

Index

Page numbers in *italic* denote Figures. Page numbers in **bold** denote Tables.

- Acadian Orogeny 224
Acanthopyge Limestone 126, 128
Acastella 52, 68, 69, 70
Acastoides 52, 54
Acinosporites lindlarensis 27, 30, **32**, 35, 147
Acrimeroceras 302, 313
acritarchs
 Appalachian Basin 143, 145, 146, 147, 148–149
 extinction 395
 Falkand Islands 29, 30, 31, 32, 33, 34, 36, 37
 late Devonian–Mississippian 443
 Prague Basin 137
 see also Umbellasphaeridium saharicum
Acrospirifer 46, 51, 52, 73, 82
Acrospirifer eckfeldensis 58, 59, 81, 82
Acrospirifer primaevus 58, 63, 72, 74–77, 81, 82
 fauna 59, 63, 72, 74, 76, 103
Actinodesma 52
Actinosporites 135
Acuticryphops 253, 254, 255, 256, 257, 264
Acutimitoceras 369, 392
Acutimitoceras (Stockumites) 357, 359, 366, 367, 368,
 369, 372, 413
agnathans 65, 71, 72, 273–286
Ahabach Formation **172**
Ahrdorf Formation **172**
Aisemont Formation 237, 238, 239, 240–243, 246
Aisemont sequence 240–243, 246
Alamo impact 4
Alatiformia 52, 53, 55, 104
Alatiformia affinis 74, 81
Alatiformia alatiformis 58, 59, 64, 85, 87, 91, 92, 104
Alatiformia janseni 66, 85, 86, 87
Alatiformia mediatorhenana 79, 81
allorhenotypic subfacies 50, 51, 54–55, 57, 101–102
Alpenachitina eisenacki 36, 38, 147
Alternognathus 299, 319, 328, 329
Alternognathus regularis regularis 300, 301, 306, 307,
 308, 311, 319, 320, 328, 329, 330, 331
Alveolites 244
Amazon Basin, diamictite 444, 445, 450, 455
ammonoids 89
 annulata Events 312
 systematic palaeontology 331–343
 Tafilalt 302–305, 310–312, 314, 316, 324, 326
 DCB 357, 360, 364–369, 370, 372, 392
 extinction 293, 303
 Hangenberg Crisis 390, 392
 Prague Basin 127
 Rhenish Massif 51, 57, 82, 83
 see also annulata Events
Amphipora biostroms 12
Anarcestes lateseptatus 89, 127
Anarcestes plebius 89
Ancyrochitina 147
Ancyrochitina arirambaense 27, 30, **32**, 36
Ancyrochitina lezaisensis 142, 146
Ancyrochitina olliverae 27, 30, **32**, 34
Ancyrodelloides delta biozone 15
Ancyrodelloides transitans biozone 15, 17, 19
Ancyrodelloides trigonicus biozone 15, 17, 19
Ancyrospora 31, **32**, 37
Anetoceras 82
?Aneurospora 33
Aneurospora minuta 148
Angochitina **32**, 36, 141, 142, 146, 147
annulata Events 1, 2, 291–344
 comparison of conodonts 327–331
 effects on fauna 292–293
 global recognition 294–299, 343
 limestone beds 3, 246, 291–292, 301, 308, 309,
 311, 321
 conodonts 329, 331
Tafilalt
 ammonoid succession 302–305, 310–311
 comparison of facies 319, 321, 323, 325, 327
 conodont zonation 299–302, 310–311, 320
Anoplia theorassensis 86
anoxia 2, 3–4, 171, 191–192, 191
 Hangenberg Crisis 391, 392, 394, 401–402,
 414–417, 456
 and carbon cycle 410–413
 Kellwasser Events 237–239, 243, 245, 252
ansatus–semialternans zonal boundary 224,
 227, 229
Antognathus **365**, 391
Apatognathus **365**, 392
Apiculiretusispora 146, 148
Appalachian Basin 225
 Basal Chotéč Event 129
 dacryoconarids 125, 134, 138–141, 145–146,
 151–153
 microfossils 149–150
 Onondaga Formation 124, 131
 palynology 124, 153–154
 bioevents 226, 227
 Famennian diamictites 445, 449, 455
 geological setting 224
 Global Taghanic Biocrisis 223–230
Araratella 394
Archaeopteris 395
Archaeozonotrites variabilis 30
Archegoninae 393
Ardennes
 conodont biofacies 211, **212**, 213, 215, 216
 correlation 64–65, 68, 69, 77, 81–82, 87–88
 neritic facies 163, 172, 361–362
Ardennes–Rhenish Massif 46, 71, 102
 correlation 46, 72–73, 77
 see also Rhenish Massif
Arduspirifer 46, 51, 52, 53, 76, 79, 81, 82, 84–85
Arduspirifer antecedens 63, 77, 79, 80, 81, 82, 83
 fauna 59, 63, 103
Arduspirifer arduennensis 89
Arduspirifer arduennensis arduennensis 58, 64, 66, 85,
 86, 87, 88

- Arduspirifer arduennensis arduennensis* zone 59, 87, 89
Arduspirifer 'arduenensis' initiator 81
Arduspirifer arduennensis treverorum 58, 59, 66, 85, 86, 87
Arduspirifer extensus 86
Arduspirifer latestriatus 79, 81, 82
Arduspirifer latestriatus initiator 82
Arduspirifer latestriatus latestriatus 58, 59, 79, 80, 81
Arduspirifer latestriatus prolatestriatus 58, 59, 77, 79, 80, 81–82
 Argentina, Viséan diamictite 445, 451, 455
Argutastrea 244
Arianalepis gen. nov. 273, 280
Arianalepis megacosta 278, 279, 280–281, 283, 286
Arianalepis sp. indet. 273, 281–282, 286
Armatites 302
 Armorican Massif
 correlation 77
 evolution 102
 Armorican Terrane Assemblage 173
Asteropyge 55, 65, 91
 Asteropyginae 52, 55
 astrozoans, Rhenish Massif 53
 Athyridida 51, 52, 53, 91, 92
Athyris 52, 53
Athyris (Alvarezites) wolfarti 176
Athyris avirostris 74, 75, 78
Athyris cf. *undata* 79, 85, 86
atopus Event 1, 2, 83
Atrypa 61, 69, 86
Atrypida 51, 52, 53, 56, 91, 92, 93
 Augustenthal Formation 75, 78
Aulacella 245–246, 394
 aulacopleuridae 254, 268
 Aulatomoceratidae 331
Auroraspora 32, 37
Australolepis seddoni 276, 277–280, 283–286
 Avalonia 173, 194
 Avesnelles Formation 373
Aviculopecten 52

Babinops 257, 264
 Bahram Formation 274, 276
 Baltica 173
Baltisphaerium cf. *B. distentum* 143
 Balvian Stage 357, 358
 Barrandian region
 Basal Chotéč Event 124, 127–130
 effect on invertebrates 135–137
 Barreirinha Formation 40, 445, 455
 Barvaux Formation 237, 238, 245
 Basal Chotéč Event 1, 2, 35, 38, 90, 92, 93, 104, 123–160
 affected organisms 128–130
 Appalachian Basin 124, 129, 130–135
 dacryoconarids 138–141, 145–146
 palynomorphs 38, 124, 135–137, 149
 Prague Basin 123, 124, 125, 126, 127–130, 149
 carbon isotopes 123, 130
 effect on invertebrates 135–137
 magnetic susceptibility 123
 research history 124
 Rhenohercynian 135
 Basal Pragian Event 12
 Basal Prídolian Event 67

 Basal Zlíchov Event 2, 83, 103
Bascaudaspora mischkinensis 371
Basidechenella 55
Bathyrhyncha sinuosa 61
Belgicaspis crouchi 65
Beloceras 252
Belodella 15, 176, 177, 205, 209, 210, 211, 214, 216, 217, 219
Bembexia 52
 Bendorf Formation 80
 Bensberg Formation 80–81, 83
 Berlé Event 89, 102, 103
 Berlé Formation 80, 86, 88, 90
 Bermejo, Famennian diamictite 445, 447–448, 455
Biernatella 245
Biloclymenia laevis 308
Bimerga 29, 32, 34, 35
 Bine Jebilet
 biofacies 321, 323, 329, 330
 succession 303, 309, 313, 314, 324
 biodiversity, impact of climate change 4
 bioturbation, Blankenheim section 181
Bispathodus 299, 300, 301, 307, 330, 365, 392
Bispathodus costatus 363
Bispathodus costatus–*Protognathus kockeli* Interregnum 357, 363, 389
Bispathodus stabilis 292, 301–302, 328
Bispathodus stabilis vulgaris 300, 301, 306, 307, 308, 311, 319, 320, 328, 329, 330, 331
Bispathodus stabilis zone 313, 331
Bispathodus ultimus ultimus 371, 373
Bispathodus ultimus zone 356, 357, 362–363
Bisphaera malevkensis zone 373
 bivalves
 Falkland Islands 33
 Hangenberg Crisis, extinction 390, 395
 Prague Basin 129
 black shale events 2, 3–4, 230
annulata Event 291–293, 325, 327
 Eifelian–Givetian boundary 171, 192–194
 Famennian 359
 Frasnian, Kellwasser Events 235, 237–239
 Hangenberg 359, 399, 401–402, 414–416
 see also anoxia
 Blankenheim Member 172, 176
 Blankenheim Syncline 87, 173, 174–194
 biostratigraphy 176
 carbon and oxygen isotopes 175–176, 185, 186–187, 189, 190, 194
 geochemistry 175–176, 187–190, 191–192, 193
 Kačák Event 192–194
 magnetic measurements 174–175, 182–186, 191, 193
 microfacies analysis 174, 176–182
 bioclastic wackestone 176–178
 biocrobioclastic wackestone 180–182
 floatstone 178, 179, 180
 wackestone/grainstone 178–180
 palaeotemperature 187, 194
 Blankenheimerdorf 173
 Boden Limestone 12, 17
 Bohemian facies see hercynotypic facies
 Bokkeveld Group 37, 39
 Bolivia
 correlation with West Falkland 34, 36, 37–40

