

# Index

Bold numbers indicate major mentions and definitions

- Aalenian Age (Jurassic) 29, 32, 58, 77, 81  
 abscission 23, 208  
 Acanthaceae (extant) 41  
 acetolysis 35  
 actinomorphic 206, 209, 249, **255**  
 Aculeata (ants bees wasps) 50, 211  
 'adaptation' 22, **255**  
 advanced character 14, 237, **255**  
 Advancement Index 6, 14, 210, 220, **255**  
 Africa 136, 161, 192, 193, 194, 212  
 Afropollis group 185, 190, 193, 195  
 Afropol-*murigroove* 177, **185**  
 Age/(stage) (time-scale) 27, **255**  
 aggradational land 19, 215, **255**  
 Albian Age (Cretaceous) 11, 28, 29, 56, 58, 103,  
 121, 123, 128, 192, 193, 194, 197, 198, 199,  
 200, 202, 204, 211, 212, **213**, 214, 215, 220,  
 233, 236, 243, 248, 249  
 Alford Borehole (Lincs.) 119, **129**, 149, 160, 161,  
 162  
 algae 44, 47, 247  
 Alismatales (extant) 251, 252  
*Alisporites* 51, 69, 77  
 alkaloid 47  
 alternation of generations 221, 255  
 alternative proposal 55  
 alveolate pollen 38, **255**  
 amber 225  
 ammonia solution 131  
 ammonite 162  
 ammonite zone 130, 177  
*Ampborispermum* 70, 80  
 Amur River 89, 93  
 anastomosing venation 59, 200, 246, **255**  
 anasulcate 113, **255**  
 anatropous 206, 209, **255**  
*Anchisaurus* 48  
 Andøya (Norway) 88  
 androecium 211, **255**  
*Androstrobilus* 114  
 anemophily **255**  
 angiosperm 1, 7, 43, 116, 117, 225, 226, 230, 236,  
 237, 243, 247, 249, **255**  
 angiosperm ancestors 3, 5, 17, 34  
 angiosperm origins 2, 6, 20, 21, 230, 232, 237,  
 250, 253  
 angiosperm pollen 36, 51  
 angiosperm characters 12, 38, 118, 131, 240,  
**255**  
 angiospermous fossils 2, 3, 116, 117, 197, 247,  
 248  
 angiospermous leaves 2, 233  
 angiospermous plants 2, 253, **255**  
 animal droppings 44  
 animal/plant integration 18, 253  
 Anisian Age (Triassic) 29, 34  
 anomocytic stomata 255  
*Anomozamites* 75  
*Anomozamites minor* 75  
 Antarctica 81  
*Antevsia* 63, 64  
 anther 149, 195, **255**  
 anthocorm 7, 256  
*Antholithus* 69  
 anthophyte **256**  
 anticline 120, 123, 124, 125, **256**  
 anti-glacial period 19, 21, 25, 215, 225, 226, 243,  
 254, **256**  
 Apioids (bees) 211, 254  
 apocarpous 200, **256**  
 apomorphies 248  
 apterygote insects 45, 52, **256**  
 Aptian Age (Cretaceous) 11, 12, 29, 37, 39, 50, 53,  
 55, 58, 91, 100, 101, 104, 105, 108, 111, 113,  
 118, 120, 121, 123, 128, 131, 135, 162, 177,  
 190, 191, 193, 194, 197, 198, 200, 211, 212,  
 214, 217, 218, 223, 224, 233, 236, 242, 243,  
 244, 248, 249, 252  
 Aptian-*dentsharp* (MCT) 162, **163**, 164  
 Aptian-*frill* (MCT) 165, **174**, 194  
 Aptian-*longcol* (MCT) 162, 170, 171, 180, 194  
 Aptian-*monotwofour* (EPH) **189**  
 Aptian-*perfortect* (MCT) 162, **172**, 173, 213, 242  
*Aquilapollenites* 217  
 arachnids 45, 51, 256  
 Arales (extant) 251  
 Araucariaceae (extant) 115, 250  
*Araucariacites* 17, 87  
*Arberia* 60  
 arborescent 256  
*Archaeanthus linnenbergeri* 203, 204, 213  
*Archaeopteryx* 53  
 architecture (of trees) 220, 221  
 Arctic region 3  
 Arecidae (extant palms) 251  
 Argentina 98, 100, 101, 108, 194  
 aridity 47, 52  
 arthropods 19, 44

## 292 Index

- Artinskian Age (Permian) 29, 58, 59  
 Arundel Clay (Cretaceous) 190, 198  
 ASA (Africa–South America) 104, 200, 233  
*Ascarina* 210  
 Ashdown flora (Valanginian) 110  
 Asia 200, 227, 249  
 Asselian Age (Permian) 29, 58  
 assumptions 13  
*Asterocelastrus cretacea* 206, 209, 213, 214, 249  
 atectate pollen 38  
 Atherfield Clay (Aptian) 177, 190  
 Atherfield Point (IOW) 123, 125, 177  
 Atherfield succession (IOW) 149, 151, 155, 156,  
 157, 160, 161, 162, 165, 166, 168, 177, 190  
 Atlantic coast 192  
 atmosphere 18  
 attractants 39, 51, 211, 249  
 attribution 200  
 Australia 50, 91, 93, 195, 212, 233  
 Austral region 216  
 automation (data-handling) 15  
*Autunia* 63  
*Axelrodia burgeri* 67, 68, 69
- Baguero flora (Argentina) 58, 87, 99, 101, 108,  
 109, 195  
*Baisia hirsuta* 201  
 Bajocian Age (Jurassic) 27, 29, 32, 58, 79, 81, 82,  
 88, 90, 232, 238, 239, 249  
 Baltimore flora (Cretaceous) 191  
 banded muri 140, 256  
 Barremian Age (Cretaceous) 29, 43, 51, 58, 98,  
 108, 116, 117, 118, 120, 121, 122, 123, 128,  
 129, 130, 131, 135, 161, 162, 165, 193, 195,  
 200, 233, 236, 242, 252  
 Barremian Age records 11, 35, 42  
*Barremian-canalic* (EPH) 154, 158  
*Barremian-fourboat* (EPH) 189  
*Barremian-megaspindle* (EPH) 159, 161  
*Barremian-monosix* (EPH) 158  
*Barremian-monosixteen* (EPH) 153, 154  
*Barremian-murifrag* (MCT) 182  
*Barremian-ring* (MCT) 148, 157, 161, 165, 181  
*Barremian-teebac* (MCT) 160  
 base-taxon 256  
 Bathonian Age (Jurassic) 29, 32, 58, 77, 239  
 beaded muri 140  
*Beania* 93, 114  
*Belemnopteris* (glossopterid) 60  
*Bennetticarpus* 75, 85, 239  
*Bennettistemon* 83  
 Bennettiales 7, 11, 17, 37, 51, 53, 56, 75, 202,  
 211, 238, 243  
 Berriasian Age (Cretaceous) 11, 28, 29, 50, 53, 58,  
 82, 85, 93, 97, 102, 112, 116, 117, 121, 192,  
 195, 196, 231, 240, 241, 243  
 binominal (binomial) 14, 23, 195, 228, 256  
 biochemical evidence 228  
 biological competition 24  
 biologists 13, 18  
 biorecord (paleotaxon) 134, 256  
 bipinnate 63, 256  
 birds 45, 48, 53, 253  
 bisaccate pollen 36, 37, 39, 195, 256
- bisexual (plants) 8, 51, 110  
 bitegmic ovule 60, 256  
 bivalve molluscs 44  
 Blackgang Chine (IOW) 123  
 Blairmore flora (Cretaceous) 58  
 Bohemia (Czechoslovakia) 197, 199, 203, 204,  
 206, 209  
 bolides 243  
 Boreal Sea (Cretaceous) 121, 128  
 Bornholm flora (Denmark) 106  
 botanical affinity 196  
 botanists 235  
 Botswana (Africa) 52  
 boundary point 256  
 boundary stratotype 28  
 brachiopods 44  
 brachiosaurs 47  
*Brachiosaurus* 47  
 brachyphyll plants 38, 39, 57, 115, 116, 117, 239,  
 241, 242, 247, 256  
*Brachyphyllum* 17, 52, 69  
*Brachyphyllum crucis* 87, 88  
*Brachyphyllum scottii* 72, 87  
 brackish 252  
 bract 256  
 bracteated gonoclad 7, 256  
 Brazil 155, 194, 244  
 Brenner Zones  
 I (Potomac) 10, 190, 191, 197, 198  
 IIA (Potomac) 191, 198, 212  
 IIB (Potomac) 191, 198, 218  
 IIC (Potomac) 198  
 III (Potomac) 197, 198, 203, 206  
 British Geological Survey 121, 129  
 Brook flora (Cretaceous) 18, 101  
 bryophytes 47, 247, 256  
*Burejospermum* 98  
 Bureya flora (Jurassic–Cretaceous) 58, 93, 94, 99  
 Burgersdorp flora (Triassic) 58, 62, 63  
 Buxaceae (extant) 196, 206, 213
- C-phase ostracods 135  
 cabbage (of palms) 223  
 calcareous 197, 256  
*Callialasporites* 38  
*Callipteris* 64  
 Callovian Age (Jurassic) 29, 32, 58, 82, 239  
*Caloda delevoryana* 205, 208, 213, 214, 249  
 calyx 209  
 camarasaur 47  
 Cambridge nickel grids 132, 133  
 Campanian Age (Cretaceous) 12, 211, 215, 217  
*Camptosaurus* 48  
 Cape Otway Formation (Cretaceous) 49  
 Cape Stewart flora (Triassic) 58, 62, 64, 66, 69, 72,  
 80, 85, 89  
 cappa 39, 256  
 capsule 95, 256  
 Carboniferous Coal Measures 4  
 Carboniferous insects 44  
 Carboniferous Period 19, 25, 36, 44, 45, 46, 52,  
 215, 220, 221, 237, 244, 246  
 Carboniferous rocks 2, 4, 8  
 cardiolepid 63

