

# THE FERN GAZETTE

## INDEX to Volume 15

Names in bold indicate new taxa or combinations. Page numbers in bold indicate a diagram, illustration or map.

- Abacopteris multilineata* 277  
Abana (Turkey) 169  
*Abies* 120, 127, 131, 138, 171, 172, 174, 176, 178, 179, 191  
  *bornmuelleriana* 169  
  *cilicicaz* 133  
  forest 126  
  *nordmanniana* 169  
*Acacia* 4  
*Acer* 75, 123, 128, 171, 173–175, 179  
  *campestre* 86, 169  
  *pseudoplatanus* 11, 13, 19, 58, 291, 292, 300  
  *trautvetteri* 169  
acetic acid (glacial) 27, 43  
acetic alcohol fixative 87  
acetocarmine squash 23, 27, 43, 141  
acetolysis of microspores 104  
aceto-orcein 87, 89  
  squash 87  
Aché people 221, 223  
acid soils 283  
acid ecto-organic layer 305  
acidified substrate 306  
acidophilous species 298  
aconitase 209  
Acre state (Brazil) 157  
*Acrosorus*  
  *friderici-et-pauli* 215  
  in Thailand key 215  
  *streptophyllus* 215–16  
  *triangularis* 215  
*Acrostichum* 21  
  *aureum* 277, 278  
  *calomelanos* 234  
  *ebeneum* 234  
  *nodosum* 228  
  *polypodioides* 92, 95, 251  
  *polytrichoides* 95  
  *serratifolium* 244  
  *tenerum* 244  
  *trifoliatum* 235  
*Actiniopteris*  
  *dichotoma* 144  
  *radiata* 141, 144, 145  
    meiosis in spore mother cells **143**  
acute toxic syndrome 277  
Adana (Turkey) 119, 120, 122, 125–127, 129, 133  
Adapazari (Turkey) 121, 124–126, 128, 130, 132  
Adiantaceae 119, 170  
Adiantoideae 270  
*Adiantopsis*  
  *chlorophylla* 231  
  *radiata* 231, 256  
  *ternata* 231  
*Adiantum* 169, 272  
  *aethiopicum* 4  
  *amabile* 232  
  *capillus-veneris* 117, 121, 141, 144, 146, 170, 188–191, 278  
    distribution in Turkey **134**  
    distribution in Turkish Black Sea eastern region **182**  
    distribution in Turkish Black Sea western region **182**  
    new records for Turkey **134**  
  *cuneatum* 144, 232  
  *decorum* 232  
  *diaphanum* 269, 270, 271, 272  
  *humile* 232  
  *kaulfussii* 232  
  *killipii* 232  
  *lanceum* 237  
  *latifolium* 232, 256  
  *lunulatum* 242  
  *moorei* 232  
  *obliquum* 232  
  *oblongatum* 232  
  *peruvianum* 275, 277, 278  
  *petiolatum* 232, 257  
  *poiretii* 4  
  *pseudo-tinctum* 232  
  *raddianum* 141, 144, 146, 232  
    meiosis in spore mother cells **143**  
  *radiatum* 231  
  *serratodentatum* 233  
  *tetraphyllum* 233

- tinctum* 232
- werckleanum* 232
- adiantum-nigrum-type root 162, 163
- Adiyaman (Turkey) 119, 120, 122, 129
- adverse health effects 283
- aethiopicum-type root 162, 163
- Africa 4, 5, 10, 233, 238, 265
  - eastern 7, 9
  - mainland 92
  - southern 5
  - subtropical 238
  - tropical 238, 245, 271
- Afropteris* 269, 270, 272
  - barklyae* 269, 271
  - repens* 269, 271
- Afyon (Turkey) 120, 125, 126, 129, 130, 132, 133
- agar 27, 65–68
- Agasthiamalai (India) 6
- Aguara Nu (Brazil) 221
- air sampling 281
- Alacam (Turkey) 169
- alatum-type root 162, 163
- aldolase 209
- Algeciras (Spain) 197, 198
- Aljibe mountains ( SW Spain ) 109
- allelopathy 69
- allergy 275, 278
- Alliaria petiolata* 294
- Allium vineale* 295
- allopolyploidy 25–40
- allotetraploid 25, 27, 38, 48
- allozyme
  - banding patterns 217
  - electrophoresis 217
  - genotyping 211
- Alnus* 124, 130–132, 138, 139, 170, 173–175, 177, 180
  - barbata* 169
  - forest 111
  - glutinosa* 19, 169, 191
- Alpine hard-fern 96
- Alsophila* 255
  - atrovirens* 231
  - cuspidata* 231, 257
  - spp. 218
- Amambay (Paraguay) 225, 230, 238, 242, 250
- Amasya (Turkey) 170, 172, 174
- Amauropelta* 240
  - abbiattii* 238
  - pachyrhachis* 239
  - rivularioides* 239
- Amazon
  - basin (South-east Peru) 153
  - Brazilian 75
  - Peruvian 255
  - Peruvian central 157
- America 75
  - arctic zone 71
  - central 81
  - Central 4, 249
  - North 78, 91, 271
    - eastern temperate 226
  - South 4, 91, 95, 150, 228, 231, 234–36, 242
    - northern 231
  - tropical 9, 21, 24, 226, 232, 233, 235–237, 245–48, 251, 252
- amphibious species 116
- Amsterdam Island 95
- Anamallays Hills (India) 1, 5, 6, 8–10
- anaphase 27
- Andalucia 198
- Andean region (Peru) 157
- Andes 226
  - north eastern slopes 75
- Andropogon* 254
- Anemia* 252
  - antheridiogen 64
  - anthriscifolia* 229
  - haenkei* 228
  - phyllitidis* 228, 256, 279
    - var. *tweediana* 229
  - rotundifolia* 275
  - tomentosa*
    - var. *anthriscifolia* 229, 255
    - var. *tomentosa* 229, 255
  - tweediana* 229
- Anemioideae 271, 272
- anemochorous species 291, 298, 303
- aneuploidy 21, 24, 30, 31
- Ankara (Turkey) 120, 127, 129, 131–133, 138
- ANNATINA HESS 64–70
- Annonaceae 254
- Anogramma leptophylla* 2, 121, 188
  - distribution in Turkey **134**
  - new records for Turkey **134**
- Antalya (Turkey) 119–122, 124, 126–129, 132, 133
- antheridia 27, 65–69, 88, 89
  - formation of 67
  - initiation 69
  - precocious 69
- antheridial cell 88
- antheridiogen 64, 68, 69
  - system 67–69
  - in *Asplenium ruta-muraria* 64–70

antheridium 87  
   formation 68  
 antherozoid 87  
*Antigramma* 160, 165  
 Antilles 225, 232, 233, 239, 240, 243, 245, 246,  
   249, 251, 252  
   Greater 228, 229, 237, 244, 245  
 Antipodes Islands 96, 97  
 ANTONIO GALAN DE MERA 109–12  
*Aphyllorcarpa regalis* 228  
 apogamy 30, 38, 69, 141, 145  
 apomictic sporogenesis D<sup>pp</sup>-Mantonian 79  
 aquatic species 116, 252  
 Aquifoliaceae 254  
 Arabian sea 1  
 arable fields 305  
*Arachniodes adiantiformis* 279  
*Arbutus*  
   *andrachne* 169  
   *unedo* 123, 169  
 archegonia 27, 65–67  
 archegonium 69  
 archesporial cells 146  
 Archipelago 5  
 Arctic ecotype 71  
*Arecaceae* 229, 236, 249–51, 254  
 areole 21  
 Argentina 97, 99, 227, 228–32, 234–36, 238, 239,  
   241, 244–47, 249, 250, 252, 258  
   north 235, 238, 240, 242, 243, 250, 252  
   north east 229, 234, 242  
   north west 244, 248  
*Arisarum proboscideum* 202  
 Arizona 272  
 Artvin (Turkey) 119, 121, 123–27, 130–32, 138,  
   139, 170–80  
 Ascension Island 109  
 ASHCROFT, C.J. 205–13  
 Asia 233, 238, 245  
   arctic zone 71  
   central mountains 71  
   eastern 91, 271  
   south eastern 5, 8, 81, 228  
   southern 81  
   western 78  
 aspartate aminotransferase 209  
 Aspidiaceae 131  
*Aspidium*  
   *caesianum* 239  
   *caripense* 240  
   *confertum* 242  
   *eriocaulon* 240  
   *falciculatum* 240  
   *hispidulum* 238  
   *karstenii* 240  
   *lobatum* 218  
   *macrophyllum* 242  
   *martinicense* 242  
   *microcarpon* 240  
   *munitum*  
     var. *imbricans* 218  
   *obtusilobum* 240  
   *ochthodes* 147  
   *pachyrhachis* 239  
   *rivularioides* 239  
   *schomburgkii* 240  
   *truncatulum* 242  
   *uliginosum* 237  
*Aspidosperma* 253  
 Aspleniaceae 64–70, 125, 160–68, **165**, 170, 173–  
   76, 245  
   root anatomy 160–68  
   roots of 161  
   species, occurrences of root types 162  
*Asplenium* 69, 75, 160, 162, 169, 194  
   *abscissum* 163  
   *abyssinicum* 163  
   *achilleifolium* 163  
   *acrobryum* 163  
   *actiniopteroides* 163  
   *adiantum-nigrum* 84, 86, 90, 125, 163, 174, 188–  
     91  
     distribution in Turkey **135**  
     distribution in Turkish Black Sea eastern  
       region **183**  
     distribution in Turkish Black Sea western  
       region **185**  
     new records for Turkey **135**  
     var. *microdon* 83, 85  
   *adiantum-nigrum* † *A. scolopendrium* 83  
   *adulterinum* 25, 163  
     root cortex, cross-section **164**  
   *aethiopicum* 163  
     root cortex, cross-section **165**  
   *aethiopicum* group 160, 166  
   *affine* 163  
   *africanum* 163, 167  
   *aitchisoi* 163  
   *alatum* 161, 163, 166  
     root cortex, cross-section **165**  
   *amboinense* 163  
   *angustum* 163  
   *anisophyllum* 162  
   *annetii* 162

*argentinum* 162  
*atroviride* 162  
*attenuatum* 163  
*aureum* 163  
     root cortex, cross-section 164  
*auriculatum* 163, 245  
*auritum* 163  
*austrobrasiliense* 163  
*billetii* 163  
*billotii* 109  
*bipartitum* 163  
*bipinnatifidum* 163  
*blastophorum* 163  
*blechnoides* 246  
*boltonii* 163  
*brasiliense* 163  
*brassei* 163  
*bugoiense* 163  
*bullatum* 162  
*caudatum* 163  
*caudatum* group 166, 167  
*ceterach* 64, 163  
     subsp. *ceterach* 128, 176, 188–91  
         distribution in Turkey **136**  
         distribution in Turkish Black Sea eastern region **185**  
         distribution in Turkish Black Sea western region **184**  
         new records for Turkey **136**  
*cheilosorum* 89, 146, 163  
*claussenii* 245  
*creticum* 25  
*crinicaule* 5  
*cuneifolium* 90  
     subsp. *woronowii* 175, 188–91  
         distribution in Turkish Black Sea eastern region **183**  
*cuspidatum* 163, 245  
*daucifolium* 163, 167  
*delavayi* 163  
*delitescens*  
     root cortex, cross-section **164**  
*diplaziosorum* 163  
*dissectum* 163  
*divergens* 163  
*dognyense* 163  
*douglasii* 163  
*dregeanum* 163  
*d'urvillei* 163  
*elliottii* 163  
*elmeri* 163  
*enatum* 163  
*ensiforme* 2, 5, 163  
*erectum* 3, 163  
*exhaustum* 163  
*exiguum* 163  
*fabellifolium* 163  
*falcatum* 5  
*feei* 163  
*finlaysonianum* 163  
*fissum* 163  
*fontanum* 162  
*foreziense* 163  
*formosae* 163  
*formosum* 163, 245, 256  
*gemmaferum* 163  
*gibberosum* 163  
*hapalophyllum* 163  
*hausknechtii* 25  
*hemionitis* 163  
*heterochroum* 163  
*hoffmanii* 163  
 hybrids 85  
     × *jacksonii* 83–86  
*laetum* 163, 245  
*lanceolatum* 163  
     var. *microdon* 83  
*lepidum* 25  
     × *lessinense* 25  
*linckii* 163  
*lobulatum* 163  
*longicauda* 163  
*lucidum* 163  
*lugubre* 245  
*lunulatum* 163  
*macrophyllum* 163  
*marinum* 162  
     root cortex, cross-section **164**  
     var. *microdon* 83  
     × *microdon* 83–85  
*monanthes* 116, 117, 163  
*mucronatum* 163, 246  
*myriophyllum* 163  
*nigripes* 163  
*nidus* 5, 163, 167  
*normale* 89, 163  
*obliquissimum* 163  
*obovatum* 163  
     subsp. *lanceolatum* × *A. scolopendrium* 83  
*obtusatum* 163  
*onopteris* 90, 125, 175, 188–91  
     distribution in Turkey **135**  
     distribution in Turkish Black Sea eastern region **183**