- Famennian diamictite 445, 446–449, 455
 Mississippian diamictite 445, 451, 455
 Bolivian Altiplano, diamictite 445, 446, 447, 455
 Bornich Formation 80
Boucotia 57
Boucotstrophia 52, 58, 74, 76, 77
 Boulonnais, conodont biofacies 211, 212, 215
Bounophyllum 394
 Boussu-en-Fagne Member 240, 241, 246
 brachiopods
 Appalachian Basin 141
 Blankenheim section 176, 177, 178, 179, 180
 Carnic Alps 12, 17, 19
 Falkland Islands 33, 36
 Hangenberg Crisis, extinction 390, 394–395
 late Frasnian
 Namur–Dinant Basin 235–246
 extinction 242, 244–246
 Prague Basin 129–130
 Rhenish Massif 45–104, 51
 biostratigraphy 57–61, 69, 72, 76–77, 81, 87, 91
 correlation 61–65, 67–70, 72–73, 81–83, 87–89,
 91–92
 distribution 61, 68–69, 71–72, 74–76, 79–81,
 85–87, 91
 lower Emsian 59, 78–84
 lower Gedinnian 59, 68–71
 lowermost Eifelian 59, 91–93
 middle and upper Siegenian 59, 74–78
 Pridolian Stage 59, 61–68
 taxonomy 45–46
 upper Emsian 59, 84–91
 upper Gedinnian–lower Siegenian 59, 71–74
 Brachymetopidae 393
Brachyspirifer 46, 52
Brachyspirifer carinatus rhenanus 85
Brachyspirifer crassica crassica 81
Brachyspirifer ignoratus 58, 59, 85, 86, 87
Brachyspirifer miniatus 81
Brachyspirifer transiens transiens 81
Branmehla 363, 365, 392
Branmehla ampla 300, 301, 306, 307, 308, 311, 319, 320,
 328, 329, 330, 331
Branmehla inornata 300, 301, 306, 307, 308, 311, 319,
 320, 328, 329, 330
 Brazil
 correlation with W. Falkland 34–35
 Famennian diamictite 444, 445, 446, 454, 455
 Mid-Tournaisian diamictite 445, 449–450, 455
 Viséan diamictite 445, 451, 455
 Bredebeck Formation 55, 68, 69, 70–71
 bryozoans
 Blankenheim section 176, 177, 178, 180
 Carnic Alps 12
 Hangenberg Crisis, extinction 390, 394
 Rhenish Massif 53, 54, 55
Bucanella 52
Buchiola 292, 306, 310, 317
 Bunte Ebbe Formation 70–71, 72
 Bunte Schiefer Formation 69, 71, 72
Burmeisterella 52
 Cabeças Formation, diamictite 444, 445, 446, 455
Caenodontus 300, 301, 328, 330, 331
 calcisiltite
 Blankenheim section 181, 182, 193
 Prague Basin 127
 Caledonian molasse 47
Camarozonotriteles sextantii 135, 136
cancellata Event 88
 Canning Basin
 geological history 252, 253
 trilobites 251–268
 see also South Oscar Range
Canningbole 254, 259, 260
 Cape Fold Belt 25
 deformation 26, 31
 Cape Supergroup 37–40
Capricornugnathus 365, 391
 carbon, TOC 187, 188, 189, 190, 192
 carbonate/siliciclastic facies 185, 187
 carbon cycle, DCB 410–413, 414, 416–417
 carbon dioxide, as driver of climate change 4
 DCB 415, 416, 440, 456
 carbon isotopes
 annulata Events 293
 Basal Chotéč Event, Prague Basin 123, 130
 carbonate/siliciclastic facies, Blankenberg section
 175–176, 185, 186–187, 189, 190
 Global Taghanic Biocrisis 224, 226–230
 Hangenberg Crisis 414, 453–454
 DCB 410–413
 Lochkovian–Pragian boundary event 12, 15, 16, 19
 carbon–nitrogen isotopes, Tournaisian 453–454, 456
 carbonate platforms
 Carnic Alps 11, 19
 Eifel Synclines 174
 Famennian 293
 Namur–Dinant Basin 239–240
 Taghanic transgression 216–217
 carbonate production, Lochkovian–Pragian
 boundary event 12
 Carboniferous see Devonian–Carboniferous Boundary
Carinoclymenia beuelensis 317
 Carnic Alps
 carbon isotopes 12, 15, 16
 fossils 12, 15
 Lochkovian–Pragian Event 11–21
 microfacies 15–19
 regional geology 12, 13, 14
Carpinaria vel *Subcuspidella* 176, 178
Caudicriodus 65, 70, 77
 Ccatcca Formation, Famennian diamictites 445, 449
 Central African Republic, Viséan diamictite 445, 452
 Central Pyrenees, conodont biofacies 212, 214, 215
 cephalopods
 Carnic Alps 17
 Prague Basin 129
Ceratarges 55, 91
 Chebbi Event 2, 3, 83, 103
Cheiloceras 309
 Chepor Member, Viséan diamictite 445, 452, 455
Chernyshinella glomiformis–Bisphaera zone 373
 chitinozoans
 Appalachian Basin 134, 146, 148–149, 154–155
 epibole 150
 extinction 395
 Falkland Islands 30, 32, 34, 36

- chitinozoans (*Continued*)
 Late Devonian–Mississippian 443
 Prague Basin 135, 137
- Chlupaciparia* 253, 254, 259–260
 extinction 262
- Chomotriletes vedugensis* 29, **32**, 34, 443
- Chondrites* 51, 90, 134
- Chonetes* 61, 85
- chonetidines 91
- Chonetoidea 55
- Chotéč Event *see* Basal Chotéč Event
- Chotéč Formation 126, 128
- Chotéč Limestone 92, 93, 123, 126, 127, 128, 135
- Chynice Limestone 126
- Cimicinella* 55, 87
- Cirratiradites diaphanus* **32**, 33
- claricolous genera 55, 90, 92
- Cleiothyridina davidsoni* 245
- climate change
 anoxia 4
 DCB 405, 408, 410–417
 Lochkovian–Pragian boundary event 12
- ‘*Clisiophyllum*’ 394
- Clydagnathus* 364, **365**, 392
- Colatisporites decorus* 450
- Comura* 52, 54
- Condroz Event 1, 2
- conodonts
annulata Events 292, 293
 Tafalilt 299–302, 310–311, 319, 320, 322, 327–331
 Appalachian Basin 141
 biofacies
 global model 215–217
 nearshore–offshore model 216–217
 Taghanic transgression 201–218
see also Taghanic transgression, conodont biofacies
 Blankenheim section 176
 Carnic Alps 11, 12, 13, 15, 17, 19
 DCB 355, 356, 357, 360, 362–364
 extinction 390–392
 Prague Basin 126, 127, 129
 Rhenish Massif 51, 57
 zonation 292, 299–302
- contourites 50, 57
- corals
 Blankenheim section 176, 178
 Carnic Alps 12, 15, 17, 18, 19
 DCB, extinction 390, 393–394
 late Frasnian, Namur–Dinant Basin 235
 extinction 242, 244, 246
 Rhenish Massif 51, 52, 53, 54, 55, 56
- Cornillites* 52, 64
- Coronaspora* 29, **32**
- Cortaderas Formation, diamictite 445, 451, 455
- Corynexochida 251, 253, 254, 255, 261
- Costaclymenia muensteri* 308
- Costanoplia* 57
- costatus*–*kockeli* interregnum 357, 363, 389
- Costulatostyliolina* cf. *C. paucicostata* 138, 139, 150, 152, 153, 156–157
- Costulatostyliolina vestita* 138, 139, 141, 152, 157
- Couvin Formation 92
- Crassiseptella* 373
- Crassrenselaeria* 53, 54, 56
- Crassrenselaeria crassicosta* 58, 62, 71, 72, 74, 76, 78
- Crickites* 252
- Crinisarina* 245
- Crinistrophia* 58, 63, 79, 82
- crinoids
 Blankenheim section 176, 178, 179, 180, 181
 Carnic Alps 15, 17, 18, 19
 Falkland Islands 33
 Rhenish Massif 53, 54
- Cryptonella macrorhyncha* 66, 85, 86, 87
- Cryptonella minor* 74, 76, 78
- Cryptonella rhenana* 79
- Cryptotaxis* 392
- Cumaná Formation, Famennian diamictite 445, 446
- Cuninulus* 85, 86, 87, 91, 93, 104
- Curiri Formation, diamictite 444, 445, 455
- Cyathaxonia* 244
- Cyclostigma*–*Archaeopteris* forests 395
- Cymaclymenia* 305, 308, 313, **370**, 392, 393
- Cymaclymenia euryomphala* 361, 366
- Cymaclymeniidae 337–338, 392
- Cymatiosphaera* 136, 137, 143, 149
- Cymbosporites* 33, 149
- Cypricardella* 52
- Cypricardites* 52
- Cypridina* shale facies 361
- Cyrtina* 53, 68, 76
- Cyrtoclymeniidae 336–337, **370**
- Cyrtospirifer grabaui* 245
- dacryoconarids 57
 Appalachian Basin 125, 134, 138–141, 145–146, 150, 151, 153, 155–160
 Basal Chotéč Event 124, 150, 151–152, 153, 155–160
 Prague Basin 124, 126, 130, 135, 150, 151, 153, 155–160
- Daleiden mode of preservation 86
- Daleje Event 1, 2, 88, 89, 103
- Daleje Shale 57, 89, 126, 127–128
- Daleje–Třebotov Formation 89, 126, 127–128
- Dalejian Stage 88, 89, 90
- Dalejodiscus* 57, 91
- Dapoushang, Hangenberg Crisis 403, **409**
- Dartmouth Group 73
- Dasberg Crisis 2, 3, 315, 416
 Black Shale 3
- Dayia* 58, 61–63, 65, 68
- Decoriconus fragilis* 15
- Devonian, event succession 1, 2
- Devonian–Carboniferous Boundary 355–375
 ammonoids 357, 360, 364–369, 370, 372
 biodiversity decline 390
 carbon cycle 410–413, 414, 416–417
 chronostratigraphy 356–358
 climate change 405, 408, 410–417
 conodont zonation 355, 356, 357, 360, 362–364
 extinctions 359, 364, **365**, 366–367, 369, 371, 373–374, 387–418
 foraminifer zonation 371, 373
 glaciation 405, 408, 410, 414, 416, 419
 GSSP 355–356, 358, 374
 La Serre 356, 374, 403, 412, 440
 impact event 403, 405, 416
 lithostratigraphy 358–362

- miospore zonation 369–371
 Rhenish Standard Succession 358–361
 sea-level change
 and glaciation 405, 408, 410
 and lithology 396–402
see also Hangenberg Crisis
 Devonian–Mississippian
 biostratigraphy 440–444
 glaciations 439–457
 palaeotectonic reconstruction 441
 diamictite 39–40, 408, 410, 439, 444–449, 455
 uncertainties 454–456
Dianops 393
Dibolisporites 135, 137, 147, 149
Dictyodidum 135, 136, 137, 143
Dictyotriletes 27, 29, 30, 32, 33, 34, 35, 146
Diducites 31, 32, 371
Diexallophasis 30, 32, 142, 143, 145, 147
Digonus 52
 Dill Synclinorium 57, 80, 86, 91, 92
 Dinant Synclinorium 69, 72, 81–82, 89, 236
 Kellwasser Events 238–239
 see also Namur–Dinant Basin
Dinapophysia papilio 66, 74, 77
Dipleura 52
 disaster species 149, 245
Disphyllum 244
Dohmiella 55
 dolomite, Carnic Alps 17, 18
 Dorsel Member 91, 92, 93, 104
Douvillinella filifer 58, 87
 Dra Plains 55, 83, 90
 correlation 77, 88
 evolution 102
Drevermannia 393
 Drewer Sandstone 357, 358, 359, 360, 389
 dropstones 40, 403, 408
Ductina ductifrons 264
Dunopyge 52
 Dwyka Group 28, 445, 450

