.E. (1971) Cassiterite in the Aller Gravel near Newton Abbott. *Proceedings of the Ussher Society*, **2**, 326–9.
- Searle, D.L. (1947) Field meeting at Upnor, Kent. *Proceedings of the Geologists' Association*, **58**, 125–7.
- Seeley, H.G. (1876) Notice of the occurrence of remains of a British fossil Zeuglodon (*Z. Wanklyni* Seeley) in the Barton clay of the Hampshire Coast. *Quarterly Journal of the Geological Society of London*, **32**, 428–32.
- Selwood, E.B., Edwards, R.A., Simpson, S., Chesher, J.A., Hamblin, R.J.O. *et al.* (1984) *Geology of the Country around Newton Abbot*. Memoir of the British Geological Survey, HMSO, London.
- Shackleton, N.J., Backman, J., Zimmerman, H., Kent, D.V., Hall, M.A. *et al.* (1984) Oxygen isotope calibration of the onset of ice-rafting and history of glaciation in the North Atlantic region. *Nature*, **307**, 620–3.
- Shephard-Thorn, E.R. (1975) The Quaternary of the Weald – a review. *Proceedings of the Geologists' Association*, **86**, 537–47.
- Shephard-Thorn, E.R. (1988) *Geology of the Country around Ramsgate and Dover*. Memoir of the British Geological Survey, HMSO, London.
- Sherlock, R.L. (1924) The superficial deposits of south Buckinghamshire and south Hertfordshire and the old course of the Thames. *Proceedings of the Geologists' Association*, **35**, 1–28.
- Sherlock, R.L. and Noble, A.H. (1922) *The Geology of the Country around Beaconsfield*. Memoirs of the Geological Survey, England and Wales, HMSO, London.
- Shrubsole, W.H. (1879–1880) Diatoms in the London Clay. *Nature*, **21** (11 December 1879), 132; **21** (11 March 1880), 444; **21** (8 April 1880), 538; **22** (8 July 1880), 221.
- Shrubsole, W.H. (1881) Excursion to Sheppey. *Proceedings of the Geologists' Association*,

References

- 17, 149–50.
- Shrubsole W.H. (1887) Excursion to Sheppey. *Proceedings of the Geologists' Association*, **10**, 194–5.
- Siesser, W.G., Ward, D.J. and Lord, A.R. (1987) Calcareous nannoplankton biozonation of the Thanetian Stage (Palaeocene) in the type area. *Journal Micropalaeontology*, **6**, 85–102.
- Sloan, L.C., Walker, J.C.G., Moore, T.C., Rea, D.K. and James, C.Z. (1992) Possible methane-induced polar warming in the early Eocene. *Nature*, **357**, 320–2.
- Smart, J.G.O., Bisson, G. and Worsam, B.C. (1966) *Geology of the Country around Canterbury and Folkestone*. Memoirs of the Geological Survey of Great Britain, England and Wales, HMSO, London.
- Smith, A.J. and Curry, D. (1975) The structure and geological evolution of the English Channel. *Philosophical Transactions of the Royal Society*, Series A, **279**, 3–20.
- Smith, W. (1816) *Strata identified by Organised Fossils*, W. Arding, London, 32 pp.
- Smith, W. (1817) *Stratigraphical System of Organized Fossils*, E. Williams, London, 118 pp.
- Sowerby, J. (1812) *The Mineral Conchology of Great Britain*, **1**, B. Meredith, London, 234 pp.
- Sowerby, J. (1823) *The Mineral Conchology of Great Britain*, **4**, W. Arding, London, 148 pp.
- Spaink, G. (1975) Zonering van het mariene onder-Pleistoceen en Pliocene op grond van mollusken-fauna's. In *Toelichting bij Geologische Overzichtskaarten van Nederland* (eds W.H. Zagwijn and C.J. Van Staalduinen). Rijks Geologische Dienst, Haarlem, pp. 118–22.
- Spencer, H.E.P. (1964) The contemporary mammalian fossils of the Crag. *Transactions of the Suffolk Naturalists' Society*, **12**, 333–44.
- Spencer, H.E.P. (1966) Field meeting in the Quaternary of East Suffolk. *Proceedings of the Geologists' Association*, **77**, 371–80.
- Spencer, H.E.P. (1967) A contribution to the geological history of Suffolk. Part 2. The geological history of the Orwell-Gipping System. *Transactions of the Suffolk Naturalists' Society*, **13**, 290–313.
- Spencer, H.E.P. (1971a) A contribution to the geological history of Suffolk. Part 5. The Early Pleistocene. The Crag epochs and their mammals. *Transactions of the Suffolk Naturalists' Society*, **15**, 279–356.
- Spencer, H.E.P. (1971b) Survey of Suffolk Crag exposures (1953–1959). *Transactions of the Suffolk Naturalists' Society*, **15**, 357–63.
- Stamp, L.D. (1920) Excursion to Grove Park and Chislehurst. *Proceedings of the Geologists' Association*, **31**, 150–5.
- Stamp, L.D. (1921) On cycles of sedimentation in the Eocene Strata of the Anglo-Franco-Belgian Basin. *Geological Magazine*, **58**, 681–3.
- Stebbing, W.P.D. (1900) Excursion to Netley Heath and Newlands Corner. *Proceedings of the Geologists' Association*, **16**, 524–6.
- Stewart, D.J. (1978) *Ophiomorpha*; a marine indicator? *Proceedings of the Geologists' Association*, **89**, 33–41.
- Stinton, F.C. (1957) Fish otoliths from the London Clay of Bognor Regis, Sussex. *Proceedings of the Geologists' Association*, **67**, 15–31.
- Stinton, F.C. (1965a) Teleost otoliths from the Lower London Tertiaries. *Senckenbergiana lethaea*, **46a**, 389–425.
- Stinton, F.C. (1965b) Field meeting in the Lower London Tertiaries of Kent. *Proceedings of the Geologists' Association*, **76**, 175–7.
- Stinton, F.C. (1966) Fish otoliths from the London Clay. In *Faune ichthyologique du London Clay* (ed. E. Casier), British Museum (Natural History), London, pp. 404–64.
- Stinton, F.C. (1970) Field Meeting in the New Forest, Hants. *Proceedings of the Geologists' Association*, **81**, 269–74.
- Stinton, F.C. (1971a) Easter field meeting in the Isle of Wight. Report by the Director. *Proceedings of the Geologists' Association*, **82**, 403–10.
- Stinton, F.C. (1971b) Report of field meeting to the New Forest, Hampshire. *Tertiary Times*, **13**, 43–4.
- Stinton, F.C. (1975) *Fish Otoliths from the English Eocene, Part 1*. Palaeontographical Society (Monograph), Palaeontographical Society, London, pp. 1–56.
- Stinton, F.C. (1977) *Fish Otoliths from the English Eocene, Part 2*. Palaeontographical Society (Monograph), Palaeontographical Society, London, pp. 57–126.
- Stinton, F.C. (1978) *Fish Otoliths from the English Eocene, Part 3*. Palaeontographical Society (Monograph), Palaeontographical Society, London, pp. 127–89.
- Stinton, F.C. (1980) *Fish Otoliths from the*