- distribution in Turkish Black Sea western region **185**  
 new records for Turkey **135**
- plantagineum* 243  
*plantaginifolium* 243  
*polyodon* 5  
*praemorsum* 163  
*praemorsum* group 166, 167  
 primitive species 166  
*pteropus* 163  
*pulchellum* 163  
*quitense* 163  
*radicans* 163  
*repens* 163  
*rhizophyllum* 163  
*riedelianum* 243  
*riparium* 163  
*rutaceum* 163  
*ruta-muraria* 69, 117, 163  
 antheridial formation **68**  
 antheridiogen system in 64–70  
 comparison of gibberellic acid treated with normally grown prothallus **67**  
 culture medium 65  
 germination under different treatments 66  
 relationship between prothalli cell number and age for different spore treatments **66**  
 spores 64  
 spores cleaning and sterilization of 65  
 subsp. *ruta-muraria* 126, 176, 188–91  
 distribution in Turkey **136**  
 distribution in Turkish Black Sea eastern region **185**  
 distribution in Turkish Black Sea western region **184**  
 new records for Turkey **136**
- sagittatum* 163  
*salicifolium*  
 var. *auriculatum* 245  
*sandersonii* 163  
*scalare* 163  
*schizocarpum* 163  
*schkuhrianum* 245  
*scolopendrium* 12, 19, 84–86, 117, 161, 163, 166, 293, 294, 300, 301, 304–06  
 ditch bank habitat of in the Kuinderbos (Netherlands) **12**  
 subsp. *scolopendrium* 127, 176, 188–91  
 distribution in Turkey **136**  
 distribution in Turkish Black Sea eastern region **184**
- distribution in Turkish Black Sea western region **184**  
 new records for Turkey **136**
- septentrionale* 117, 163  
 subsp. *caucasicum* 126, 176, 188–91  
 distribution in Turkey **135**  
 distribution in Turkish Black Sea eastern region **185**  
 new records for Turkey **135**  
 subsp. *septentrionale* 176, 188, 189, 190, 191  
 distribution in Turkish Black Sea eastern region **185**
- serra* 163  
*serratum* 246, 256  
*sessilifolium* 163  
 species, epiphytic 166  
*subglandulosum* 163  
*suppositum* 163  
*tenerum* 163  
*tenuicaule* 163  
*tenuifolium* 163  
*theciferum* 163, 166  
*thunbergii* 163  
*tocoraniense* 163  
*tomentosum* 236  
*trichomanes* 64, 161, 163  
 subsp. *trichomanes* 173, 188–91  
 distribution in Turkish Black Sea eastern region **184**  
 distribution in Turkish Black Sea western region **184**  
 var. *majus* 117  
 subsp. *quadri-valens* 174, 188–91  
 distribution in Turkish Black Sea eastern region **184**
- trichomanes* group 166  
*trilobum* 163  
*triphyllum* 163  
*tripteropus* 163  
*triquetrum* 163  
*tucumanese* 163  
*tuerckheimii* 163  
*uhligii* 163  
*ulbrichtii* 163  
*unilaterale* 163  
*variabile* 163  
*varians* 163  
*verapax* 243  
*vieillardii* 163  
*virens* 245  
*viride* 174, 188–91

- distribution in Turkish Black Sea eastern region **183**  
*vittaeforme* 163  
*viviparoides* 163  
*volkensis* 163  
*vulcanicum* 163  
*wilfordii* 163  
 root cortex, cross-section **165**  
*wrightii* 163  
*yoshinagae* 163  
*yunnanense* 163  
*zamiaefolium* 163  
*Asplenium* † *jacksonii* 84, 86  
 in situ. 84, 85  
*Asplenium* † *Jacksonii*  
 rediscovered in the wild 83–86  
 asplenium-sclereid 160–62, **164**, **165**, 166  
 asplenium-type root 161, 162  
*Asplenophyllitis* group 83, 84  
 × *Asplenophyllitis jacksonii* 83  
 Asteraceae 254  
 asthma 279  
*Astronium* 253  
 Athirapally 265  
 Athyriaceae 130  
*Athyrium* 169, 271  
*cumingianum* 2, 5  
*distentifolium* 130, 177, 188–90  
 distribution in Turkey **137**  
 distribution in Turkish Black Sea eastern region **186**  
 new records for Turkey **137**  
*felix-femina* 117, 130, 177, 188–91, **200**, 294–96, 301  
 distribution in Turkey **137**  
 distribution in Turkish Black Sea eastern region **186**  
 distribution in Turkish Black Sea western region **185**  
 new records for Turkey **137**  
*flexile* 204  
*irayense* 261  
 Atlantic  
 bryophytes 51  
 coast 117  
 forest 221, 223  
 canopy **224**  
 Ocean 117  
 regions 83  
 species 51  
 Auckland Islands 96  
 Austral Island 41  
 Australasia 91  
 Australia 5, 7, 97, 233, 271  
 eastern 91, 96  
 northern 7  
 autobivalent 145  
 autochory 303  
 Ava Chiripa 223  
 Ava Katuete 223  
*Axonopus* 254  
 Ayancik (Turkey) 169  
 Aydin (Turkey) 119, 120, 122, 124, 126, 129, 133  
 Azollaceae 288  
 Azorean archipelago 116  
 Azores 71, 113, 116, 117  
 Caldiera Rasa 113  
 Flores Island 113  
 Lagoa Lomba 113–15  
 Sao Miguel 113  
 Balikesir (Turkey) 120–33, 138, 139  
*Bambusa guadua* 254  
 Bamhani (India) 101  
 Bangkok 281  
 Bangladesh 5, 6, 9  
 BARCELONA, J.F. 261  
 BARFOD, A.S. 150  
 barochory 303  
 Bartin (Turkey) 170, 174–77, 179  
 Batanes Islands 261  
*Bazzania trilobata* 60  
 Belgium 12, 15, 19  
 Belize 259  
*Belvisia revoluta* 3  
 BENLIOGLU, O. 119–40, 169–92  
 Bermudas 252  
*Betula pendula* 56–58, 61  
 Bhatgaon (India) 101  
 Bhutan 5, 6, 7, 8, 10  
 Biddinghuizen (Netherlands) 300, 301  
 BIDIN, A. 21–24  
 Bilaigarha (India) 101  
 BIR, S.S. 141–49  
 Bitlis (Turkey) 121, 122, 129, 133  
 bivalent 26, 27  
 Black Sea region (ferns) 169–92  
 BLACKMORE, S. 195  
 Blechnaceae 21–24, 91–100, 138, 166, 170, 180, 246  
 Blechnoideae 21  
*Blechnum* 21, 24, 75, 169, 271  
*acutum* 246  
*alpinum* 96

- var. *elongata* 92  
*amabile* 91  
*andicola* 99  
*angustifolium* 247  
*araucana* 99  
*asplenioides* 246  
*australe* 98  
*binervatum*  
     subsp. *acutum* 246, 257  
*blechnoides* 246  
*brasiliense* 247, 255  
*castaneum* 91  
*caudatum* 248  
*corcovadense* 247  
*distans* 96  
*eburneum* 91  
*ensiforme* 247  
*fraxineum* 247, 257  
*gayanum* 98  
     forma *germainii* 98, 99  
*glandulosum* 248  
*goldmanii* 99  
*gracile* 247  
*hancockii* 91  
*hillii* 96  
*homophyllum* 91  
*indicum* 21  
*kunthianum* 247  
*lanceola* 247, 257  
*latiuscula* 92  
*longifolium* 247  
*meridense* 246  
*microphyllum* 98, 99  
*nigrosquamatum* 247  
*nipponicum* 91  
*nivale* 99  
*obtusifolium* 248, 255  
*occidentale* 248, 257, 277  
*parvulum* 93  
*pectinatum* 248  
*penna-marina* 92, 96  
     key to subspecies 93  
     subsp. *alpina* 91–96, **97**, 99  
         cytology 96  
         distribution and habitat 96  
         habit **94**  
         rhizome 96  
     subsp. *boliviana* 91, 98  
         cytology 98  
         distribution and habitat 98  
         habit **94**  
         pinna fertile underside **94**  
         pinna sterile underside **94**  
         rhizome 98  
         scale from base of stipe **94**  
         scale from rachis **94**  
     subsp. *microphyllum* 91, 93, 98, 99  
         distribution and habitat 99  
         habit **94**  
         pinna fertile underside **94**  
         pinna sterile underside **94**  
         rhizome 99  
     subsp. *penna-marina* 91–93, 95, **97**  
         cytology 95  
         distribution and habitat 95  
         habit **94**  
         rhizome 95  
         spores 95  
     var. *boliviana* 93, 98  
     var. *latiuscula* 92  
*penna-marina*, four subspecies 91–100  
*polypodioides* 92, 246  
*spicant* 91, 117, 138, 180, 188–91  
     distribution in Turkey **138**  
     distribution in Turkish Black Sea eastern region **181**  
     new records for Turkey **138**  
*uliginosum* 92, 93, 97  
*unilaterale* 246  
*Bolbitis* 255  
     *guianensis* 244  
     *mexicana* 244  
     *serratifolia* 244, 256  
 Bolivia 75–76, 91, 98, 227, 229, 231, 234, 237, 239, 242, 243, 247–50, 252  
     west 225  
 Bolu (Turkey) 169–71, 175, 176, 178–80  
*Bommeria pedata* 69  
 book reviews  
     Authors of scientific names in Pteridophyta 214  
     Bibliography for gametophytes 268, 273–74  
     Clubmosses ecology and conservation status in lower Saxony and Bremen 216–17  
     Comparative ethnobotanical studies of the Amerindian groups in coastal Ecuador 150  
     Ferns and fern allies, morphology, systematics and biology 90  
     Ferns of Britain and Ireland 204, 214  
     Flora de Mexico, Dryopteridaceae 274  
     Flora de Mexico, Marsileaceae 274  
     Flora Malesiana Series II volume 3 288  
     Holtum Memorial Volume 193  
     Hong Kong Ferns 40

- Index Filicum Supplementum Septum Pro Annis  
1991-1995 260
- Index Filicum Supplementum Sextum Pro Annis  
1976-1990 218
- Pteridology in Perspective 194
- boreal 91
- Borneo 9, 48, 215
- bosque alto 225, 228, 229, 232-42, 245, 246, 249-51  
 disturbed 228, 231, 234, 238, 244, 248, 249, 252  
 habitat description 253  
 on saturated soil 235, 237, 243, 245, 247
- bajo 232, 233, 237, 242  
 clearings 236  
 habitat description 254  
 on saturated soil 231, 236-42, 245, 249, 250, 251
- medio 228, 232-35, 237, 238, 240-42, 245, 246, 248, 250, 251, 256  
 degraded 232  
 dominated by *Myrtaceae* 245  
 habitat description 253  
 on saturated soil 231, 232, 237, 240, 243, 247  
 on *Sorocea* 226  
 river banks 237, 243
- medio-alto  
 disturbed areas 233
- Botrychium*  
*daucifolium* 5  
*lanuginosum* 5
- bovine enzootic haematuria 277
- Brachypodium sylvaticum* 86, 295
- bracken 8, 146, 205, 212, 275, 280, 281, 283  
 adverse health effects **276**  
 carcinogenic constituents 279-80  
 fertile frond 282, **283**  
 infertility 282  
 sporangia **283**  
 spores 279, 283  
 health risk 275, **278**
- sporing 281
- stands 281  
 spores 283  
 sporing 283
- sterile frond **282**
- Brainea insignis*  
 cytology 24  
 ecology and cytology 21-24  
 grown at the University Kebangsaan Malaysia  
 fern garden **22**  
 meiosis **23**  
 on headland of Tanjung Selantai Johor **22**
- Brazil 75, 91, 98, 109, 225-40, 242-47, 249, 250-52  
 central 248, 249  
 eastern coast 223, 252, 257, 258  
 north 227  
 south 95, 98, 229, 231, 233, 235, 236, 239, 241, 248, 250  
 south east 241, 247-50, 252
- breeding system 64-70
- BREMER, P. 11-20, 289-308
- Bremerbergbos (Netherlands) 300, 301
- BRIDGES, K.M. 205-13
- bright blindness 277
- Britain 59, 77-80, 83, 197, 214, 306, 307  
 Cornwall 83  
 Devon northern 83  
 Leeds 90  
 west coast 51  
 western 80
- British Isles 204, 205, 214
- BRITTON, D.M. 113-18
- BRUNTON, D.F. 113-18
- bryophyte 51, 61, 87, 306  
 atlantic 197
- Bufo regularis* 280
- Bulu (Turkey) 119-21, 129, 130-33, 138, 139
- Burdur (Turkey) 120, 129
- Burma 5  
 northern 73
- Bursa (Turkey) 119-21, 129, 130, 131, 133, 138, 139
- Butia* 229, 249, 250, 254  
*paraguayensis* **224**, 251
- Cadiz 109
- Cadiz province 198
- calcareous  
 sand 291, 301, 306, 307  
 soils 305  
 substrate 306
- calcicole 188, 191, 289, 306  
 species 18
- calcifuge species 307
- calcimeter 170
- Calypogeia integristipula* 60
- Cameroon 9
- Campbell Islands 96, 97
- Campomanesia* 253
- campos cerrados 223.
- Camptosorus* 165
- Campyloneurum* 75