- Caribbean region 196  
 Carnian Age (Triassic) 29, 58, 63, 67, 69, 78, 217, 218  
 carnivores 43, 44, 45, 233, 256  
*Carnocnites* 90, 91, 92  
 carpel 202, 206, 207, 208, 210, 236, 238, 246, 249, 251, 254, 256  
 Carstone (Cretaceous) 128  
*Caspiocarpus paniculiger* 202, 213  
*Caytonanthus* 70, 80, 81  
 Cayton Bay flora (Jurassic) 80  
*Caytonia* 10, 55, 65, 69, 79, 80, 81, 82, 93, 108, 110, 116, 117, 232, 239, 246, 247, 249  
*Caytonia barrisii* 80, 81  
*Caytonia nathorstii* 80, 81  
*Caytonia orientalis* 98  
*Caytonia thomasi* 69, 70, 80  
 Caytoniales 3, 4, 17  
*Celastrophyllum obovatum* 201  
 cellulose 52  
 Cenoham 92 213, 216, 249, 256  
 Cenomag 92 213, 216, 256  
 Cenomanian Age (Cretaceous) 7, 12, 28, 29, 58, 97, 104, 123, 190, 192, 194, 197, 198, 199, 200, 203, 204, 205, 206, 207, 208, 209, 211, 212, 213, 216, 222, 243, 247, 249, 250  
 Cenoros 92 213, 216, 257  
 Cenozoic era 1, 4, 12, 19, 24, 33, 44, 206, 215, 223, 227, 243, 247  
 Cenozoic plants 39, 43, 215, 221, 225, 226, 228, 230, 253  
 Central Italy 11  
 centrifuging 132  
 cephalopods 44, 226, 236, 243, 244, 257  
 ceratopsids 49  
*Cerebriipollenites* 38  
 cetiosaurs 47  
 CfA (comparison record) 140, 149  
 CfB (comparison record) 140  
 Chalk Sea (Cretaceous) 121, 197  
 challenges 13  
 characters 4, 13  
 Cheirolepidiaceae 70, 100  
*Cheirolepidium* 39  
 chemistry 218  
 China 215, 237  
 Chinle flora (Triassic) 58, 67, 68, 69, 238  
 Chita flora (Cretaceous) 113, 198, 202  
 chlamydosperm 56, 103, 257  
 'Chloranthaceae' (Cretaceous) 210, 211, 213  
 Chloranthaceae (extant) 6, 196  
 chloranthoid 206, 211, 257  
 chron (time-scale) 27  
*Cicatricosisporites* 221  
 cladistic analysis 11, 41, 228, 235  
 cladistic methods 15, 22  
*Cladophlebidium* 113, 114  
*Cladophlebis* 221  
 Clarno flora (Eocene) 227  
 classification 5, 13, 22, 25, 51, 230, 235, 240, 253  
 Classification (Period) 31, 240  
*Classopollis* 17, 38, 39, 40, 71, 87, 88, 115, 195, 232, 237  
 Classopollis plants 1 70, 71, 72, 116, 117  
 Classopollis plants 2 87, 88, 116, 117  
 Classopollis plants 3 100, 102, 116, 117, 241  
*Classopollis* tetrads 40, 72  
*Classostrobus* 100, 101  
 clastic sediment 131, 197, 257  
*Clavatipollenites* 190, 196, 210  
 Clavatipollenites Group 193, 194, 206  
*Clavatipollenites bugbesii* 132, 134, 165, 190, 210  
 Clearcol 132  
 climatic maximum 21, 25, 226  
 climax vegetation 162, 255, 251, 257  
 coal 18, 215  
 coal-balls 45  
 Coal Measures (Carboniferous) 45  
 Coarse Quartz Grit (Worbarrow) 126, 128, 149  
 coating 132  
 Cocobeach Group (Gabon) 192, 193  
 Coleoptera (beetles) 39, 46, 50, 51, 211, 254  
 Colorado (USA) 69  
 colpus, -i 257  
 columella, -ae 38, 134, 243, 257  
 columellate–tectate pollen 1, 38, 39, 217  
 comparative morphology 6, 14, 15, 16, 22, 210, 230, 234, 248  
 comparison records 23, 195, 229, 257  
 compatibility recognition 39  
 compression preservation 205, 221, 257  
*Compsognathus* 49  
 conduplicate 206  
 conformable 257  
 Congo 192  
 Coniacian Age (Cretaceous) 215, 217, 218, 221  
 coniferophytes 3, 17, 25, 55, 56, 257  
 conifers 17, 35, 47, 51, 56, 115, 257  
*Coniopteris* (Jurassic) 221, 239  
 continental shelf sea 44, 46  
 co-ordinates 133, 195  
 corm (stem) 252  
 corolla 202, 257  
*Corollina* 71  
 correlation (of rocks) 30  
 Corytospermales 4  
 corytosperms 63, 64, 65, 66, 110, 116, 117  
 cotyledon 219, 247, 257  
*Couperites mauldinensis* 206, 213  
 Crackers Group (Aptian) 177  
 creationists 16  
*Credneria* 216  
 Cretaceous climate 10, 19, 21  
 Cretaceous Period 1, 2, 10, 19, 25, 28, 29, 34, 46, 50, 51, 55, 58, 215, 224, 225, 238, 240, 241, 243, 246, 247, 248, 254  
 Cretaceous pollen 12, 34, 41, 236, 250  
 Cretaceous rocks 3  
 Cretaceous/Tertiary boundary (K/T) 12, 226  
 Cretaceous vegetation 10, 49, 56, 215, 223, 236, 252, 253  
 Cretaceous vertebrates 49  
 Crinopolles Group 40, 237, 246  
 Crisfield Borehole (Delaware) 191, 192  
*Crossotheca* 64, 65  
 crotonoid pollen 40, 161, 162, 165, 177, 193, 194, 196, 257

## 294 Index

- crustal **257**  
 Cupressaceae (extant) 116, 117, **250**  
*Cupressinocladus ramonensis* 72  
*Cupressinocladus valdensis* 102  
 cupule 79, 80, 108, **257**  
 customary procedures 13  
 cuticles 3, 4, 46, 47, 52, 56, 64, 75, 78, 80, 100,  
 115, 132, 197, 200, 206, 225, 231, 232, 253,  
 257  
 cuttings 129, 191, **257**  
*Cyathea* (extant) 221, 251  
*Cycadeoidea* (Cretaceous) 51, 56, 75, 84, 102,  
 110, 111, 112, 116, 117, 213, 240, 241, 242,  
 247, 249  
*Cycadeoidea etrusca* 103  
*Cycadeoidea gigantea* 103  
*Cycadeoidea reichenbachiana* 103  
 cycadeoids 3, 47, 243, **257**  
*Cycadocephalus* 75  
*Cycadolepis* 75, 239, 241  
 'cycadophytes' 17, 25, 47, 55, 56, **257**  
 cycads 3, 17, 35, 47, 56, 113, 217, **250**  
*Cycas* (extant) 47, 56, 114  
 Cyclanthaceae (extant) 223, 251  
 Cyperaceae (extant) 251, 252  
 Czechoslovakia 197, 198, 203, 206  
*Czekanowskia* 53, 66, 75, 88, 89, 90, 96, 116,  
 117, 239, 243, 247  
*Czekanowskia aciculata* 96  
*Czekanowskia vimineus* 88, 89  
  