References

- English Eocene, Part 4*. Palaeontographical Society (Monograph), Palaeontographical Society, London, pp. 191–258.
- Stinton, F.C. and Curry, D. (1979) Lithostratigraphical nomenclature of the English Palaeogene succession. *Geological Magazine*, **116**, 66–7.
- Stopes, H. (1882) Traces of Man in the Crag. *Report of the British Association for the Advancement of Science, (1881)*, p. 700.
- Strahan, A. (1895) On overthrusts of Tertiary date in Dorset. *Quarterly Journal of the Geological Society London*, **51**, 549–62.
- Strahan, A. (1898) *The Geology of the Isle of Purbeck and Weymouth*. Memoirs of the Geological Survey, England and Wales, HMSO, London.
- Strauch, F. (1968) Determination of Cenozoic sea-temperatures using *Hiattella arctica* (Linné). *Palaeogeography, Palaeoclimatology, Palaeoecology*, **5**, 213–33.
- Strauch, F. (1972) Phylogenese, adaptation und migration einiger nordischer mariner Molluskengenera (*Neptunea*, *Panomya*, *Cyrtodaria* und *Mya*). *Abhandlungen der Senckenbergischen Naturforschenden Gesellschaft*, **531**, 1–211.
- Sub-Group Lithostratigraphy and Maps (IGCP Project 124) (1980) A lithostratigraphic scheme for the NW-European Tertiary Basin. *Newsletters on Stratigraphy*, **8**, 236–7.
- Tawney, E.B. and Keeping, H. (1883) On the section at Hordwell Cliffs, from the top of the Lower Headon to the base of the Upper Bagshot Sands. *Quarterly Journal of the Geological Society London*, **39**, 566–74.
- Taylor, J.E. (1871) The relation of the Red Crag to the Norwich Crag. *Geological Magazine*, **8**, 314–16.
- Taylor, P.D., Larwood, G.P. and Balson, P.S. (1981) Some British field localities with fossil Bryozoa. In *Recent and Fossil Bryozoa* (eds G.P. Larwood and C. Nielsen), Olsen and Olsen, Fredensborg, Denmark, pp. 249–62.
- Taylor, R.C. (1827) On the Geology of East Norfolk; with remarks upon the hypothesis of Mr. Robberds, respecting the former level of the German Ocean. *Philosophical Magazine, Series 3*, **1**, 277–90, 346–53, 426–33.
- Terwindt, J.H.J. (1971) Litho-facies of inshore estuarine and tidal-inlet deposits. *Geologie en Mijnbouw*, **50**, 515–26.
- Tilbrook, K.J. (1997) Barnacle and bivalve associates of a bryozoan-coral symbiosis from the Coralline Crag (Pliocene) of England. *Tertiary Research*, **18**, 7–22.
- Todd, J.A. (1990) The stratigraphy and correlation of the Selsey Formation and Barton Clay Formation (M. Eocene) of Studley Wood, Hampshire. *Tertiary Research*, **12**, 37–50.
- Townsend, H.A. and Hailwood, E.A. (1985) Magnetostratigraphic correlation of Palaeogene sediments in the Hampshire and London Basins, southern UK. *Journal of the Geological Society of London*, **142**, 957–82.
- Tracey, S. (1992) A review of the Early Eocene molluscs of Bognor Regis (Hampshire Basin), England. *Tertiary Research*, **13**, 155–75.
- Tracey, S. (1996) Mollusca of the Selsey Formation (Middle Eocene): Conoidea, Turridae. *Tertiary Research*, **16**, 55–95.
- Tracey, S. and Todd, J.A. (1996) Nomenclatural changes for some Bracklesham Group gastropods. *Tertiary Research*, **16**, 41–54.
- Tracey, S., Todd, J.A., Le Renard, J., King, C. and Goodchild, M. (1996) Distribution of Mollusca in units S1 to S9 of the Selsey Formation (middle Lutetian), Selsey Peninsula, West Sussex. *Tertiary Research*, **16**, 97–139.
- Tylor, A. (1850) On the occurrence of productive iron ore in the Eocene Formations of Hampshire. *Quarterly Journal of the Geological Society of London*, **6**, 133–4.
- Ussher, W.A.E. (1878) The chronological value of the Pleistocene deposits of Devon. *Quarterly Journal of the Geological Society of London*, **34**, 449–58.
- Ussher, W.A.E. (1913) *The Geology of the Country around Newton Abbot*. Memoirs of the Geological Survey of Great Britain, HMSO, London.
- Vachell, E.T. (1963) Fifth report on geology. *Report of the Transactions of the Devon Association for the Advancement of Science, Literature and the Arts*, **95**, 100–7.
- Vail, P.R. and Hardenbol, J. (1979) Sea-level changes during the Tertiary. *Oceanus*, **22**, 71–9.
- Vail, P.R., Mitchum, R.M. and Thompson, S. (1977) *Seismic stratigraphy and global changes of sea level, part 4: Global cycles of relative changes of sea level. Seismic stratigraphy-application to hydrocarbon exploration, section 2, Memoir*. American Association of Petroleum Geologists, **26** pp. 83–97.
- Van der Vlerk, I.M. (1950) Correlation between