- leuconeurum* 248  
*nitidum* 248, 257  
*phyllitidis* 248, 256  
 CAMUS, J.M. 194  
 Canada 228  
     New Brunswick, Grand Lake 114  
     Ontario, McQuaby Lake 114  
 Canakkale (Turkey) 120, 122–26, 133  
 Canary Island 116  
 cancerous lesions in mice 280  
 Canindeyu 225  
 canopy 13, 14, 17, 60  
     composition 12  
     cover 58, 61  
     gap 153  
     loss 62  
     species 52, 57  
 Cape Horn 95  
 Cape Verde Islands 7, 109, 116  
 carcinogen 279, 280  
 carcinogenicity of pteridophyte spores 279  
*Cardamine flexuosa* 294, 295  
*Carex*  
     *remota* 295  
     *sylvatica* 293, 295  
*Carpinus* 124, 130, 132, 138, 139, 170, 171, 173, 177, 180  
     *betulus* 169, 300  
     *orientalis* 169  
*Carpogymnia dryopteris* 218  
*Castanea* 123, 127, 130–32, 139, 171, 173, 180  
     *sativa* 19, 58, 169, 191  
 cattle 277  
*Cedrus* 120  
 cell  
     cortical 162  
     parenchymatous 162  
     passage 162, 166  
     tapetal 141  
     wall, spiral thickening 162, 166  
 Central America 249  
     ferns 274  
*Cephalomanes rigidum* 230  
*Cephalozia*  
     *connivens* 60  
     *lunulifolia* 60  
*Ceratopteris* antheridiogen 64  
 cerrado 223, 225, 229, 236, 249, 250, 255, 257  
     habitat described 254  
     pasture 229, 251  
     river bank 229  
     vegetation 223, **224**  
*Ceterach* 160, 165  
     *officinarum* 64  
 ceterach-type root 162, 163  
*Chaerophyllum temulum* 295  
 Chakkai, Thiruvananthapuram (India) 104  
 Chamba (India) 145  
 CHAMBERS, T.C. 91–100  
 Channel Islands  
     Guernsey 83, 86, 90  
     Jersey 83  
 Chatham Islands 96, 97  
*Cheilanthes* 169  
     *anceps* 89  
     *angustifolia* 271  
     *aurea* 271  
     *bolborrhiza* 270–72  
     *chlorophylla* 231  
     *concolor* 233  
     *fragrans* 25  
     *guanchica* 109  
     *inaequalis* 271  
     *marantae*  
         subsp. *marantae* 120, 188, 191  
         distribution in Turkey **134**  
         distribution in Turkish Black Sea eastern region **181**  
         new records for Turkey **134**  
     *marantae* subsp. *marantae* 170  
     *persica* 119  
         distribution in Turkey **134**  
         new records for Turkey **134**  
     *pteridioides* 119  
         distribution in Turkey **134**  
         new records for Turkey **134**  
     *radiata* 231  
     *sieberi* 280  
         health risks 277  
     *viridis* 5  
*Cheilanthes bolborrhiza* 269–73  
 cheilanthoid ferns 271  
     in Arizona 272  
     poikilohydrous leaves 272  
 Cheilanthoideae 270–72  
*Cheiroglossa* 75  
 Cheiroleuriaceae 288  
*Chelidonium majus* 294  
 Chile 97, 99, 225, 233, 235  
     southern 95  
 China 7–9, 71, 81, 91  
     central-west 71, 72  
     north eastern 5  
     northern 71

- south western 6, 72
  - southern 5, 7, 8, 21, 24, 41
- chloroform 43, 141
- chorology 169–92
- Christella* 41–50
  - dentata* 198
  - hispidula* 48, 238
  - papilio* 48
    - var. *repens* 48
  - parasitica* 48, 275
- chromosome numbers 47
  - geographical variation in chromosome number **42**
  - glands 47
  - morphological features of the different cytotypes **47**
  - pinnae
    - number of pairs 47
    - size 47
  - ploidy level 48
  - polygraphs of different populations **48**
  - pubescence 47
  - rediscovery of the rare diploid cytotype 41–50
  - rhizome 47
  - silhouettes of
    - fronds of diploid forms **45**
    - fronds of tetraploid forms **44**
    - pinnae from different populations **46**
  - spore mother cells of diploid plants **43**
  - spore size 47
  - under surface of a pinna lobe from different populations **46**
- chromosome 23, 25, 26, 31, 84, 146
  - analysis 141
  - bivalent 30, 32, 37, 38
  - counting 43
  - in *Isoetes azorica* **115**
  - in *Isoetes tuckermanii* **115**
  - meiotic 141
  - metaphase 116
  - mitotic 27
  - multivalent 32
  - number 21, 24, 27, 30, 47, 145
  - numbers for some ferns from the Nilgiris **144**
  - pairing 79, 80
  - quadrivalent 32
  - somatic 116, 141
  - trivalent 32
  - univalent 30, 32, 37, 38
  - unpaired 83
- Chrysochosma lemmonii* 271
- Chrysophyllum* 253
- Circaea lutetiana* 294, 298
- circum-boreal 91
- Cladonia furcata* 61
- Clavija nutans* 253
- clayey soil 156, 157, **290**, 291, 296, 299, 300, 303, 306, 307
  - woods 289
- clonal growth 205
- cloud forest 153
- clubmoss 216
- coastal area, (Black Sea region) 169
- colchicine 27
- Collado Puerto del Viento 202
- Colombia 227, 228, 230–32, 233, 236–39, 241–50, 252, 259
- colonisation 298, 305–307
  - of polder woodland by ferns 289–308
  - of woodland 11, 18, 291
- Colysis hemionitidea* 6
- community 110
  - epiphytic 109
- Concepcion 225
- coniferous woodland 289
- conifers 169
- conservation 1–10, 4, 61, 62, 197, 216–17, 221, 223
- continental Europe 197
- Cook Island 41
- Copaifera langsdorfii* 253, 254
- corm 115
- Cornus sanguinea* 86
- cortex 161
  - inner 161, 162
  - inner, sclerenchymatous 165
  - outer 162, 167
    - parenchymatous 162, 166
    - root *See* root cortex
- cortical cell 162
- Corum (Turkey) 121, 132, 170
- Corylus* 124, 132, 138, 170, 171, 174, 175, 180
  - avellana* 58, 86
  - plantation 124, 126, 127, 130, 132, 139, 172, 173, 176–80
- costa 85
- Costa Rica 231, 239, 259
- costule 143
- cows 280
- Crataegus monogyna* 86
- creeping rhizome 272
- Crepidomanes* 146
  - bipunctatum* 265
  - christii* 265
  - intramarginale* 265

- kurzii* 265  
*latealatum* 265  
*lunulatum* 265–68  
  frond  
    fertile **266**  
    margin **266**  
  habit **266**  
  rhizome hairs **266**  
  sporangium **266**  
  spore **266**  
  vein trichomes **266**  
*radicans* 230  
Crozet Islands 95  
cryptogam decline on sandstone 59  
cryptogamic species 198  
*Cryptogramma* 169  
  *crispa* 170, 188, 191  
    distribution in Turkish Black Sea eastern region **181**  
*Ctenitis* 147  
  *connexa* 241  
  *eriocaulis* 240, 256  
  *falculata* 240, 256  
  Mbaracayu Reserve, unidentified species 241  
  *scabrosa* 144  
  *submarginalis* 240, 256  
  *tonduzii* 219  
*Ctenopteris khasyana* 218  
Cuba 226  
Cuban species 306  
*Culcita macrocarpa* 197, 199, 202  
culture 65, 66, 69  
  agar 67  
  artificial 89  
  soil 67  
*Cyathea* **155**, 288  
  *andina* 157  
  *atrovirens* 231  
  *crinita* 6  
  *cuspidata* 231  
  *fenicis* 261  
  *gigantea* 6  
  *multiflora* 157  
  *nilgirensis* 6  
  species 156, 157  
  *tortuosa* 156  
  undetermined species 157  
Cyatheaceae 153, 157, 193, 231  
*Cyclodium*  
  *confertum* 242  
  *meniscioides*  
    var. *meniscioides* 242  
*Cyclosorus*  
  *dentatus* 198  
  *hispidula* See *Thelypteris hispidula*  
  *irayensis* 261  
  *parasiticus* 277  
Cyperaceae 254  
*Cyrtomium*  
  *caryotideum* 8  
  *divicola* 9  
  *falcatum* 278  
  *micropterum* 9  
*Cyrtophlebium phyllitidis* 248  
*Cystopteris* 169  
  *fragilis* 178, 188–91, 281  
    distribution in Turkish Black Sea eastern region **186**  
    distribution in Turkish Black Sea western region **182, 185**  
    var. *diaphana* 117  
*Cytisus tribracteolatus* 109  
cytological study 43  
cytology 21–24, 26, 32, 41, 79, 83, 84, 95, 96, 98, 113, 116, 141, 145  
  of some ferns from the Nilgris, South India 141–49  
cytotype 24  
  diploid 41–50, 42, 43, 46, 48  
  new 141, 147  
  tetraploid 41–43, 46, 48  
  
Dalhousie (India) 145  
*Danaea* 255  
  *longifolia* 228  
  *nodosa* 228, 257  
Darjeeling (India) 145–47  
*Davallia*  
  *canariensis* 109, **110**  
  *pusilloides* 288  
  *repens* 288  
  *subvestita* 288  
  *vestita* 288  
Davalliaceae 166, 288  
Deccan plateau (India) 1  
deciduous  
  forest See forest deciduous  
  woodland 289, 291  
Dehesa de Ojen 202  
Denizli (Turkey) 122  
*Dennstaedtia globulifera* 236  
Dennstaedtiaceae 21, 170, 172, 205, 236  
dennstaedtia-type root 162  
densiometer spherical 156

- deoxyanthocyanins 21  
*Deparia polyrhizon* 219  
 dermatitis contact 279  
*Deschampsia caespitosa* 295, 299  
 Devikolam (India) 7  
 Devon 18  
 Devrek (Turkey) 169  
 Dharamsala (India) 145  
 diakinesis 27  
*Dicranella heteromalla* 61  
*Dicranopteris flexuosa* 229, 255  
*Didymochlaena* 255  
   *truncatula* 242, 256  
*Diellia* 160, 165, 166  
   *erecta* 163  
   *falcata* 163  
*Diphasiastrum* 216–17  
   *alpinum* 216  
   *complanatum* 216  
   *issleri* 216  
   *tristachyum* 216  
   *zeilleri* 216  
*Diplazium* 255  
   *beddomei* 6  
   *brachylobum* 4  
   *caudatum* 197, 198, 202  
   *celtidifolium*  
     var. *puberulum* 242, 257  
   *cognatum* 4, 6  
   *cristatum* 243  
   *dilatatum* 3  
   *doederleinii* 261  
   *esculentum* 277  
   *gemmiferum* 243  
   *hians* 243, 255  
   *plantagineum* 243  
   *plantaginifolium* 243, 257  
   *riedelianum* 243, 257  
   *urticifolium* 243  
   *verapax* 243  
*Diploblechnum* 21  
*Diplora* 160, 165  
 dispersal 298, 303, 305, 306  
*Distichium capillaceum* 306  
 diversity 153  
   floristic 1  
   in fern flora 41  
   of tree ferns (Tambopata, Peru) 157  
   pteridophyte 255  
   pteridophytes in the Mbaracayu region 252  
 Diyarbakir (Turkey) 119, 120, 122, 127, 129  
 DNA  
   adducts 279  
   covalent modifications 279  
 Dodabatta (India) 142  
 Dominican Republic 109  
*Doodia* 21  
*Doryopteris* 252  
   *concolor* 233, 256  
   *lomariacea* 233, 255  
   *multipartita* 234  
   *nobilis* 234  
   *patula* 234  
   *pedata*  
     var. *multipartita* 234  
   *raddiana*  
     var. *multipartita* 234  
     var. *patula* 234  
 drinking water 280  
*Drynaria quercifolia* 277  
*Dryopsis scabrosa* 144  
 Dryopteridaceae 11–20, 25–40, 77–81, 166, 170,  
   178, 242, 274  
*Dryopteris* 169, 281  
   *aemula* 51  
   *affinis* 78–81, 293, 294, 295, 299, 301, 307  
     reaffirmation of taxonomic treatment 77–81  
     recognition of subspecies 82  
     subsp. *affinis* 77–80  
       var. *affinis* 80  
       var. *kerryensis* 80  
       var. *paleaceolobata* 80  
     subsp. *affinis* × *D. filix-mas* 80  
     subsp. *affinis* ‘Pinderi’ 80  
     subsp. *borreri* 77, 79, 80, 132, 180, 188, 189,  
       191  
     distribution in Turkey **137**  
     distribution in Turkish Black Sea eastern  
       region **187**  
     distribution in Turkish Black Sea western  
       region **187**  
     new records for Turkey **137**  
     subsp. *borreri* × *D. filix-mas* 80  
     subsp. *cambrensis* 77–81  
       var. *insubria* 80  
       var. *paleaceo-crispa* 80  
       var. *pseudocomplexa* 80  
     subsp. *cambrensis* × *D. filix-mas* 80  
     subsp. *persica* 80  
     subsp. *persica* var. *paleaceo-crispa* 80  
     subsp. *robusta* 77, 78  
     subsp. *stilluppensis* 77, 78  
   *affinis* × *D. filix-mas* 80  
   × *asturiensis* 79

- azorica* 117  
*campyloptera* 117  
*carthusiana* 294, 299, 301  
*caucasica* 79, 131, 180, 188–91  
   distribution in Turkey **137**  
   distribution in Turkish Black Sea western region **187**  
   new records for Turkey **137**  
*cochleata* 143, 144, 147  
*collina* 240  
 × *complexa* 79, 80  
   nothosubsp. *complexa* 80  
   nothosubsp. *complexa* ‘Stableri’ 80  
   nothosubsp. *contorta* 80  
   nothosubsp. *critica* 80  
*cristata* 294, 299  
*dilatata* 58, 116, 117, 138, 180, 188–91, 294, 295, 298, 299, 301, 305  
   distribution in Turkey **138**  
   distribution in Turkish Black Sea eastern region **187**  
   distribution in Turkish Black Sea western region **187**  
   new records for Turkey **138**  
   spores 281  
*eriocaulis* 240  
*expansa* 180, 188, 189, 191  
   distribution in Turkish Black Sea eastern region **187**  
*falciculata* 240  
*filix-mas* 131, 179, 188–91, 291, 293–96, 298, 299, 301, 305  
   antheridiogen 64  
   distribution in Turkey **137**  
   distribution in Turkish Black Sea eastern region **187**  
   distribution in Turkish Black Sea western region **187**  
   health risks 277  
   new records for Turkey **137**  
*gemmaefera* 238  
*guanchica* 197  
*intermedia* 116, 117  
   subsp. *azorica* 117  
*juxtaposita* 6  
*karstenii* 240  
*limonensis* 238  
*maderensis* 117  
*meniscioides* var. *conferta* 242  
*mindshelkensis* 80  
*oreades* 79, 180, 188–91  
   distribution in Turkish Black Sea eastern region **187**  
*pachyrhachis* 239  
*pallida* subsp. *pallida* 132  
   distribution in Turkey **138**  
   new records for Turkey **138**  
*parasitica* var. *glanduligera* 238  
*pseudotetragona*  
   var. *foecunda* 239  
   var. *gemmaefera* forma *major* 239  
*quadrangularis* 238  
*rivularioides* 239  
*scabra*  
   var. *caesarina* 239  
   var. *incompleta* 239  
*scabrosa* 141, **142**, 145, 147  
*schorapanensis* 80  
*sciaphila*  
   var. *raivavensis* 218  
   var. *rapaensis* 218  
*serrata* 240  
*setigera* 278  
 sporelings 61  
 spp. 296, 305  
*submarginalis* 241  
*submontana* 80  
*uliginosa* 237  
*wallichiana* 79  
 dunes 306  
 Dutch mainland 300  
  