 D12 Borehole (Delaware City) 190, 191  
 D13 Borehole (Delaware City) 190, 218  
 Dagestan flora (Jurassic) 58  
 Dakota flora (Cenomanian) 110, 198  
 Dakota Formation (Cretaceous) 7, 197, 203, 205,  
 206  
 database 23, 210, 229  
 data-handling 4, 20, 26, 235, 253  
 data matrices 15, 235  
*Debeysa* 216  
 deciduous 215, 226, **257**  
*Decussosporites* 37  
 dehiscence 202, 207, **257**  
 dentition 44, **257**  
 Depex 132  
 Dersingham Beds (Cretaceous) 129  
 description (rock) **30**  
*Desmiophyllum* 73  
 desiccation 39  
 Devonian Period 18, 44, 52  
 Devonian plants 4  
*Devalquea* 201  
 diagenetic **258**  
 diaspore 227, **258**  
*Dicheiropollis* 136, 193, 232  
*Dicheiropollis etruscus* 193, 194, 195  
 dichotomous 66, **258**  
*Dicksonia* (extant) 221  
 dicotyledons (dicots) 6, 7, 116, 117, 215, 218,  
 219, 220, 230, 236, 247, 248, 249, 251, 254,  
 258  
*Dicroidium* 8, 65, 78  
*Dicroidium odontopteroides* 66  
  
 Dictyoptera (cockroaches) 45, 50  
*Dictyopteridium* 60  
*Dictyozamites* 59  
 dinocyst 131, 132, 134, 194, 195, **258**  
 dinoflagellate 41, 78, 177  
*Dinophyton* 69, 116, 117  
 dinosaurs 43, 47, 226, **258**  
 dip **258**  
 diplodocids 47  
 Diptera (flies) 50, 211  
*Dirbopalostachys* 93, 94, 116, 117  
 dispersed pollen 11  
 distal aperture (pollen) 36  
 distal pole (pollen) 36, **258**  
 division (time-scale) 23  
 DNA evidence 14  
 dogma 4, 25, 26  
 double fertilisation 25, 251, **258**  
*Dreuria potomacensis* 103, 104, 250  
*Dryosaurus* 48  
 dung 46  
 Dutch Gap flora (Cretaceous) 191  
  
 Early Cretaceous 14, 25, 52, 96, 193, 210, 231,  
 232  
 Earth evolution 18  
 Earth magnetic reversal 8  
 eastings 133  
 Ecce flora (Permian) 58, 59, 60  
 echinoids 44  
 ectexine 38, **258**  
 ED (Evolutionary Distance) 210, 211  
 Egypt 193, 194, 195, 244  
 elaterate 200, **258**  
 Elk Neck flora (Cretaceous) 198, 203, 205, 206,  
 207  
 elytron, -a 46, **258**  
 Emba River flora (Cretaceous) 198, 199, 202  
 embryo 219, 247  
 emendation 195, 228, **258**  
 emendation of species 23  
 End-Cretaceous 53  
 endemic **258**  
 endexine **258**  
 endodermis 220, 252, **258**  
*Endogenites* 112, 220  
 endopterygote (insect) 46, 50, **258**  
 endosperm 227, 247, **258**  
 England 11, 118, 192, 193, 227, 231, 244  
 entomology 44, **258**  
 entomophily 36, 39, **258**  
*Eoantha zberikbinii* 104, 201  
 Eocene Period 53, 226, 227, 229, 252, 253  
 Eo- (genus prefix) 229  
*Eo-nipa* 229  
*Ephedra* (extant) 41, 56, 103, 104, 105, 106, 115,  
 116, 117, 140, 177, 250  
*Ephedripites* 103, 104, 105, 116, 117, 140, 149,  
 158, 159, 161, 177, 182, 190, 195, 213, 217,  
 233, 240  
 Ephedripites-type 242  
 epiphyte 221, 254, **258**  
 epoch (time-scale) 27  
 equal importance (of records) 21, 22

- Equatorial Africa 11, 224  
*Equisetites* 239, 241, 242, 252  
*Equisetospores* 37  
*Equisetum* (extant) 252  
 era (time-scale) 27, **258**  
*Erdtmanispermum balticum* 106  
*Erdtmanitheca texensis* 106  
*Eretmophyllum glandulosum* 99  
 Estcourt flora (Permian) 58, 60  
*Eucommiidites* 106, 107, 116, 117, 232  
*Eucommiidites delcourtii* 105, 106, 107  
*Eucommiidites minor* 106, 165, 179  
*Eucommiidites troedssonii* 76, 77, 105, 106  
*Eucommiidites* plant 76, **105**, 106, 241, 242  
 euhelopodids 47  
 Euphorbiaceae (extant) 6, 196  
 Euramerican Coal Measures 244  
 Eurasia 216  
 Euro-Sinian province 85, 89, 216  
*Eurystoma* 8  
 eusporangiate pteridophyte 7, 220  
 eustatic (sea-level) 25, **258**  
 evaporites 119, 258  
 evolution 14, 16, 18, 210, 226, 227, 229, 234, 244, 246  
 Evolutionary Distance (ED) 6, 210, 211, **258**  
 ewaldi marl (Cretaceous) 130  
*Exesipollenites* 37, 82  
*Exesipollenites scabratus* 82  
 exine 259  
 exopterygote insects 45, 52, **259**  
 extant plants 13, 14, 217, 248, 252, 259  
 extant taxa 51, 200, 229  
 extinction 226, 236, 244, **259**
- Fabrosaurus* 48  
 facies 121, 259  
 Fairlight flora (Cretaceous) 58, 80, 97, 106  
 false-trunk 113, 220, 221, 252, **259**  
 family (of plants) 12, 15  
 fan-leaves 57, 116, 117, 239, 241, 243, 247  
 Far-East 96, 97, 197, 200  
 fault 121, 123, 124, 259  
 fauna 43  
 ferns 47, 195, 220, 221, 246, 252  
 fern-spikes 50, 226  
*Ficophyllum* 201  
 filament **259**  
 'filling' of niches 22  
 filter feeders 44, 236  
 fish 44  
 fissicostatus zone (Aptian) 162, 177  
 flightless insects 44  
 floral diagram 205, 207  
 floras 43  
 florule 149, 259  
 flower 203, 212, 216, 225, 236, 247, 251, 254, **259**  
 fluorides 131  
 flying insects 44  
 foliar carpel theory 7  
 follicle 202, 203, 204, **259**  
 food-chain 44, 46  
 fossil evidence 22  
 fossil record 5, 19, 20, 21, 22, 234, 235  
 France 72, 119, 218  
 Franconia flora (Jurassic) 58, 62, 66, 72, 87  
 fragrance 51  
 Frederiksborg flora (Cretaceous) 191  
*Frenelopsis* 39, 100, 101, 116, 117, 242  
*Frenelopsis bobeneggeri* 102  
*Frenelopsis oligostoma* 101  
*Frenelopsis ramosissima* 102  
*Frenelopsis teinetae* 102  
 Freshwater (IOW) 123  
 freshwater aquatic 45, 46, 52  
 fructification 259  
 fruit 206, **259**  
 function (pollen) 35  
 fungi 46, 47  
*Furcula* (Jurassic) 246  
 fusain 259  
 fusinised 205, 206
- Gabon (West Africa) 192, 193, 244  
 gametophyte 220, 247, 248, **259**  
 gamoheterotropy 7, **259**  
 Gangamopteris (Permian) 59, 60  
 gastropod molluscs 19, 51  
 Gayton Borehole (Norfolk) 119  
 gekkos 43, **259**  
 gene-pool 15, **259**  
 generic epithet 15, 23  
 genetic explanation 13, 228  
 genus 14, 228, **259**  
 geochronometric scale 28, **259**  
 geologic period 221, **259**  
 geologists 13, 18  
 geology 20, 234, 235, 250  
 Germany 64, 218  
 germinal pore 40  
 germination (of pollen) 35, 36, 243, 246  
*Ginkgo biloba* 15, 17, 56, 98, 114, 116, 117, 250  
*Ginkgoites* 114  
*Ginkgoites tigrensis* 98, 99  
 'ginkgos' 34, 35, 37, 56, 98, 243  
 glacial period 25, 215, 225, 227, 236, 243, 254, **259**  
 glandular hairs 46  
 glauconite 121, **259**  
*Gleichenites* (Mesozoic) 221  
 Global Boundary Stratotype Section and Point (GSSP) 27  
 Global (Stratigraphic) Time-Scale (GTS) 27, 118, 121  
*Glossopteris* 8, 59, 60, 61, 116, 117, 246  
 glycerine 132  
 glycerine jelly 132, 210, **259**  
 gnetalean 25, 35, 37, 56, **259**  
 Gnetales (extant) 11, 213  
 'gnetophyte' 103, 202, **259**  
*Gnetum* (extant) 56, 103, 105, 115, 116, 117, 250  
 Gondwana region 60, 66, 140, 192, 194, 195, 237  
 gonoclad **259**  
 gonophyll 8, **260**  
 graded comparison records 23, 134, 232, **260**  
 Gramineae (extant) 251, 252  
 granular pollen 38, **260**