References

- the Plio-Pleistocene deposits in East Anglia and in the Netherlands. *International Geological Congress. Report of the 18th Session, Great Britain, 1948, Part IX, Proceedings of Section H, The Pliocene-Pleistocene boundary*, pp. 101-6.
- Van Montfrans, H.M. (1971) Palaeomagnetic dating in the North Sea Basin. *Earth and Planetary Science Letters*, **11**, 226-35.
- Van Voorthuysen, J.H. (1954) Crustal movements of the southern part of the North Sea Basin during Pliocene and early Pleistocene times. *Geologie en Mijnbouw*, **16**, 165-72.
- Van Voorthuysen, J.H. (1957) The Plio-Pleistocene boundary in the North Sea Basin. *Geologie en Mijnbouw*, **19**, 263-6.
- Vella, P. (1969) Correlation of base of Middle Headon Beds between Whitecliff Bay and Colwell Bay, Isle of Wight. *Geological Magazine*, **106**, 606-8.
- Venables, E.M. (1929) On the London Clay of the Bognor District. *Proceedings of the Geologists' Association*, **40**, 41-51.
- Venables, E.M. (1963) The London Clay of Bognor Regis. *Proceedings of the Geologists' Association*, **73**, 245-71.
- Venables, E.M. and Taylor, H.E. (1963) An insect fauna of the London Clay. *Proceedings of the Geologists' Association*, **73**, 273-9.
- Vinken, R., Von Daniels, C.H., Gramman, F., Köthe, A., Knox, R.W.O'B. *et al.* (eds) (1988) The Northwest European Tertiary Basin. Results of the IGCP Project No. 124. *Geologisches Jahrbuch*, **A 100**.
- Von Ettinghausen, C. (1879) Report of the phyto-palaeontological investigations of the fossil flora of Sheppey. *Proceedings of the Royal Society*, **29**, 388-96.
- Walder, P.S. (1964) Mineralogy of the Eocene sediments in the Isle of Wight. *Proceedings of the Geologists' Association*, **75**, 291-314.
- Walker, C.A. (1980) The distribution of birds in the English Palaeogene. *Tertiary Research*, **3**, 25-30.
- Walker, J.C.G. and Sloan, L.C. (1992) Something is wrong with climate theory. *Geotimes*, June 1992, 16-18.
- Wanklyn, A. (1869) Description of some new species of fossil ferns from the Bournemouth Leaf bed. *Annals and Magazine Natural History, London*, **34**, 10-12.
- Ward, D.J. (1975) Report of Field Meeting to Herne Bay, Kent. September 2nd 1972. *Tertiary Times*, **2**, 106-7.
- Ward, D.J. (1977) The Thanet Beds exposure at Pegwell Bay, Kent. *Tertiary Research*, **1**, 69-76.
- Ward, D.J. (1978) The Lower London Tertiary (Palaeocene) succession of Herne Bay, Kent. *Report of the Institute of Geological Sciences*, **78/10**.
- Ward, D.J. (1980) The distribution of sharks, rays and chimaeroids in the English Palaeogene. *Tertiary Research*, **3**, 13-19.
- Wardlaw, B.R. and Quinn, T.M. (1991) The record of Pliocene sea-level change at Enewetak Atoll. *Quaternary Science Reviews*, **10**, 247-58.
- Warren, S.H. (1948) Flint flaking. *Nature, London*, **161**, 569.
- Waters, R.S. (1960a) The bearing of superficial deposits on the age and origin of the Upland Plain of east Devon, Dorset and south Somerset. *Transactions of the Institute of British Geographers*, **28**, 89-97.
- Waters, R.S. (1960b) Erosion surfaces of Dartmoor and adjacent areas. *Royal Geological Society of Cornwall, Abstracts Proceedings of the 3rd Conference on the Geology and Geomorphology of South West England*, 28-9.
- Webster, T. (1814) On the Freshwater Formations in the Isle of Wight, with some observations on the strata over the Chalk in the south-east part of England. *Transactions of the Geological Society - London*, **21**, 161-254.
- Webster, T. (1816) The freshwater formations of the Isle of Wight. In *Description of Picturesque Beauties, Antiquities and Geological Phenomena of the Isle of Wight* (ed. H.C. Englefield), Payne and Foss, London.
- Webster, T. (1824) On a freshwater formation in Hordwell Cliff, Hampshire; and on the subjacent beds, from Hordwell to Muddiford. *Transactions of the Geological Society of London*, **1**, 90-4.
- Weir, A.H. and Catt, J.A. (1969) The mineralogy of Palaeogene sediments in northeast Kent. *Sedimentary Geology*, **3**, 17-33.
- West, R.G. (1972) Relative land sea level changes in south-east England during the Pleistocene. *Philosophical Transactions of the Royal Society of London, Series A*, **272**, 87-98.
- Whitaker, W. (1864) *The Geology of Parts of Middlesex, Hertfordshire, Buckinghamshire, Berkshire and Surrey*. Memoirs of the

