



This work is licensed under the Creative Commons Attribution-Noncommercial-Share Alike 3.0 United States License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc-sa/3.0/us/> or send a letter to Creative Commons, 171 Second Street, Suite 300, San Francisco, California, 94105, USA.

| | |
|--|-----|
| Editorial – Ragged Right. | 1 |
| Goulet – Biology and Relationships of <i>Pterostichus adstrictus</i> Eschscholtz and <i>Pterostichus pensylvanicus</i> LeConte (Coleoptera: Carabidae) | 3 |
| Griffiths – Studies on Boreal Agromyzidae (Diptera). V. On the Genus <i>Chromatomyia</i> Hardy, with Revision of Caprifoliaceae-Mining Species | 35 |
| Book Review | 70 |
| Announcement | 71 |
| Book Review | 73 |
| Book Review | 77 |
| Goulet – Classification of the North and Middle American Species of the Genus <i>Pelmatellus</i> Bates (Coleoptera: Carabidae: Harpalini) | 80 |
| Griffiths – Studies on Boreal Agromyzidae (Diptera). VI. Further <i>Phytomyza</i> Miners on Senecioneae (Compositae) | 103 |
| Kelsey – Eleven New Scenopinidae (Diptera) From the Americas | 131 |
| Announcement | 148 |
| Book Review | 149 |
| Feature Scanning Electron Micrograph – <i>Haplothrips (Neoheegeria) verbasci</i> (Osborn) | 151 |
| Proceedings of a Symposium presented at the Annual Meeting of the Entomological Society of Canada held jointly with the Entomological Society of Alberta – Systems Approach to Pest Management | 153 |
| Table of Contents | 154 |
| Holmes – A Matter of Perspective | 154 |
| Koenig – Ecology, Economics and Technological Development: A Socio-cybernetic Perspective | 155 |
| Haynes, Gage and Fulton – Management of the Cereal Leaf Beetle Pest Ecosystem | 165 |
| Walters and Peterman – A Systems Approach to the Dynamics of Spruce Budworm in New Brunswick | 177 |
| Lee – Structure and Function of the Fascicular Stylets, and the Labral and Cibarial Sense Organs of Male and Female <i>Aedes aegypti</i> (L.) (Diptera, Culicidae). | 187 |
| Griffiths – Studies on Boreal Agromyzidae (Diptera). VII. A New <i>Chromatomyia</i> Miner on <i>Valeriana</i> | 217 |
| Halffter – Elements Anciens de l'Entomofaune Neotropicale: Ses Implications Biogeographiques | 223 |
| Book Review | 263 |
| Book Review | 269 |
| Announcement | 271 |
| Lee – Corrigenda on Structure and Function of the Fascicular Stylets, and the Labral and Cibarial Sense Organs of Male and Female <i>Aedes aegypti</i> (L.) (Diptera, Culicidae) | 273 |
| Book Review | 274 |
| Hocking and Hudson – Insect Wind Traps: Improvements and Problems | 275 |
| Tawfik and Hocking – An Assessment of the DDT Residue Situation in an Urban Milieu | 285 |
| Griffiths – Studies on Boreal Agromyzidae (Diptera). VIII. <i>Phytomyza</i> Miners on <i>Artemisia</i> (Compositae) | 295 |
| Nimmo – The Adult Trichoptera (Insecta) of Alberta and Eastern British Columbia, and their Post-Glacial Origins. II. The Families Glossosomatidae and Philopotamidae | 315 |

- abeliae*, *Phytomyza*, 37
absinthium, *Artemisia*, 299, 300, 302,
Acalyptratae, 60
Acanthonitis, 253
Acarina, 265
Achillea, 300
Adenocaulon, 108
Adenostyles, 104, 108
 alliarae, 116
 glabra, 116
adenostylis, *Phytomyza*, 116
 Adisoemarto, S. (see Barlow, C. A.), 18,
 32
adstrictus, *Pterostichus*, 3-33
Aedes, 200
 aegypti, 187-215, 273
 atropalpus, 191, 199
 dorsalis, 194, 195, 196
 stimulans, 191
 vexans, 279
aegypti, *Aedes*, 187-215, 273
aequalis, *Dolophilodes* (*Sortosa*), 316,
 330, 331-332, 336, 337, 344, 347
aequalis group, *Dolophilodes* (*Sortosa*), 335,
 336
aequalis, *Philopotamus*, 331
aequalis, *Sortosa* (*Dolophilodes*), 331
aequalis, *Trentonius*, 331
affinis, *Chorebus*, 70
affinalis, *Phytomyza*, 107
 africano-brésilienes groupes, 235
Afroharoldius, 258
Agamopus, 257
Agapetus, 341
 (*Anagapetus*) *debilis*, 326
 tenebrosa, 328
 tenebrosus, 329
Agonini, 32, 101
Agromyza lonicerae, 42, 44
 xylostei, 44
Agromyzes, 60
 agromyzid flies, 59, 70
 agromyzid leaf-miners, 104
Agromyzidae, 35-60, 70, 103-123, 217-220,
 295-309
Agromyziden, 58, 59, 60, 122, 123, 307,
 308, 309
Agromyzider, 308
 agromyzids, 296, 308
agromyzina, *Phytomyza*, 104, 105
 Agromyzinen, 59, 122, 309