Earlandia minima zone 373, 395
 East Falkland 26, 28
 Eastern Americas Realm 224, 225
 Eau Noire Formation 88, 89, 92
 Ebbe Anticlinorium 61, 65, 68, 69, 70, 76, 78
 echinoderms
 Blankenheim section 181
 Carnic Alps 12
 Prague Basin 130
 Eckfeld Formation 79, 81
 Edgecliff Member 131, 132, 133
Effenbergia 366, 392
 Eifel region
 carbonate/siliciclastic facies 174–194
 geology 173–174
 Eifel Synclines 91, 173–174
 Eifelian stage
 Basal Chotěč Event 123–160
 Appalachian Basin 124
 Prague Basin 123, 124, 125, 126, 127–130
 Eifel region
 carbonate/siliciclastic facies 174–194
 facies types 173–174
 Rhenish Massif 49, 59, 104
 boundary 104
 lowermost, brachiopods 91–93
 palaeoenvironment 92–93, 104
 sea-level 92–93
 see also Eifelian–Givetian boundary;
 Emsian–Eifelian boundary; Pridolian–Eifelian
 Eifelian–Givetian boundary
 black shales 171
 GSSP 171, 191
Eisenackitina 70, 141
 Eisenhardt Formation 75
 El Gara South succession 304, 305–309
 ammonoids 303, 308–309, 312, 314, 316
 conodonts 300, 301, 308, 319, 320, 322, 329, 330, 331
 correlation of litho- and biofacies 318, 323, 325
 Ellsworth Whitmore Mountains 37, 38
 Elvis taxa 393
Emphanisporites annulatus 27, 30, 32, 35, 38, 142, 143,
 145, 146, 149, 150
Emphanisporites decoratus 27, 29, 32, 33, 34
Emphanisporites microrinatus 32, 33
Emphanisporites rotatus 34, 142, 146, 149, 150
 Emsian Stage
 basal GSSP 46
 Rhenish Massif 46, 49, 59–60
 evolution 103–104
 lower
 boundary 101
 brachiopods 78–84
 regression 80, 104
 sea-level change 77–78, 83, 89–91
 transgression 83, 89–91, 103–104
 upper
 boundary 88
 brachiopods 84–91
 Emsian–Eifelian boundary 89–90, 91, 104, 124, 130, 131
 GSSP 91
 Emsquartzit Formation 80, 85–86, 87, 88, 89, 90
Enkebergoceras varicatum 302, 306, 310, 314
Eochemyshinella crassitheca 373
Eocostapolygnathus excavatus 77, 82
Eocostapolygnathus kitabicus zone 77, 82
Eoschizodus 52
Epiwocklumeria 366, 368, 370
Epiwocklumeria applanata subzone 366–367
Erbenoceras 82
Erfoudites 302, 303, 305, 308, 309, 311, 315, 317, 323,
 326, 335
 Ergeshausen Formation 80
Eskoharpes 253, 254, 257–259, 261, 264
Estiastra barbata 27, 29, 32, 34
 Euramerica 33, 36, 202, 216, 440, 441
 eurhenotypic subfacies 50, 51, 52–54, 57, 71, 74–76, 78,
 79, 80, 101
 eurypterids 54
Euryspirifer 46, 51, 52, 53, 73, 76, 79, 81, 82
Euryspirifer assimilis 79, 82
Euryspirifer assimilis assimilis 58, 59, 79, 80, 81, 82
Euryspirifer assimilis latissimus 58, 59, 79, 80, 81, 83
Euryspirifer cf. robustiformis 88
Euryspirifer dunensis 58, 59, 64, 79, 81, 82
Euryspirifer ex gr. assimilis-dunensis 80, 82
Euryspirifer paradoxus 58, 85, 87, 88, 89

- Euryspirifer paradoxus* fauna 59, 85, 87, 103
Euryspirifer robustiformis 64, 85, 86, 87
 eutrophication 52, 68, 265, 293, 414–415, 453–454
Evittia sommeri 36, 38
Exochoderma 30, **32**, 142, 143, 145, 446
 extinctions 1, 2, 3
 DCB 359, 364, **365**, 366–367, 369, 371, 373–374, 387–418, 452–454
 Eifelian 104
 Frasnian–Famennian boundary 1, 235, 239, 251–268, 284–285
 Gedinnian 102
 Hangenberg Crisis 359, 364, **365**, 366–367, 369, 371, 373–374, 387–418, 452–454
 late Frasnian 235–246, 242, 244–246
 magnitudes 1, 3
 OCA 92–93
 ostiolata Event **172**
 Pridolian 102
- Falcitornoceras* 302, 309, **370**
 Falcitornoceratinae 331–332, **370**
 Falkland Islands 26
 correlation 37–40
 geology 26, 28
 palynoflora 25–40
 stratigraphy 27
 Viséan diamicite 445, 451
 see also East Falkland; West Falkland
 Falkland Sound Fault 26
 Famenne Formation 236, 237, 242
 Famennian Stage
 biostratigraphy 441, 442
 DCB 357, 358, 360, 361–362
 glaciation
 Bolivia 446–449
 Brazil 444, 446, 454–455
 diamicite 444–449, 455
 Libya 449
 North America 449
 Peru 449
 South Africa 449
 La Serre GSSP 356
 substages 356
 thelodonts 273–286
 see also Frasnian–Famennian boundary
 Faro Formation, Viséan diamicite 445, 451, 455
Fascistropheodonta 74, 77, 86
Favosites 17
Fidelites 92, 309, 312
 Findenig Limestone 12
 fish
 Falkland Islands 33
 Hangenberg Crisis, extinction 390, 396
 Rhenish Massif 53, 54, 78
 see also placoderms; thelodonts
 Fish Creek Member 27, 28
 correlation 38
 palynomorphs 29, 33
 Fitzroy Tillite Member 28, 37, 39
Flabellulirostrum 245
 Flaserschiefer Formation 69, 86, 89, 102
Floweria 245
 Flynn Creek Crater 4
- Follmannia* 52
Foordites 92, 141
 foraminifers 176
 Hangenberg Crisis, extinction 390, 395–396
 Prague Basin 129
 zonation, Devonian–Carboniferous Boundary 371, 373
 Forcella Monumenz 12
 Fox Bay Formation 26, 27, 28
 correlation 34–35, 38, 39
 palynomorphs 29, 30, 33–35
 transgression 33–35
Franconicylmenia 304
 Frasnian events 1, 2
 Frasnian Stage, late
 Namur–Dinant Basin 235–246
 stratigraphy 239–243
 Frasnian–Famennian boundary
 mass extinction 1, 235, 239, 284–285
 trilobites 251–268
Frechastrea 243, 244, 246
 Fredeburg Formation 92
 Freilingen Formation 171, **172**, 192
Frutexites horizon 263, 307
 fungi 150, 153
Fungulodus/Conchodontus sp. **365**, 391
- gastropods
 Blankenheim section 177
 Carnic Alps 12
 Prague Basin 129, 135
 Rhenish Massif 51, 52, 54
Gattendorfia subinvoluta 355, 359, 366
 Gattendorfiinae 369
 Gedinnian Stage
 Rhenish Massif 46, **49**, 59, 102
 lower
 brachiopods 68–71, 102
 palaeoenvironment 70–71, 73–74
 sea-level 70–71, 73–74
 lowermost
 boundary 101
 brachiopods 59, 61–68
 transgression 45, 67–68, 73–74, 102
 upper, brachiopods 71–73
- Geesops* 55
 Gefell Formation 79, 83
Geminospira lemurata 27, 30, **32**, 36–37, 38, 284
 Genesee Fauna 227
 Genesee Group 225, 227, 229
 Genesee Formation 224
 Gensberg Event 72, 77, 103
Genuclymenia 306, 309, 310, 314, 337–338
 Genuclymeniinae 337–338
Gerothyris Fauna 93
Gibbodouwillina 52, 58, 85, 89
 Giesdorf Member 171, **172**
Gigastropheodonta 52, 53, 74, 76, 86
 Gilberg Formation 72–73
Girvanella 178
 Givetian Stage 36–37
 Taghanic Biocrisis
 carbon isotope record 223–230
 conodont biofacies 201–218