## 296 Index

- grasses 6, 252  
 grazing 43, 47, 211  
 Greenland 64, 70  
 Greensand flora (Aptian) 108, 121, 126  
 gridded stubs 132  
 Gristhorpe Member (Yorkshire Jurassic) 32  
 Grojec flora (Jurassic) 58, 77, 80, 81, 106  
 gross-feeding 46  
 gross morphology 218  
 ground palms 223  
 GSSP (Global Stratotype Section and Point) 27  
 GTS (Global Time-Scale) 27  
 gymnosperm 1, 7, 56, 114, 116, 117, 219, 220, 247, 250, 252, 253, 254, 260  
 'gymnosperm fossils' 4, 34  
 'Gymnospermophyta' 250  
 'gymnospermous' 24, 55  
 gynoecium 7, 260
- H (hamamelids) (Cretaceous) 203, 206, 213  
 hadrosaurs 49, 233, 260  
*Haitingeria* 75  
 'hamamelid' plant 210, 216, 217, 249  
 Hamamelidales 6, 8, 210, 216  
 Hamamelidae (extant) 206, 260  
 Hanover Point (IOW) 123, 124, 125, 149, 161  
 haplocheile stomata 260  
 harmomegathic changes 35, 37, 39, 260  
*Harzia* 66, 89  
 Hastings (Sussex) 53, 85, 97, 112  
 haustorial function 36, 211, 260  
 Hauterivian Age (Cretaceous) 29, 34, 36, 50, 56, 58, 102, 103, 108, 117, 118, 120, 128, 129, 130, 131, 134, 135, 136, 193, 194, 195, 244  
 Hauterivian-*cactisulc* 136, 137, 140, 148, 188  
 Hauterivian-*coltlick* (MCT) 140, 141, 142  
 Hauterivian-*dimorph* 137  
 Hauterivian fossils 11, 34, 39, 42  
 Hauterivian-*lacebee* 136, 138  
 Hauterivian-*microtect* 136, 139  
 Hauterivian-*pointboat* (EPH) 147  
 heavy liquid 132  
*Hedyosmum* (extant) 196  
 Helmsdale flora (Jurassic) 58  
 Hemiptera (plant bugs) 46, 50, 52  
*Hemitelia* (extant) 221  
 herbaceous 177  
 herbivores 43, 45, 47, 52, 226, 232, 260  
 herbs 223, 224, 252, 254  
*Heterodontosaurus* 48  
 Hettangian Age (Jurassic) 29, 58, 66, 69, 76  
 hierarchies 15, 25  
 high-browsers 48  
 higher taxa 15, 23, 25  
*Hirmeriella* 70, 87, 116, 117  
*Hirmeriella estonensis* 72, 87  
*Hirmeriella kendalliae* 87  
*Hirmeriella muensteri* 70, 87  
*Hirsutum* (Permian) 59, 60  
 Holocene floras 3, 14, 34, 37, 41, 43, 229, 234, 235, 236, 240, 250  
 Holocene Period 19, 24, 33, 56, 215, 244, 253, 254, 260
- holotype 134, 210, 229, 260  
 homologous characters 16, 260  
 homosporous 253  
 horizontal grazing 49  
 horsetails 47  
 Horsham flora (Cretaceous) 58  
 Hunstanton Borehole (Norfolk) 119, 120, 128, 129, 140, 143, 145, 146, 149, 161, 162, 163, 164, 165, 172, 177, 185, 186, 190  
 Hydramount 132  
 hydrochloric acid 131  
 hydrofluoric acid 131  
*Hydropterangium* 75  
 Hymenoptera 50, 51, 253  
*Hypsilophodon* 49  
*Hyracantha karatcheensis* 202, 213
- Icacinaceae (extant) 206  
*Icacinoxylon* 206, 213  
 ICBN (International Code of Botanical Nomenclature) 14, 23, 134, 195, 260  
 ichthyosaur 45, 48  
 Idaho (USA) 112  
 identification 228  
*Iguanodon* 48, 233  
 imago, -ines (insects) 51, 260  
 impacts 226, 244  
 impression preservation 260  
 inadequacy (fossil record) 19, 210  
 inaperturate pollen 36  
*Inaperturopollenites crisopolensis* 193, 195  
 indexing 14  
 India 90, 194  
 infauna 44, 260  
 inflorescence 202, 203, 206, 207, 222, 260  
 infructescence 206, 260  
 insect 45, 50, 211, 225, 232, 238, 240, 243, 249  
 Insecta 43, 44, 51  
 insectivore 260  
 integration of data 22, 43, 44, 253  
 integuments 8, 205, 260  
 International Code of Botanical Nomenclature (ICBN) 14  
 International Federation of Palynological Societies (IFPS) 235, 236  
 International Organisation of Palaeobotany (IOP) 235  
 International Union of Geological Sciences (IUGS) 27  
 interseminal scale 75, 260  
 invasions of land 46  
 ion exchange 35  
 Ipswich flora (Triassic) 58, 64, 238  
*Irania* (Jurassic) 51, 73, 74, 116, 117  
 Isle of Wight (IOW) 111, 119, 120, 123, 151, 155, 156, 157, 160, 162, 165, 166, 170, 171, 172, 173, 174, 176, 177, 180, 181, 182, 183, 184, 186, 188, 189, 192  
*Isoetes* (extant) 223, 251  
 Isoptera (termites) 50  
 isostatic 212, 260  
 Israel 11, 194