aisha, *Anagapetus*, 336
aizoon, *Chromatomyia*, 36
Akebia quinata, 48
alascense, *Glossosoma* (*Ripaeglossa*), 316, 318,
 320-321, 334, 336, 337, 338, 343, 345
alascense group, *Glossosoma* (*Ripaeglossa*), 334,
 335
alascensis, *Glossosoma*, 320
alaskana, *Artemisia*, 296, 297, 301, 306, 307
alaskana, *Phytomyza*, 295, 297, 300-301, 310
 313, 314
 "albiceps", *Phytomyza*", 298, 299, 300, 301
albiceps group, *Phytomyza*, 103, 104-105, 108-
 116, 295, 296, 297, 298-306, 314
 key to the North American species, 105-107
 amendment, 297
albus, *Symphoricarpos*, 39, 53, 54
albus subsp. *laevigatus*, *Symphoricarpos*, 39
Aleiantus, 257
alliariae, *Adenostyles*, 116
Allogymnopleurus, 256
Allonitis, 252
Alloscelina, 258
Alloscelus, 258
alpigena, *Lonicera*, 41, 46, 48, 50, 56, 57, 69
alpigenae, *Chromatomyia*, 36, 38, 39, 41, 56,
 67, 69
alpigenae, *Phytomyza*, 56
alpina, *Homogyne*, 115
alpina, *Phytomyza*, 106, 108, 114, 116, 117
alpina angustifolia, *Arnica*, 119
alpina attenuata, *Arnica*, 120
alpina tomentosa, *Arnica*, 110, 128
altaicum, *Glossosoma* (*Eomystra*), 334
 Alysiinae, 58, 308
Amblypygi, 265
 ambre baltique, 242
 Amérique du Sud, faune actuelle, 250
 amphibians, 102
Anachalcos, 257
Anagapetini, 316, 317, 318, 326-327
Anagapetus, 326-327, 335, 336
 aisha, 336
 bernea, 336
 chandleri, 336
 debilis, 316, 318, 326-327, 336, 337, 344,
 346

- Anagapetus* (continued)
hoodi, 336
Anaphus flavipes, 167
Anderson, D. T., 263-268
Anderson, N. H., 333, 339
Andersson, H. (see Lindroth, C. H.), 70
Andino-Patagonique sous-région, 251
anemones group, *Phytomyza*, 36
Angelica, 122
angustatus, *Pterostichus*, 27, 33
Anisocanthon, 257
Anisodactylina, 83, 84
Anisodactylines, 102
Anisodactylus (*Amphasia*) *interstitialis*, 82,
(*Haplocentrus*) *laetus*, 82
(*Pseudamphasia*) *sericeus*, 82
(*Anadaptus*) spp., 82
(*Anisodactylus*) spp., 81-82
(*Gynandrotarsus*) spp., 82
(*Spongopus*) *verticalis*, 82
Anisotarsus, 101
Annelida, 264
Clitellate, 265
Polychaete, 265
Annelids, 263-268
Annett, H. E., 188, 195, 198, 200
annua, *Artemisia*, 299
annulata, *Theobaldia*, 190
Anoctus, 252
Anomiopsoides (= *Anomiopsis*), 255
Anonychonitis, 253
Anonymous, 160, 164
Anopheles, 189, 197, 200, 201, 202
bifurcatus, 190, 191, 195, 198
costalis, 195, 198, 200
farauti, 197, 200
gambiae, 200
gambiae var. *melas*, 200
maculipennis, 190, 191, 195, 198, 202
quadrimaculatus, 199, 200, 203
Anthemideae, 295, 302
Antillean sub-region, insect fauna, 228
Antilles, l'entomofaune, 249-250
Aphengium, 253
Aphengoecus, 257
Aphids, 203
Aphodiites prologaeus, 259
Apis mellifera, 193
Apotolampus, 257
aprilina, *Chromatomyia*, 38, 41, 42-44, 47, 61,
63, 68
aprilina, *Phytomyza*, 42
aprilina (= *xylostei*), *Phytomyza*, 44
apterygote, 263
Aptychonitis, 252
Arachnida, 33
Arachnodes, 257
aragonensis, *Chromatomyia*, 37, 217
Araneida, 33
Araneae, 265
Araneus diadematus, 192
Araucane sous-région, 251
archangelicae, *Phytomyza*, 105
Archibrazil, 226
Archibrésil, 237
Archidiptera, 71
Archiguyana, 226
Archiguyane, 237
Archiplata, 237
Archoptera, 259
arctica, *Artemisia*, 296, 297
arctica arctica, *Artemisia*, 301, 305, 307, 313
armiger, *Scoloplos*, 267
Armigeres, 200
Arnica, 103, 104, 105, 107-108, 110, 111, 112,
113, 116, 118, 119, 120, 121, 122, 129
alpina alpina, 111
alpina angustifolia, 119
alpina attenuata, 120
alpina tomentosa, 110, 128
chamissonis foliosa, 120, 128
cordifolia, 104, 110, 111, 113, 119, 120,
128
latifolia, 113, 119
lessingii lessingii, 111, 119
mollis, 112
montana, 110, 116
arnicae, *Phytomyza*, 103, 106, 108, 109-110,
111, 112, 124, 127, 128
arnicola, *Phytomyza*, 103, 106, 108, 111-112,
121, 124
arnicivora, *Phytomyza*, 107, 108, 118, 119,
120, 121, 126, 129
arnicophila, *Phytomyza*, 116
aronici, *Phytomyza*, 115-116
Arrowianella, 255
Artemisia, 295-309
absinthium, 299, 300, 302

- Artemisia* (continued)
- alaskana*, 296, 297, 301, 306, 307
 - annua*, 299
 - arctica*, 296, 297
 - arctica arctica*, 301, 305, 307, 313
 - atrata*, 299
 - campestris*, 300
 - douglasiana*, 300
 - dracuncululus*, 307
 - frigida*, 296
 - furcata*, 296, 297, 306, 307, 313
 - indica*, 299
 - japonica*, 301
 - keiskeana*, 299, 304, 313