 East African Islands 4  
 ecological adaptation 160  
 ecology 11–20, 21–24, 73, 109, 116, 153, 169–92, 215, 217, 289, 306  
   of ferns 2, 17  
 ecotype, arctic 71  
 Ecuador 75, 109, 160, 228, 238, 239, 243, 247, 250  
   coastal 150  
 Edelkarper (Netherlands) 300  
 Edinburgh 281  
   herbarium 78  
 El Salvador 157, 259  
*Elaphoglossum* 75, 252  
   *balansae* 244  
   *hassleri* 244  
   *nilgircum* 2, 6  
   *subcochleare* 244  
   *tenerum* 244  
 Elazig (Turkey) 120  
*Eleogiton fluitans* 116  
 eletrophoresis 217

*Elymus caninus* 295  
 Embalse del Guadarranque 199  
 embryo 69  
 Emmelerbos (Netherlands) 300  
 Emmeloorderbos (Netherlands) **290**, 298, 303  
 endemic  
   genera 1  
   species 6–10, 80, 143  
 endodermis **164**, **165**  
   secondary 161  
 endozoochorous species 298, 302, 303  
 England 18  
   eastern 305  
   northern 282  
   south-eastern 51–63  
   south-western 306  
 Enserbos (Netherlands) **290**, 300, 301  
 enzyme loci 212  
*Epilobium montanum* 294, 296, 299, 301  
*Epipactis helleborine* 294, 298  
 epipetric 160  
 epiphyte 3, 5–7, 9, 10, 56, 109, 141, 160, 167, 215,  
   225, 226, 230, 236, 244–46, 248–51, 253, 271,  
   272, 288  
   hemi 230  
   obligate 75  
   on *Betula* 56  
   on *Butia paraguayensis* 251  
   on *Butia paraguayensis* 250  
   on *Fagus* 56  
   on *Pinus* 56  
   on tree ferns 246  
   pantropical 75–76  
   phorophyte specificity 75  
   vascular 75  
 epiphytic fern genera 166  
 epizoochorous species 298, 302  
 Equatorial Guinea 109  
 equatorial plate 27  
 Equisetaceae 225, 288  
*Equisetum*  
   *giganteum* 225, 255  
   *schaffneri* 225  
   *telmateia* 117  
 Erbaa (Turkey) 169  
 Erythroxylaceae 254  
 Erzincan (Turkey) 120  
 Erzurum (Turkey) 119, 120, 127  
*Esenbeckia grandiflora* 254  
 ethanol 27, 43  
 ethnobotany 150  
 ethyl alcohol 141  
 etiolation 95  
*Eucalyptus* 4  
*Eugenia* 253  
 Europe 25, 26, 71, 78, 117, 202  
   arctic zone 71  
   atlantic fringe 198  
   central 160, 306  
   continental 77, 90, 197, 202  
   northern 202, 271  
 European species 197  
 exine 73  
   spinulose 267  
 exospore 101  
 Fabaceae 254  
*Fagus* 56, 122–28, 130, 131, 132, 138, 139, 170–74,  
   177–80  
   *orientalis* 123, 138, 169, 191  
   *sylvatica* 11–13, 16, 58, 60, 291, 292, 300, 302  
 Falkland Islands 95, 98  
 Fallowfield Experimental Grounds 209  
 FARRANT, P.A. 91–100  
 fenestra 113  
 fern  
   records 119–40  
   species adverse health effects **277**  
   spores 281, 306  
     dispersal distance 281  
     handling **284**  
     health risks 275–87  
 FERNANDEZ LUNA, J.C. 109–12  
 ferns of the Black Sea region of Turkey 169–92  
 fertile  
   bracken frond **283**  
   bracken frond 282  
   fronds 284  
   fronds handling **284**  
 fertilisation 27  
   self 30  
   type 69  
*Festuca gigantea* 295  
 Fiji 5, 7, 8, 41  
 filmy fern 52–54, 56, 265–68  
   (Tunbridge) in south east England 51–63  
 fire 272  
 flabellifolium-type root 163  
 flabelliforme-type root 162  
 Flevoland (Netherlands) 300, 301, 306, 307  
   list of species in surveyed woods 294–95  
   variables used in the study **292**  
   woods **290**  
 Flora de Mexico  
   Dryopteridaceae (book review) 274

- Marsileaceae (book review) 274
- Flora Malesiana Series II volume 3 (book review) 288
- Flora Mesoamericana (book review) 259
- Florida 75, 240, 241
  - south 242, 246
- forest 141, 143, 171, 223, 225, 264
  - Abies* 126, 127, 131, 138, 171, 172, 174, 176, 179
  - Abies cilicica* 133
  - Acer* 128
  - Alnus* 111, 131, 174, 175
  - atlantic 221, 223
  - bosque alto, described 253
  - canopy 156, 157
  - Castanea* 130, 171
  - cloud 75, 153
  - deciduous 7, 9, 169
  - deforestation 223
  - destruction of 2, 4
  - ecosystem 4
  - elfin 75
  - evergreen 2, 3, 4, 5, 7
  - Fagus* 122, 130, 131, 138, 171, 172, 174, 179
  - gallery 228, 230, 231, 232, 234–36, 238, 239, 241, 242–51, 257
    - described 254
    - on saturated soil 238
  - habitat (Peru) 157
  - lowland rain 75
  - Mbaracayu Natural Forest Reserve 221
  - mixed 120, 124–32, 138, 139, 170–75, 177, 179, 180
  - moist 3
  - monoculture 4
  - montane 288
    - lower 215
    - mid 215
    - rain 75
    - wet 153
  - Nothofagus* 92
  - Picea* 123, 126, 138, 172–74, 176–78
  - Pinus* 128, 130, 133, 174, 177, 179
  - Pinus brutia* 121, 125, 126, 128, 129, 133
  - Pinus nigra* 120, 121, 123, 127, 128, 132, 133, 176
  - Pinus sylvestris* 126, 130, 132, 172, 175, 176, 178, 180
  - Quercus* 122, 123, 125, 133
  - saturated soil 255
  - sholas 1–3, 5, 7–10
  - southern temperate 223
  - stream
    - bank 153
      - habitat (Peru) 157
      - systems (tree fern association with) 156
    - subtropical
    - seasonal 75
    - semideciduous wet 223, 263
    - tropical 223
      - evergreen 265
      - moist 153
        - evergreen 1
        - lowland 156
      - rain 76
      - wet lowland 157
    - Tucumano-Bolivian 75
    - undisturbed 2, 156
- form
  - ecological 109
  - geographical 81
- fossil spores 104, 107
- Fragaria vesca* 295
- France 83–86, 115
  - Brittany
    - Cap Fréhel 83
    - northern 86
    - western 83
- FRASER-JENKINS, C.R. 77–81
- Fraxino-Ulmetum* 291, 293, 305
- Fraxinus excelsior* 11–14, 16, 17, 19, 58, 86, 289, 291, 292, 295, 298, 300, 302, 305
- frond
  - axis 117
  - dimorphic bipinnate 143
  - fertile 12, 15, 17, 21, 31, 65, 84, 93, 99, 143
    - handling **284**
    - in *Crepidomanes lunulatum* 267
  - fertility 282
  - morphology 32
  - simple petiolate 6
  - simple pinnate 21
  - sterile 93, 96, 99, 143
    - in bracken **282**
    - in *Crepidomanes lunulatum* 267
- frost
  - damage 19, 306
  - hardiness 6
- Fundación Moisés Bertoni 221, 258
- Gabon 109
- GALAN DE MERA, A. 109–12
- Galium aparine* 293
- gallery forest 228, 231, 232, 234, 235, 236, 238, 239, 241–51, 257

- habitat description 254
- on saturated soil 238
- gametangia 67
- gametophyte 57–59, 61, 64, 66, 67, 69, 89
  - bibliography, book review 268, 273–74
  - hermaphrodite 65
  - male only 66
  - photomicrographs showing surface detail **88**
  - sexually mature 68
  - with annular thickened tracheids **88, 89**
  - with tracheids 87–89
- gemmae vegetative 115
- genome 80, 83
  - analysis 48, 81
  - Manton's 78
- genotype 69, 207
- genus monotypic 21, 24
- Geranium robertianum* 294
- Germany
  - north western 216
  - northern 217
- Gerze (Turkey) 169
- Geum urbanum* 294, 295, 298
- Ghana 48
- GHOSH, R.K. 71–74
- gibberellic acid 64, 65, 66, 67, 68
- GIBBY, M. 194
- Giresun (Turkey) 121, 123–27, 130, 131, 132, 139, 170, 171, 173–80
- glacial acetic acid 27, 141
- gland 117
- Glaphyopteridopsis erubescens* 6
- Gleichenia*
  - flexuosa* 229
  - rigida* 229
- Gleicheniaceae 229
- glucose-6-phosphate dehydrogenase 209
- glyceraldehyde-3-phosphate dehydrogenase 209
- glycerine jelly mount 104
- Goa (India) 1
- goat 277
- GONZALEZ, J.L. 109–12
- Goniophlebium* 261–308
  - benguense* 263
  - coadunatum* **262**
    - new species 261–308
  - demersum* 263
  - manmiense* 218
  - mengtzeense* 263
  - pectinans* 251
  - percussum* group 263
  - terrestre* 264
  - triseriale* 251
- Goniopteris*
  - burkartii* 238
  - gemmaulifera* 238
  - scabra* 239
- GOPAL KRISHNA SRIVASTAVA 101–8
- GOSWAMI, H.K. 87–89
- Gough Island 95
- Grammitidaceae 166, 215
- Grammitis* 75
  - attenuata* 6
  - cavisora* 219
  - fenicis* 261
  - nimbata* 306
  - poeppigiana* 219
  - rigescens* 219
- granuloma 279
- grass 225
  - pollen 281
- grassland 221, 223, 234, 305
  - cerrado, habitat described 254
  - exposed slope 141
  - flooded 225–27, 233, 234, 254, 255
    - habitat described 254
    - subalpine 92
- Greater Antilles 228
- grid squares 119
- growth inhibitor 68
- Guaraní 223
- Guarea* 253
- Guatemala 109, 231, 237, 247, 259
- Guianas 229, 230, 237, 239, 242, 244, 246
- guinea pig 277
- Gujarat (India) 1
- Gumushane (Turkey) 119, 120, 127, 131, 169
- Gunong ma 215
- Gunung Beremban 215
- Gunung ma 216
- Gunung Mutu 215
- Guyana 75, 227, 233, 238, 240, 249, 251, 252
- Gymnocarpium* 169
  - dryopteris* 12, 178, 188, 190, 191
    - distribution in Turkish Black Sea eastern region **186**
    - ditch bank habitat of (Netherlands) **12**
- Gymnogramma calomelanos* var. *denudata* 234
- Gymnopteris tomentosa* 236
- habitat 84, 96, 141, 142
  - alpine 98, 99
  - herbfields 96
  - montane 25



- scree 91, 92, 96
- scrub 96
- aquatic 6, 116
- cloud forest 153
- exposed 8
- forest
  - cloud 75
  - elfin 75
  - lowland rain 75
  - streams 6, 7, 10
  - subtropical seasonal 75
- grassland 96
  - subalpine 92
- hedgerows 17
- high altitude meadow 73
- islands 289, 293, 302, 305
- lane-banks 86
- lowland 96
- mesophytic 146
- micro 19
- montane 91, 96
  - rainforest 75
- sandstone 57, 59, 60
  - Ardingly 56, 59
  - pH 56
  - Tunbridge Wells 59
- semi-aquatic 4
- stone-walls 6
- stream-banks shaded 6, 8, 9, 17
- subalpine 91
- sub-coastal woodland 86
- tree fern 157
- xeric 146
- haematuria 277
- hair
  - epidermal 88
  - glandular 41
- HAMEED C.A. 265–68
- Harderbos (Netherlands) 300
- Hart's Tongue fern see *Asplenium scolopendrium*
- Harz mountains 216
- Hassler, Emile 223
- Hatay (Turkey) 119, 121–23, 126, 128–30, 132, 133
- Hawaii 41, 260
- Hawaiian islands 282
- hay-fever 278
- health risks from fern spores 275–87
- heathland 216
- Hedera helix* 86, 295
- Hedyosmum* 75
- Helminthostachys zeylanica* 7
- hemicellulase 27
- hemi-epiphyte 230, 247
- Hemionitis tomentosa* 236, 257
- Hennecartia* 253
- hermaphrodite 64, 67, 68, 69
- HESS, A. 64–70
- heterozygous loci 212
- hexokinase 209
- Himalaya 1, 5, 7, 8, 71, 72
  - eastern 5
  - northern 117
  - west 42
- Hispaniola 241, 243
- Histiopteris incisa* 3
- holotype 72
- homospory 64, 279
- Honduras 259
- Hong Kong 40
- HORN, K. 216–17
- Houtribbos (Netherlands) 301
- human
  - exposure to fern spores 281
  - health risks from fern spores 275–87
- Humata* 288
  - repens* 3, 7
- Huperzia* 75
  - a new species from India 71–74
  - dentata* 71
  - dixitiana*** 71–74, 71, 72
    - apical portions of sporophylls **74**
    - described 73
    - distribution 73
    - ecology 73
    - etymology 73
    - holotype **72**
    - isotype **72**
    - spore **74**
  - kamaensis* 219
  - lajouensis* 72
  - mandiocana* 226, 256
  - nylamensis* 219
  - perrieriana* 218
  - selago* 71, 72
    - subsp. *arctica* 71
    - subsp. *dentata* 71
    - subsp. *selago* 71, 72, 73
    - var. *appressum* 71
    - var. *himalaica* 72, 73
  - tibetica* 72
- hybrid 27, 30, 32, 78, 79, 83–86, 147, 160
  - artificial 80, 83, 84
  - diploid 9, 25
  - fertile 9