References

- Geological Survey of Great Britain, HMSO, London.
- Whitaker, W. (1866) On the Lower London Tertiaries of Kent. *Quarterly Journal of the Geological Society London*, **22**, 404–35.
- Whitaker, W. (1872) *The Geology of the London Basin. Part I. The Chalk and Eocene Beds of the southern and western tracts*, Memoirs of the Geological Survey, England and Wales, HMSO, London.
- Whitaker, W. (1877) *The Geology of the Eastern End of Essex (Walton Naze and Harwich)*, Memoirs of the Geological Survey, England and Wales, HMSO, London, 32 pp.
- Whitaker, W. (1885) *The Geology of the Country around Ipswich, Hadleigh and Felixstowe*. Memoirs of the Geological Survey, England and Wales, HMSO, London, 156 pp.
- Whitaker, W. (1889) *The Geology of London and Part of the Thames Valley, Volume 1*. Memoirs of the Geological Survey, England and Wales, HMSO, London, 556 pp.
- Whitaker, W. (1912) Report of an excursion to Reculvers. *Proceedings of the Geologists' Association*, **23**, 247–9.
- Whitaker, W. (1918) *Water Supply of Essex from Underground Sources*. Memoirs of the Geological Survey, HMSO, London.
- Whitaker, W. and Dowker, G. (1885) Excursion to Canterbury, Reculvers, Pegwell Bay and Richborough. *Proceedings of the Geologists' Association*, **9**, 168–77.
- Whitaker, W. and Holmes, T.V. (1897) Excursion to Chislehurst. *Proceedings of the Geologists' Association*, **15**, 108–9.
- Whitaker, W., Holmes, T.V. and Shrubsole, W.H. (1898) Excursion to Sheppey, Saturday July 16th 1898. *Proceedings of the Geologists' Association*, **15**, 459–62.
- White, E.I. (1923) Notes on a new species of 'Terebelloid' and other phenomena in the Great Pit at Harefield, Middlesex. *Proceedings of the Geologists' Association*, **34**, 43–6.
- White, E.I. (1931) *The vertebrate faunas of the English Eocene. Volume 1, from the Thanet Sands to the Basement Bed of the London Clay*. British Museum (Natural History), London.
- White, H.J.O. (1906) On the occurrence of quartzose gravels in the Reading Beds at Lane End, Bucks. *Proceedings of the Geologists' Association*, **19**, 371–7.
- White, H.J.O. (1915) *The Geology of the Country around Lymington and Portsmouth*. Memoirs of the Geological Survey, England and Wales, HMSO, London.
- White, H.J.O. (1917) *The Geology of the Country around Bournemouth*. Memoirs of the Geological Survey, England and Wales, HMSO, London.
- White, H.J.O. (1921) *A Short Account of the Geology of the Isle of Wight*. Memoirs of the Geological Survey of Great Britain, England and Wales, HMSO, London.
- White, H.J.O. (1928) *The Geology of the Country near Ramsgate and Dover*. Memoirs of the Geological Survey, England and Wales, HMSO, London.
- Wilkinson, H.P. (1984) Pyritised twigs from Sheppey. *Tertiary Research*, **5**, 189–98.
- Wilkinson, I.P. (1980) Coralline Crag Ostracoda and their environmental and stratigraphical significance. *Proceedings of the Geologists' Association*, **91**, 291–306.
- Willard, D.A., Cronin, T.M., Ishman, S.E. and Litwin, R.J. (1993) Terrestrial and marine records of climatic and environmental changes during the Pliocene in subtropical Florida. *Geology*, **21**, 679–82.
- Williams, G.L. (1964) Organic-walled microplankton of the London Clay. Unpublished PhD thesis, University of Sheffield.
- Williams, G.L. and Downie, C. (1966) *Wetzeliella* from the London Clay. In *Studies on Mesozoic and Cainozoic Dinoflagellate Cysts* (eds R.J. Davey, C. Downie, W.A.S. Sarjeant and G.L. Williams), *Bulletin of the British Museum (Natural History)*, Geology Suppl., **3**, 182–98.
- Williams, G.M. (1971) The stratigraphy and micropalaeontology of the London Clay. Unpublished PhD thesis, University of London.
- Wilson, J.B. (1982) Shelly faunas associated with temperate offshore tidal deposits. In *Offshore Tidal Sands* (ed. A.H. Stride), Chapman and Hall, London, pp. 126–71.
- Withers, T.H. (1953) *Catalogue of Fossil Cirripedia in the Department of Geology, Volume III, Tertiary*, British Museum (Natural History), London.
- Wolfe, J.A. (1978) A paleobotanical interpretation of Tertiary climates in the Northern Hemisphere. *American Scientist*, **66**, 694–703.
- Wood, A.M., Whatley, R.C., Cronin, T.M. and Holtz, T. (1993) Pliocene Palaeotemperature reconstruction for the southern North Sea