 - key to *Phytomyza* and *Chromatomyia* mines on, 297
 - maritima salina*, 302
 - montana* = *vulgaris* var. *vulgatissima*, 299, 303
 - moxa*, 299
 - norvegica*, 296
 - rupestris*, 296
 - sacrorum*, 299
 - stelleriana*, 299
 - tilesii*, 296, 297, 301
 - tilesii elatior*, 301, 313
 - tilesii tilesii*, 307, 313
 - trifurcata*, 296
 - vulgaris*, 296, 299, 300, 301, 302, 313
 - artemisiae*, *Calycomyza*, 302
 - "*artemisiae*, *Phytomyza*", 298, 300, 301, 302
 - Artemisiae*, *Phytomyza*, 302
 - artemisivora*, *Phytomyza*, 297, 298-300, 301, 302, 310, 312, 313
 - Arthropoda, 263, 267
 - arthropods, 70, 263-268, 279
 - Aster indicus*, 303
 - trinervius*, 115
 - tripolium*, 217
 - asteris*, *Chromatomyia*, 37, 217
 - asterophaga*, *Phytomyza*, 107
 - Ateuchites*, 256
 - Ateuchus* (= *Choeridium*), 253
 - Athyreini, 262
 - Athyriini, 245
 - atrata*, *Artemisia*, 299
 - "*atricornis*, *Phytomyza*", 58, 104, 122, "atricornis, *Phytomyza*" (continued), 220, 297, 308
 - atropalpus*, *Aedes*, 191, 199
 - Aulacopris*, 258
 - Aulonocnemis*, 254
 - aurata*, *Phytomyza*, 295, 297, 306-307, 312, 313, 314
 - austriacum*, *Doronicum*, 104, 116
 - autumnalis*, *Musca*, 193, 201
 - Avi-dor, Y. (see Galun, R.), 193, 201
 - Bailey, S. F., 151
 - Balinsky, B. I. 264, 268
 - Ball, G. E., 28, 32, 83, 98, 100, 101, 244, 249, 261
 - balli*, *Pelmatellus*, 81, 84, 85, 86, 87, 88, 97, 98, 99, 100
 - balsamifera*, *Populus*, 4
 - Balthasar, V., 259, 261
 - Banks, N. 320, 329, 331, 339
 - Barlow, C. A. 18, 32
 - Barnes, D. F. (see Simmons, P.), 333, 341
 - Barnes, R. D., 263, 266, 268
 - Barraud, P. J., 195, 200
 - Bar-Zeev, M. (see Galun, R.), 193, 201
 - Bates, H. W., 81, 83, 84, 85, 88, 90, 91, 93, 94, 101
 - Bathysciinae, 200
 - Bdelyropsis*, 253
 - Bdelyrus*, 253
 - Becker, E. C., 7, 32
 - bee louse, 77
 - beetles, 8, 9, 19, 20, 22, 25, 89, 98, 100, 166
 - carabid, 33
 - cereal leaf, 165-176
 - geographical distribution, 165
 - life cycle, 165-166
 - parasitization of, 167
 - pest ecosystem of, 169
 - population studies of, 166-167
 - forest, 32
 - ground, 32, 33, 88
 - Behringia, 242
 - Beiger, M. 114, 115, 116, 117, 121-122, 300, 307
 - Bělíček, J., 269-270
 - Bellinger, P. F. (see Ellis, W. N.), 274
 - Bellis perennis*, 303
 - Benyon, P. R., 177, 180
 - bernea*, *Anagapetus*, 336

- Besemer, A. F. G. (see Voerman, S.), 287, 288
- Betten, C., 318, 320, 328, 329, 330, 331, 339
- Bhatia, M. L., 188, 200
- bianchi*, *Organothrips*, 74
- biflora*, *Lonicera*, 44
- bifurcatus*, *Anopheles*, 190, 191, 195, 198
- Bishop, A., 193, 200
- Blaberus discoidalis*, 193
- Bödvarsson, H. (see Lindroth, C. H.), 70
- Bolbites*, 254
- Bolboceratini, 245
- Bonasa umbellus*, 22
- borealis*, *Linnaea*, 54, 55, 69
- Boreocanthon*, 257
- Bothriopterus*, 3, 26, 27, 28, 29, 30, 31, 33
- Boucomontia*, 255
- Brachinus*, 100
- Brachycera, 59, 308
- brachypterus*, *Pelmatellus*, 81, 85, 86, 87, 94, 97, 99, 100
- Braconidae, 58, 308
- Bradycellus lucidus*, 90
- Braitenberg, V., 149-150
- Brandenburg, R. K. (see Haynes, D. L.), 171, 176
- Braschnikow, W. C., 36, 58
- brassicae*, *Pieris*, 192, 201
- Brauer, F. M., 71
- brevipalpus*, *Toxorhynchites*, 194
- brevis*, *Nemaglossa*, 82
- breviterminus*, *Scenopinus*, 132
- Brevitrichia*, 131, 138
- griseola*, 138
- hodgdeni*, 138
- key to the species, 138-139
- powelli*, 131, 138, 139, 146
- salvadorensis*, 131, 138, 139-140, 147
- yucatanii*, 138
- bromeliads, 89
- brownii* var. *fuchsoides*, *Lonicera*, 46, 50
- Brust, R. A., 287
- Bryan, J. H., 197, 200
- bryophytes, 70
- Bubas*, 252
- Buerger, G. (see von Gernet, G.), 190, 191, 192, 193, 194, 195, 196, 203
- Buhr, H., 44, 46, 50, 58, 110, 116, 122, 299, 300, 307, 308
- bursa copulatrix*, 18, 21
- Byrrhidium* (= *Elassocanthon*), 257
- Caccobiomorphus*, 254
- Caccobius*, 252
- Caccophilus*, 252
- caddis-flies, 339, 340, 341
- caerulea*, *Lonicera*, 39, 46, 50
- Calathus*, 3, 28, 32, 100, 101
- potosi*, 100
- califica*, *Glossosoma* (*Ripaeglossa*), 334
- californica*, *Phytomyza*, 103, 104, 105, 113-114, 125, 128
- Calliphora erythrocephala*, 192, 193, 196, 197, 202
- Calliphoridae, 202
- Calycomyza*, 295