- Issykkul flora (Jurassic) 58  
 Italy 11, 81, 134, 136, 195, 244  
*Ixostrobus* 89, 95, 96, 249
- Jurassic climates 19  
 Jurassic Period 27, 29, 44, 47, 50, 58, 215, 221, 231, 239, 240, 246  
 Jurassic plants 3, 34, 40, 41, 47, 49, 52, 56, 232, 246, 249  
 Jurassic vertebrates 47
- Kalinaia decapetala* 206, 209, 213, 249  
 Kansas (USA) 197, 198, 199, 203, 205, 206, 208  
 Karatau (Russia) 50, 58  
*Karkenian* Group 98, 99, 100, 116, 117, 240, 242  
*Karkenian incurva* 99  
 Kazakhstan 78, 197, 202  
 Keuper flora (Triassic) 238  
 Kimmeridgian Age (Jurassic) 29, 50, 58, 119  
 Kingsclere Borehole (Berkshire) 119, 120, 127, 128, 140, 141, 142, 162, 165, 168, 169, 171, 178, 179, 188  
*Klukia* 239, 251  
 Kolyma (Russia) 197, 198, 199, 200  
 Koonwarra (Victoria) 194, 212, 233  
 K-selected 260  
*Ktalenia* 108, 109, 116, 117, 242, 247, 249  
 K/T boundary 12, 50, 244, 260  
 Kungurian Age (Permian) 29, 237  
 Kupferschiefer flora (Permian) 58, 62  
 Kutch 218
- Ladinian Age (Triassic) 29, 58, 63  
 laesura 36, 260  
 Lakota Formation (Aptian) 110  
 lamellibranchs, non-marine 4  
 lamina 200, 212, 246  
 larvae 45, 46, 50, 51, 260  
 Late Jurassic age 11, 25, 53, 92, 135  
 latitudinal contrast 19, 25, 47, 211  
 Lauraceae 213  
 Laurasia 104, 112, 140, 193, 195, 203, 217, 233, 260  
*Leaellynasaura* 49  
 leaf architecture 10  
 leaf fossil 200, 212, 216, 239, 241, 242  
 Leguminosae (extant) 230  
 Lena flora (Cretaceous) 58, 89  
 lens 261  
*Lepidocarpon* 220  
 Lepidodendron group 246  
 Lepidoptera (butterflies, moths) 46, 50, 51, 211, 253, 254  
*Lepidopteris ottonis* 64  
*Lepidopteris stormbergensis* 63  
 leptoma 105, 261  
*Leptostrobus* 66, 75, 88, 93, 95, 96, 116, 117, 232, 241, 246, 249  
*Leptostrobus cancer* 88, 89  
*Leptostrobus laxifolia* 95, 96  
*Leptostrobus longus* 67, 90  
*Lesqueria elocata* 203, 213  
*Lidgettonia* 59, 60, 61
- life pyramid concept 45  
 light microscopy (LM) 132, 134, 195, 210, 243  
 lignin 220  
 lignite 202, 225, 261  
 Liliaceae (extant) 6, 224, 251, 252  
*Liliacidites* 192, 217  
 Liliopsida (monocots) 9, 217, 220  
 lineage 261  
 linearphylls 37, 57, 115, 116, 117, 239, 241, 242, 247, 261  
*Lingula* (extant) 252  
 Linnean taxa 134, 228  
 Linnaeus 14  
*Linopteris* 59  
*Liriophyllum* 201  
*Liriophyllum kansasense* 204  
 lithology 261  
 littoral 261  
 lizards 43  
 LM (light microscopy) 132, 134, 195, 210, 243  
 locality 212, 261  
 locule 209  
*Lonchopteris* 59, 246  
 London Clay flora (Eocene) 226, 227  
 Lower Compton Bay (IOW) 123, 124, 149, 161, 162  
 Lower Greensand flora (Aptian) 123, 126  
 Lulworth (Dorset) 123  
 lumen, -ina 203, 217, 243, 261  
 'lumping' taxonomy 15, 16, 261  
 lycophytes 223  
 Lycopodites group 239, 241, 242, 251  
*Lyginopteris* (pteridosperm) 46
- M (magnoliids) (Cretaceous) 203, 213  
 Ma (million years) 261  
 Maastrichtian Age (Cretaceous) 12, 50, 215, 216, 217, 218, 222, 223, 224, 226, 253  
 Maastrichtian flora 217  
 Magnoliaceae (extant family) 6, 206  
 magnoliaceous leaf 14  
*Magnoliaephyllum* (Cretaceous) 205  
 Magnoliales (order) 206  
 Magnolianae (super-order) 206  
 'magnoliid' 201, 206, 209, 210  
 Magnoliidae (sub-class) 206, 209  
 Magnoliopsida (dicots) 9, 206  
 Magothy Formation (Cretaceous) 217, 219  
 Malaysia 227  
 mammals 43, 253  
 mangrove 261  
 Marham Borehole (Norfolk) 119  
 marine conditions 44, 45, 177, 192, 194, 197, 215  
 marker-point (rock) 30, 197, 261  
*Marsilia* 52  
 Marsiliales (extant) 221, 251  
 Maryland (USA) 10, 190, 197, 198, 199, 202, 203, 205, 206, 207, 211, 231, 244  
*Matonidium* 241, 242  
 matrix, -ices 235, 248  
 Mauldin Mountain flora (Cretaceous) 198, 231  
*Mauldinia mirabilis* 203, 205, 213  
 Mawhoub (Egypt) 194

## 298 Index

- Mawhoub West No. 2 Borehole 194  
*Mazocarpon* 221  
 MCT pollen  
 (monosulcate columellate–tectate) 11, 35, 51,  
 108, 116, 117, 134, 135, 194, 196, 210, 212,  
 213, 217, 231, 232, 233, 236, 240, 242, 243,  
 244, 247, 248, 251, 252, 261  
 Mecoptera (scorpion flies) 50  
*Medullosa* 91, 246  
*Meeusella proteiclade* 202, 213  
 megafossils 22, 24, 53, 55, 115, 119, 197, 200,  
 212, 231, 232, 235, 243, 249, 250, 261  
 megaphylls 253  
 Megasecoptera (Paleozoic) 45  
 megaspores 49, 52, 221, 231, 246  
 megasporophyll 261  
 meiotic tetrad 36, 261  
 meristem 59, 261  
 Mersa Matruh Borehole (Egypt) 194  
 mesarch 261  
 mesofossils 20, 22, 53, 199, 200, 203, 211, 212,  
 231, 247, 249, 261  
 mesophyte 261  
 Mesophyticum 10, 236, 238, 262  
 Mesozoic Era 4, 17, 19, 27, 34, 58, 230, 236, 238,  
 248  
 Mesozoic animals 24, 43, 50, 237  
 Mesozoic palynology 34  
 Mesozoic pollen 35, 51  
 Mesozoic seed-plants (Pollenifera) 21, 25, 34, 43,  
 55, 230, 237, 249, 250, 253  
 methane 18  
 Mexico 218  
*Miadesmia* 221  
 microflora 262  
 microfossils 20, 26, 262  
 micropyle 102, 246, 249, 262  
 microspore 2, 262  
 microsporophyll 7, 110, 262  
 migration (of plants) 19, 227  
 mineral 132  
 Minnehkaha (South Dakota, USA) 110  
 Mio- (genus prefix) 229  
 Mio-acer 229  
 Miocene fossils 14  
 Miocene Period 33, 227, 229  
 miospore 36, 262  
 molecular explanation 13, 14, 235  
 Molteno flora (Triassic) 58, 62, 63, 64, 66, 78,  
 238  
 Mongolia 10, 89, 112  
 monocolpate 262  
 monocotyledon (monocot) 1, 6, 7, 218, 219, 220,  
 223, 230, 247, 248, 251, 252, 254, 262  
 monocotyledonous fossils 3, 196, 217, 224, 251,  
 252, 253  
 monoecious 262  
 monoete 262  
 monophyletic origin 4, 7, 11, 17, 140, 230, 235,  
 248, 262  
 monophyly 218, 246, 248, 250  
 monoporates 36, 37, 250, 252, 262  
 monosaccate pollen 37, 262  
 monosulcate columellate–tectate (MCT) 11, 35,  
 51, 108, 117, 134, 135, 223  
 monosulcates 34, 36, 37, 39, 40, 41, 64, 77, 91,  
 117, 118, 119, 200, 213, 217, 223, 224, 243,  
 246, 249, 252  
 monsoon 47  
 Montana (USA) 112  
 Morocco 194, 195  
 morphology 16  
 Morrison Formation (Jurassic) 48, 58, 103  
 mountants 132  
*Multimarginites* 41  
 mummified preservation 80, 262  
 murus, -i 262  
 mutation 18  
 ‘mystery’ 2, 21, 22, 235  
 Namurian Age (Carboniferous) 44  
 nanoplankton 197, 262  
 Natal 64  
*Natborstiana* (Cretaceous) 223, 251  
 natural selection 17, 24, 49, 220, 262  
 natural survival 17, 22, 24, 49, 220, 262  
 Nebraska (USA) 197, 206  
 nectar 211, 262  
 neobotanists 14  
 Neogene Period 33, 250, 262  
 neoteny 9, 235, 262  
 Neuroptera (lacewings) 50  
 New Mexico 112  
 New Zealand 91, 93, 192, 210  
 Newbury (Berkshire) 128  
 ‘newer’ characters (angiosperm) 246, 247,  
 248  
 nexine 262  
 niche 221, 263  
 nickel grids 132, 133  
*Nilssonia* 93, 114, 239, 241, 242  
*Nilssonia compta* 93  
*Nilssonia schmidtii* 93  
 Nilssoniales 37, 56, 116, 117, 243  
*Nilssoniopteris* 241  
*Nilssoniopteris major* 82, 83, 84  
*Nilssoniopteris vittata* 82  
*Nipa* (extant palm) 226  
*Nipadites* 226  
*Nipaniophyllum* 90, 92  
 nitric acid 131  
*Nodosaurus* 48  
 nomenclature priority 14, 216, 228, 229  
 nomenclature (traditional) 4, 134, 190, 227  
 non-silicate 132  
 Norian Age (Triassic) 29, 58, 64, 67, 68, 238  
 Normandy coast (France) 40  
 Normapolles 200, 213, 216, 217, 263  
 North Dakota flora (Cretaceous) 58  
 North Sea basin 121, 131  
 Northern Gondwana 11, 140  
 northings 133  
 nucellus 263  
 nymph stage (insect) 45, 263  
 observer fatigue 134  
 observer identification 137  
 observer record 27  
 Odonata (dragonflies) 45, 50  
 Oeningen (Switzerland) 2