- sterile triploid 41
- tetraploid 9
- triploid 9, 25, 27
- hybridisation 9, 25–40, 48, 81
- interspecific 25
- hydrophyte 111
- hydrophyte *See* hydrophyte
- Hymenoasplenium* 160–162, 165
  - delitescens* 163
  - excisum* 163
- hymenoasplenium-type root 161–63
- Hymenophyllaceae 51–63, 230, 265–68
- Hymenophyllum* 52, 54, 61, 75
  - denticulatum* 7
  - javanicum* 7
  - tunbrigense* 188
    - aspect and canopy cover in south east England **58**
    - canopy species 57
      - over colonies in south east England **58**
    - conservation 61, 62
    - dates of first and last records in south east England **55**
    - distribution in 1994/1995 in south east England 59
    - habitat 60, 61
    - in south east England 51–63
    - location of sites in south east England **52**
    - mortality 61
    - population sizes in south east England **56**
    - recruitment 61
    - regeneration 61
    - relationship between number and size of patches in south east England **59**
    - relationship between number of patches and slope in south east England **57**
    - reproduction 57
    - soil pH at sites in south east England **57**
  - wilsonii* 55
- Hypodematium crenatum* subsp. *crenatum* 7
- Iberian
  - sites 202
  - Peninsula 109–12
- IBISCH, P.L. 75–76
- Icel (Turkey) 119, 122, 125–27, 133
- IDE, J.M. 268, 273
- Ilex* 57
  - aquifolium* 58, 60, 295
- Impatiens*
  - noli-tangere* 295
  - parviflora* 295, 298
- Inas 216
- inbreeding 69
- Index Filicum 218, 219
  - Supplement 6 218
  - Supplement 7 260
- India 71–74, 72, 101, 104, 265
  - central 7, 8, 42, 146, 147
  - eastern 147
  - Himalayas 145, 146
    - eastern 146, 147
    - western 145, 146, 147
  - north eastern 5, 41
  - north western 5
  - northern 6–10, 145, 146
    - plains 146
  - peninsular 141, 147
  - south eastern 7
  - southern 1, 3, 4, 6–10, 41–50, 41, 42, 141, 143, 144, 146, 147, 265
    - map showing Palni Hills and Tirunelveli Hills **42**
    - west peninsular 42
- Indo-Nepal border 147
- Indonesia 5, 7
- indumentum 272
- indusial flap 282
- indusium 21, 47, 57, 91, 117
- infertility 283
  - bracken 282
- initial cell 166
- intergametophytic selfing 27, 38
- interglacial relict sites 59
- Ireland 80, 197, 214
  - southern 80
- Iris foetidissima* 86
- IRUDAYARAJ, V. 41–50, 141–49
- Iskendurun (Turkey) 119
- islands subantarctic 91, 92
- Ismir (Turkey) 119, 124, 126, 129
- Ismir (Turkey) 123, 126, 128, 130, 131, 138
- isocitrate dehydrogenase 209
- Isoetaceae 101
- Isoetes* 104, 107
  - azorica* 115–17
    - affinity with North America 113–18
    - chromosomes (metaphase) **115**
    - morphological features **115**
    - SEM views of megaspores **114**
    - SEM views of microspores **114**
    - spore cytology 113–18
    - spore morphology 113–18
  - butleri* 116

- coromandelina*  
microspore size in different populations **106**  
microspores 101–8  
photomicrographs of microspores. **102, 103, 105**
- duriei* 116  
*engelmannii* 116  
*lacustris* 115, 116  
*maritima* 116  
*melanopoda* 116  
*riparia* 116  
*tuckermanii* 113, 116, 117  
chromosomes (metaphase) **115**  
morphological features **115**  
SEM views of megaspores **114**  
SEM views of microspores **114**
- Isopterygium elegans* 61  
*Isothecium myosuroides* 61  
isotype 72, 74  
isozyme  
analysis 205, 209  
genotype 206, 209  
profiles 210, 212
- Isparta (Turkey) 119, 127, 129, 133  
Istanbul (Turkey) 119, 121–28, 130–32, 138  
Ithalaru (India) 142, 146  
Izmir (Turkey) 121, 130, 132, 133
- Jagersveld (Netherlands) **290**, 299, 300, 301, 304–307  
Jamaica 243  
Japan 5, 7–9, 42, 71, 72, 91, 147, 265  
Java 5, 7, 8  
JIMÉNEZ, B. 221  
JOHNS, R.J. 193, 194, 218–19, 260
- kaempferol 280  
Kaiserslautern 160  
Kalakad hills (India) 7  
Karabluk (Turkey) 169  
Karipat (India) 101, 104  
Karnataka (India) 1  
Kars (Turkey) 120, 121, 123, 130, 138  
Kashmir 72  
Kastamonu (Turkey) 120, 121, 123–28, 130–32, 138, 169–80  
KAYNAK, G. 119–40, 169–92  
Kent (England) 51  
Kenya 41  
Kerala (India) 1–7, 265  
Kerguelen Island 95  
Kew 218, 260
- key to *Acrosorus* in Thailand 215  
Khajjar (India) 145  
Khandala (India) 101  
Khao Luang 215  
Khao Nong 215  
Khapridih (India) 101, 104  
Khasia Hills (India) 147  
Killarney fern see *Trichomanes speciosum*  
Kirkclareli (Turkey) 122, 125  
KNAPP, S. 221  
Knop medium 27, 87, 88  
Konya (Turkey) 120, 122, 129, 132  
Korea 8  
Kothayar (India) 6, 7, 43, 46  
KRAMER, K.U. 90  
Kuinderbos (Netherlands) 11, 14, 16, 19, **290**, 291, 300, 301, 306, 307  
Kutahya (Turkey) 120, 124, 127, 129, 132, 133  
KVIST, L.P. 150
- La Granja, 199  
*Lacosteopsis* 146  
Ladik (Turkey) 169  
lake, oligotrophic 116  
lamina 96, 98, 99  
bipinnate 141, 142  
bipinnatifid 142  
flabellate 141  
pinnate 141, 142  
pinnatisect-pinnate 95  
semi-circular 141  
sterile 75  
tripinnate 141, 143  
wedge-shaped 141
- Lantana* 10  
Laos 10  
*Larix decidua* 58, 60  
Larserbos (Netherlands) 300  
*Lastrea*  
*filix-mas* var. *cochleata* 144  
*grisea* 144  
*ochthodes* 144  
*scabra* 239  
*scabrosa* 144  
*Lastreopsis*  
*amplissima* 241, 257  
*effusa* 241, 256  
*tenera* 4, 7
- Lauraceae 75  
*Laurus* 126  
Leeds University of 96, 97  
legumes 225

Lelystad (Netherlands) 305, 307  
*Lepidopilum virens* 198  
*Lepidozia reptans* 60  
*Lepraria incana* 61  
*Leptochilus*  
   *decurrens* 7  
   *guianensis* 244  
   *mexicanus* 244  
   *thwaitesianus* 2, 7  
*Leptopteris* × *intermedia* 219  
 leptosporangiate 64  
 leucine aminopeptidase 209  
*Leucobryum glaucum* 61  
 leukaemia 279  
   clusters 283  
 leukocytes 277  
 lianas 253  
 lichen 59, 61  
*Ligustrum vulgare* 86  
*Lindsaea*  
   *guianensis*  
     subsp. *lanceastrum* 237  
     var. *lanceastrum* 255  
   *lancea* 237, 255  
   *malabarica* 7  
   *portoricensis* 237, 255  
   *quadrangularis* 237, 255  
*Liquidambar orientalis* 122  
*Listera ovata* 294  
 lithophyte 3, 6, 109, 141, 288  
*Litobrochia*  
   *denticulata* 235  
   *kunzeana* 235  
   *nobilis* 234  
 Little hard-fern 96  
*Littorella uniflora* 116  
 llama 277  
 Loch  
   Faskally 207, 210  
   Rannoch 207, 210  
*Lomagramma guianensis* 244, 257  
*Lomaria*  
   *acuta* 246  
   *alpina* 95, 96  
   *andicola* 99  
   *angustifolia* 246, 247  
   *antarctica* 92  
   *araucana* 99  
   *australis* 98, 99  
   *crenulata* 99  
   *cuspidata* 246  
   *distans* 96  
   *ensiformis* 246  
   *gayana* 98, 99  
   *germainii* 98, 99  
   *linearis* 96  
   *meridensis* 246  
   *microphylla* 98, 99  
   *obtusifolia* 248  
   *parvifolia* 96  
   *penna-marina* 92  
   *poepigianum* 99  
   *polypodioides* 92  
   *pumila* 96  
   *sellowiana* 98  
   *trichomanoides* 93  
   *uliginosa* 92  
     var. *magellanica* 93  
 Lomariopsidaceae 244  
*Lonicera periclymenum* 295  
*Lorinseria* 21  
 Los Barrios 198  
*Loudetia* 254  
 Lower  
   Saxony 216  
   Tunbridge Wells Sand 56  
*Loxogramme*  
   *parallela* 3  
   *tibetica* 218  
*Loxoscaphe* 160, 165  
*Luehea divaricata* 254  
*Lunathyrium lasiostipes* 218  
 Lycopodiaceae 71–74, 226  
*Lycopodiella*  
   *alopecuroides* 255, 226  
   *caroliniana*  
     var. *meridionalis* 226, 255  
   *cernua* 226, 255  
   *matthewsii* 226  
*Lycopodium*  
   *albidulum* var. *majus* 227  
   *alopecuroides* 226  
   *brasiliense* 227  
   *capillaceum* 226  
   *cernuum* 226  
     var. *capillaceum* 226  
   *crassinervium* 227  
   *inundatum* 117  
   *marginatum* 227  
   *matthewsii* 226  
   *meridionale* 226  
   *miyoshianum*  
     var. *coreanum* 218  
   *nudum* 225, 226

- pallidum* 227  
*selago* 117  
   var. *appressum* 71  
 spores 279  
   health risks 279
- Lygodium*  
   *antheridiogen* 64  
   *circinnatum* 2  
   *japonicum* 2, 261  
   *mearnsii* 261  
   *micans* 229  
   *volubile* 229
- Macaronesia 198  
   cryptogamic flora 202  
   enclave 197  
   floral elements 197
- Macquarie Island 96, 97
- Macrothelypteris torresiana* 237
- Madagascar 7, 9, 75, 92
- Madeira 116, 117
- MADHUSOODANAN, P.V. 265–68
- Madhya Pradesh (India) 87–89, 101
- Madras region (India) 1
- Maharashtra (India) 1
- malate dehydrogenase 209
- Malatya (Turkey) 120
- Malay 21  
   Islands 6, 7, 8  
   Peninsula 5–9, 21, 24, 215
- Malaya 42, 215
- Malaysia 21–24, 160, 216  
   northern Peninsular 216
- Malesia 41, 288
- malic enzyme 209
- Manchester 209  
   Museum Herbarium 209
- MANICKAM, V.S. 1–10, 41–50, 141–49
- Manisa (Turkey) 121, 129, 132, 133
- manure 141
- maquis 133
- Maras (Turkey) 120, 122, 126, 133
- Marattiaceae 228
- Mardin (Turkey) 122, 130
- Marginaria hirsutissima* 248
- MARÍN, G. 221
- marinum-type root 162
- Marion Island 95
- Marsileaceae 274
- Mascarene Islands 7, 9
- Matoniaceae 288
- Matteuccia* 169
- struthiopteris* 177, 188–91  
   distribution in Turkish Black Sea eastern region **186**
- Mauritius 5, 7, 109
- Mbaracay 229, 231
- Mbaracayú 223  
   diversity of pteridophytes, discussion 252  
   Forest Nature Reserve 221, 223  
   habitat associations 255–57  
   habitat descriptions 253  
   map **222**  
   pteridophyte flora 221 **220–59**
- Mbyá 223
- Mecodium*  
   *coreanum* 219  
   *denticulatum* 7  
   *javanicum* 7
- Mediterranean  
   (eastern), rainfall pattern 169  
   (western), rainfall pattern 169  
   climate 169
- Meerut (India) 146
- Megalastrum connexum* 241
- megaspore 115  
   morphology 104  
   ornamentation 117  
   size in relation to ploidy level in *Isoetes coromandelina* 107  
   trilete 104
- Meghalaya (India) 7
- meiosis 24, 25–40, 27, 32, 33, 38, 84, 145  
   in spore mother cells **143**
- meiotic analysis 79
- Melastomataceae 254
- Melica uniflora* 86
- Meniscium*  
   *cristatum* 243  
   *serratum* 240
- Mertensia*  
   *flexuosa* 229  
   *rigida* 229
- Mesoamerica 225, 228, 232–36, 239, 242–48, 250–52
- metaphase 27
- Metathelypteris flaccida* 8
- metaxylem 161
- Mexico 109, 227, 228, 231, 232, 234–37, 240, 242, 243, 246, 252, 257, 271, 274  
   southern 75, 228–33, 235, 241, 243–45, 252, 259
- microclimate 3  
   change 4
- Microgramma* 75