- glaciation
 end Devonian 405, 408, 410, 414, 416, 419
 end Devonian–Mississippian 439–457
 Famennian 444–449, 454–455
 Tournaisian 449–450, 455
 Viséan 445, 450–452, 455
- Glatziellidae 370, 392, 410
- global warming, Taghanic Biocrisis 224
- Globithyris* 53, 54, 56, 79
- Globoharpes* 253, 254, 257, 261
- Gnathodus* 442
- Gondwana 440, 441
 fragmentation, palynomorphs 25, 32, 33, 34–35, 37
 Late Palaeozoic Ice Age 439, 455
 reconstruction 38, 441
- Gondwanaspis* 253, 254, 255–256, 261, 264
- goniatites
 Basal Chotěč Event 127, 128, 135
 Bolivia 35, 36
 DCB 365, 366, 367
 Kellwasser Events 238
- Goniclymenia* 308
- Gonicycylus* 366, 369
- Goniophora* 52
- Gorgonisphaeridium* 37, 143, 145, 443
- '*Gotlandochitina*' *maretensis* 30, 34
- gracilis* Event 88
- Grammysia* 52
- Grandispora* 27, 30, 32, 35, 37, 38, 149
- Graue Phyllite 61, 62, 63
- Great Gap 45, 71, 93, 190
- Green Patch, palynomorphs 28, 31, 32
- greenhouse conditions 405, 414
- Grenfellacanthus* 286
- Grès de Gdoumont 55, 61, 63, 65, 67
- Groenlandaspis* 396
- Guerichia* 292, 307, 308, 311, 317, 321, 359
- Gundolficeras* 317, 326, 331–332, 333, 370
- Gundolficeras*–*Erfoudites*–*Protactoclymenia*–*Stenoclymenia*–*Guerichia* biofacies 325, 343
- Gypidula montana acutecostata* 91
- Gyroceratites* 82
- Hadyrhyncha* 394
- Haigerhütte Formation 57, 86, 92
- Hamilton Fauna 224, 226, 227, 230
- Hamilton Group 225, 226, 228
- Hammerlott Formation 78
- Hangenberg Black Shale 357, 359, 360, 361, 389, 397, 400, 414–416, 452
 global equivalents 398–399, 399, 400
- Hangenberg Crisis 1, 2, 356, 387–418
 ammonoids 357, 360, 364–369, 370, 372, 392
 anoxia, and carbon cycle 410–413, 414
 biodiversity decline 390
 biostratigraphy 362–373, 388, 389
 carbon cycle 410–413, 414
 carbon isotopes 414, 453–454, 456
 causes 402–405, 408, 410, 412–417, 456
 chronostratigraphy 356–358
 conodonts 390–392
 extinctions 359, 364, 365, 366–367, 369, 371, 373–374, 387–418, 452–454
 lithostratigraphy 358–362, 388, 389
 sea-level change and lithology 396–402, 416–417
- Hangenberg Limestone 355, 357, 359, 360, 369
- Hangenberg Regression 359
- Hangenberg Sandstone 357, 359, 360, 389, 399–400, 401, 403, 404–405, 452–453
- Hangenberg Shale 357, 358–359, 360, 389, 401, 402, 452
- Hankaxis* 246
- Hapsidopalla chela* 143, 147, 148, 149, 151
- Harpetidae 251, 253, 254, 257–259, 261
- Hasselbachtal GSSP 358, 371, 443
- Hassi Nebech
 biofacies 321, 323, 329, 330
 succession 303, 309, 315, 323
- Hasterian substage 357, 358
- Hastière Formation 361–362, 373, 401
- Hayfield VA, palynomorphs 147–148
- Heisdorf Formation 85, 86, 87, 88, 89, 90, 91, 104
- Helaspis* 55, 176, 178
- hematite
 Blankenheim section 175, 184
 and trilobite evolution 262–263, 265
- hercynotypic facies 46, 47–48, 50, 57
- Hermeskeil Event 74, 103
- Hermeskeil Formation 71, 72, 73–74
- Heteroconchia 52
- heterodonts, Rhenish Massif 56
- Hexaclymeniidae 343
- Hexagonaria* 240, 241, 244
- Hierges Formation 88, 89
- Hoegisphaera* cf. *glabra* 30, 32, 33, 34, 35, 141, 142, 145, 147, 149, 150, 154–155
- Hohe Warte Limestone 12, 13, 14, 17, 21
- Hohenrhein Formation 86, 87, 88, 89, 90
- Hojedk section, Iran 273, 274, 276
 thelodonts 273, 277, 278, 279, 280–281, 283–286
- Höllenthal Formation 89
- Holonema* 276
- Holy Cross Mountains 56
annulata Events 297, 305, 325, 327
 DCB 363, 367
 Hangenberg Crisis 415, 416
 Rhenish Gap 73
- Homalonotinae 52
- Homoctenus* 134
- Hornby Mountain Fault 26
- Horologinella* 31, 32, 37, 443
- Houseops* 257, 264
- Howellella* 46, 52
- Howellella angustiplicata* 70
- Howellella mercurii* 58, 61, 62, 67, 68, 69, 70, 71
- Howellella mercurii* fauna 59, 62, 67, 68, 69, 70, 72, 102
- Hüinghausen Event 70, 102
- Hüinghausen Formation 55, 61, 62, 68–69, 70, 102
- Hunsrück Slate Group 75, 78, 80, 82, 83, 103
- Hunsrück-Taunus Swell 80
- Hysterolites* 51, 52, 53, 73
- Hysterolites hystericus* 58, 72, 74, 75, 76, 77, 78
- Hysterolites hystericus* zone 59, 76, 103
- Hystricosporites* 31
- Iapetus Ocean 173
- Iberian Chains 77, 83, 102
- Iberospora cantabrica* 32, 34
- icehouse conditions 405, 416

- Icla Formation 34, 38, 39
Icriodus 176, 204, 205, **219**, 319, **365**, 392
Icriodus arkonensis 176, 177, **219**
Icriodus brevis 215, **219**
Icriodus cornutus Group 276, 300, 301–302, 306, 308, 311, 320, 328, 330
Icriodus difficilis 205, 210, 215, **219**
Icriodus eslaensis 207, **219**
Icriodus latecarinatus 205, 211, 215, **219**
Icriodus obliquimarginatus 176, **219**
Icriodus obstinatus 392
Icriodus regularicrescens 176, 177
Icriodus retrodepressus 177
Icriodus steinachensis 15
Icriodus steinachensis biozone 15, 17, 19
Icriodus struvei 176, 177
Icriodus wernerii 177
Icriodus/*Polygnathus* ratio 201, 207, 210, 211, 216–217
 IGCP 596–SDS Symposium 4–5, 5
 Illinois Basin, LPIA 454
Imitoceras 367, 369
 impact events 4, 403, 405, 416
Inaequalibellirostrum inauritum 64, 79, 81
Incertae sedis 153, 154
Incertia 52
Indotriradites explanatus 371, 441, **443**, 446, 448
Intermedites 51, 55, 91, 92, 104
Intermedites intermedius 88, 91, 92
Intermedites vetustus 58, 59, 91, 92
lowaphyllum 242, 243, 244, 246
 Iquiri Formation 37, 38, 39, **445**, 455
Iridistrophia 52, 53, 84, 94–95
Iridistrophia? cf. *undifera* 176, 178
Iridistrophia (*Flab.*) *hipponyx* 84, 91, 104
Iridistrophia (*Flab.*) *musculosa* 58, 84, 85, 86, 87, 95
Iridistrophia (*Ir.*) *euzona* 66, 68, 69
Iridistrophia (*Ir.*) *maior* 64, 79, 81
Iridistrophia (*Ir.*) *praeumbracula* 70
Iridistrophia (*Ir.*) *umbella* 70
Isospinatrypa–*Invertrypa* Fauna 93
 Itacua Formation, Famennian diamictite 445, 448, 451, 455
Ivoites 82

 Jamal Formation 274, 276
 Jandiataba Formation, diamictite 444, 445
 Jaraqui Diamictite Member 444, 445, 450
 Jebel Erfoud
 biofacies 321, 323
 conodonts 300, 329, 330
 succession 302, 313
 Junkerberg Formation 171, **172**, 176, 192

 K-bentonite 131, 132, 133
 Kačák Event 1, 2, 36, 171
 black shales 171, 192–194
Kahlacanites 366
Kahlacanites zone 369
 Kaka Formation, Viséan diamictite 445, 451
Kalloclymenia 364, 366, **370**, 392
 Kalltal Formation 67, 69, 71
Karaclymenia saharae 317
 Kasa Formation, Tournaisian diamictite 445, 451, 455
 Katzenelnbogen Swell 80

 Kaub Formation 80, 82, 83
Kaysierops 52, 54
 Kellergrat Reef Limestone 12
 Kellerskopf Formation 61, 62, 68
 Kellerwarte 14, 17
 Kellwasser Events 1, 2, 56, 235
 black shale facies 237–239, 242, 246
 trilobites 251–252, 254
 evolution 262–265
 extinction 261
 see also Lower Kellwasser Event; Upper Kellwasser Event
 Kellwasser horizons 235, 237
 Khebia Formation 90
Kielcensia 365–366
 Kieselgallen-Schiefer Formation 57, 69, 86, 89
 Kirberg Event 92–93, 104
 Klerf facies 90, 103
 Klerf Formation 57, 80, 83, 88, 89
 Klouk Event 1, 2, 68, 70, 102
Knoxisporites hederatus 31, **32**, 37
Knoxisporites literatus 441, 443
 ?*Knoxisporites riondae* 27, 29, **32**, 33, 35
 Köbbinghausen Formation 61, 62, 65, 68
 Kondel Event 90, 104
 Kondel Group 86, 87, 88, 89, 91, 104
 Koněprusy Limestone 21, 57, 126
Kosmoclymenia 308, 366
Krauselisporites hibernicus 371
 Kurrenberg Event 78, 102, 103

 La Roche Formation 77, 81–82
 La Serre stratotype 355, 356, 374, 403, 440
 La Valute Limestone 12, 17
 Lahn Synclinorium 91, 92
 Lahn-Mosel Trough 89
 Lahnstein Group 86, 87, 88, 90
 Lake Menz Subgroup 37, 39, 40
 Lake Wolayer, megaclast horizon 11
 Lambermont Formation 237, 238, 239, 240, 243
 Lambermont sequence 241, 243, 246
 Lambertenghi Limestone 12, 13
Lanea eleanorae biozone 15, 17, 19
Lapinulus pila 79, 81, 83, 85, 88
 Late Palaeozoic Ice Age 439, 454
 uncertainties 454–456
Latericriodus steinachensis 77
 Laubach Event 90, 103
 Laubach Group 86, 87, 88, 89, 90
 Lauch Formation 91, 92, 93
 Lauch interval 91, 104
 Laurentia 173
 Laurussia 45, 47, 173, 202
 see also Euramerica; Old Red Continent
 Lazarus Taxa 245, 284, 329, 331, 395
Leiofusa estrecha 143
Leiopteria 52
Leiosphaeridia 135, 136, 137, 148
 leiospheres, Falkland Islands 27, 30, 36, 37
 Lennard Shelf 252, 253, 275, 276
Lepidophyta flora 395, 413
lepidophyta–*explanatus* biozone 441, 443, 444, 446, 448, 449
lepidophyta–*literatus* biozone 441, 443, 444, 448