- Okhotsk–Chukotka region 97  
 Okuvango district 52  
 'older' characters (angiosperm) 246, 248  
 Oligo- (genus prefix) 229  
 Oligocene Period 33, 227  
 omnivore 263  
*Onychiopsis* 241, 242  
 Orchidaceae (extant) 6, 251, 252  
 Order (of plants) 12  
 Oregon (USA) 227  
 organ-fossils 263  
 organic evolution 18, 21, 24, 226, 228  
 orientation of pollen 37  
 original magnification 137  
*Ornithischia* 48, 52, 211, 263  
 Orthoptera (grasshoppers) 45, 50  
 orthotopous ovule 104, 113, 201, 263  
 Osmundaceae (extant) 251  
*Osmundites* 221  
 ostracod 263  
*Otozamites* 84  
*Ottokaria* (Permian) 59, 60, 61  
 Otway flora (Cretaceous) 58  
 outcrop 263  
 ovary 206, 263  
 ovule 8, 36, 46, 205, 263  
 Oxfordian Age (Jurassic) 29, 40, 58, 231  
 oxidation 35, 131, 233, 263
- Pachycephalosaurus* 49  
*Pachypteris* 77, 78, 82, 116, 117, 239  
*Pachypteris papillosa* 77, 79  
*Pagiophyllum araucarianum* 72, 87  
*Pagiophyllum kurrii* 88  
*Pagiophyllum maculosum* 87, 88  
 palaeo- 263  
 Palaeodictyoptera (Paleozoic) 45  
 Paleo- (genus prefix) 229  
 paleobotanical failure 3  
 paleobotanical textbooks 24, 225  
 paleobotanists 46, 225, 235  
 Paleocene Period 33, 53, 217, 226  
 paleoclimates 25  
 paleocontinental maps 33, 199, 238  
 paleoecology 10, 228  
 paleoenvironment 16, 211, 212, 215, 229  
 paleoequatorial 193  
 Paleogene Period 33, 225, 263  
 paleogeography 223, 263  
 paleohemisphere 48, 237  
 paleolatitudes 58, 194, 195, 199, 212, 215, 216, 224, 226, 227, 232, 237, 244, 263  
 paleomagnetic 190, 191, 263  
 paleomagnetic reversals 28  
 Paleontologic Data-Handling Code (PDHC) 134, 195  
 paleontology 22, 229, 250  
 paleopalynology 4, 229, 235, 253, 263  
 paleosol 215, 263  
 paleotaxon, -a 21, 23, 134, 229, 263  
 paleotropical region 11  
 Paleozoic plants 3, 34, 56, 236, 246, 253  
 palmate 203, 263  
*Palmoxyton cliffwoodense* 217, 219  
 palm wood 218, 221, 223  
 palms 3, 6, 217, 218, 220, 222, 223, 224, 251, 252, 254  
 palynevent 136, 263  
 palynofacies 131, 132, 212  
 palynoflora 263  
 palynology 4, 34, 53, 231, 263  
 palynomorphs 4, 22, 131, 210, 216, 225, 228, 229, 263  
 pandan 217, 223, 224, 251, 252, 264  
*Pandaniidites* 223  
*Pandanus* (extant) 222, 251  
 Pangaea (supercontinent) 46, 264  
 pantropical 196  
 papillate 264  
 paracytic stomata 75, 264  
 paraphyletic 248, 264  
*Paraphyllanthoxylon marylandense* 205, 213  
 Paraplecoptera 45  
 parasite 50, 52, 264  
 parsimony 15, 41, 248  
 Patapsco flora (Cretaceous) 58, 110, 198  
 Patuxent flora (Cretaceous) 58, 104  
 Patuxent Formation 190, 198  
 PDHC (Paleontologic Data-Handling Code) 134, 264  
 Peltaspermales 63  
*Peltaspermum* 63, 64  
 peltasperms 62, 63, 116, 117  
 peltate 64, 264  
 Pennsylvanian Coal Measures 4  
 pentamerous 202, 206, 209, 220, 254, 264  
*Pentoxylon* 3, 11, 90, 91, 92, 93, 116, 117, 241  
 perianth 200, 202, 203, 204, 206, 211, 264  
 period (time-scale) 27, 264  
 Period Classifications 21, 25, 31, 235, 240, 264  
 Period Classification 260 59  
 Period Classification 240 60, 116  
 Period Classification 220 62, 64, 65, 67, 68, 116, 238  
 Period Classification 200 62, 72, 85, 87, 89, 116  
 Period Classification 180 82, 87, 116  
 Period Classification 160 32, 85, 86, 89, 116, 239, 240  
 Period Classification 140 85, 91, 93, 94, 97, 110, 116, 232, 240, 241  
 Period Classification 120 87, 95, 96, 100, 101, 104, 108, 114, 116, 211, 232, 240, 242, 243, 244  
 Period Classification 100 104, 109, 112, 116, 199, 232  
 Period Classification 90 110, 213, 243  
 periporate 264  
 Permian insects 44, 50  
 Permian Period 25, 29, 36, 37, 45, 46, 52, 58, 59, 62, 215, 221, 225, 236, 237, 244, 246  
 Permian plants 6, 41 59, 236  
 Permian vertebrates 45  
 permineralisation 90, 102, 112, 113, 221, 225, 232, 248, 264  
 Perna Bed (Aptian) 162, 177, 191  
 Peruc flora (Cenomanian) 198, 203, 204, 206, 209  
 petal 264  
 petiole 246, 264  
 petrification 264  
 Phanerophytic 5

## 300 Index

- Phanerozoic 5  
 Phase 0 (MCT) 108, 122, **135**, **136**, 193, **264**  
 Phase 1 (MCT) 108, 122, 126, 127, 129, 134, **135**,  
 140, 191, 192, 193  
 Phase 2 (MCT) 108, 122, 124, 125, 126, 129, **135**,  
 149, 191, 192, 193, 194  
 Phase 3 (MCT) 108, 122, 124, 125, 126, 129, **135**,  
 161, 191, 192, 193, 194  
 Phase 4 (MCT) 108, 117, 122, 124, 125, 126, 127,  
 129, **135**, **161–62**, 191, 193, 194, 196, 210  
 Phase 5 (MCT) 108, 124, 125, 126, **135**, 177, 191,  
 192, 193, 194, 233  
 phenol 132  
*Phleboteris* 239  
 phloem tissue 46, **264**  
*Phoenicopsis* 66, 89, 93, 95, 96, 116, 117, 241,  
 249  
*Phoenicopsis speciosa* 96  
 photographs 133  
 phylogeny 5, 16, 22, 210, 228, **264**  
*Physostoma* (pteridosperm) 46  
 phytobiology 20  
 piercing mouth-parts (insect) 46  
 Pinaceae (extant) 56, 115, 116, 117, 250, **264**  
 pinnates 57, 239, 241, 242, 253, **264**  
*Pinuspollenites* 51  
 pistillate 206, **264**  
 plankton 44, 55, 244, **264**  
 planktonic foraminifera 226, 243  
 plant–animal integration 52  
 plant debris (trash) 44  
 Platanaceae (extant) 203, 206, 213  
*Platananthus potomacensis* 203, 213  
*Platanocarpus marylandicus* 203, 213  
 platanoids (Cretaceous) 201, 216, **264**  
 Platanus (extant) 216  
 plate tectonics 227, 235, **264**  
 Pleistocene Period 33, 215, 227, 229  
 plesiosaur 45, 48  
*Pleuromeia* (Triassic) 223  
 Pliensbachian Age (Jurassic) 29, 58, 81  
 Plio- (genus prefix) 229  
 Pliocene Period 33, 215, 229  
*Plumsteadia* 59, 60  
 Podocarpaceae (extant) 56, 250  
 poles (of the earth) 19, 215  
 poleward migration 199, 212  
 pollen chamber 40, 246  
 pollen character 41, 217  
 pollen columellate-tectate 1  
 Pollenifera (Mesozoic) 21, **24**, **34**, 35, 37, 43, 46,  
 50, 51, 56, 57, 69, 114, 116, 117, 119, 211,  
 213, 214, 221, 236, 239, 240, 241, 242, 246,  
 249, 250, 253, 254, **265**  
 pollen tube 246, **265**  
 pollenkitt 35, 265  
 pollination 238, **265**  
 polyphyletic origin 10, 21, 25, 117, 220, 248, **265**  
 polypliate 103, 104, 250, **265**  
 polyploid 265  
 Polypodiaceae (extant) 221, 251  
 polyporate 200, **265**  
*Populophyllum reniforme* 201  
 pore **265**  
 Portland Beds (Jurassic) 119, 123  
*Portucallipollis* 196  
 Portugal 101, 196, 200, 244  
 Portuguese 200  
 potassium hydroxide (KOH) 131  
 Potomac Group (Cretaceous) 11, 37, 58, 104, 105,  
 106, 110, 190, 191, 192, 197, 233  
 Potomac Run flora 191  
 Potomac zones, *see* Brenner  
 predation 45, 226, 236  
 pre-Jurassic evidence 8  
 preparation 131, 132, 195, 265  
 preparation number 137  
 preservation 135, 200, 225  
 primitive angiosperm 8, **265**  
 primitive character 14, 210  
 principal occurrence data 57  
 principles 21, 26  
*Prisca* 202  
*Prisca reynoldsii* **205**, 213  
 pro-angiosperm **265**  
 problem of angiosperm origin 21  
 progeny 18, **265**  
 propagules 18, **265**  
 Pro-sauropods 48  
 protandrous 51, 110, **265**  
 Proteaceae (extant) 196  
*Proteaephyllum reniforme* 201  
 proto-palm 223  
 protozoa 19  
 proximal **265**  
*Psaronius* 221  
*Pseudocycas* 111  
*Pseudocycas saportae* 111  
*Pseudofrenelopsis* **100**, 101, 242  
*Pseudotorellia* 98, 116, 117  
 psilate **265**  
 pteridophytes 7, 219, 220, 221, 223, 239, 240,  
 241, 242, 247, 252, 253, 254, **265**  
 pteridosperm ovules 44, 46  
 pteridosperms 8, 46, 55, 56, 110, 113, 246, **265**  
*Pteroma* 77, 79  
*Pterophyllum* 75, 76, 84  
 pterosaur 45, 48  
*Pteruchipollenites* 77  
*Pteruchus* 64, 66, 78  
*Ptillophyllum* 84, 86  
 punctuated equilibrium 24, **265**  
 pupa (insect) 45, 46, **265**  
 Purbeck Beds (Cretaceous) 50, 58, 102, 103, 110,  
 112, 119, 123, 126  
 pycnoxylic 90, **265**  
 pyritic preservation 265  
 pyroclastic 197, **265**  
 quadripedal stance 48  
 quantification 22  
 Quaternary methodology 229  
 Quaternary Period 25, 33, 225, 229, 243  
 Quedlinburg flora (Cretaceous) 58  
 R (rosiids) (Cretaceous) 203, 206, 213  
 radiation 193, 194, 197, 215, 217, 220, 221, 225,  
 227, 240, 243, 247, 249, 252, **265**