References

- based on Ostracoda. *Quaternary Science Reviews*, **12**, 747–67.
- Wood, S.V. (1842) A catalogue of shells from the Crag. *Annals and Magazine of Natural History*, **9**, 455–62.
- Wood, S.V. (1844) Record of the discovery of an alligator with several new mammalia in the freshwater strata at Hordwell. *Annals and Magazine Natural History*, **14**, 349–51.
- Wood, S.V. (1846) On the discovery of an Alligator and of several new Mammalia in the Hordwell Cliff, with observations on the geological phenomena of that locality. *London Geological Journal*, **1**, 1–7.
- Wood, S.V. (1848–1882) *The Crag Mollusca*. Palaeontographical Society (Monograph), Palaeontographical Society, London.
- Wood, S.V. (1859) On the extraneous fossils of the Red Crag. *Quarterly Journal of the Geological Society of London*, **15**, 32–45.
- Wood, S.V. (1861) *A monograph of the Eocene Mollusca, 1, Bivalves*. Palaeontographical Society (Monograph), Palaeontographical Society, London.
- Wood, S.V. (1864) On the Red Crag and its relation to the fluvio-marine Crag, and on the Drift of the eastern counties. *Annals and Magazine of Natural History*, Series 3, **13**, 185–203.
- Wood, S.V. (1866) On the structure of the Red Crag. *Quarterly Journal of the Geological Society of London*, **22**, 538–52.
- Wood, S.V. (1879) *Second Supplement to the Crag Mollusca*. Palaeontographical Society (Monograph), Palaeontographical Society, London.
- Wood, S.V. (1883a) On the Long Meadend Bed. *Geological Magazine*, decade 2, **10**, 493–7.
- Wood, S.V. (1883b) Middle Headon and Meadend Beds of Hordwell Cliff. *Geological Magazine* (Decade 2) **10**, 573–4.
- Wood, S.V. (1884) The Long Mead-End Bed. Further remark. *Geological Magazine* (Decade 3) **1**, 65–73.
- Wood, S.V. and Harmer, F.W. (1872) An outline of the geology of the upper Tertiaries of East Anglia. In *Supplement to the Crag Mollusca. Part I. (Univalves) with an introduction to the Crag district by Messrs S.V. Wood (jun) and F.W. Harmer* (ed. S.V. Wood), Palaeontographical Society (Monograph), Palaeontographical Society, London, pp. ii–xxxii.
- Wood, S.V. and Harmer, F.W. (1877) Observations on the later Tertiary geology of East Anglia, with a note by S. V. Wood on some new occurrences of species of mollusca in the Crag and beds superior to it. *Quarterly Journal of the Geological Society of London*, **33**, 74–121.
- Woodland, A.W. (1971) The Llanbedr (Mochras Farm) Borehole. *Report. Institute of Geological Sciences*, **71**, (18).
- Woods, H. (1924–1931) *A monograph of the fossil macrurous Crustacea of England*. Palaeontographical Society (Monograph), Palaeontographical Society, London.
- Woodward, A.S. (1885) On the literature and nomenclature of British fossil Crocodilia. *Geological Magazine*, **2**, 496–510.
- Woodward, H. (1878) On the occurrence of *Branchipus* (or *Chirocephalus*) in a fossil state, associated with *Archaeoniscus* and with numerous insect remains in the Eocene freshwater limestone of Gurnet Bay, Isle of Wight. *Geological Magazine*, decade 2, **5**, 88–9.
- Woodward, H. (1879) On the occurrence of *Branchipus* (or *Chirocephalus*) in a fossil state, associated with *Eospbaeroma* and with numerous insect remains, in the Eocene freshwater (Bembridge) limestone of gurnet Bay, Isle of Wight. *Quarterly Journal of the Geological Society London*, **35**, 342–50.
- Woodward, H.B. (1876) Notes on the gravels, sands and other superficial deposits in the neighbourhood of Newton Abbot, Devonshire. *Quarterly Journal of the Geological Society London*, **32**, 230–5.
- Woodward, H.B. (1891) Report of sub-Committee no. 1, Recent and Tertiary. A. Pliocene, Pleistocene and Recent. *Congrès Géologique International. Compte rendu de la 4me session, Londres, 1888*, pp. B19–B38.
- Woodward, H.B. (1909) *The Geology of the London District*. Memoirs of the Geological Survey, England and Wales, HMSO, London.
- Woodward, S. (1835) Some remarks upon the Crag Formation of Norfolk and Suffolk. *London and Edinburgh Philosophical Magazine*, Series 3, **7**, 353–5.
- Wooldridge, S.W. (1923) The minor structures of the London Basin. *Proceedings of the Geologists' Association*, **34**, 175–93.
- Wooldridge, S.W. (1926) The structural evolution of the London Basin. *Proceedings of the Geologists' Association*, **37**, 162–96.
- Wooldridge, S.W. and Ewing, C.J.C. (1935) The Eocene and Pliocene deposits of Lane End, Buckinghamshire. *Quarterly Journal of the*

References

- Geological Society of London*, **91**, 293–317.
- Wooldridge, S.W. and Gill, D.M.C. (1925) The Reading Beds of Lane End, Bucks, and their bearing on some unsolved problems of London geology. *Proceedings of the Geologists' Association*, **36**, 146–73.
- Wooldridge, S.W. and Linton, D.L. (1938) Influence of Pliocene transgression on the geomorphology of southeast England. *Journal of Geomorphology*, **1**, 40–54.
- Wooldridge, S.W. and Linton, D.L. (1955) *Structure, surface and drainage in south-east England*, George Philip and Son Limited, London, 176pp.
- Wooldridge, S.W. and Wrigley, A. (1929) Field meeting at Northwood and Harefield. *Proceedings of the Geologists' Association*, **40**, 373–5.
- Worssam, B.C. (1963) *Geology of the Country around Maidstone*. Memoirs of the Geological Survey of Great Britain, England and Wales, HMSO, London, 152 pp.
- Wright, C.A. (1972) The recognition of a planktonic foraminiferid datum in the London Clay of the Hampshire Basin. *Proceedings of the Geologists' Association*, **83**, 413–20.
- Wright, C.W. and Curry, D. (1958) *The Isle of Wight*. Geologists' Association Guide, No. 25.
- Wright, T. (1851) A stratigraphical account of the section of Hordwell, Beacon and Barton Cliffs, on the coast of Hampshire. *Annals and Magazine Natural History*, **72**, 433–46.
- Wright, V.P. (1989) Terrestrial stromatolites and laminar calcretes: a review. *Sedimentary Geology*, **65**, 1–13.
- Wrigley, A. (1925–1953) Various papers on English Eocene and Oligocene molluscs in *Proceedings of the Malacological Society, London*.
- Wrigley, A. (1929) Notes on English Eocene boring Mollusca, with descriptions of new species. *Proceedings of the Geologists' Association*, **40**, 376–83.
- Wrigley, A. (1945) Field meeting at Elmstead Woods, Kent. *Proceedings of the Geologists' Association*, **56**, 219–21.
- Wrigley, A. (1949) The Thanet Sands. *South-Eastern Naturalist and Antiquary*, **54**, 41–6.
- Wrigley, A.G. and Davies, A.G. (1937) The occurrence of *Nummulites planulatus* in England, with a revised correlation of the strata containing it. *Proceedings of the Geologists' Association*, **48**, 203–28.
- Zagwijn, W.H. (1992) The beginning of the Ice Age in Europe and its major subdivisions. *Quaternary Science Reviews*, **11**, 583–91.
- Zalasiewicz, J.A. and Mathers, S.J. (1985) Lithostratigraphy of the Red and Norwich Crags of the Aldeburgh–Orford area, south-east Suffolk. *Geological Magazine*, **122**, 287–96.
- Zalasiewicz, J.A., Mathers, S.J. and Cambridge, P. (1988) Buckanaye Farm. In *Pliocene–Middle Pleistocene of East Anglia. Field Guide*, (eds P.L. Gibbard and J.A. Zalasiewicz). Quaternary Research Association, Cambridge, pp. 73–7.
- Ziegler, P.A. (1975) Geologic evolution of the North Sea and its tectonic framework. *Bulletin of the American Association of Petroleum Geologists*, **59**, 1073–97.
- Ziegler, P.A. (1990) *Geological Atlas of Western and Central Europe*, Shell Internationale Petroleum Maatschappij BV, The Hague.