*lindbergii* 249, 256  
*persicariifolia* 249, 256  
*squamulosa* 249, 256  
*vaccinifolia* 249, 256  
microhabitat 19  
*Microlepidia*  
  *majuscula* 4, 8  
  *platyphylla* 8  
  *strigosa* 8  
microphyll 104  
microscopy 160  
*Microsorium punctatum* 277, 278  
*Microsorium* 288  
microspecies 79  
microspore 101–8, 115, 116  
  abortive 104  
  exospore 104  
  laesural ridge 101, 104  
  mesospore 104  
  mesosporium spotted 107  
  monolete 101, 104  
  morphology 117  
  ornamentation 104, 115  
  perisporal sac 104  
  perispore 104  
  size in different populations of *Isoetes*  
    *coromandelina* **106**  
  size in relation to ploidy level in *Isoetes*  
    *coromandelina* 107  
  trilete 101, 104  
Miel Valley (Spain) 197, 199, 202  
milk 280  
mitosis 28, 87, 141  
  archesporial 146  
  premeiotic 145  
*Mnium hornum* 61  
*Moehringia trinervia* 295  
MONDAL, P. 71–74  
Mongolia 71  
montane  
  distribution 306  
  forest 288  
  wet 153  
*Moraceae* 226  
MORAN, R. 259  
morphology 8, 9, 25, 78, 79, 83, 90, 110  
morphotype 78, 79  
moss spore dispersal distances 282  
Mount Iraya (Batan Island) 261  
Mt Kinabalu 215  
Muğla (Turkey) 119, 121, 124, 129, 130, 133  
München 160  
Mus (Turkey) 120  
Mussoorie (India) 145  
Mutkuli, Hoshangabad (India) 101  
Myanaung (Burma) 5, 7, 8, 9  
*Myrcianthes pungens* 253  
*Myrciaria*  
  *cuspidata* 253  
  *rivularis* 253, 254  
Myrsinaceae 254  
Myrtaceae 75, 245, 254  
*Myrtus communis* 169  
Nainital (India) 145  
Nakhoo Si Thammarat 215  
Narrow hard-fern 96  
Natural History Museum,  
  London 160  
*Nectandra* 75, 253  
  *megapotamica* 254  
neoplastic lesions 280  
neoteny 166  
Nepal 5, 6, 7, 8, 10, 41, 73  
  central 72  
*Nephelea*  
  *cuspidata* **155**, 156, 157, 231  
  *tryoniana* 157  
*Nephrodium*  
  *crassipes* 239  
  *leprieurii* 239  
  *quadrangulare* 238  
*Nephrolepis exaltata* 278  
Netherlands 11–20, 191, 289, 291–93, 301, 306  
New Caledonia 7, 41  
new floristic records for the fern flora of Tukey  
  119–40  
New Guinea 7  
New World Tropics 225, 238, 242  
New Zealand 5, 7, 9, 10, 91, 95–97, 219, 265  
  Auckland 91  
  Kawau Island 91  
  North Island 96  
  Rangitoto Island 91  
  South Island 91, 96  
Newfoundland 117  
Nicaragua 231, 259  
NICHOLSON, B. 153–59  
Nigde (Turkey) 120, 132, 133  
Nigeria 48  
Niksar (Turkey) 169  
Nilgiri Hills (India) 1, 4  
Nilgiris (India) 3, 5, 6, 8, 9, 141–44, 146, 147  
*Niphidium* 75

nomenclature 77  
   international code of botanical 79  
 Noordoostpolder (Netherlands) 11–20, 11, 17, 289,  
   291, 292, 296, 303  
 North America 117, 271  
   central 228  
   eastern 228  
   genotypes 207  
   northeastern 117  
   North Carolina 306  
 northern Europe 271  
 Northern Ireland 15–19  
 northern Peninsula Malaysia 216  
*Nothofagus* 92  
*Notholaena*  
   *distans* health risks 277  
   *sinuata* health risks 277  
  
 O.-Flevoland (Netherlands) 289, 291, 292, 299  
 Oaxaca 271  
 oceanic climate 169  
*Ocotea* 253  
*Odontoschisma denundatum* 60  
 oesophageal carcinoma 277  
 Old World 21  
   Tropics 225, 231, 236, 242  
*Oleandra musifolia* 8  
 Oostelijk Flevoland (Netherlands) 11, 17, 18  
 Ophioglossaceae 75–76, 75  
*Ophioglossum* 75–76, 194  
   *palmatum* 75  
     new record for Bolivia 75–76  
   *pendulum* 75  
   *petiolatum* 8  
   *reticulatum* 8  
   *vulgatum* 8, 117, 294, 296, 301, 306, 307  
 Orchidaceae 166  
 Ordu (Turkey) 123, 124, 126, 127, 130, 132, 138,  
   139, 170, 171, 173, 175–77, 179  
*Oreopteris* 169  
   *limbosperma* 173, 188–91  
     distribution in Turkish Black Sea eastern  
     region **182**  
*Ornithogalum umbellatum* 295  
*Osmunda* 169, 271, 281  
   *bipinnata* 228  
   *cinnamomea* 228, 255  
   *collina* 2  
   *hugeliana* 8  
   *imbricata* 228  
   *mexicana* 228  
   *palmeri* 228  
   *palustris* 228  
   *phyllitidis* 228  
   *regalis* 8, 117, 170, 188–90, 228  
     distribution in Turkish Black Sea eastern  
     region 181  
     var. *spectabilis* 228  
   *spectabilis* 228  
   *tomentosa* 229  
 Osmundaceae 170, 228  
*Osmundastrum cinnamomeum* 228  
 ostiole 88  
 outbreeding 69  
 Overijssel province (Netherlands) 293  
  
 Pa'i Tavytera 223  
 Pachmarchi (India) 145, 146  
 Pacific Islands 7, 238  
 PAGE, C.N. 82, 204, 214  
 Pakistan 72  
   northern 8  
 Palayamkottai (India) 43  
 paleotropics 75  
 Palghat gap (India) 1–3, 146  
*Palhinhaea cernua* 226  
   var. *sikkimensis* 219  
*Paliurus* 124  
   *australis* 169  
 palm 225  
 Palni Hills (India) 1, 2, 4, 5, 41, 43–48, 147  
 Palnis (India) 6, 7, 8, 9  
 Panama 228–31, 238, 239, 241, 243, 259  
 PANT, D.D. 101–8  
 pantropical 8, 226, 229, 252  
 para-aspidin 80  
 Paraguay 109, 221, 223, 225–46, 248–52  
   east 221, 229  
   oriental region 221, 247, 256–58  
 paralysis 277  
 Parasnath Hills (India) 145–47  
 parenchyma **164, 165**  
 parenchymatous  
   cell 162  
   layer 161  
 PARRIS, B.S. 214, 215–16, 218, 260  
*Paspalum* 254  
 passage cell 161, 162, **164, 165**, 166  
 pasture 233, 235, 254  
   habitat described 254  
   on saturated soil 239, 240  
 peat 17  
   erosion of 11, 12  
   sphagnum 12, 13

- Pecluma* 75  
*camptophyllaria* var. *lachnifera* 250, 256  
*filicula* 250, 256  
*ptilodon* var. *robusta* 250, 256  
*sicca* 250
- pectinase 27
- Pellaea boivini* 5
- Peltophorum* 253
- PEÑA-CHOCARRO, M.C. 221, 259
- Peninsular Thailand 215
- Perak 215, 216
- PÉREZ-GARCÍA, B. 268, 273–74
- pericycle 161
- perispore 101
- Perthshire 207, 208
- Peru 75, 109, 153, 228, 233, 236, 239, 242, 243, 247–50, 252  
north-central 157  
south eastern 153
- Peruvian tree ferns 153–59  
distribution and abundance of **158**
- pH electrode 170
- Phegopteris* 169  
*connectilis* 79, 173, 188, 189, 190, 191  
distribution in Turkish Black Sea eastern region **182**  
*polypodioides* 193
- phenotypic plasticity 71, 91
- Philippines 5, 7–9, 261–308
- Phillyrea latifolia* 128, 169
- Phlebodium decumanum* 250
- phloroglucide 80
- phorophyte specificity 75
- phosphoglucoisomerase 209
- phosphoglucomutase 209
- phosphogluconate dehydrogenase 209
- photomicrographs (SEM) 101, 104
- photosynthesis 272
- phreatic level 12, 13
- Phyllitis* 83, 160, 165  
*balansae* 246, 252, 257  
*hybrida* 25
- phylogeny 160
- phytogeography 113, 116
- Picea* 123, 124, 126, 132, 172–74, 176–78, 180, 298  
*abies* 11, 13, 58  
*orientalis* 169  
*sitchensis* 12, 13, 16, 17  
spp. 292
- PICHI SERMOLLI, R.E.G. 214
- Pineto brutiae alpino 129
- Pinetum 126, 129
- pinnae 8, 93, 96, 145  
auriculate 9  
basal 48  
*Crepidomanes lunulatum* 267  
dimorphic 141  
entire 85  
fertile 21, 91, 93, 99, 141  
reduced basal 46  
simple 5  
size 47  
sterile 21, 91, 93, 95, 96, 98, 99, 141
- pinnule 8, 27, 77  
simple 6
- PINTER, I. 25–40
- Pinus* 4, 56, 120, 126, 128, 131, 133, 174, 175, 177–79, 296, 298, 300, 305  
*brutia* 121, 125, 126, 128, 129, 133  
*nigra* 11, 120, 121, 123, 127, 128, 132, 133, 172, 176  
*pinaster* 86  
spp. 291, 292  
*sylvestris* 58, 124, 126, 130, 132, 169, 172, 175, 176, 178, 180
- Piperaceae 254
- Pistacia*  
*atlantica* 169  
*palaestiana* 169
- Pityrogramma*  
*austroamericana* 234  
*calomelanos*  
var. *aureoflava* 234  
var. *austroamericana* 234, 255  
var. *calomelanos* 234  
*ebenea* 234  
*trifoliata* 235, 255
- Plagiogyriaceae 288
- Plagiothecium argyrophyllum* 198
- Plananthus alopecuroides* 226
- Platanus* 123, 171, 173–175, 179
- Platyterium bifurcatum* 278
- Pleopeltis*  
*macrocarpa* 9  
*pleopeltifolia* 251, 256
- Plesioneuron fulgens* 219
- Pleurosorus* 160, 165
- ploidy  
16-ploid 144, 145  
aneuploid 24, 147  
diploid 9, 23, 25, 26, 29, 32, 33, 144–48  
haploid 33  
hexaploid 26, 32, 38, 147  
level 48, 145



- octaploid 144–47
- pentaploid 79
- tetraploid 9, 25, 26, 29, 32, 79, 146, 147
- triploid 9, 26, 32, 33, 38, 83, 84, 144, 145, 147
- Poa*
  - nemoralis* 295
  - trivialis* 293
- Poaceae* 254
- Podocarpus* 75
- podzol 13
- poikilohydrous leaves 272
- polder woodland
  - change in maximum length of fronds of *Asplenium scolopendrium* **304**
  - changes in dispersal types since afforestation **303**
  - correlations between independent and dependent variables **296**
  - habitats 296
  - multiple regression models 298
  - number of fern species in relation to the age of the afforestation **302**
  - number of specimens of rare ferns at the Jagersveld **304**
  - regression and multiple regression for species **299**
  - relation between area and the number of fern species 297
  - species in trenched woods **301**
  - species per hectare **300**
- pollution, air 59, 61
- polymorphic species 48, 71
- Polynesia 5, 8, 9
- polyploidy 25, 141, 148
- Polypodiaceae 122, 166, 170, 171, 248, 261–308, 288
- Polypodium* 75, 169
  - atrovirens* 231
  - australe* 124
    - distribution in Turkey **135**
    - new records for Turkey **135**
  - cambricum* 124, 172, 189, 190, 191
    - distribution in Turkish Black Sea eastern region **181**
    - distribution in Turkish Black Sea western region **182**
    - subsp. *serrulatum* 109
  - camptophyllarium* var. *lachniferum* 250
  - caripense* 241
  - connexum* 241
  - decumanum* 250
  - effusum* 241
  - filiculium* 250
  - glaucum* 278
  - globuliferum* 236
  - guianense* 244
  - harpeodes* 251
  - hirsutissimum* 248
  - interjectum* 123, 172, 189–91
    - distribution in Turkey **135**
    - distribution in Turkish Black Sea eastern region **181**
    - distribution in Turkish Black Sea western region **182**
    - new records for Turkey **135**
  - lachniferum* 250
  - latipes* 251
  - lindbergii* 249
  - longifolium* 251
  - loriceum* 251
  - macaronesicum* 109
  - nigrescens* 144
  - penna-marina* 92
  - persicariifolium* 249
  - phyllitidis* 248
  - pleopeltifolium* 251
  - polypodioides* 251
  - preslianum* 251
  - ptilodon* 250
  - robustum* 250
  - rufulum* 248
  - scabrum* 239
  - siccum* 250
  - squamulosum* 249
  - submarginale* 240
  - tetragonum* var. *incompleta* 239
  - triangulare* 215
  - trinidadense* 193
  - triseriale* 251, 256
  - vaccinifolium* 249
  - vacillans* 251
  - vexillare* 248
  - vulgare* 122, 171, 188–91, 294, 307
    - distribution in Turkey **135**
    - distribution in Turkish Black Sea eastern region **181**
    - distribution in Turkish Black Sea western region **182**
    - new records for Turkey **135**
- Polystichum* 25, 169, 193
  - aculeatum* 11, 25–27, 32, 38, 178, 188–91, 294, 296, 299, 301, 307
    - distribution in Turkish Black Sea eastern region **182**
    - distribution in Turkish Black Sea western region **183**