- artemisiae*, 302
- Camelidés, 246
- Campanulaceae, 104
- campestris*, *Artemisia*, 300
- campestris*, *Phytomyza*, 103, 107, 108, 118, 119-120, 126, 128, 129
- Canthidium*, 253
- Canthochilum* (= *Antillacanthon* = *Chapincanthon*), 257
- Canthomoechus*, 257
- Canthon*, 257
- humectus*, 247, 248
- indigaceus*, 248
- Canthonella* (= *Ipselissus*), 257
- Canthonidia*, 257
- Canthonina, 234, 251, 256, 260, 261
- Canthonini, 259
- Canthonosoma*, 258
- Canthotrypes*, 257
- capitata*, *Valeriana*, 219, 222
- Caprifoliaceae, 35-60, 122, 220
- caprifoliae*, *Chromatomyia*, 38, 40, 42, 52-53, 54, 65, 69
- caprifoliae*, *Phytomyza*, 52, 55
- caprifolium*, *Lonicera*, 46, 50
- Carabidae, 3-33, 80-102, 261
- Carabids, 3, 4, 19, 22, 26, 98
- Caraboidea, 235
- Carabus hendrichsi*, 100
- Carboniferous, 258
- Carex rostrata*, 5

- carinifer*, *Diaparsis*, 167
 Carter, A., 3, 32
 Casey, T. L., 81, 83, 90, 101
Cassolus, 258
Catharsius, 255
 cecidomyiid midges, 74
 cenochron (defined), 224, 230
 Cenozoique, 239, 241, 243, 259
Cephalodesmius, 258
Ceratotrupes, 245
 Cereal Leaf Beetle, 165-176
cerealium, *Limothrips*, 75
Cerodontha, 70
 chiasognath, Lucanidae, 242
Chalcocopris, 253
chamaemetabola, *Chromatomyia*, 35, 36, 38, 39, 41, 51, 57, 67, 68
chamissonis foliosa, *Arnica*, 120, 128
chandleri, *Anagapetus*, 336
 Chapman, K. M. (see Moran, D. T.), 193, 202
 Chelicerata, 263, 264, 265, 266, 267
 chelicerates, 264
 chélydridés, 233
 Chevalier, R. L., 193, 200
chilensis, *Harpalus*, 82
 Chilopoda, 265
Chimarra, 330
Chironitis, 252
 Chironomid, 70
Chorebus affinis, 70
 Christophers, S. R., 188, 191, 195, 196, 197, 199, 200
Chromatomyia, 35-60, 104, 105, 122, 217-220, 296
 aizoon, 36
 alpigenae, 36, 38, 39, 41, 56-57, 67, 69
 aprilina, 38, 41, 42-44, 47, 61, 63, 68
 aragonensis, 37, 217
 asteris, 37, 217
 caprifoliae, 38, 40, 42, 52-53, 54, 65, 69
 chamaemetabola, 35, 36, 38, 39, 41, 51, 57, 67, 68
 crawfurdiae, 37
 deirdreae, 36, 40
 erigerontophaga, 37, 40
 farfarella, 37, 218, 219
 flaviceps, 42
 fricki, 35, 38, 41, 42, 50, 52, 53-54, 55,
- Chromatomyia* (continued)
 fricki (continued), 66, 69
 fuscua, 37, 40
 gentianae, 37
 gentianella, 37
 gregaria, 38, 41, 50-51, 57, 62, 64, 68
 horticola, 37, 104, 108, 217, 218, 219, 297
 involucratae, 38, 41, 51-52, 65
 key to mines on *Arnica*, 107-108
 key to mines on *Artemisia*, 297
 key to mines on Valerianaceae, 218
 key to North American species of, 39-41
 amendments to key to North American species of, 218
 khuanensis, 217, 218-219, 221, 222
 lactuca, 37, 39
 lindbergi, 37, 218
 linnaeae, 35, 38, 41, 54-55, 66, 69
 loniceriae, 38, 41, 43, 44-47, 48, 62, 63, 68
 loniceriae (= *xylostei*), 48
 luzulae, 37
 merula, 37, 40
 milii, 37, 39, 40
 mitellae, 36, 40
 nervi, 38, 41, 47-48, 69
 nigra, 37, 40
 nigrilineata, 35, 38, 40, 41, 51, 53, 55-56, 66, 69
 obscurella, 48, 50
 opacella, 37
 perangusta, 37
 periclymeni, 38, 41, 42, 48-50, 51, 52, 53, 54, 55, 56, 57, 61, 64, 68
 periclymeni group, 36, 38, 39, 51
 primulae, 36
 pseudogentii, 37
 puccinelliae, 37, 39, 40
 ramosa, 37
 regalensis, 37, 40
 saxifragae, 36
 scabiosae, 37
 scabiosarum, 37
 senecionella, 37, 40, 217, 218
 seneciovora, 37
 skuratowiczi, 37
 sp., 48
 succisae, 37
 symphoricarpi, 35, 38, 41, 42, 52, 62, 64, 69

- Chromatomyia* (continued)
syngenesiae, 37, 40, 104, 108, 218, 219, 220
syngenesiae group, 37, 108, 217, 218, 219-220, 297
 revised key to adults of, 217-218
tiarella, 36, 40
Chrysanthemum, 299
japonense (= *morifolium* var. *sinense*), 299, 303
 Chu-Wang, I-Wu., (see Foelix, R. F.), 191-192, 201
 Chwatt, L. J., 195, 200
 Chymko, N., 12, 14, 32
ciliata, *Psorophora*, 189, 199, 203
ciliolati, *Phytomyza*, 105
Circellum, 256
 Clements, A. N., 200
Clethrionomys grapperi, 22
Clidemia hirta, 75
cloudcrofti, *Pseudatrichia*, 136
clusii, *Doronicum*, 115
 Coe, R. L., 122
cnidii, *Phytomyza*, 105
Cnidium, 122
 cockroach, 195, 202
 Coleoptera, 3-33, 80-102, 203, 261, 262
 Coleoptère, 200
 Collart, A., 50, 58
 Collembola, 70, 265, 274
Colobonthophagus, 251
columnae (= *cordatum*), *Doronicum*, 116
 Coluzzi, M. (see Bryan, J. H.), 197, 200
 Compositae, 35, 37, 58, 103-123, 220, 295-309