- radula (molluscan) 44, 266  
 rainforests 215, 225, 226, 227, 254, 266  
 Rajmahal flora 58, 85, 90, 91  
 Ranelean framework 220, 266  
 Raritan flora (Cretaceous) 58, 198  
 rattans 223, 266  
 receptacle 110, 202, 203, 266  
 reconstruction of floras 53, 57  
 reliability formula 232  
 rendzinas 212, 266  
 reproduction 45  
 reptiles 43, 51, 232, 238, 240, 243, 244, 253  
 residues 132  
 Restionaceae (extant) 217  
 Retichot-*bacat* (MCT) 156, 161, 162, 167  
 reticulate venation 200, 212, 250  
*Retimonocolpites* 192, 193, 194, 217, 218  
*Retimonocolpites dividuus* 190  
*Retimonocolpites peroreticulatus* 194  
 Retisulc-*crochet* (MCT) 162, 168, 169, 213, 242  
 Retisulc-*dentat* (MCT) 149, 150, 151, 157, 162  
 Retisulc-*dident* (MCT) 177, 184  
 Retisulc-*dubdent* (MCT) 177, 183  
 Retisulc-*laevgat* (MCT) 140, 149, 153, 162  
 Retisulc-*monbac* (MCT) 162, 166  
 Retisulc-*muribeaded* (MCT) 140, 145  
 Retisulc-*muriverm* (MCT) 140, 143, 144  
 Retisulc-*newling* (MCT) 138, 140, 146, 149, 162  
*Retitricolpites* 199  
 re-working 266  
 Rhactian Age (Triassic) 29, 64, 66, 70, 73, 75  
*Rhexoxylon* 65  
 Rhynie chert 44  
 Richmond flora (Triassic) 58, 238  
 Richmond rift basin (USA) 8  
*Rigbya* 60  
*Rissikia* 56  
 Roach Beds (Cretaceous) 129  
 Rocken End (IOW) 123, 125  
*Rogersia* 201  
 Romania 223  
 root 220, 221  
 root systems 24, 248  
 Rosario flora (Oaxaca) 58  
 Rosidae (extant) 266  
 r-selected 266  
*Ruffordia* 241  
*Rufloflinia* 108, 109
- S-phase ostracods 135  
 saccate grains 36, 41, 249, 266  
 sacci 36, 39  
*Sagenopteris* 59, 69, 70, 79, 80, 93, 97, 98, 116, 117, 247  
*Sagenopteris mantelli* 97, 98  
*Sabnia* 91, 92  
 Sakmarian Age (Permian) 29, 58, 59  
 salinity 18, 266  
*Salpingostoma* (pteridosperm) 46  
*Salvinia* (extant) 52  
 'Salviniales' (Cretaceous) 221, 251  
 samara 69, 266  
 sample 121, 195, 266  
 sample number 121, 122, 127, 137
- Sandown (IOW) 123, 125, 162, 165  
*Sanmiguelia lewisii* 7, 8, 51, 67, 68, 69, 116, 117, 217, 218, 237, 246  
 Santonian Age (Cretaceous) 117, 211, 217  
*Sapindopsis* 201  
 saprophyte 266  
 sauropods 47, 48, 52, 266  
 savannah 215, 266  
 scale-bar value 137  
 Scania flora (Jurassic) 58, 72, 85, 106  
 scanning electron microscope (SEM) 11, 22, 41, 118, 132, 190, 210  
*Scelidosaurus* 48  
 Schizeaceae (extant) 251  
 schizeaceous 221  
 screw-pines (pandans) 223  
 sculpture 266  
 sculptureless pollen 41  
*Scutellasaurus* 48  
*Scutum* (Permian) 59, 60  
 sea-level changes 19, 25, 28, 212, 244, 266  
 sea margins 212  
 sedges 252  
 sedimentation 18, 20, 44, 53, 244  
 seed-fern 265  
 seed-habit 221, 266  
 seed-plants 47, 237, 246, 249  
 Selaginellaceae (extant) 251  
 SEM (scanning electron microscope) 11, 22, 41, 118, 132, 190, 194, 195, 202, 210, 231, 232, 266  
 SEMG (scanning electron micrograph) 190, 266  
*Semionandra laxa* 113, 114  
*Semionogyna bracteata* 113, 114, 116, 117  
 semi-tectate 162, 242, 266  
 Senonian Age (Cretaceous) 101  
 sepal 266  
 sheathing leaf-base 219  
 shoot 266  
 Siberia 197, 237  
 Silurian Period 44  
 Sinemurian Age (Jurassic) 29, 58, 72  
 Skegness Borehole (Lincs) 119, 120, 129, 148, 149, 152  
*Sladenioxylon africanum* 212  
 small dinosaurs 49, 211  
 Snettisham Clay (Cretaceous) 129  
 soils 266  
 Solnhofen flora (Kimmeridgian) 50, 58  
*Solenites* 90  
 Southern England 11, 120  
 Southern Gondwana 194  
 Spain 43  
*Spanomera marylandensis* 203, 213, 214  
*Spanomera mauldinensis* 203, 206, 207, 213, 214, 249  
 species 13, 235, 266  
 Speeton Coast (Yorkshire) 119, 120, 130, 131, 149  
*Spermatites pettensis* 107  
*Sphenobaiera* 99  
*Sphenobaiera umaltensis* 99, 100  
 Sphenopsida 252  
 'splitting' taxonomy 15, 16, 267  
 sporangium 64, 267