Glossary

This glossary provides brief explanations of the technical terms used in the introduction chapter and in the 'highlights' and 'conclusions' sections of the site reports. These explanations do not pretend to be scientific definitions but are intended to help the general reader. Detailed stratigraphical terms are omitted as they are given context within the tables and figures.

Angiosperm: Flowering plant.

Aragonite: A type of the rock-forming mineral calcium carbonate (CaCO_3), distinct from **calcite**. The shells of many invertebrate groups are made of this mineral.

Arenite (adj. arenaceous): **Detrital** sediment with sand-sized particles, cf. **argillite**.

Argillite (adj. argillaceous): **Detrital** sediment that is silt or clay rich, cf. **arenite**.

Aureole: **Metamorphosed** area adjacent to an **igneous intrusion**.

Bathyal: Oceanic zone of depths from 200 to 2000 m.

Baventian: A stage of the British Early **Pleistocene** defined in East Anglia.

Benthic: Living on or in the sea floor.

Biofacies: A **facies** defined by its characteristic fossil assemblage.

Bioclastic: Descriptive of rock made up of whole or fragmented organic **detritus**.

Biostratigraphy: The subdivision and correlation of sedimentary strata based on their fossil content.

Bioturbation: Disturbance and 'stirring' of soft sediments by burrowing organisms.

Bivalve: A **mollusc**, the shell of which comprises two valves that are typically, but not always, the same size and mirror images of each other, cf. **brachiopod**.

Brachiopod: A marine shellfish with two hinged shells (valves). Typically, the valves are dissimilar, with each valve bilaterally symmet-

rical. Particularly common in the **Palaeozoic** seas, but replaced by the **molluscs** as the dominant shellfish since **Mesozoic** times, cf. **bivalve**.

Brackish: Waters with salinities intermediate between fresh and marine waters.

Breccia: A coarse-grained sedimentary rock consisting of angular fragments, cf. **conglomerate**.

Bryozoan: Aquatic colonial organism (normally marine) composed of individuals living in linked box-like skeletons usually composed of calcium carbonate.

Cainozoic: See **Cenozoic**.

Calcarenite: Limestone formed mainly of calcium carbonate grains of sand size, cf. **arenite**.

Calcite (adj. calcitic): A common rock-forming mineral, calcium carbonate (CaCO_3). It has a different crystal structure, but the same chemical composition, as **aragonite**.

Calcareous: Calcium carbonate-bearing.

Calcrete: Calcareous soil, frequently **indurated**.

Celleporiform: A **bryozoan** growth-form where the colony assumes a spherical or globular shape. The colony may live attached to an erect substrate or loose on the sea floor.

Cenozoic: (= **Cainozoic**) The youngest **era** of geological time extending from 65 million years ago to the present and consisting of the **Tertiary** and **Quaternary Sub-eras**. Literally it means 'recent life'.

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- Cephalopods:** A class of marine mollusc that includes the extinct ammonites, belemnites, and the living squid, cuttlefish, octopus and *Nautilus*.
- Chalk:** Lithostratigraphical unit comprising dominantly white limestone of Late Cretaceous age.
- Characean:** Appertaining to the charophytes.
- Charophytes:** Class of mainly freshwater calcareous algae.
- Chine:** Sharply incised valley intersecting a sea cliff.
- Chron:** A small unit of geological time, reflecting a period of constant or dominant polarity of the Earth's magnetic field.
- Chronostratigraphical unit:** A sequence of rocks deposited during a particular interval of geological time.
- Clast:** A rock or mineral fragment derived by erosion of older rocks. Most commonly used for coarser particles (>2 mm). See also **bioclastic**.
- Coccoliths:** A family of marine, unicellular, calcareous planktonic algae.
- Coeval:** Of the same age or time.
- Concretion:** Rounded or irregular mass of mineral matter concentrated around a nucleus formed during diagenesis in a sedimentary rock.
- Conglomerate:** A coarse-grained sedimentary rock consisting of well-rounded fragments, cf. **breccia**.
- Coprolite:** Fossil faecal pellets, often made of phosphate minerals.
- Crag:** A local East Anglian term for shelly sands.
- Cretaceous:** The last period of the Mesozoic Era, ranging from 140 to 65 million years ago.
- Cross lamination/stratification:** Laminae/strata that were formed from sediments deposited at an angle to the horizontal, as a result of current flow. A vertical section through cross stratification reveals older beds to have angular discordance with, and be truncated by, younger layers.
- Crustaceans:** Sub-phylum of the Arthropoda, including crabs, lobsters etc..
- Cryoturbation:** Movements of the ground caused by seasonal freezing and thawing above a permanently frozen zone.
- Cyclostome:** A bryozoan of the order Cyclostomata.
- Danian:** Oldest stage of the Palaeogene Period.
- Depocentre:** Centre of (greatest) deposition.
- Detritus** (adj. detrital): Eroded loose rock and mineral matter.
- Diachronous:** Descriptive of a rock unit that is apparently continuous, but was in fact deposited in different places at different times, e.g. as a result of a marine transgression.
- Diagenesis** (adj. diagenetic): Small-scale changes of mineralogy and/or texture developed after deposition (excluding those due to subsequent metamorphism).
- Dinoflagellates:** Organic-walled unicellular, flagellate algae, some of which are siliceous.
- Disconformity** (adj. disconformable): A break in continuity of deposition, during which either no sediment is deposited or the sediment that has been deposited is subsequently eroded before the succession of strata continues without angular discordance.
- Dogger:** Type of large concretion.
- Duricrust:** A hard layer developed in certain soil types.
- Echinoderms:** Marine invertebrates usually characterized by a five-fold symmetry and possessing a calcite skeleton. Includes echinoids (sea urchins), crinoids (sea lilies) and asteroids (starfish).
- Eocene:** Middle epoch of the Palaeogene Period.
- Eon:** The largest unit of geological time, divided into eras.
- Epicontinental:** Situated on the continental shelf or on the continental interior.
- Epifauna:** Organisms growing on the surfaces of others.
- Epigenic:** Descriptive of processes occurring at or near the Earth's surface.
- Epoch:** A chronostratigraphical unit larger than the 'Stage' and smaller than the 'Period' in extent.
- Era:** A large unit of geological time composed of several periods. The Phanerozoic Eon is divided into the Palaeozoic, Mesozoic and Cenozoic eras, and their constituent periods are defined on the basis of their characteristic contents of invertebrates, vertebrate and plant fossils.
- Eschariform:** A bryozoan growth-form where the colony assumes an erect foliaceous or laminar shape usually with a rigid basis of attachment.
- Eurasia:** The region extending from Europe to Asia (often implying a geographical unit or