- lepidophyta*–*nitidus* biozone 443, 444, 446, 448, 449
lepidophyta–*vallatus* biozone 443, 444
Leptaena 53, 55
Leptaenopyxis 53, 76
Leptodesma 52, 317
Leptophloeum 395
Leptostrophiella 53, 74, 75, 76, 79
 Les Valisettes Formation 237, 238, 239, 240, 242, 243, 246
 Levrezy Formation 70
 Libya, Famennian diamictites 445, 449
 lichides 55
 Lilliput effect 264, 373, 396
 limestone, Mount Seewarte 11–21, 18
Limoptera 52
Linguaclymenia 364, 366
Linguipolygnathus serotinus conodont zone 89, 90, 103
 linguloids 54, 72
 Lion Member limestone reefs 240–241, 246
 buildups 237, 239
 ‘Lion sequence’ 240
Lobacritites 317
 Lochkovian mound 19
 Lochkovian–Pragian boundary event 1, 2, 11–21, 73
 carbon isotopes 12, 15, 16, 19
 climate warming 12
 conodonts 11–12, 13, 15, 17, 19
 event history 11–12
 extinction 102
 global recognition 12
 magnetic susceptibility 15, 16, 19, 21
 regression 11–12, 16, 19, 20, 102
 sedimentary development 19, 20, 21
 transgression 12, 16, 19, 20
Lochreria 442
 loferite cycles, Carnic Alps 12
 Longá Formation, Mid-Tournaian diamictite 445,
 450, 455
Lophotriteles devonicus 136, 137
Loreleiella dilatata 79
 Los Monos Formation 36, 38, 39
 Lower Alum Shale 357, 359, 360, 361, 392, 393, 394, 416,
 453–454, 456
 Lower Kellwasser Event 1, 2, 238–239, 242–243, 246,
 252, 254, 261, 265
 Lower Siegen Group 71, 72–73, 73–74, 76
 Lower Tully Limestone, conodont biofacies 205
Loxopteria 315, 321, 323
 Lublin Basin 202
 stratigraphy 203–204, 206
 conodont biofacies 204–207, 208, 209, 210–211
 Lysogóry–Radom Basin 202
 stratigraphy 203, 206
 conodont biofacies 204–207, 209, 211
 Ma’der Basin, conodont biofacies 212, 214, 217
 Madre de Dios Basin, Famennian diamictite 445,
 446–447
Maeneceras subvaricatum subvaricatum 310, 312,
 315, 334–335
Maeneceras subvaricatum zone 292, 302, 308–309, 313
 Mag Zone 445, 451, 454
 Maghrebo-European Subrealm 47, 102
 magnetite, Blankenheim section 175, 184, 186
 Maider Basin 294, 305, 315
 correlation with Rheris Basin 323, 325, 327
 litho- and biofacies 321, 325, 327, 329
Maiderocheras sapiens 306, 309, 310, 314
 Malaysia, Viséan diamictite 445, 452, 455
 Malvinokaffric Realm 25, 33, 36, 38
 Mambéré Formation, Viséan diamictite 445, 452
 Mandeln Formation 86
 Manitoba, conodont biofacies 212, 213, 215
Manticoceras 252
 Maranhão Basin, Famennian diamictite 444
Maranhites mosesii 31, 32, 37, 443, 446
 Marcellus Formation 131, 132
 Mariposas Formation 56, 82, 83
Mashkovia 365, 391
 Matagne Formation 237–239, 242, 246
Maternella (*M.*) *hemisphaerica*–*Richterina* (*R.*) *latior*
 Interregnum 396
Mauispirifer gosseleti 74, 76, 77
 Mayen Formation 72, 76
Mayneoceras nucleus 366
 mazuelloids, Prague Basin 137, 149
 McWhae Ridge, trilobites 252, 253, 262–264
 Mdâouer-el-Kbîr Formation 56, 77, 83, 88
 Meadfoot Group 56, 73
Meganteris 52, 53
Meganteris ovata 76, 79
Meganteris ovata ovata 63, 79, 80
Meganteris ovata suessi 85, 87
Mehlina 392
Mehlina strigosa 300, 301, 306, 308, 311, 319, 328,
 329, 330
Meristella 53, 85, 86
 Merzâ-Akhsaï Formation 56, 77, 83
Mesodouvillina 58, 62, 68, 69, 70
Metabacrites 82
Metastyliolina cf. *M. striatissima* 157
Metastyliolina sp. B 138, 140, 141, 150, 151, 158
Metriophyllum 244
 Mic Interval zone 293
Michiganites scalabrinii 451
Micrhystridium 137, 147, 148
 Mid-German Crystalline Zone 173
 Middle Siegen Group 75
 migration, Taghanic 152, 153, 216, 224–225
 Milankovitch cycles 4, 415–416, 453
 Miller Diamictite 445, 450
Mimagoniatites fecundus 82
Mimimitoceras 308, 367, 370
Mimosphinctes 82
 miospores
 end Devonian–Mississippian 440–443
 Falkand Islands 29, 30, 31, 32
 Hangenberg Crisis, extinction 390, 395
 zonation 292–293
 DCB 369–371, 390, 395
 see also *Retispora lepidophyta*
 Mirwart Formation 72
 Mississippian see Devonian–Mississippian
Modimorpha 52
Modiolopsis 54
 Mondrepuis Formation 55, 68, 69
Monograptus uniformis angustidens 65, 70
 Monschau Formation 75, 76
 Montagne Noire, conodont biofacies 212, 214, 215

- Moorehouse Member 93, 131, 132, 133
 Mosel Synclinorium 78, 86, 89, 91
 Mount Brown Beach 27, 28
 Mount Hohe Warte 14, 17
 Mount Seewarte
 geology and fossils 12–14
 megaclast horizon 11, 17, 18, 19, 20
 MQ biozone 451
 Mrakib
 litho- and biofacies 325, 327, 330
 succession 315, 317–319, 326, 327
 mudmounds 237, 239, 240, 243–244, 246
Muessenbiargia 364, 366
Multiplicisphaeridium 142, 143, 146, 147
Multispirifer solitarius 58, 59, 76, 77
 Muno Formation 64–65, 68, 69
Murchisonia 52
 Müsen Formation 71, 73
Mutationella 54, 55, 67
Myalina 52
- Na Škrábku Quarry 124, 125, 127, 128
 palynomorphs 135–137, 149
 Namur–Dinant Basin
 DCB neritic succession 361–362
 late Frasnian 235–246
 geological setting 236
 Kellwasser Events 238–239
 stratigraphy 236–237, 239–243
 Nanbiancun stratotype 358
 Napier Formation 275, 276
 Nassau Formation 81
 nautiloids, Rhenish Massif 53, 54
 Naux Limestone 70
Navalicia compacta 245
Navifusa bacilla 136, 137, 143, 146, 147
 Nedrow Member 131, 132, 133, 134
 dacryoconarids 138–141
 OWM 141–145
 Needmore Formation 131, 132, 133
 Nehden Event 2, 3
 Neichnerberg Formation 79
 Nellenköpfchen Formation 80, 83, 88, 89
Neopanderodus 204, 209, **219**
Neopolygnathus 363
Neopolygnathus communis communis 300, 301, 306, 307, 308, 311, 319, 320, 328, 329, 330, **365**
Neoraistrickia loganensis 443, 450
Neptunathyris 245
 neritic facies
 Ardennes 361–362
 Carnic Alps 11–21
 Rhenish Massif 55, 361
 Neufchâteau Synclinorium 64, 68, 69
 Neuville Formation 241, 242, 243, 245, 246
 New World Realm 151
 see also Eastern Americas Realm
 New York, conodont biofacies **212**, 213–214, 216
 Nims Member 171, **172**
 Nitztal Formation 78
 Nohn Formation 92–93
 Northern Phyllite Zone 173
Notanoplia 57
Nowakia aff. *zlichovensis* 82
Nowakia cancellata 88
Nowakia (*D.*) *praeursor* 82
Nowakia (*D.*) *sulcata antiqua* 138, 140, 150, 151, 153, 158–159
Nowakia (*D.*) *sulcata sulcata* 92, 145, 150, 151
Nowakia (*M.*) *holyocera* 151
Nowakia (*M.*) *procera* 150, 151
Nowakia (*N.*) *barrandei* 82
Nowakia (*N.*) *holyensis* 151
Nowakia (*N.*) *holynensis* zone 127
Nowakia (*N.*) *hunsrueckiana* 82
Nowakia (*N.*) *maureri* 151
Nowakia (*N.*) *otomari* 171
Nowakia sp. A 138, 140, 151, 158–159
Nucleospira 53
Nucleospira maillieuxi 74, 76
Nuculites 52
- OCA fauna (*orbignyanus*–*cultrijugatus*–*alatiformis*) 91
 Extinction Event 92–93, 124, 135
 see also Basal Chotěč Event
 oceans, anoxic overturn 414, 415
 ‘Ockrige Kalke’ 61, 69, 70
 Odenspiel Formation 76
 Odershausen Formation 171
 Odontopleuridae 251, 253, 254, 255–256, 261
 Ohio Shale Formation 415
 Famennian diamictite 445, 449, 455
 Old Red Continent 47, 57, 70, 78, 83, 90, 173, 408, 414, 416
 Old World Realm 123, 151, 153, 224, 225
Oligoptycherhynchus 53
Oligoptycherhynchus daleidensis 85, 86
Oligoptycherhynchus hexatomus 85
Oligoptycherhynchus wetteldorfensis 87, 91
 Olkenbach Syncline 86, 89, 90
Omegops 393
 Onondaga Formation 93, 124, 131
 dacryoconarids 125
 stratigraphy 131, 132, 133
 transgression 131
 Oppershofen Formation 80, 83
Opsiconidion 12, 17
 organic matter, Hangenberg Crisis 414–415, 416–417
 organic-walled microfossils
 Appalachian Basin 131, 134, 141–145, 146–149, 153
 Prague Basin 130, 135–137, 153
 Oriximiná Formation, Mid-Tournaïsis diamictite 445, 450, 455
 Orthida 51, 52, 53
Orthis hipponyx 94–95
Orthis umbella 94
 orthocones, Falkland Islands 33
Orthocrinus Formation 87, 91
 ‘*Orthotetes*’ *ingens* 74, 77
 Orthotetida 51, 52, 53
ostiolata Extinction Event **172**
 ostracodes
 Appalachian Basin 141
 Blankenheim section 176, 180, 181
 Carnic Alps 12
 Hangenberg Crisis, extinction 396
 Prague Basin 130
 Rhenish Massif 53, 54, 57