 Condylarthes, 237
confinis, *Dacnusa*, 70
conioselini, *Phytomyza*, 105
Conioselinum, 122
 control loops, 156, 157, 158
conyza, *Inula*, 116
conyzae, *Phytomyza*, 104, 107, 108, 116
cooki, *Scenopinus*, 133
 Coope, G. R., 28, 32
 Cooper, W. E. (see Koenig, H. E.), 158, 164
Copridaspidus, 255
 Coprina, 234, 253, 255, 259, 260
 Coprinae, 251
 Coprini, 234, 253, 259
Copris, 237, 245, 255, 262
Coproecus, 258
Coprophanaeus, 254
Coptodactyla, 255
Coptorhina (= *Frankenbergerius*), 254
 Coquillett, D. W., 36, 58
Coquillettidia, 200
 Corbière-Tichane, G., 192, 200
cordifolia, *Arnica*, 104, 110, 111, 113, 119, 120, 128
 Cornaceae, 104
corpora lutea, 7, 11
costalis, *Anopheles*, 195, 198, 200
 courant holarcticiste, 229, 231
 Covell, G., (see Barraud, P. J.), 195, 200
 (see Sinton, J. A.), 195, 202
crawfurdae, *Chromatomyia*, 37
 Cretace, 235, 237, 238, 241, 259, 260
 crocodiles, 237
 Cronquist, A., 108, 122
 Crowson, R. A., 261
 Crustacea, 263, 264, 265, 266, 267
Cryptocanthon, 257
Cryptocoryne, 74
 Csiki, E., 101
Ctenicera destructor, 32
Ctenolepisma lineata pilifera, 202
Culex, 189, 197, 199, 200, 201
pipiens, 191, 195, 198
pipiens fatigans, 190, 201
pipiens pallens, 193
 Culicidae, 187-203, 273
 Culiciden, 203
Culiseta, 200
inornata, 194, 195, 197, 199, 201, 202
curtus, *Lemophagus*, 167
cyanescens, *Pelmatellus*, 85, 86, 87, 94-95, 97, 98, 99, 100
 cynipid wasps, 74
Cyobius, 252
Dacnusa confinis, 70
faeroensis, 70
Dacus tryoni, 267
 Darlington, P. J., Jr., 229, 231, 236, 240, 261
 Davis, M. B. (see Betten, C.), 318, 320, 328, 329, 330, 331, 339
 Day, M. F., 193, 195, 196, 201
 DDT Residue, 285-294

- DeBeer, G. R., 266, 268
debilis, *Agapetus* (*Anagapetus*), 326
debilis, *Anagapetus*, 316, 318, 326-327, 336, 337, 344, 346
deirdreae, *Chromatomyia*, 36, 40
Delopleurus, 254
Deltepilissus, 257
Deltochilum, 257
Deltorrhinum, 253
demissa, *Phytomyza*, 105, 295, 297, 304-305, 306, 311, 312, 313, 314
Dendropaemon, 254
Denning, D. G., 322, 326, 331, 332, 333, 339, 340
destructor, *Ctenicera*, 32
Devonian, 235
Diabroctis (= *Taurocopris*), 254
diadematus, *Araneus*, 192
Diaparsis carinifer, 167
Diastellopalpus, 251
Dicaelus, 100
Dicheirus spp., 82
Dichotomina, 234, 251, 253, 255, 259, 260
Dichotomina (= Pinotina), 253
Dichotomius, 259-260
(= *Pinotus*), 253
Digitonthophagus, 251
dioica, *Lonicera*, 38, 41, 55, 56, 69
Diplopoda, 265
Diplura, 265
Dipsacaceae, 35, 37
Diptera, 35-60, 70, 71, 103-123, 131-140, 187-203, 217-220, 273, 295-309
Dipteren, 58, 122, 308
Diptères, 58
discoidalis, *Blaberus*, 193
discoidalis, *Thenarotes*, 82, 83
discolor, *Homogyne*, 115
dispersal pattern,
Holarctic, 227
Mexican Plateau, 228
Nearctic, 227, 228
Neotropical, 227
Paleoamerican, 228
dispersal route, Antarctic, 225
Dispersion, Zone de Transition Mexicaine, 237, 247
Disphysema, 254
distincta, *Dolophilodes*, 344
distribution pattern (defined), 224
Dixon, R. D., 287
Doane, J. F., 8, 32
Dodds, G. S., 331, 340
Doloclanes, 333
Dolophiliella gabriella, 333
Dolophilodes, 330-333, 335, 336, 341
(*Sortosa*) *aequalis*, 316, 330, 331-332, 336, 337, 344, 347
(*Sortosa*) *aequalis* group, 335, 336
distincta, 344
(*Sortosa*) *novusamericanus*, 316, 330, 332-333, 336, 337, 348
(*Sortosa*) *novusamericanus* group, 335, 336
(*Sortosa*) *ornata*, 336
(*Sortosa*) *pallidipes*, 336
doronici, *Phytomyza*, 116
Doronicum, 104, 108, 116
austriacum, 104, 116
clusii, 115
columnae (= *cordatum*), 116
pardalianches, 116
dorsalis, *Aedes*, 194, 195, 197
douglasiana, *Artemisia*, 300
dracunculus, *Artemisia*, 307
Drăghia, I., 300, 308
(see Popescu-Gorj, A.), 46, 59-60
Drepanocerina, 252
Drepanocerus (= *Cyptochirus*), 252
Drepanoplatynus, 252
Drepanopodus, 256
Drift, J. Van der., 3, 32
Drosophila melanogaster, 193, 200
Drosophilidae, 70
dulkejtii, *Glossosoma* (*Eomystra*), 334
Dunn, E. R., 232, 233, 261
Dutton, J. E., (see Annett, H. E.), 188, 195, 198, 200
Dysidius, 3, 26, 27
Echiuroidea, 266
ecosystem, cereal leaf beetle pest, 169
Edmonds, W. D., 253, 254, 260, 261
Elaphrus, 98
Elateridae, 32, 203
Electragapetus, 341
éléments Guyano-Brésiliens, 235, 250
éléments holarctiques (en Amérique du Nord), 246