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- landmass).
- Eustatic:** Pertaining to world-wide changes of sea level that affect all the oceans.
- Facies:** The characteristic features of a rock unit, including rock type, mineralogy, fossils, texture and structure, which together reflect a particular sedimentary, igneous or metamorphic environment and/or process.
- Feldspar:** A group of aluminium-silicate rock forming minerals.
- Ferruginous:** Containing iron or iron minerals.
- Fissure:** A narrow or elongate opening or cavity.
- Foraminifera (Forams):** A type of single-celled animal having a mineralized, single- or multi-chambered-test (shell).
- Formation:** A **lithostratigraphical** unit, hierarchically higher than 'member' and lower than 'group'. A named 'Formation' represents an assemblage of strata that have a common characteristic useful for mapping.
- Gastropods (Gastropoda):** A class of marine, freshwater and terrestrial **molluscs** which live in a single, usually coiled shell.
- Gauss normal chron:** A **chron** representing 'normal' (as opposed to 'reverse') polarity of the Earth's magnetic field during the **Pliocene Epoch**.
- GCR:** Geological Conservation Review, in which nationally important geological and geomorphological sites were assessed and selected with a view to their long-term conservation as **SSSIs**.
- Geochronology:** The measurement of geological time and its division into episodes, in years, or millions of years, before present.
- Gelasian:** The youngest **stage** of the **Pliocene Epoch** but here considered as the oldest **stage** of the **Pleistocene Epoch**.
- Glacioeustatic:** Pertaining to the worldwide change in sea level as a result of successive withdrawal and return of water in the oceans accompanying the formation and melting of ice sheets.
- Glauconite:** Hydrous potassium, iron, aluminium silicate.
- Gley:** The product of waterlogged soil conditions, often represented by colour mottling.
- Gymnosperm:** Plants that reproduce by 'naked' seeds (seeds not enclosed in carpel) e.g. pine, spruce.
- Gyrogonite:** Spherical to ovoid, calcareous female reproductive structure of the **charophytes**.
- Hackly:** Having a rough, sharp surface or fracture.
- Halophytic:** Salt-tolerant or -adapted (of plants).
- Highstand:** Phase of high sea level.
- Hyposaline:** Salinities below that of normal sea water.
- Hypostratotype:** Auxiliary reference section, cf. **stratotype**.
- Ichnogenus:** A 'genus' of **trace fossil**. *See also taxonomic group*.
- Igneous:** Formed from molten rock.
- Induration:** The process of hardening during which a soft sediment becomes a rock.
- Inlier:** An area of rock that is completely surrounded by younger rocks.
- Intraclast:** A fragment of lithified or cohesive sediment derived from **coeval** parent material rather than an 'older' (extraformational) source.
- Intrusive rocks:** Rocks that, in the molten state, were forced into pre-existing rocks and solidified without reaching the surface.
- Isthmus:** A connective neck of land.
- Jurassic:** The middle period of the **Mesozoic Era**, ranging from 195 to 140 million years ago.
- Kainozoic:** *See Cenozoic*.
- Kaolinitic:** Containing the clay mineral kaolinite (a hydrated aluminium silicate).
- Laterite** (adj. Lateritic): A weathering product (soil) rich in iron and aluminium oxides and hydroxides.
- Lateritized:** Altered to **laterite**, wholly or in part.
- Lithofacies:** A **facies**, defined by sedimentary rock type (using, for example, colour, texture and mineral composition).
- Lithostratigraphy:** The description and correlation of rocks in terms of their rock-type features, rather than fossil content.
- Littoral:** Living on or near the shore.
- Maastrichtian:** The youngest **stage** of the **Cretaceous Period**.
- Magneto-biostratigraphy:** **Stratigraphy** based on combining **magnetostratigraphical** and **biostratigraphical** data.
- Magnetostratigraphy:** Branch of **stratigraphy** based on the record of geomagnetic polarity reversals.
- Magnetozone:** A zone defined by the contemporary magnetic polarity of the Earth, assigned to **chrons**.
- Massif:** A very large topographic or structural