- meiosis **29**
- mitosis **28**
- amplissimum* 241
- australe* 188
- × *bicknellii* 25–27, 29
  - meiosis **31**
  - meiosis in progeny **37, 38**
  - meiosis pachytene phases **30**
  - mitosis **28**
  - mitosis in progeny **36**
  - possible pathways of meiosis **33**
  - progeny studies 25–40
  - silhouettes of aculeatum-like fronds **34**
  - silhouettes of progeny **35**
  - silhouettes of setiferum and lonchitis-like fronds **35**
  - spores **32**
- braunii* 25, 26, 178, 188–91
  - distribution in Turkish Black Sea eastern region **186**
- × *illyricum* 25–27, 29
- interjectum* 188
- lobatum* var. *ruwenzoriense* 218
- × *lonchitiforme* 26, 27
- lonchitis* 25–27, 32, 38, 178, 188–91, 294, 296, 299, 301, 306
  - distribution in Turkish Black Sea eastern region **186**
  - distribution in Turkish Black Sea western region **183**
  - meiosis **29**
  - mitosis **28**
- munitum* subsp. *imbricans* 218
- setiferum* 25–27, 32, 38, 86, 178, 188–91, 202, 293, 294, 299, 301, 306
  - characters of surveyed populations **15**
  - correlations between some parameters for the Kuinderbos (Netherlands) population **17**
  - distance effect between recruitment and solitary fertile adult plants **15**
  - distribution in the Netherlands **12**
  - distribution in Turkish Black Sea eastern region **182**
  - distribution in Turkish Black Sea western region **183**
  - ditch bank habitat of in the Kuinderbos (Netherlands) **12**
  - ecology 17
  - ecology and population dynamics of 11–20
  - ecology of in the Kuinderbos (Netherlands) **13**
  - fertile plants in relation to classes based on maximum frond size per plant for the Kuinderbos (Netherlands) population **18**
  - fertility 17, 19
  - frond size and plant number in the Kuinderbos (Netherlands) **14, 16**
  - meiosis **29**
  - mitosis **28**
  - population structure and dynamics 14–19 spp. 293, 306
  - subinerme* 9
  - torresianum* 237
  - woronowii* 131, **137**, 178, 188, 189, 191
    - distribution in Turkey **137**
    - distribution in Turkish Black Sea eastern region **186**
    - distribution in Turkish Black Sea western region **183**
- population
  - analysis of British *Pteridium* 205–13
  - dynamics 11–20
- Populus* × *canadensis* 11, 14, 292, 300
- Potamogeton polygonifolius* 116
- POVEY, A. C. 275–87
- Pratappur, Allahabad (India) 101
- precancerous lesions in mice 280
- PRELLI, R. 83–86
- PRICE, M.G. 261
- primitive character state 166
- Pronephrium*
  - articulatum* 3
  - lakhimpurensis* 219
  - nudatum* 219
  - penangianum* 219
  - thwaitesii* 2, 3
  - triphylllum* 9, 219
- prothallus 30, 31, 33, 38, 65, 66, 68, 89
  - age 69
  - hermaphrodite 66–69
  - isolated 67
  - mature 27, 88
  - sexually mature 66
  - size 69
  - sterile 69
  - with tracheids 87
- protoxylem poles 161
- Prunus avium* 300
- Pseudocyclosorus*
  - ochthodes* 141, 142, 144, 145, 147, 219
  - meiosis in spore mother cells **143**
    - var. *annamalayayensis* 142
    - var. *palniensis* 142

- tylodes* 147
- Pseudolycopodiella meridionalis* 226
- Psilotaceae 109, 225, 259
- Psilotum*
- complanatum* 111
  - flaccidum* 111
  - nudum* 198, 225
    - distribution 109
    - distribution in SW Iberian Peninsula **111**
    - ecology 109
    - habitat and morphology in SW Iberian Peninsula **110**
    - new populations in SW Europe 109–12
    - systematics 109
    - var. *fallacinum* 111
    - var. *molesworthae* 111
  - triquetrum* 225
- ptaquiloside 280
- Pteridaceae 170, 171, 231, 271, 272
- Pteridioideae 21
- Pteridium* 21, 169, 205, 275, 280, 283
  - aquilinum* 58, 60, 117, 141, 144, 146, 172, 188–91, 280
    - antheridiogen 64
    - distribution in Turkish Black Sea eastern region **181**
    - distribution in Turkish Black Sea western region **187**
    - health risks 277
    - meiosis in spore mother cells **143**
    - potential damage to DNA by spores 279
    - subsp. *aquilinum* 205–207, 209
    - subsp. *atlanticum* 205, 207
    - subsp. *fulvum* 205, 207, 210
    - subsp. *latiusculum* 205
    - var. *arachnoideum* 236
    - var. *wightianium* 59, 146
  - aquilinum* subsp. *aquilinum* 211, 212
  - pinetorum* 207, 212
    - subsp. *fulvum* 212
    - subsp. *osmundaceum* 205, 207, 209
    - subsp. *osmundaceum* type locality **208**
    - subsp. *pinetorum* 205, 207, 209
    - subsp. *pinetorum* type locality **206**
- population analysis 205–13
- reticulatum* 8
- spores 280
- study
  - genotypes found at *P. pinetorum* subsp. *pinetorum* site 209
  - genotypes found at the *P. pinetorum* subsp. *osmundaceum* site 210
- location of sample sites for *P. aquilinum* subsp. *fulvum* 208
- location of sample sites for *P. pinetorum* subsp. *osmundaceum* **208**
- P. aquilinum* subsp. *fulvum* location of sample sites **208**
- P. pinetorum* subsp. *osmundaceum* location of sample sites **208**
- zymogram of *P. pinetorum* subsp. *osmundaceum* samples **211**
- zymogram of *P. pinetorum* subsp. *pinetorum* samples 210
- taxonomy, changes in the British Isles **205**
- Pteridoblechnum* 21
- pteridology 90
- pteridophyte
  - species in the Azores and North America 117
  - spores allergic reactions 275
  - starch grains 272
- Pteris* 21, 75, 169, 255
  - altissima* 235, 257
  - brasiliensis* 235
  - concolor* 233
  - cretica* 141, 144, 145, 171, 188, 189
    - distribution in Turkish Black Sea eastern region 181
    - var. *albolineata* 145
  - deflexa* 235, 256
  - denticulata* 235
  - edentula* 236
  - elata* 235
  - geminata* 9
  - incompleta* 198, **200**, 202
  - kunzeana* 235
  - lineata* 236
  - longipes* 3
  - mertensioides* 3, 9
  - multiaurita* 9
    - × *otaria* 9
  - plumula* 236
  - polita* 235
  - protea* 235
  - quadriaurita* 9, 236, 257
  - rigidula* 261
  - serrulata* 198
  - spinescens* 261
  - vittata* 9, 278, 279
- Puerto de la Zarza 199
- Puerto Rico 243
- Queensland (Australia) 9

- (N. Australia) 41  
 quercetin 280  
*Quercion robori-petraea* 305  
*Quercus* 13, 75, 122, 123, 125, 126, 128, 131–33, 171–75, 179  
   bushes 171  
   *ilex* 86, 169  
   *robur* 11, 58, 60, 61, 86, 292, 300, 302  
 Quillwort see *Isoetes*  
 Quilon (India) 101
- rachis 6, 85, 93, 95, 96, 99, 143  
   winged 142  
 rainforest  
   lowland (Peru) 157  
   montane 157  
 RAJKUMAR, S. 41–50  
*Ranunculus*  
   *auricomus* 293, 295  
   *ficaria* 294, 299, 305  
     subsp. *bulbilifer* 295  
 rashes 279  
 rats 277  
 RAUER, G. 75–76  
 ravine 153  
   woods 306  
 receptacle extruded 147  
 reclaimed polders 289  
 rectified spirit 141  
 reduced life-span in mice 279  
 refugial areas 197, 198  
 regeneration 61  
 reproduction  
   apogamous 144–47  
   apomixis 79, 145, 146, 148  
   sexual 79, 144–47  
   vegetative 61  
 Resadiye (Turkey) 169  
 reserve 221, 223, 225, 253, 254, 258  
 respiratory  
   paralysis 277  
   problems 279  
 Réunion 5, 7, 75  
*Rhamnus elaternus* 169  
 rhizodermis 161, **164**, **165**  
 rhizoid 87  
 rhizome 43, 47, 93, 96, 98, 142  
   creeping 46, 48, 95, 99, 272  
   erect 21, 46, 48  
   hairs in *Crepidomanes lunulatum* **266**  
   in *Crepidomanes lunulatum* 267  
   suberect 99
- Rhododendron* 51, 57, 124, 132, 138, 139, 170, 180  
   *flavum* 169  
   *ponticum* 58–61, 111, 169  
 RIBA, R. 259, 268, 273–74  
*Ribes* 124, 132, 138, 139, 180  
   *nigrum* 294, 295  
   *rubrum* 293–96, 299, 301  
   spp. 298, 302  
   *uva-crispa* 294, 295, 299, 301  
 RICH, T.C.G. 51–63  
 RICHARDSON, S.J. 51–63  
 Río Jejuí drainage 223  
 river  
   bank 226, 229, 230, 232, 233, 238, 241, 243, 245–48, 254, 255, 257  
   habitat described 254  
   in cerrado habitat 229  
 Rize (Turkey) 121, 124–26, 128, 130–32, 139, 170, 171, 173–78, 180  
 root  
   *adiantum-nigrum*-type 162, 163  
   in *Aethiopicum* 162  
   *aethiopicum*-type 163  
   *alatum*-type 162, 163  
   anatomy  
     in *Cheilanthes bolborriza* 270  
     of Aspleniaceae 160–68  
   as storage organ 272  
   *asplenium*-type 161, 162  
   *ceterach*-type 162, 163  
   characters, evolutionary scheme for Aspleniaceae 166  
   cortex 160, 270  
     inner 166  
     *Notholaena*-type 271  
   cortex cross-section in  
     *Asplenium*  
       *adulterinum* **164**  
       *aethiopicum* **165**  
       *alatum* **165**  
       *aureum* **164**  
       *delitescens* **164**  
       *marinum* **164**  
       *willfordii* **165**  
     cortex types, key 162  
     *dennstaedtia*-type 162  
     *flabellifolium*-type 163  
     *flabelliforme*-type 162  
     hairs 161  
     *hymenoasplenium*-type 161–63  
     *marinum*-type 162  
     morphology in *Cheilanthes bolborriza* 270

- primitive (plesiomorph) character state 165  
 shoot-borne 270  
 starch  
   grains 271, 272  
   storage 269  
 storage 269, 271  
   *Cheilanthes bolborriza* 270  
   biological importance 272  
   tip 27, 28  
   types occurrences in species of Aspleniaceae 162  
*Rosa* 32  
 ROSE, F. 51–63  
 Royal Botanic Gardens, Kew 215  
*Rubia peregrina* 86  
 Rubiaceae 254  
*Rubus* 126, 172  
   *caesius* 294  
   *fruticosus* 58, 59, 60  
   *idaeus* 294  
   section *Corylifolia* 294  
   section *Rubus* 294  
 RUDOLPH, D. 75–76  
*Rumex sanguineus* 295  
 RUMSEY, F.J. 197–203  
*Ruscus aculeatus* 86  
 Ryukyu Island (Japan southern) 41
- Sabah 215  
*Sabal palmetto* 75  
*Sadleria* 21, 24  
   *pallida* 279  
 Safranbolu (Turkey) 169  
 Sakarya (Turkey) 170, 172  
 SALGADO, A.E. 193  
*Salix alba* 291, 292  
*Salpichlaena* 21, 24  
 Salto de Karāpa 224  
 Salvador 271  
*Salvinia* 193  
   *minima* 252  
   *rotundifolia* 252  
 Salviniaceae 252  
 Salvo Tierra 198  
*Sambucus* 126, 132, 138  
 Samoa 41  
 Samsun (Turkey) 121, 125, 131, 169, 170, 172–74,  
   179  
 sand  
   calcareous 12, 301  
   fine-grained 11, 13, 14, 17  
   pleistocene 12  
 sandstone 51, 52, 55–57, 59, 60, 109, 198  
   sandy soil 157, 216  
   Sarawak 215  
   savannah 1  
     vegetation 223  
   scanning electron microscope 92, 101  
*Schaffneria* 160  
*Schizaea digitata* 9  
 Schizaeaceae 228, 271, 272  
 schizaeaceous fern 64  
 SCHNEIDER, H. 160–68, 269–73  
 SCHNELLER, J.J. 64–70, 90  
 sclereid 162  
   with eccentric lumen *See* asplenium-sclereid  
 sclerenchyma **164, 165**, 166  
*Scolopendrium balansae* 246  
 Scotland 205, 208, 210, 282, 306  
   western 80  
 scree alpine 91, 92  
*Scrophularia nodosa* 295  
*Sebastiania*  
   *brasiliensis* 253  
   sp. 254  
 secondary endodermis 161  
 sedge 225  
   pollen 281  
*Sedum hirsutum* subsp. *winkleri* 109, **110**  
*Selaginella*  
   *anocardia* 227  
   *apus* var. *tetragonostachya* 227  
   *beyrichii* 227  
   *braziliensis* var. *crassinervia* 227  
   *brevipes* 227  
   *burchellii* 227  
   *chromatophylla* 227  
   *crassinervia* 227  
   *deltoides* 227  
   *distorta* 227  
     var. *major* 227  
     var. *minor* 227  
   *excurrens* 227  
   *feei* 227  
   *humilis* 227  
   *marginata* 227, 255  
     subsp. *distorta* 227  
     var. *minor* 227  
   *moseni* 227  
   *mucosa* 227  
   *muscosa* 255  
   *niederleinii* 227  
   *polysperma* 227  
   *trifurcata* 227  
   *urbani* 227