- éléments nearctiques (en Amérique du Nord), Eurysternina, 260
 246
 éléments neotropicaux modernes (en Amérique du Nord), 246
 éléments sudaméricains anciens (en Amérique du Nord), 246
 Elliott, J. H. (see Annett, H. E.), 188, 195, 198, 200
 Ellis, I. D. (see Johnson, N. E.), 3, 32
 Ellis, R. A. (see Moran, D. T.), 193, 202
 Ellis, W. N., 274
 Emden, F. L., van., 19, 32, 83, 101
 Endopterygota, 74
Endrodus, 251
 Ennearabdina, 255
Ennearabdus, 255
 Entomofaune, Les Antilles, 249-250
 Les Grandes Antilles, 249
 Les Petites Antilles, 250
 Nearctic region, 227
 Neotropical region, 227
 néotropical, 237
 sudaméricaine, 241, 242, 243
 Zona de Transition Mexicaine, 239, 241
 Entomofaune actuelle, Amérique du Nord, 246
 Region Neotropical, 247
 Eocene, 237, 240, 241
Eomystra, 318, 323-326, 334-335, 338
Epactoides, 257
 Ephemeropteren, 341
Epilissus, 257
Epionitis, 253
Epirhinus, 257
 Equidés, 246
Eretmapodites, 200
erigerontophaga, *Chromatomyia*, 37, 40
Eristalis, 202
erythrocephala, *Calliphora*, 192, 193, 196, 197, 202
 Essig, E. O., 320, 340
 Etnier, D. A., 323, 329, 340
 eucharid wasp, 74
 Eucraniina, 234, 255
Eucranium, 255
Eudinopus, 256
 Eudiptera, 71
Euoniticellus, 252
Euonthophagus, 252
 Eurysternina, 260
 Eurysternini, 234, 258
Eurysternus, 258, 260
 Eusuchiens, 237
 Evans, A. M. (see Patton, W. S.), 190, 191, 195, 202
Evarthrus, 32, 100
 evolution centers, southern land masses, 225
 Exiline, H., 22, 32
faeroeensis, *Dacnusa*, 70
 Falvey, J. M., (see Koenig, H. E.), 158, 164
farauti, *Anopheles*, 197, 200
farfarae, *Phytomyza*, 118, 119, 120, 121, 306
farfarella, *Chromatomyia*, 37, 218, 219
 fauna (definition), 230
 Gondwanian, 225
 Guyano-Brasiliien, 225
 Palaeantarctic, 225, 226
 faune actuelle, de l'Amérique du Sud, composition, 250
 faune actuelle, sous-région Antillaine, 249
 faune actuelle, Zone de Transition Mexicaine, composition, 247
 faune d'origine moderne, patron de dispersion Neotropical, 249
 faune d'origine septentrional ancienne, patron de dispersion Paléoaméricaine, 248
 faune d'origine septentrional moderne, patron de dispersion Nearctique, 249
 faune d'origine sudaméricaine ancienne, patron de dispersion, Haut Plateau, 247
 faune Sudaméricaine, origine, 231
 courant holarcticiste, 231
 A preponderance australe, 231
 Théorie de Synthèse, 231, 233-246
Fediae, *Phytomyza*, 218
 Fenestralis group, (*Scenopinus*), 131, 132
Feronia oblongopunctata, 33
 Filshie, B. K. (see Wensler, R. J.), 197, 203
 Finke, E. H. (see Richardson, K. C.), 188, 202
 Finlayson, L. H. (see Rice, M. J.), 194, 195, 202
 Fischer, F. C. J., 317, 319, 320, 322, 323, 325, 326, 329, 331, 332, 340
 Fisher, D. K. (see Simmons, P.), 333, 341
 Fisher, P. D. (see Haynes, D. L.), 171, 176
 fishes, 270
flaviceps, *Chromatomyia*, 42
flavipes, *Anaphus*, 167

- flavocincta*, *Nemaglossa*, 82, 83
 flies, 263, 296
 agromyzid, 308
 Flore, Néotropical Tertiare, 241
 fly, 39
 Foelix, R. F., 191-192, 201
 forests, oak-pine, 89, 90, 91, 98, 100
 tropical cloud, 98
Francmonrosia, 257
 Frank, J. H., 19, 20, 21, 32
 Frey, R., 47, 58, 300, 308
Freyus, 258
 Frick, K. E., 50, 51, 58, 68, 297, 300, 308
fricki, *Chromatomyia*, 35, 38, 41, 42, 50, 52, 53-54, 55, 66, 69
frigida, *Artemisia*, 296
frigidus, *Petasites*, 117, 121
 Froelich, D. E., 190, 201
 Frost, S. W., 39, 58
 fruitfly, 267
 Fulton, W. (see Haynes, D. L.), 165-176
 fungi, 23
furcata, *Artemisia*, 296, 297, 306, 307, 313
fuscula, *Chromatomyia*, 37, 40
gabriella, *Dolophiliella*, 333
gabriella, *Wormaldia* (*Wormaldia*), 316, 330, 333-334, 336, 337, 344, 348
 Gage, S. H. (see Haynes, D. L.), 165-176
 Galun, R., 193, 201
 (see Rice, M. J.), 194, 195, 202
gambiae, *Anopheles*, 200
gambiae var. *melas*, *Anopheles*, 200
Garreta, 256
 Gentianaceae, 35, 37, 38
gentianae, *Chromatomyia*, 37
gentianella, *Chromatomyia*, 37
gentii, *Napomyza*, 37
Geopinus incrassatus, 82
Geotrupes, 245
 Geotrupinae, 245, 262
 Geotrupini, 245
Geotrupoides lithograficus, 259
 Ghiselin, M., 264, 266, 268
Gibbonthophagus, 251
 Gilbert, O., 3, 32
 Gilchrist, B. M. (see Bishop, A.), 193, 200
Gilletellus, 253
glabra, *Adenostyles*, 116
Glaphyrocanthon (= *Geocanthon*), 257