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- feature.
- Matrix:** Mechanically introduced (rather than chemically precipitated) material between grains or **clasts**.
- Matuyama reversed chron:** A **chron** representing a time of reversed polarity in the Earth's magnetic field during the early part of the **Pleistocene Epoch**.
- Mesohaline:** 'Middle' of the **brackish** water range.
- Mesozoic:** The middle **era** of the **Phanerozoic** Eon, spanning the Triassic to the base of the **Tertiary**, (i.e. after the **Palaeozoic**, but before the **Cenozoic**), from 230 to 65 million years ago. Literal meaning is 'middle life'.
- Metamorphism:** The change process in rocks caused by heat and pressure, but without melting.
- Micrite:** Limestone composed of microcrystalline **calcite**.
- Miocene:** Older of the two **epochs** of the **Neogene Period**.
- Molluscs (Mollusca):** Invertebrates with a fleshy soft body and, usually, a hard shell. May be marine, freshwater or terrestrial. Includes gastropods (snails, limpets), **bivalves** (oysters, mussels), **cephalopods** etc., but a different **taxonomic group** to **brachiopods**.
- Monocline:** A single-limbed flexure on either side of which strata are horizontal or dip in the same direction at a relatively low angle.
- Nannoplankton:** Small plant **plankton**.
- Nanno-stratigraphy:** **Stratigraphy** based on the use of **nannoplankton**.
- Neogene:** Younger **period** of the **Tertiary Sub-era**.
- Nummulites:** Large **foraminiferid** genus.
- Olduvai subchron:** A normal polarity event within **Matuyama reversed chron**.
- Oligocene:** Youngest **epoch** of the **Palaeogene Period**.
- Oolith:** A spherical to subspherical carbonate-coated grain.
- Ophiuroid:** Brittle star, a type of **echinoderm**.
- Ostracods:** A class of **crustaceans**. Each has two **calcareous** valves and most are <1 mm in size. Throughout their long geological history (Cambrian–Recent) they have diversified into a wide range of aquatic ecological niches both on land and at sea.
- Otoliths:** 'Ear bones' of fishes.
- Outliers:** Geographically, where younger rocks are surrounded by older rocks.
- Palaeocene:** Oldest **epoch** of the **Palaeogene Period**.
- Palaeogene:** Older **period** of the **Tertiary Sub-era**.
- Palaeopedology:** The study of fossil soils.
- Palaeozoic:** 'Ancient life', the first major division of geological time that is characterized by abundant life and which is preceded by the Proterozoic and succeeded by the **Mesozoic**; divided into six **periods** from the Cambrian to the Permian.
- Palustrine:** Lake margins.
- Palynology:** The study of pollen, spores and certain other microfossils such as **dinoflagellates**.
- Paralic:** Descriptive of coastal regions.
- Pastonian:** A **stage** of the British Early **Pleistocene** defined in East Anglia.
- Pedogenesis:** Origin and formation of soils.
- Period:** A unit of geological time, hierarchically lower than **Era**.
- Permineralization:** The deposition of mineral matter within organic tissues (and sometimes also called petrification).
- Petromictic:** Comprising a mixture of different rock types (normally with regard to sediment pebble composition).
- Phanerozoic:** Period of time comprising the **Palaeozoic**, **Mesozoic** and **Cenozoic Eras**, commencing around 540 million years before present.
- Phytoplankton:** Plant plankton.
- Pisolith:** Carbonate coated grain (particle) >2 mm in diameter.
- Plankton(ic):** Minute aquatic organisms that drift with water movement.
- Pleistocene:** Older **epoch** of the **Quaternary Sub-Era**.
- Pliocene:** Younger **epoch** of the **Neogene Period**.
- Polycyclically:** Involving >1 and often a number of cycles (usually referring to sedimentation).
- Pyrite:** (adj. pyritic). 'fire stone', an iron sulphide mineral (FeS₂) common within sediments, resulting from the biochemical action of bacteria within anaerobic environments.
- Pyritized:** Altered to the mineral pyrite (FeS₂).
- Pyroclastic:** Fragmentary material of volcanic origin.
- Quaternary:** The younger **Sub-era** of the **Cenozoic Era**, the beginning of the **Quaternary** is taken as about 2.4 million years ago in this volume and it extends to the present.

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- Radiometric dating:** Methods of dating certain rocks or minerals using the relative abundances of radioactive isotopes of certain elements and their decay products.
- Rhizocretion (Rhizoconcretion):** Concretion formed where mineralization (normally the precipitation of calcite) forms around or replacing roots.
- Rhizolith:** Concretion (normally calcitic) replacing root.
- Rudaceous:** Sediments characterized by particle size >2 mm.
- Sapropel(ic):** Organic sludge (normally rich in carbon) accumulated on a lake, sea etc. bed.
- Schorl:** Black variety of the mineral tourmaline.
- Serpulids:** Worms that secrete calcareous tubes.
- Silcrete:** Duricrust characterized by the dominance of silica minerals.
- Siliceous:** Silica-bearing.
- Silicified:** Altered partially or totally to silica.
- Silicoplankton:** Plankton with siliceous skeletons.
- SSSI:** Site of Special Scientific Interest. The designation of an area of land for statutory protection under the provisions of the *Wildlife and Countryside Act 1981*.
- Stage:** A chronostratigraphical unit.
- Stratigraphy:** The study of rock strata and their distribution in space and time.
- Stratotype:** A sequence of sedimentary rocks at a particular locality chosen as the standard against which other sequences can be compared (also called a type section or locality). Stratotypes are established for lithostratigraphical and biostratigraphical units, both regionally and internationally.
- Subaqueously:** Within a body of water.
- Sub-era:** Sub-division of an Era.
- Successions:** In stratigraphy, a sequence of sedimentary rock units.
- Taxonomic group:** A unit of classification of organisms (e.g. phylum, class, order, family, genus, species).
- Tectonic:** Pertaining to the deformation of the Earth's crust and the consequent structural effects (e.g. faulting, folding etc.).
- Teleosts:** Bony fishes.
- Tertiary:** The younger Sub-era of the Cenozoic Era, ranging from 65 to 2.6 or 1.6 million years ago (see discussion on p. 237).
- Thanetian:** The younger stage of the Palaeocene Epoch.
- Thermophilic:** Organisms requiring, or thriving best, in a high temperature.
- Trace fossil:** A structure preserved in a sedimentary rock that indicates biological activity, e.g. burrows, trails and footprints.
- Transgressive:** Where water (normally the sea) advances over land, due to vertical movements of the Earth's crust or to a rise in water level.
- Type locality:** The location where the type section (or stratotype) for a stratigraphical unit is located, or where the original type section or fossil was first described.
- Type section:** See Stratotype.
- Unconformity:** The surface separating a younger sedimentary sequence from an underlying older rock sequence which represents a gap in the geological record when there was erosion and/or no deposition. There is often an angular discordance between the two sequences, cf. **disconformity**.
- Zeolites:** Group of hydrated aluminium silicates of sodium, potassium, calcium and barium.

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