- Otarion* 254, 262, 267, 268
otomari Event 171, **172**
 Oui-n'-Mesdour Formation 83
 Ouidane Chebbi Northwest
 biofacies 321, 323, 329, 330
 succession 313, 315
Oulodus 15
 oxygen isotopes
 Basal Chotěc Event, Prague Basin 130
 carbonate/siliciclastic facies, Blankenheim section
 175–176, 185, 186–187, 189, 190, 194
 Taghanic Biocrisis, Appalachian Basin 227, 228
 'Ozarkodina' *eosteinhornensis* 65
Ozarkodina plana 214, 216
Ozarkodina semialternans zone 227, 229, 230
Ozarkodinida 17, 19
Ozotobrachion furcillatus 143, 151
- Pachyschizophoria* 53, 66, 85, 86
Pachyschizophoria vulvaria 58, 63, 85, 86, 87
 palaeolatitude, high 25, 32
 palynomorphs 25, 32–40
Palaeoneilo 52
Palaeonucula 52
 'Palaeosmilia' 394
Palaeospirolectammina tchernyshinensis 373
 palaeotaxodonta 52
 Palaeotethys Ocean 47
 palmatolepid–bispathodid biofacies 329, 331
Palmatolepis 442
 annulata Events 292, 293, 299, 300, 301, 306, 307, 308,
 311, 319, 322, 328, 329, 330, 331
 Palmatolepis crepida zone 244, 276
 Palmatolepis gonioclymeniae 363, 410
 Palmatolepis gracilis expansa zone 356, 362
 Palmatolepis gracilis gracilis 276, 306, 307, 308, 311,
 319, 320, 328, 329, 330, 331, 363
 Palmatolepis gracilis manca 301
 Palmatolepis gracilis semisigmoidalis 300, 301, 306, 307,
 308, 311
 Palmatolepis gracilis sigmoidalis 292, 300, 301, 306,
 307, 308, 311, 319, 328, 330
 Palmatolepis linguiformis zone 238, 243, 244, 245, 252
 Palmatolepis marginifera 292, 300, 301, 328
 Palmatolepis marginifera marginifera zone 276, 292,
 305, 310
 Palmatolepis rhenana zone 238, 239, 244, 245, 246, 252
 Palmatolepis rhomboidea zone 252
 Palmatolepis rugosa trachytera zone 276, 292, 310
 Palmatolepis triangularis zone 239, 243, 245, 252, 301
 Palpebralia 254, 259, 260, 261
Palpebralina 253, 254, 259, 260–261, 262
 palynomorphs
 Appalachian Basin 153–154
 Falkland Islands 28, 29, 30, 31–40, 31
 Prague Basin 135–137
 Rhenish Massif 72–73
Panderodus 15, 214, 216
pandora beta–gilberti biozone 15, 17, 19
 Panthalassic Ocean 440
Paprothites 366
Paracryphaeus ebbae 70
Parahomalonotus 52
 Paraná Basin
 correlation with W. Falkland 35
 Famennian diamictite 445, 446
 pararhenotypic subfacies 50, 51, 54, 56, 57, 71, 74, 78,
 80, 101
 Paraspirifer 46, 52, 55, 85, 86, 89, 93, 98, 103
 systematic palaeontology 97–101
 Paraspirifer conradi 100
 Paraspirifer cultrijugatus Fauna 85, 87, 90, 91
 Paraspirifer (Laurentispirifer) 90, 93, 98, 100, 103
 Paraspirifer (Mos.) 89, 99, 104
 Paraspirifer (Mos.) longimargo 85, 86, 89, 103
 Paraspirifer (Mos.) sandbergeri 63, 66, 85, 86, 98,
 99, 103
 Paraspirifer (Par.) 89, 104
 Paraspirifer (Par.) cultrijugatus 58, 59, 64, 85, 87, 88, 91,
 92, 93, 97, 98, 104
 Paraspirifer (Par.) curvatissimus 91
 Paraspirifer (Par.) frechi 91
 Paraspirifer (Par.) globosus 86
 Paraspirifer (Par.) praecursor 58, 59, 85, 86, 87, 88,
 98, 103
 Paraspirifer praecursor–cultrijugatus 85
 Paratikhinella 176
 Parawocklumeria 366, **370**
 Parawocklumeria paradoxa zone 366, 371
 Parnafba Basin
 Famennian diamictite 444, 445, 446, 455
 Mid-Tournaisian diamictite 445, 450, 455
 Viséan diamictite 445, 451
 Pasel Formation 71, 78
Patrognathus andersoni 364
Patrognathus crassus zone 373
Patrognathus variabilis 364, **365**
Patrognathus variabilis zone 371, 373
Paulinella 54
Pedinopariops 55, 91
 pelagic facies, Rhenish Massif 57
 pelecypods
 Kellwasser Events 238
 Rhenish Massif 51, 52, 53, 54, 56, 57, 72, 78, 90
Pelekysgnathus 276, **365**, 391
 pelmicrite, Blankenheim section 181, 182
 Pentamerida 51, 52, 56, 92
 Perdepoort Formation, Famennian diamictites 449
 Permian–Triassic extinction event 150, 153
 Peru, Famennian diamictites 445, 449
pesavis biozone 11–12, 15, 19
 Pesche Formation 81, 82, 88
 Petit-Mont mudmounds 237, 239, 240, 243–244, 246
 Phacopidae 251, 253, 254, 256–257, 261
 Phacopinae 52
Phacops 52, 54, 55, 366
 Philippeville Anticlinorium 236, 237, 238–239, 241,
 242, 246
Phillipsastrea 244, 246
 Phillipsiidae 393
Phoebodus 276, 396
 phytoplankton
 Hangenberg Crisis, extinction 390, 395
 Late Palaeozoic Blackout 443
 see also acritarchs; prasinophytes
Pinacites jugleri 92, 124, 150
 Pirclymeniidae 338–339
 placoderms, Hangenberg Crisis, extinction 390, 396

- Planitornoceras euryomphalum* 302, 309, 310, 312
Planitornoceras euryomphalum zone 292, 302, 309
 plants
 evolution and diversification 1, 440
 Hangenberg Crisis, extinction 390, 395
 Prague Basin 130
 Rhenish Massif 54, 71, 72, 78
Platyceras 52
Platyclymenia (Pl.) 306, 307, 309, 313, 317, 323
Platyclymenia (Pl.) *annulata* 291, 303, 313
 see also annulata Event
Platyclymenia (Pl.) *annulata richteri* 303, 307, 308, 311, 313, 315, 316, 317, 341
Platyclymenia (Pl.) *annulata rotundata* 311, 316, 324, 341
Platyclymenia (Pl.) *annulata* zone 291, 292, 303–305
Platyclymenia (Pl.) *latecostata* 317, 326
Platyclymenia (Pl.) *levata* 306, 307, 308, 309, 311, 316, 341–342
Platyclymenia (Pl.) *quiringi* 303, 313, 324
Platyclymenia (Pl.) *subnautinlina subnautilina* 303, 306–309, 311, 313, 315, 316, 317, 324, 326
Platyclymenia (Tri) *protacta* 303, 308, 311, 313, 317, 324
Platyclymenia (Tri) *spinosa* 313, 324
Platyclymenia–*Guerichia* biofacies 325, 344
Platyclymenia–*Prionoceras* biofacies 321, 325, 343
Platyclymenia–*Prionoceras*–*Erfoudites* biofacies 325, 344
Platyclymenia–*Prionoceras*–*Erfoudites*–*Loxopteria* biofacies 323, 325
Platyclymenia–*Protactoclymenia*–*Guerichia* biofacies 325, 344
Platyclymeniidae 339–343
Platyorthis 52, 53, 55, 67
Platyorthis circularis 79
Platyorthis circularis circularis 79, 81
Platyorthis circularis taunica 74, 75, 76
Platyorthis circularis transfuga 85
Platyorthis verneuili 61, 68
Playfordites tripartitus zone 252
Plebejochonetes 53
Plebejochonetes semiradiatus 64, 79, 80, 85
Plebejochonetes unkelensis 58, 74, 75, 77, 78
Plectodonta 57
Pleuroclymenia 306, 309, 310, 321, 343
Pleurodictyum 52, 64
Plicostropheodonta 52
Plicostropheodonta spp. ex gr. *murchisoni* 74, 76
Plicostropheodonta virgata 79
Podolella 67
 Poland, Taghanic conodont biofacies 202–218
Polyedryxium 137, 142, 143, 147, 145
Polygnathus 204, 205, 219, 365, 392
 annulata Events 293, 300, 301, 328, 329, 330
 see also Icriodus/*Polygnathus* ratio
Polygnathus alatus 211, 219
Polygnathus ansatus 205, 207, 209–210, 211, 213, 214–215, 217, 219
Polygnathus ansatus zone 224, 227, 229
 global record 211–215
 SE Poland 202, 205, 209, 211
 see also ansatus–*semialternans* zonal boundary
Polygnathus costatus costatus zone 93, 123
Polygnathus costatus partitus zone 89, 92, 93, 124, 127, 131
Polygnathus ensensis zone 176
Polygnathus hemiansatus 215
Polygnathus homoirregularis 301, 328
Polygnathus laticostatus zone 89
Polygnathus linguiformis 176, 177, 205, 207, 209, 210, 211, 214, 217, 219
Polygnathus margaritatus 301, 328
Polygnathus parapetus 363
Polygnathus pseudofoliatus 211, 219
Polygnathus purus 363
Polygnathus semicostatus 301, 328
Polygnathus spicatus 363
Polygnathus styriacus 299
Polygnathus styriacus zone 292, 301
Polygnathus subirregularis 301, 328
Polyzygia 176
 Pont d'Arcole Formation 362
 Ponta Grossa Formation
 correlation with Fox Bay transgression 34, 35
 Famennian diamictite 445, 446
 Port North-Dunbar, palynomorphs 28, 31–32
 Port Philomel Formation 27, 28, 30, 35–37
 correlation 38, 39
 palynomorphs 35–37
 transgression 36
 uppermost 36–37
 Port Stanley Formation 27, 28
 correlation 38–39
 palynomorphs 31, 37
 Port Stephens Formation 26, 27, 28, 39
 correlation with South Africa 38
 palynomorphs 29, 33
Posidonia 395, 452
Postclymenia 366, 367, 368, 392
Postclymenia evoluta 361, 366, 366, 368
Postclymenia evoluta zone 366–367
Posttornoceras 321, 333, 367
Posttornoceras ascendens 313, 324, 333
Posttornoceratidae 333, 370
 Poti Formation, Viséan diamictite 445, 451, 455
Praedaraelites 452
Praeglyphioceratidae 335–336
 Pragian Stage, Rhenish Massif 49, 59, 60
 transgression 103
 Pragian–Emsian boundary 73
 Pragian–Zlichovian boundary 81, 103
 Prague Basin
 Basal Chotéč Event 123, 124, 125, 126, 127–130, 149
 dacryoconarids 126, 130, 135, 153
 palynology 124, 127, 149
 stratigraphy 126, 127
 Prague Synform, magnetic susceptibility 21
 prasinophytes
 disaster species 149
 Falkand Islands 30, 31, 32, 33, 37
 Late Devonian–Mississippian 443
 Prague Basin 130, 135–137, 149
 Pridolian Stage
 palaeoenvironment 67–68
 Rhenish Massif 49
 brachiopods 59, 61–68, 102
 sea-level 67–68
 transgression 67–68, 102

- Pridolian–Eifelian, brachiopods 45–104
 Prioniodinida 17, 19
 Prioniodontida 17, 19
 Prionoceras 303, 304, 306, 307, 308, 309, 311, 312, 313, 315, 317, 321
 Prionoceras *frechi* 303, 307, 308, 309, 311, 312, 313, 315, 317
 Prionoceras Genozone 291
 Prionoceratidae 367, **370**, 392
 Prochernyshinella *disputabilis* zone 373
 Procymaclymenia 313, 319
 Procymaclymenia *ebbighauseni* 305, 313, 318, 327
 Procymaclymenia *ebbighauseni* zone 292, 304, 305, 319
 Procymaclymenia *pubica* 305
 productellids 91
 Proetidae 251, 253, 254, 259–262, 263–264
 Prokopia 57, 91
 Prolobites zone 293
 Proschizophoria *personata* 58, 74, 75, 76, 77, 82
 Proschizophoria *torifera* 58, 68, 69, 71
 Proscocoelus 52
 Protacrodus 276
 Protactoclymenia 303, 305, 308, 309, 311, 321, 336–337, **370**
 Protactoclymenia *aff. enkebergensis* 310
 Protactoclymenia *aff. implana* 306, 309, 310, 314, 337
 Protactoclymenia *aff. lagowiensis* 313, 324
 Protactoclymenia *aff. subcostata* 306, 309, 316, 317, 327, 336–337
 Protocortezorthis *fornicatimcurvata* 62, 68, 69
 Protognathodus Fauna 363
 Protognathodus *kockeli* 299, 357, 359, 363
 Protognathodus *kockeli* zone 357, 362, 364, 371, 373, 374, 389–390
 Protognathodus *kuehni* 359, 363, 390
 Protornoceras *ornatum* 306, 309, 310, 312, 331
 Protosalvinia 444
 Protoxyclymenia 318
 Protoxyclymenia *cf. wendti* 327
 Protoxyclymenia *dunckeri* 292, 304, 313, 317, 324, 327
 Prüm Syncline 86, 89, 91, 92, 173
 Pseudarietites 366
 Pseudarietitinae 369
 Pseudoleptostrophia *dahmeri* 58, 79, 80, 81, 83
 Pseudooneotodus *beckmanni* 15
 Pseudopalmula 176
 Pseudopolygnathus **365**, 392
 Pseudopolygnathus *granulosus* 299, 300, 306, 308, 311, 319, 322, 328, 330
 Pseudopolygnathus *granulosus* zone 292, 300, 308, 310, 311, 319
 Pseudopolygnathus *graulichi* 363
 Pseudopolygnathus *marburgensis trigonicus* 363
 Pteriomorphia 52
 Pteroparia 253, 254, 259
 Pterospermella 446
 Pudoproetus 393, 413
 Pugnaria 321
 pumilio event 2, 3