## 302 Index

- spore 195, 267  
 sporophyte 221, 267  
 sporopollenin 267  
*Stachypteris* 239  
 stage (time-scale) 27  
 staining of pollen 35  
 stamen 202, 203, 205, 206, 207, 267  
 staminate 202, 203  
*Staphidiophora* 67  
 starch grains 220  
*Stegosaurus* 48  
*Stellatopollis* 40, 41, 193, 194  
 stem 219, 220, 221, 222  
 stigma 238, 243, 247, 248, 267  
 stigmatic surface 40, 79, 206, 207, 243  
 stoma 252, 267  
 stomatal structure 7  
 stratigraphic age 27  
 Stratigraphic Commission (of IUGS) 27  
 stratigraphic correlation 16, 28, 212, 233, 267  
 stratigraphic framework 27  
 stratigraphic scale 197, 267  
 stratigraphic succession 3, 21, 23  
 stratigraphy 235, 238, 267  
 stratotypes (boundary) 28, 30  
 strew-mounts 132  
 strew-search 132, 133, 194, 231, 267  
 'striate' saccate pollen 37, 267  
 striate tricolpates 200, 207  
*Striatopollis paraneus* 206, 213, 214  
*Striatopollis vermimurus* 203, 213, 214  
 structure 267  
 stub-grid 132, 133, 137, 267  
 stub number 137, 195  
*Sturiella* 75, 237  
 style 267  
 subtropical 196, 223  
 successions 234  
 Suifun basin (China) 278  
 sulcus 65, 243, 267  
 Superret-croton (MCT) 155, 161, 165, 175, 176, 181, 186, 213, 242  
 Superret-krinkel (MCT) 165, 187  
 Superret-subcrot (MCT) 165, 178, 179  
 Superret-triang (MCT) 176  
 suprasculpture 165  
 Surrey (England) 119, 177, 196  
 Sussex (England) 53, 105  
 Swanage (Dorset) 123  
 Switzerland 2  
 symmetry of pollen 36  
 Symphyta-Xyelidae (hoverflies) 5  
 synangia 267  
*Synangiospadixis* 67, 68  
 syncarpous 200, 206, 267  
 syndetocheile stomata 75, 267  
 systematist 15
- taeniate pollen 37, 39, 41, 267  
*Taeniopteris* 90  
 taphonomy 49, 53, 197, 227, 232, 267  
 Tasmania 65  
 Taxodiaceae (extant) 56, 115, 250  
*Taxodium* 17
- taxon, -a 15, 267  
 taxonomy 4, 16, 195, 228, 246  
 Tealby Beds (Cretaceous) 129  
 tectate pollen 38, 40, 136, 236, 242, 267  
 tectum 134, 203, 267  
 TEM (transmission electron microscope) 11, 36, 41, 118, 132, 192, 195, 267  
 temperate 221, 250  
 temperature 212, 227, 243  
*Tempskya* group (Cretaceous) 110, 112, 113, 220, 221, 223, 232, 241, 242, 247, 251  
*Tempskya reesidei* 113  
*Tempskya schimperii* 220  
*Tempskya wesseltii* 113  
 tepal 203, 206, 207, 267  
 terrestrial 268  
 terrigenous material 177, 268  
 Tertiary Period 33, 215, 216, 220, 222, 223, 225, 227, 230, 248  
 Tertiary pollen 12  
 Tertiary rocks 2  
*Tesselatosporis escheri* 149, 152  
*Tethys* 121, 218, 227, 268  
 tetrad 268  
 tetragonal tetrad 36  
 tetrahedral tetrad 36  
 Texas 69  
*Thamnopteris* 221  
*Thinnfeldia* 66  
 Thymeliaceae (extant) 196  
 time-correlation 195, 268  
 time-scale 3  
 timeslot 23  
 Titanosaurs 47  
 Tithonian Age (Jurassic) 29, 58, 102, 121  
 Toarcian Age (Jurassic) 29, 58  
*Todites* group 239, 241, 251  
*Tomaxiella biforme* 87, 101  
 topotype 134, 268  
 tracheid 268  
 Transbaikalia 10, 58, 104, 113, 114, 198, 199, 202  
 transgression 233, 268  
 translucency 131  
 transmission electron microscope (TEM) 11, 36, 41, 118, 132, 192  
*Trapa* (extant) 52  
 trash (plant debris) 19, 44, 45, 52, 268  
 tree canopies 221  
 tree ferns 220, 221, 268  
 tree palms 223  
 triaperturate pollen 49, 197, 199, 212, 233, 236, 243, 247, 248, 249, 254, 268  
 Triassic Period 19, 29, 34, 46, 47, 50, 58, 62, 215, 238, 244, 246  
 Triassic plants 8, 42, 46, 52, 59, 217, 237, 238  
 Triassic pollen 37, 39, 40, 250  
 Triassic vertebrates 45, 46  
 Trichoptera (caddisflies) 50  
 trichotomosulcate 155, 243, 268  
 tricolpate 118, 165, 180, 193, 200, 202, 206, 213, 268  
 Tricolpites Group 193  
*Tricolpites minutus* 203, 213  
*Tricolpopollenites crassimurus* 177, 188

- trilete 36  
*Trilobosporites* 221  
 trimerous 202, 220, **268**  
 tripinnate 108, 268  
*Triplicarpus purkynei* 203, **204**, 213  
 triporates 200, 268  
 tropical 223, 225, 226, 227, 236, 237, 250, 254, **268**  
 tropical potential 227  
 tropics 19  
*Tucanopollis crisopolensis* 161, 165  
 Turonian Age (Cretaceous) 12, **29**, 101, 198, 200, 217, 243  
 Tuscany 11  
*Tyrannosaurus* 49
- Ufian Age (Permian) **29**, 62  
 ulcerate pore 36, **268**  
*Umaltolepis* 98, 99  
*Umkomasia* 64, 66  
 unconformity **268**  
 unconsolidated **268**  
 'uniformity' 24, **268**  
 unisexual fructification 8, **268**  
 United States 118, 200, 217  
 unsculptured monosulcates 41  
 upland evolution 19, 24, 221, **268**  
 upland survival 8, 9  
 Upper Compton Bay (IOW) 123, 124, 161, 162, 165, 166, 177  
 upward flotation 36
- Valanginian Age (Cretaceous) 11, **29**, 41, 53, 58, 93, 98, 102, 105, 107, 121, 129, 134, 194, 220, 233  
 valves **268**  
*Vardekloeftia* 75, 76, 85  
 Vectis Formation (Barremian–Aptian) 162  
 venation, insects 52  
 venation, reticulate (plants) 1  
 Veneto flora (Jurassic) 58, 81  
 vertebrates 19, 44, 45, 211  
 vessels in wood 1, 210, 220, 250, 254, **268**  
 Victoria (Australia) 49, 194, 233  
 Virginia (USA) 190, 197  
 Vitim River flora (Cretaceous) 198, 201  
*Vitreisporites* 80  
*Vittatina* 37  
 volcanoclastic 112, **268**
- Warlingham Borehole (Surrey) 119, 120, **121**, 122, 135, 136, 137, 138, 139, 144, 145, 147, 150, 152, 153, 156, 157, 158, 159, 161, 162, 167, 195  
 Waste Gate Formation (Cretaceous) 192  
 water plants 6  
 water-ferns 49, 242, **269**  
 Waterford flora (Permian) 58, 60  
 Weald Clay (Cretaceous) 51, 131, 177, 196  
 Wealden beds 50, 53, 121, 122, 124, 125, 126, 161, 220, 231, 232  
 Wealden flora (Cretaceous) 85, 97, 108, 240  
 Wealden Marls 155  
 weighting of characters 13  
*Weltrichia* 51, 83, 84, 85  
*Weltrichia sol* 85, 86  
*Welwitschia* (extant) 56, 103, 115, 116, 117, 140, 250  
 Wessex Basin 123, 128, 149  
 Wessex Formation 155  
 West Brothers Pit 198, 202, 203, 211  
*Westerbeimia* 75  
 wetting agents 39  
 White Chalk 2  
*Wielandiella* 75  
*Wielandiella angustifolia* 85  
 Wight, Isle of 111  
*Williamsonia* 75, 82, 83, **84**, 86, 116, 117, 232, 238, 239, 241, 242, 246, 247, 249, 254  
*Williamsonia carruthersi* 85  
*Williamsonia gigas* 85, 86  
*Williamsonia scottii* 85  
*Williamsonia seawardiana* 85  
*Williamsoniella* 51, **82**, 84, 116, 117, 249  
*Williamsoniella coronata* 82, 83, 84  
*Williamsoniella czochaiensis* 83  
*Williamsoniella lignieri* 82, 83  
*Williamsoniella karataviensis* 83  
*Williamsoniella valdensis* 82  
 Winteraceae (extant) 210, 213  
*Withamia* (Cretaceous) 241  
 Woodbine flora (Cretaceous) 58, 106  
 Worbarrow Bay (Dorset) 119, 120, **123**, 126, 136, 143, 146, 149, 177, 180  
 working principles 21  
 worms 19, 51
- xeromorphic 269  
 xerophyte 221, **269**  
 xylem 269
- Yaverland (IOW) 123  
 Yorkshire flora (Jurassic) 58, 85, 87, 89, 232, 238, 239  
*Yunnanosaurus* 48
- Zamia* (extant) 47, 56, 114  
*Zamites* 85  
 zinc bromide 132  
 zone **269**  
 zone-fossil 64, **269**  
 zonisulcate 77, 243, **269**  
 zygomorphic **269**