glauca, *Picea*, 4
Glossosoma, 318, 322, 334-335, 338
 (*Ripaeglossa*) *alascense*, 316, 318, 320-321, 334, 336, 337, 338, 343, 345
 (*Ripaeglossa*) *alascense* group, 334, 335
 alascensis, 320
 (*Eomystra*) *altaicum*, 334
 (*Ripaeglossa*) *califica*, 334
 (*Eomystra*) *dulkejti*, 334
 (*Eomystra*) *hospitum*, 334
 (*Ripaeglossa*) *idaho*, 334
 (*Eomystra*) *inops*, 335
 (*Eomystra*) *intermedium*, 316, 318, 323-324, 334, 336, 337, 338, 343, 346
 (*Eomystra*) *lividum*, 335
 (*Ripaeglossa*) *montana*, 334
 (*Ripaeglossa*) *parvulum*, 334
 (*Ripaeglossa*) *parvulum* group, 334, 335
 (*Ripaeglossa*) *pterna*, 316, 317, 318, 322, 334, 336, 337, 345
 (*Ripaeglossa*) *pyroxum*, 334
 (*Ripaeglossa*) sp. 1, 316, 322-323, 327, 328, 336, 337, 345
 (*Eomystra*) *ussuricum*, 335
 (*Ripaeglossa*) *velona*, 316, 318, 319-320, 334, 336, 337, 343, 345
 (*Ripaeglossa*) *ventrale*, 334
 (*Eomystra*) *verdona*, 316, 318, 325-326, 334, 336, 337, 338, 343, 346
 (*Ripaeglossa*) *wenatchee*, 334
 Glossosomatidae, 315-341, 343, 344, 349
 key to the taxa in Alberta and eastern British Columbia, 318
 Glossosomatinae, 316, 317, 318, 327-328
 sp. 1., 327-328, 336, 337, 347
 Glossosomatini, 316, 317, 318-326
Glyphoderus, 255
 Gomphothérides, 246
 Gondwana, 225, 238
Goniocanthon, 257
 Gooding, R. H., 287
 Gordon, R. M., 188, 194, 201
 (see Griffiths, R. B.), 188, 194, 201
 Goulet, H., 3-33, 80-102
 Goureau, C., 42, 44, 58
gracilipennis, *Pseudatrichia*, 136
gracilipes, *Lonicera*, 48

- Graham, J. E. (see Barlow, C. A.), 18, 32
 grain fields, dynamics, 169
 growth of individual plants, 169
 growth potential/insect density interaction, 169
 succulent growth, 169
 grain plant-cereal leaf beetle interactions, 168-169
 Graminae, 5
 Gramineae, 35, 37, 74
graminum, *Scaptomyza*, 70
 Grandes Antilles, l'entomofaune, 249
granti, *Pseudotrichia*, 136, 137, 145
gapperi, *Clethrionomys*, 22
gregaria, *Chromatomyia*, 38, 41, 50-51, 57, 62, 64, 68
 "gregaria, *Phytomyza*", 50, 55, 56
 Griffiths, G. C. D., 35-69, 70, 103-129, 217-220, 295-309
 Griffiths, R. B., 188, 194, 201
griseola, *Brevitrichia*, 138
groenlandicum, *Ledum*, 5
Gromphas, 253
 Groschke, F., 47, 58
 groupes Africano-Brésiliens, 235
 grouse, 22
 Guppy, R. (see Schmid, F.), 333, 341
 Guyano-Brazilian fauna, 225
 Guyano-Brésiliens éléments, 235, 250
 sous-région, 250
 Gymnopleurina, 256
Gymnopleurus, 256
 gynandromorphs, 73
Gyronotus, 257
hagai, *Scenopinus*, 133
 Hagen, H. A., 328, 340
 Halffter, G., 223-262
 (see Edmonds, W. D.), 260, 261
 (see Matthews, E. G.), 262
 Handlirsch, A., 239
 Hansen, K., 192, 201
Haplothrips (Neoheegeria) verbasci, 151
 Hardy, J., 36, 42, 48, 50, 58
harlemensis, *Phytomyza*, 44, 47
harlemensis, *Phytomyza (Napomyza)*, 44, 45
 Harmston, F. C. (see Knowlton, G. F.), 320, 325, 326, 331, 333, 340
Haroldius, 258
 Harpalinae, 101
 Harpalini, 80-102
Harpalus chilensis, 82
 Harris, D. L., 3, 32
 Hartig, F., 50, 57, 58, 116, 122, 299, 308
 Hartland-Rowe, R. (see Radford, D. S.), 317, 322, 340
 Hatch, M. H. (see Exiline, H.), 22, 32
 Haut Plateau Mexicaine, 244
 Haut Plateau, patron de dispersion, 231, 233, 240
 Haynes, D. L., 165-176
hebronensis, *Phytomyza*, 107
 Helictopleurina, 252
Helictopleurus, 252
Heliocopris, 255, 259
 Heming, B. S., 73-76, 263-268
 hemipteroids, 73
 Hendel, F., 42, 44, 46, 47, 48, 50, 56, 58-59, 61, 109, 110, 114, 115, 116, 122, 298, 300, 302, 308
hendrichsi, *Carabus*, 100
Heracleum, 122
 Hering, M. (E. M.), 39, 42, 43, 44, 46, 47, 48, 49, 50, 55, 56, 57, 59, 104, 109, 110, 114, 115, 116, 117, 122, 298, 300, 302, 308
 (see Groschke, F.), 47, 58
 Hershkovitz, P., 98, 100, 101-102
Heteroateuchus, 258
Heteroclitopus, 254
Heteronitis, 253
 Heumann, H. G. (see Hansen, K.), 192, 201
 Hexapoda, 264, 265, 266
 hexapods, 267
hiemalis, *Phytomyza*, 295, 296, 297, 303-304, 311, 312, 313
Hieracium japonicum, 303
hirta, *Clidemia*, 75
 Hisaw, F. L. (see Dodds, G. S.), 331, 340
 Hocking, B. 275-280
 (see Tawfik, M. S.), 285-293
hodgdeni, *Brevitrichia*, 138
 Holarctic dispersal pattern, 227
 Holarcticist hypothesis (faunal origin), 225
 Holling, C. S., 177, 180
 Holmes, N. D., 154
Holocanthon, 257