 Quadrifarius *dumontianus* 55, 58, 59, 61, 62, 63, 65, 68
 Quadrifarius *dumontianus* fauna 67, 68, 102
 Quadrifarius *magnus* 65
 Quadrithyris 53, 55, 86
 Quasiendothyra 396
 Quasiendothyra *kobeitusana* 361, 371, 373
 Quasiendothyra *kobeitusana* faunas 394
 Quasiendothyra *konensis* 371
 Quiringites 55

 Rabienops 393
 Rad Interval zone 293
 Radiizonates *arcuatus-lanzonii* zonal boundary 443
 radiolarians, Prague Basin 128
 Raistrickia *clavata* **443**, 450
 Ramersbach Formation 75
 Ramochitina *magnifica* 27, 30, **32**, 34–35, 37
 Rauchkofel Limestone, megaclasts 11–21, 14, 20
 receptaculitids 55
 Reduviasporonites *stoschianus* 143, 144, 145, 146, 147, 148, 149, 150, 153–154
 reefs
 DCB, extinction 393–394
 Lochkovian 11
 regression 102
 Emsian 80, 83, 90
 Giventian 210
 Hangenberg 359, 374, 413–414, 416
 Lochkovian–Pragian 11–12, 16, 19, 20, 70–71, 102
 Port Stanley Formation 28
 Pragian 78
 remagnetization 184, 186, 193
 Remscheid Anticlinorium 61, 68, 69
 Remscheid Group 86, 90
 Rensselaeria 54
 Resserella 53
 Reticulatisporites *magnidictyus* 39, **443**, 451
 Retispora *lepidophyta* 37, 370, 371, 395, 441, 443, 444, 446–449, 454, 456
 Retusotriletes 143, 148
 Retusotriletes *goensis* 29, **32**, 33
 Retusotriletes *rotundus* 146
 Retzia 54
 Reudelsterz Formation 79, 83
 Rhabdosporites 147, 149
 Rhacophyton 395
 Rheic Ocean 47, 173
 Rheingoldium 52
 Rheinisches Schiefergebirge 171, 172
 depositional facies 173–174
 geological setting 172–174
 Rheinopteraspis 54, 72
 Rhenish Gap 59, 69, 102
 brachiopods 62, 71–73
 palaeoenvironment 73–74
 Rhenish Massif 48
 brachiopods 45–104
 biostratigraphy 57–60, 61, 69, 72, 76–77, 87
 biozonation 58–59, 58
 correlation 77, 87
 DCB 358–361, 366–367, 368, 388–390
 sea-level change 397, **398–399**
 evolution 102
 facies 46, 47–48, 50–52, 101–102
 subfacies 52–55, 101–102
 geological setting 47
 Hangenberg Crisis 452–453

- Rhenish Massif (*Continued*)
 palaeoenvironment 67–68, 70–71, 73–74, 77–78, 83,
 89, 92–93, 101–104
 palaeogeography 47
 spiriferide biozonation 57–58, 59
- Rhenish neritic facies 48, 50, 55, 361
- Rhenish Standard Succession 357, 358–361, 390, 401, 417
- Rhenocynproetus* 55, 91
- Rhenohercynian Basin 173
 Devonian–Carboniferous Boundary 358–361
 remagnetization 184, 186, 193
- Rhenohercynian Fold and Thrust Belt 47, 173
- Rhenops* 52
- Rhenorensseleeria* 52, 54, 77
- Rhenorensseleeria demerathia* 58, 74, 75, 77
- Rhenorensseleeria strigiceps* 58, 74, 75, 76, 77, 78
- Rhenoschizophoria* 52
- Rhenoschizophoria provulvaria* 74, 75, 76, 79, 81
- Rhenostropheodonta* 52, 85
- Rhenostropheodonta piligera* 58, 66, 85, 86, 87, 89
- Rhenostropheodonta rhenana* 58, 66, 85, 86, 87
- Rhenothyris aequabilis* 66, 91, 93
- Rhenothyris compressa* 85, 87, 89
- rhenotypic facies 46, 47–48, 50–52
 brachiopod biostratigraphy 57
 distribution and limits 55–57
 subfacies 50, 52–55
- Rheris Basin 294, 319, 321, 323
 correlation with Maider Basin 323, 325, 327
- Rhinestreet Event 2, 3
- Rhipidomella subcordiformis* 91
- Rhipidothyris* 25
- Rhynchonellida 51, 56, 238
- Rhyssochonetes aurora* 224
- Rimmert Group 81, 83
- Rittersturz Formation 80
- Rixauxia* 394
- Rockwell Formation, Famennian diamictite 408, 449
- Romer's Gap 396
- Rozmanaria* 394
- rudstone, Carnic Alps 17, 18
- Rudybole* 253, 254, 259, 260, 261, 264
- Rugospora australiensis* 443, 451
- Rugospora flexuosa* 371
- Rugospora radiata* 37
- Ruisseau des Roches 64–65, 67, 68
- Rupbach Formation 92
- Ryocarhynchus tumidus* 238, 242, 245
- Sabellarifex* 51
- Saint-Joseph Formation 88, 89
- Santa Cruz Formation 56, 77, 83
- São Domingoes Formation, correlation with Fox Bay
 Formation 35
- Sartenaerirhynchus* 74, 95–97
- Sartenaerirhynchus antiquus* 58, 79, 81, 85, 96, 97
- Sartenaerirhynchus frontecostatus* 58, 96, 97
- Saxler Event 78, 83, 103
- Saxler Formation 75, 78, 79, 81
- Scabricutellum* 55
- Scaphignathus velifer leptus* 300, 306, 311, 319, 322,
 328, 330
- Scaphignathus velifer velifer* 293, 306, 308, 311, 319,
 322, 328, 330
- Scaphignathus velifer velifer* zone 292, 299–301, 308,
 310, 311, 319, 329
- '*Schizocystia*' *bicornuta* 443
- Schizophoria* 53, 245
- Schizophoria schnuri blankenheimensis* 176, 178
- Schizophoria vulvaria* 88
- Schleiden Formation 80, 83
- Schmallenberg Formation 87, 91
- Schmidtognathus hermanni* zone 224, 227, 230
- scolecodonts 30, 32, 135, 136, 137, 142, 143,
 147, 148
- Scoliopora* 244
- Scutelluidae 55, 253, 254, 255, 256, 264, 266–268
- sea-level change
 Devonian–Carboniferous Boundary
 glaciation 405, 408, 410, 416–417
 lithology 396–402
- Eifelian Stage 92–93
- Eifelian–Givetian boundary 171, 193
- Gedinnian 70–71
- Hangenberg 357, 359, 389, 396–402, 417
- Lochkovian–Pragian boundary event 12
- Pridolian 67–68
- Rhenish Gap 73–74
- Siegenian 77–78, 83
see also Taghanic Global Biocrisis
- Seewarte Limestone 12, 13, 14, 17
- Seifen Event 78
- Seifen Fauna 75, 78
- Seifen Formation 75
- Seiler palaeovalley 359, 452
- Selinsgrove Member 131, 132, 133
- Sellanarcestes* 88, 89
- semialternans* zone 227, 229, 230
- semichatovae* Event 2, 3
- Semitextularia* 176
- Seneca Member 131, 132, 133
- Septabrunsiina* 373
- Septathyris* 52, 74, 76
- Shaleria rigida* 58, 61, 65
- Sieberella* 53
- Siegen Normal Facies 77–78
- Siegenian Stage, Rhenish Massif 46, 49, 59–60
 fauna 102
 lower, brachiopods 71–74
 middle and upper, brachiopods 74–78, 102
 palaeoenvironment 77–78
 transgression 77–78, 83, 103
- Siegenian–Emsian boundary 81–82, 83, 101, 103
- Siesel Formation 81, 83
- Silberg Formation 61, 69, 71
- Silurian/Devonian Boundary Event *see* Klonk Event
- Singhofen Group 83
- Siphonodella* 357, 442
- Siphonodella crenulata* zone 357, 361, 364
- Siphonodella (Eo.) homosimplex* 364
- Siphonodella (Eo.) praesulcata* 299, 355, 357, 363,
 388–389, 440
- Siphonodella (Eo.) praesulcata* zone 371
- Siphonodella (Eo.) sulcata* 355, 356, 357, 363–364,
 371, 374
- Siphonodella (Eo.) sulcata* zone 390, 440
- Siphonodella isostichia*, carbon isotope excursions
 453–454