- Selaginellaceae 73, 227
- Selenodesmium rigidum* 230
- selfing
- intergametophytic 27, 38
  - intragametophytic 69
- Selliguea* 288
- bellisquamata* 219
  - plebiscopa* 219
  - wernerii* 219
- Senegal 109
- Setaria* 254
- sex, determination of 64–70
- Seychelles 75, 271
- SHARMA, U.S. 87–89
- sheep 277
- SHEFFIELD, E. 205–13, 275–87
- Shevaroy Hills (India) 146
- shikimate dehydrogenase 209
- shikimic acid, carcinogenic property 280
- sholas 1, 2, 3, 5, 7, 8, 9, 10
- Siam 21
- Siberia 71
- SIDWELL, K.J. 274
- Sierra
- de Luna 198, 199, 201, 202
  - de Montecoche 197, 199
  - de Ojen 198, 201, 202
  - de Saladavieja 198
  - del Nino 198, 199, 201, 202
- Siirt (Turkey) 122, 129
- Sikkim (India) 5, 8, 71–74, 72, 145
- northern 73
- Silene dioica* 294
- silicole 188
- SIMÁN, S. E. 275–87
- Simla (India) 145
- Sinephropteris* 165
- Sinop (Turkey) 121, 123–25, 127, 128, 130, 131, 138, 169–72, 174–79
- skin
- oedema 277
  - rashes 279
- SKUKLA, P.K. 101–8
- SMIT, A. 289–308
- Society Islands 9
- sodium hypochlorite 65, 66
- soil
- acidic 188, 191, 283
  - alkaline 191
  - boulder clay 14
  - calcareous 7, 14, 133, 305
  - clayey 11, 13, 14, 18, 156, 157, 174, **290**, 291, 296, 299, 300, 301, 303, 306, 307
  - pH 17, 53, 56, 57, 188, 191
  - podzol 13
  - poor 11
  - reclaimed 14
  - sandy 14, 157
  - sandy clay 14
- Solomon Islands 7
- Sorbus aucuparia* 58, 61
- sori 27, 84, 93
- asplenioid 85
  - fixation of 43
  - scolopendrioid 85
- Sorocea* 226
- bonplandii* 253
- sorus in *Crepidomanes lunulatum* 265, 267
- South
- Africa 109
  - America 75, 91, 95, 96, 115, 150, 228, 231, 234–36, 235
  - cerrado 223, 225, 251
  - northern 231, 245
- South East Asia 228
- southern
- hemisphere 91
  - Peninsular Thailand 216
- Spain
- south west 109
  - southern 197, 198, 202
- species
- acidiphilous 17
  - calcicole 18, 19
  - endangered 1–10, 89
  - rare 1–10
- spermatozoid 69
- Sphaeropteris* spp. 218
- Sphaerostephanos* 288
- fenixii* 261
  - irayensis* 261
- Sphagnum* 228, 237
- moss 113
  - peat 12
  - swamp 230, 233, 255
  - habitat description 254
- spiral thickening 161
- sporangium 32, 43, 57, 80, 91, 101, 104, 113, 115, 141, 145, **282**
- archesporial cells 146
  - in bracken **283**
  - in *Crepidomanes lunulatum* **266**, 267
  - mature 64

young 84  
 spore 27, 30, 38, 43, 69, 73, 74, 92, 93, 95  
   abnormal 85  
   abortive 32, 37, 79  
   bank 62, 305  
   bracken, health risk 275  
   carcinogenicity of 279  
   cytology (*Isoetes azorica*) 113–18  
   dispersal 282  
     patterns 281  
   exine 93, 95, 96, 98, 99  
   extracts 278, 279  
   fossil 104, 107  
   germination 65, 66  
   girdle 116, 117  
   in *Crepidomanes lunulatum* **266**, 267  
*Isoetes*  
   *azorica* (SEM) **114**  
   *tuckermanii* (SEM) **114**  
   morphology 116, 117  
     in *Isoetes azorica* 113–18  
   mother cell 32, 33, 37, **143**, 146  
   muri 116  
   production 18  
   regeneration from 61  
   risks from inhalation 284  
   shadow 16, 18  
   size 46, 47, 92  
   sterile 29, 33  
   sterilization procedure 65  
   surface ornamentation 101  
   trap 281  
   viable 26, 29, 32, 33, 37, 79  
 sporeling 30  
 sporing bracken 281  
 sporophyll 73, 74, 104  
 sporophyte 27, 30, 31, 32, 33, 38, 58, 69, 89, 110,  
   281  
 sporulation 281  
 Sri Lanka 2, 4–10, 41, 42, 48  
 SRIVASTAVA, G.K. 101-8  
 St. Helena 41  
 St. Paul Island 95  
*Stachys sylvatica* 295  
 starch  
   grains 161, 271  
     in fern roots 271, 272  
     in petiole base 272  
     in rhizome 272  
   storage  
     in fern roots 269  
 static air sampling 281  
*Stegania alpina* 92, 96  
*Steuropteris leprieurii* 239  
*Stenochlaena* 21  
 Sterculiaceae 254  
 sterility 25  
 Stewart Island 96  
 stipe 6, 84, 85, 93, 95, 96, 98, 143  
   base 99  
 stomach cancer 277  
 stomata 88, 145  
   guard cell size 46  
   size 166  
 stomium in *Crepidomanes lunulatum* 267  
 storage roots 269, 271  
   biological importance 272  
   in *Cheilanthes bolborrhiza* 269–73  
   in ferns 270  
 Straits of Magellan 95  
 STRANGE, L. 288  
 stream bank  
   disturbed (Peru) 157  
   habitat (Peru) 156, 157  
*Struthiopteris penna-marina* 92  
 Styracaceae 254  
 sub-Antarctic islands 96  
 subtropical Africa 238  
 subtropics 225, 238  
 Sumatra 5, 24  
   northern 21  
 Surat Thani 215  
 Surinam 228  
 Surtsey 281  
 Sussex (England) 51  
 swamp  
   *Sphagnum* 228  
   with *Sphagnum* 228, 230, 233, 237  
 Swifterbos-oost (Netherlands) 301  
 Switzerland 64  
*Syagrus* 254  
   *romanzoffiana* 236  
 systematics 90, 109, 111, 160  
   theoretical 78  
*Tabebuia* 253  
 Taenitidoideae 270  
 Tahiti 41  
 Taiwan 6–9, 41, 42, 91  
 Tajo del Espino 199  
 Tambopata (Peru) 156  
 Tamil Nadu (India) 1–8, 43  
*Tamus communis* 86  
 tannin vacuole 161

tannins 161  
 Tanzania 109  
 tapetal cells 141  
 tape-worm 277  
*Taraxacum* 293  
 Tarifa districts 198  
 TARIMCILAR, G. 119–40, 169–92  
 Taskopru (Turkey) 169  
 Tasmania 91, 96  
 Tasova (Turkey) 169  
 taxa and genera of fern families (Black Sea region)  
   **170**  
*Taxodium* 75  
 taxonomy 77–81, 78, 80, 81  
*Taxus* 57, 191  
   *baccata* 58, 60  
*Tectaria* 147, 255  
   *coadunata* 142, 144, 147  
   var. *hirsuta* 147  
   *incisa* 242, 256  
   *macrodonga* 144  
   *martinicensis* 242  
 Tectariaceae 240  
 Tekirdag (Turkey) 121  
 Tenasserim 21  
 Tertiary relict flora 197  
*Tetraphis pellucida* 61  
 tetraploid 113, 117  
   aquatic 116  
 Thailand 5, 6, 9, 10, 24, 41, 215, 216  
   southern Peninsular 216  
 Thelypteridaceae 41–50, 170, 173, 237  
*Thelypteris* 238, 239, 271  
   *abbiattii* 238, 257  
   *augescens* 275  
   *burkartii* 238  
   *confluens* 9  
   *gemmulifera* 238  
   *hispidula* 238  
   *leprieurii* 239, 256  
   *limbosperma* 117  
 Mbaracayu Reserve, unidentified species 240  
   *pachyrhachis* 239, 257  
   *palustris* 193  
   *phegopteris* 79  
   *quadrangularis* 238  
   *remotipinna* 219  
   *rivularioides* 239  
   *scabra* 239, 257  
   *serrata* 240  
   sp. 225, 240  
   *torresiana* 237  
   thiamine deficiency 277  
 THOMAS, B.A. 40, 82  
 thrombocytes 277  
 thymus enlargement in mice 279  
 Tibet 71, 72, 73  
   south eastern 6  
 Tierra Del Fuego 95  
*Tilia* 19  
   *cordata* 300  
 tioventin solution 160  
 Tirunelveli Hills (India) 1, 3, 43–48  
 Tobago 227, 246  
 Tollebeckerbos (Netherlands) **290**, 299, 300  
 topography 141  
 Trabzon (Turkey) 121, 123–26, 128, 130–32, 138,  
   139, 169–80  
 tracheid 161  
   annular thickened 87, **88**, **89**  
   in mid-rib 87  
   in wild fern gametophytes 87–89  
 transect 156  
 tree fern 6, 156, 157  
   distribution and abundance of in Peru **158**  
   diversity (Tambopata, Peru) 157  
   location of transect samples Zona Reservada de  
   Tambopata **154**  
   *Nephelea cuspidata* height distribution **155**  
   Peruvian 153–59  
   trapped spores 281  
   *Trichipteris/Cyathea* complex height distribution  
   **155**  
   typical habitat 157  
 trenches 296  
*Trichilia* 253, 254  
   *pallida* 254  
*Trichipteris* **155**  
   *atrovirens* 231  
   *nigra* 157  
   *nigripes* 156, 157  
   *pilosissima* 156  
   *procera* 156  
   species 157  
*Trichomanes* 75, 146, 147  
   *bimarginatum* 2  
   *brachyblastos* 230  
   *crisatum* 230, 255  
   *daucooides* 230  
   *diaphanum* 230, 257  
   *hymenophylloides* 230  
   *kunzeanum* 230  
   *latifrons* 147  
   *leptophyllum* 230



- pyxidiferum* 144, 146  
   var. *limbatum* 144  
*radicans* 230, 257  
   var. *kunzeanum* 230  
*rigidum* 230, 257  
*schmidianum* 141, 144–47  
   frond **142**  
   var. *schmidianum* 147  
*sellowianum* 230  
*speciosum* 197–99, 202, 204  
   by small streams on the Dehesa de Ojen **200**  
   distribution in southern Spain **201**  
   distribution within the Sierra de Ojen, Sierra de  
   Luna and Sierra del Nino **201**  
   in southern Spain 197–203  
   occurrence as gametophyte 59  
   site of gametophyte population in the Sierra de  
   Montecoche **199**  
 Trinidad 227–30, 232, 233, 242, 246, 252  
 triosephosphate isomerase 209  
*Trismeria*  
   *microphylla* 235  
   *trifoliata* 235  
 Tristan da Cunha 95, 97  
 trophopods 272  
 tropical 95, 109  
   Africa 238, 245, 271  
   America 9, 21, 232, 233, 236, 237, 245–48, 251,  
   252  
   American species 116  
   areas 111  
   evergreen forest 265  
   forest wet lowland 157  
   moist forest 153  
   species 258  
 tropics  
   New World 238, 242  
   Old World 41, 231, 236, 238, 242  
 Tubingen 160  
 tumour 280  
   lung 279  
   mammary 279  
 Tunbridge Filmy-fern in south east England 51–63  
 Tunceli (Turkey) 120, 127–29  
 Turkestan 71  
 Turkey 119–40, 169–92, 170  
   new floristic records for the fern flora 119–40  
   north 169  
 Turneraceae 254  
 U.S.A. northern temperate 197  
 Uganda 41, 109  
*Ulmus* 19, 123, 131, 171, 172, 174, 175, 179  
 United  
   Kingdom 12, 17, 19, 109, 207, 281  
   States 228, 248  
     south 248  
     south east 238, 252  
 univalent 27  
 urinary bladder tumours 277  
*Urostachys mandiocanum* 226  
*Urtica dioica* 293, 294  
 Uruguay 225, 227–29, 233, 235, 241, 247–49, 252  
 Usak (Turkey) 120  
 Uttar Pradesh (India) 101  
  
*Vaccinium myrtillus* 138  
*Vandenboschia* 146  
   *diaphana* 230  
   *hymenophylloides* 230  
   *pyxidifera* 146  
   *radicans* 230  
   *schmidiana* 144  
   *speciosa* 197  
   *tibtuensis* 146  
 variation  
   developmental 77  
   genotypic 91  
   geographical 80  
   intraspecific in south Indian ferns 41–50  
   phenotypic 77  
 vein 143  
   false 147  
 velamen 166  
 velum 115  
   fenestra 113  
 Venezuela 227–30, 232, 236, 238, 239, 241–43,  
   245, 247–50, 252  
 Verma (India) 145  
*Veronica hederifolia* 294  
 VICENTE ORELLANA, J.A. 109–12  
 Vietnam 5, 6, 8, 41, 75  
*Vittaria* 75  
   *filiformis* 236  
   *flexuosa* 2, 10  
   *lineata* 236  
   *microlepis* 10  
 Vittariaceae 166, 236  
 VOGEL, J.C. 197–203, 204, 214, 216  
  
*Wahlenbergia hederacea* 51  
 Wales 15, 18, 19, 191, 281  
   northern 58, 61  
 waterfall 198, 199

Weald (England south east) 51, 52, 56, 57, 59, 60  
*Weinmannia* 75  
West Indies 9, 75, 228, 230, 231, 243, 248, 249  
Western Ghats (India) 41, 145, 146, 265  
    Beddome's record of ferns 1  
    rare and endangered ferns 1–10  
Westerveld (Netherlands) 303, 305  
Wieringmeerpolder (Netherlands) 11  
Wisentbos (Netherlands) 300  
WOLLENWEBER, E. 90  
woodland 57, 61  
    age 302  
    ancient 52, 60, 307  
    Ash-Maple-Hazel 305  
    British 307  
    clearance 60  
    colonisation of 11  
    coniferous 60, 289  
    deciduous 14, 17, 19, 51, 202, 289, 291  
    evergreen 215  
        mixed 202  
    habitats 296  
    mixed 19  
    natural 60  
    on acid clay 299  
    on clayey soil 289, 293, 300, 301, 305  
    *Pruno-Fraxinetum* 307  
    *Quercu-Betuletum* 307  
    ravine 306  
    species 289–308, 298, 299, 302  
    *Stellario-Carpinetum* 307  
    trenches 296  
*Woodsia* 169  
    *alpina* 178, 188, 190, 191  
        distribution in Turkish Black Sea eastern  
        region **186**  
Woodsiaceae 170, 177, 242  
    primitive genera 166  
*Woodwardia* 21, 24  
xeric  
    environment, adaption to 271, 272  
    fern syndrome 272  
    ferns 272  
xerophyte 111  
*Xiphopteris bryophylla* 219  
xylogenesis 89  
Yala 215  
Yalova (Turkey) 120, 122, 123, 125, 126, 128, 131,  
    133  
Yapp 216  
Zaire 75, 109  
Zambia 272  
Zona Reservada de Tambopata (Peru) 153  
    location **153**  
Zonguldak (Turkey) 170, 172, 173, 178  
Zuidelijk Flevoland (Netherlands) 11  
Zuiderzee (Netherlands) 11, 18, 289  
Zurich (Switzerland) 64  
Zwolle (Netherlands) 293, 299, 303, 305  
*Zygophlebia* 75