- Siphonodella (S.) cooperi* subzone 373
Siphonodella (S.) jii 357, 363, 373, 375
Siphonodella (S.) obsoleta subzone 373
Siphonodella sandbergi zone 373
Skolithos 51, 54
Sobolewia 306, 309, 312
Soliclymenia 366
 Solières Formation 77
 Solimões Basin
 Famennian diamictite 444, 445
 Mid-Tournaisian diamictite 445, 450
Sollispirifer 52, 53, 85, 87, 90, 104
Sollispirifer dahmeri 58, 59, 85, 86, 87, 92
Sollispirifer gracilis 85, 87
Sollispirifer mosellanus 58, 59, 66, 85, 86, 87, 88, 104
Sollispirifer schreiberi 87, 91, 92
Sollispirifer steingeri 85, 87
 South Africa
 correlation 34–35, 36, 37–40
 Famennian diamictites 445, 449
 mid-Tournaisian diamictites 445, 450
 South America
 correlation 34–35, 36, 37–40
 miospore biostratigraphy 440–441
 South Harbour Member 27, 28, 39
 correlation 38
 palynomorphs 29, 33, 38
 South Oscar Range, Canning Basin 273, 275, 276
 thelodonts 277–280, 283–286
 Spechty Kopf Formation, Famennian diamictite 408, 410, 445, 449, 455
Spelaotriletes 371, 443, 450
 ‘*Sphenoclymenia*’ *brevispina* 364
Sphenospira 394
 Spinotti Limestone 12, 13, 21
Spirifer cultrijugatus 87, 97
 Spiriferida
 Rhenish Massif 45–46, 53, 55–56
 biozonation 57–58, 59
Spirophyton 51, 54, 444
 Spitznack Event 83, 103
 Spitznack Formation 80, 82
Sporadoceras 302, 370
Sporadoceras angustisellatum 302, 306, 310
Sporadoceras muensteri muensteri 335
Sporadoceras muensteri orbiculare 292, 305, 335
Sporadoceratidae 333–335, 370, 392
 spores
 Appalachian Basin 134, 146, 148–149
 Basal Chotěč Event 150–151
 Prague Basin 135, 137
 Spring Gap MD, palynomorphs 146–147, 148
 Stadtfeld Event 83, 103
 Stadtfeld Formation 79
 Stavelot-Venn Island 90
Stellinium micropolygonale 443
Stenoclymenia rectangula 317, 326, 339–341
Stethacanthus 276
 Stockum Limestone 357, 359, 360, 363, 390, 396, 401, 408, 409
 Stony Hollow Event 2, 3, 141, 145, 151, 191, 194
Straelenia dunensis 79, 81
Strepsodus 396
Striatostyliolina mima 138, 139, 141, 152, 155–156
Striatostyliolina vitta 138, 139, 141, 152, 156
Stringocephalus burtini 12
 stromatoporoids 55, 56, 252
 Blankenheim section 176
 Carnic Alps 12, 15, 17, 19
 DCB, extinction 390, 393–394
 Strophomenida 51, 52, 53, 176
 strophomenides 56, 91
 Strunian substage 356, 357, 361
 stromatoporoids and corals 393–394
Styliolina 138, 139, 141, 150, 152, 155
Subcuspidella 52, 53, 55
 ‘*Subcuspidella*’ *crassifulcita* 86, 90
 Subcuspidella ex gr. *subcuspidata* 85
 ‘*Subcuspidella*’ *lateincisa* 86
 ‘*Subcuspidella*’ *wetteldorfensis* 86
 Suchomasty Limestone 126, 127
Sulcocylenia sulcata 292, 300, 302, 306, 310, 314, 338–339
Sulcocylenia sulcata zone 292, 302–303, 309
 sulphur, carbonate/siliciclastic facies 185, 187
Synaptophyllum 141
Synorisporites tripapillatus 29, 32
Synwocklumeria 365–366, 370
Syringothyris 413

 Table Mountain Group 37, 38, 39
 Tafalalt, *annulata* Events
 ammonoids 302–305, 308–309, 312, 314, 316
 conodonts 299–302, 319, 327–331
 Tafalalt Basin 294, 315, 321, 323
 Tafalalt Platform 293–294, 309, 313, 314, 321, 323
 conodont biofacies 212, 214, 216, 217
 Taghanic Global Biocrisis 1, 2, 37, 38–39
 carbon isotope record 223–230
 migration 152, 153, 216, 224–225
 Taghanic Onlap 223, 224, 227, 229, 230
 Taghanic transgression, conodont biofacies 201–218
 Tahara Formation, Famennian diamictites 445, 449
Tanaissognathus 365, 391
 Tarija Basin, Famennian diamictite 446–447
Tasmanites 135, 136, 137, 142, 143, 145, 148
 Taunusquartzit Group 76, 78, 83, 103
Teichostrophia 55, 66, 91
 Telatyń Formation 203
Telopeltis 253, 254, 255, 256, 263, 264, 266–268
 extinction 261
 pesticide 57, 243
Tentaculites 51, 53, 54, 134
 tentaculitoids, Rhenish Massif 51, 53
Tenuicostella 52
Terebratulina antiqua 96–97
 Terebratulida 51, 52, 53, 54
Tetratoma amanshauseri 88
 Th/U ratio 187, 191, 192
Thamnopora 176
 thelodonts, Famennian 273–286
 palaeobiogeography 284–286
 South Oscar Basin 273, 277–280, 281–286
 Tien-Shan, conodont biofacies 212, 214–215, 216
 Timan Event 2, 3
 Timrhanrhart Formation 88
 titanichthyids 396
Tolmaia 52

- Toregua Formation, diamictite 445, 446–447
Tornoceras 35, 36
 Tornoceratidae 331–333, **370**
 Tornquist Sea 173
Torosospirifer crassica *crassica* 79, 81
Tortodus 211, 214, 216, 217
Tortodus kockelianus zone 176, 192
 total organic carbon, carbonate/siliciclastic facies 185, 187, 188, 189, 190
 Tournaisian Stage 357, 358, 360, 369
 biostratigraphy 442
 carbon–nitrogen isotopes 453–454, 456
 extinctions 392–397
 glaciation 445, 449–450, 455
 transgression 401
Tournayellina 373
 trace fossils, Rhenish Massif 54
trachytera–styriacus Interregnum 292, 301
 Trans-Continental Arch 224, 225
 transgression 102
 Eifelian 36, 92, 93, 193
 Emsian 33–35, 83, 88, 89–90, 103
 Famennian 292
 Frasnian 239–243
 Givetian 201, 209–211
 Hangenberg 374, 389, 416–417, 453
 Lochkovian–Pragian event 12, 16, 19, 20, 73–74
 Onondaga Formation 131, 152
 Pragian 78, 103
 Pridolian 67–68
 Siegenian 77–78, 103
 Taghanic 201, 209–211
 transgressive–regressive cycles
 Eifelian–Givetian boundary 171, 193
 Emsian 83, 89–91, 130
 Frasnian, Namur–Dinant Basin 240–243
 Givetian 204, 209, 210
 Hangenberg 396–402, 453
 Lochkovian–Pragian 11–12, 16, 19, 20, 73–74
 Zinzilban Event 77–78, 103
 Třebotov Formation 89, 90, 126, 127–128, 135
Treveropyge 52, 54
Triangulina alargada 148, 149, 150
 trilobites 91, 179
 Blankenheim section 176, 177, 178, 180
 DCB, extinction 392–393
 Falkland Islands 33
 Frasnian–Famennian boundary 251–268
 evolution 252–261
 environmental factors 262–265
 eye size 253, 255–257, 259–261, 263–265
 extinctions 261–262, 265–266
 Kellwasser Events 251–252
 Prague Basin 130, 135
 Rhenish Massif 51, 52, 53, 54, 55, 56, 57
Trimerocephaloides 253, 254, 256–257
Trimerocephalus 254, 257, 264, 321
Tropidocoryphe 55
 Tropidocoryphidae 254, 259–260, 261
Tropidoleptus 25, 36, 38, 52, 56
Tropidoleptus rhenanus 58, 66, 74, 75, 76, 77, 79, 80, 81
 tsunamite 237, 243, 244, 246
 tube worms, Blankenberg section 179, 181
Tulerpeton 396
 Tully Fauna 224, 226, 227, 230
 Tully Formation 224, 225, 226, 227, 228, 229–230
Tumulispora 31, **32**, 37, 371
 turbidites 50, 54, 57
Turinia 283–284
Tyligmasoma alargada 29, **32**, 34, 35

Uexothyris fauna 93
Uexothyris–Gerothyris synchrony 93
 Ulmen Group 81–82
Umbellasphaeridium deflandrei **32**, 443
Umbellasphaeridium saharicum 31, 37, 443, 446, 447, 454, 456
Umbonatisporites distinctus 371
Uncinulus frontecostatus 74
Uncinulus orbignyianus 91
 unconformities
 Appalachian Basin 229–230
 Hangenberg Crisis 400, 405, **406–407**, 417
Ungusporadoceras 303, 309, 321
Ungusporadoceras unguiferum 308, 311, 313, 314, 315, 335–336
 Unkel Formation 75
 Upper Kellwasser Event 2, 238–239, 242, 243, 245, 246, 252, 254, 265
 Upper Siegen Group 75
 Upper Zlíčov Event 2, 3, 83, 103
Urnochitina urna 65

Vallatisporites hystricosus 446
Vallatisporites vallatus 371, 443, 446
Vandercammenina cf. *trigeri* 74
Vandercammenina? latistriata 176, 178
Vandercammenina rhenana 74, 78
Vandercammenina sollei 73
 Variscan Orogeny 47
 Velbert Formation 361
velifer–stabilis Interregnum 292, 301–302, 305, 308, 311, 318, 319, 320, 331
 Venn Anticlinorium 61, 65, 67, 69, 74
Verrucosisporites cf. *V. polygonalis* 143
Verrucosisporites famenensis 31, **32**, 37
Verrucosisporites nitidus 371, 441, 443, 448–449
Verrucosisporites premnus 30, **32**
Verrucosisporites quasigobbettii **443**, 451
Verrucosisporites scurrus 27, 30, 31, **32**, 36, 37
 vertebrates, Hangenberg Crisis 390, 396
 see also fish
Veryhachium polyaster 147, 148
Veryhachium trispinosum 136, 137
Vetupraeca 323
 Virgin Hills Formation 252, 253, 254, 255–268
Viriatellina 138, 140, 141, 150, 152, 159–160
 Viséan Stage
 biostratigraphy 442
 glaciation 445, 450–452
 volcanism, and climate change 415, 417

 Waaipoort Formation 450
 Wagen Drift Formation 36, 38, 39
 Wagnerbank 292, 293
 Wagnerbank Equivalents 301, 303–304, 305, 307, 309, 311, 313, 321, 331

- Wahnbach Formation 76
Waltzispora lanzonii 443
Warburgella 68, 70
 Waulsortian Mounds 393
 Weaniinae 393
 West Falkland 26
 correlation 34–35, 36, 37–40
 palynomorphs 28, 29, 30, 31, 33–37
 regression 38–39, 40
 transgression 33–35, 39, 40
 Wetteldorf Formation 86, 88, 90, 104
Weyerella 369
Weyerites 393
 Wied Group 76, 78
 Wiltz Formation 86, 88, 90
Wiltzops 52
 Wissenbach facies 93
 Wissenbach Formation 57, 89, 91, 92
 Witpoort Formation 39–40
 correlation 38, 39
 Witteberg Group 36, 37, 39
 Famennian diamictites 445, 449
 Wocklum Limestone 357, 358, 360, 364–365, 366, 371,
 397, 400
Wocklumeria 366, 371
 Wocklumeriidae 365–366, **370**
 Wolfenbach Member 91, 92, 93
Wurmiella excavata 15
 Xenosporadoceratinae 333–335
Yeothyris Fauna 93
Zadelsdorfia 366
 Zap Fauna 396
 ‘Zaphrentis’ 52
Zieglerodina remscheidensis 15, 65, 70
 Zinzilban Event 77, 103
 Zlíchov Event *see* Basal Zlíchov Event; Upper
 Zlíchov Event
 Zlíchov Limestone 21, 82, 126
Zonotriletes 29, **32**, 33
 Zweifall Formation 83
Zygobeyrichia 53