Holocephalus, 253
Homalotarsus, 254

- Homogyne*, 108, 115
 alpina, 115
 discolor, 115
 sp., 115
homogyneae, *Phytomyza*, 114, 125
Homophylax, 316
honey bee, 203
honeysuckle, 39, 50
horofauna (defined), 224, 230
Horofaune Holarctique, 239, 245
 Sudaméricaine, 239, 243
Horofaunes anciennes du nord, 233
horseflies, 278
hoodi, *Anagapetus*, 336
Hooper, R. L., 77-78, 188, 193, 201
Hopkins, D. M., 28, 32
horticola, *Chromatomyia*, 37, 104, 108, 217, 218, 219, 297
Hosoi, T., 188, 193, 201
hospitum, *Glossosoma* (*Eomystra*), 334
host plant resistance, 166
houseflies, 149, 150
Howden, H. F., 262
hoysi, *Microsorex*, 22
Hudson, A., 188, 189, 190, 191, 197, 198, 199, 200, 201
Hudson, J. E. (see Hocking, B.), 275-280
Hultén, E., 38, 59, 296, 308
Humason, G. L., 188, 201
humectus, *Canthon*, 247, 248
Hurley, P. M., 239, 262
Hydropsychidae, 330
Hydroptila tenebrosa, 328-330
Hydroptilidae, 340
Hymenoptera, 59
hyperborea, *Phytomyza*, 107, 307
Hypocanthidium, 253
hypophylla, *Phytomyza*, 107, 118, 119, 121
idaho, *Glossosoma* (*Ripaeglossa*), 334
Ignambia, 258
ilicis, *Phytomyza*, 36
ilicis group, *Phytomyza*, 36
imaginis, *Thrips*, 75
implexa, *Lonicera*, 44
Inchbald, P., 46, 59
incrassatus, *Geopinus*, 82
Indachorius, 251
indecorus, *Senecio*, 220
indica, *Artemisia*, 299
indicus, *Aster*, 303
indigaceus, *Canthon*, 248
infuscatus, *Pelmatellus*, 81, 84, 86, 87, 89, 90, 97, 98, 99, 100
inops, *Glossosoma* (*Eomystra*), 335
inornata, *Culiseta*, 194, 195, 196, 199, 201, 202
insect fauna, Antillean sub-region, 228
 Mexican zone of transition, 227
 South America, composition, 228
insect wind traps, 275-284
Insecta, 77, 101, 102, 274, 315-341
Insects, 202, 270
 neuropteroid, 339
Insekten, 220, 308
integerrimi, *Phytomyza*, 103, 107, 120-121, 127
integerrimus, *Senecio*, 121
intermedia, *Klapalekia*, 323
intermedia, *Mystrophora*, 323
intermedia, *Mystrophorella*, 323
intermedium, *Glossosoma* (*Eomystra*), 316, 318, 323-324, 334, 336, 337, 338, 343, 346
interstitialis, *Anisodactylus* (*Amphasia*), 82
Inula conyza, 116
Inuleae, 116
involutrata, *Lonicera*, 38, 41, 51, 56, 57, 68
involutratae, *Chromatomyia*, 38, 41, 51-52, 65
involutratae, *Phytomyza*, 51, 52
isicae, *Phytomyza*, 39
Isocropris, 253
jamesi, *Pseudatrachia*, 136
japonense (= *morifolium* var. *sinense*), *Chrysanthemum*, 299, 303
japonica, *Artemisia*, 301
japonica, *Lonicera*, 48
japonica, *Phytomyza*, 297, 299, 302-303, 304, 311
japonicum, *Hieracium*, 303
Jarett, L. (see Richardson, K. C.), 188, 202
Jeannel, R., 235, 236, 242, 262
Jedlička, A., 28, 32
Johnson, N. E., 3, 32
johnsoni, *Scenopinus*, 133
julis, *Tetrastichus*, 167
Juncaceae, 35, 37
Jurassique, 235, 237, 240, 260

- kablikianus*, *Petasites*, 117
Kalimerus, 303
 yomena, 302
 Kaloostian, G. H. (see Simmons, P.), 333, 341
 Kaltenbach, J. H., 42, 44, 59, 218, 220, 301, 302, 308
 Karl, O., 50, 59, 300, 308
 Kavanaugh, D. H., 95, 102
keiskeana, *Artemisia*, 299, 304, 313
 Kelsey, L. P., 131-147
Kentranthus, 218
Kheper, 256
 Kirk, V. M., 3, 33
 Kjellgren, B. L. (see Betten, C.), 318, 320, 328, 329, 330, 331, 339
 Klapálek, F., 323, 340
Klapalekia intermedia, 323
kluanensis, *Chromatomyia*, 217, 218-219, 221, 222
 Knowlton, G. F., 320, 325, 326, 331, 333, 340
 Koenig, H. E., 155-164
Kolbeellus, 253
 Koppen, W., 236
 Krogerus, H., 3, 33
kuiterti, *Scenopinus*, 135, 136
 Kulagin, N., 188, 198, 201
 Kuroda, M., 46, 48, 59, 300, 301, 302, 308
 Kvičala, B., 300, 308
Labroma, 258
laciniata, *Rudbeckia*, 299
laciniata var. *hortensia*, *Rudbeckia*, 303
Lactuca, 217
lactuca, *Chromatomyia*, 37, 39
laetus, *Anisodactylus (Haplocentrus)*, 82
laloukesi, *Neothremma*, 316
lanati, *Phytomyza*, 104, 106
lappae, *Phytomyza*, 108
 Lardizabalaceae, 48
 Larrson, S. G., 3, 33
 Larsen, J. R., 191, 197, 199, 201
 (see Owen, W. B.), 193, 199, 202
Laserpitium, 122
latifolia, *Arnica*, 113, 119
 Lawrence, W. H. (see Johnson, N. E.), 3, 32
 LeBerre, J. R., 192, 201
Ledum groenlandicum, 5
 Lee, R., 187-203, 273
 Leech, R. E., 22, 33
 leeches, 263
 Leguminosae, 105
 leisure time and idle time, 161
Lemophagus curtus, 167
 Leonard, F. A. (see Leonard, J. W.), 329, 340
 Leonard, J. W., 329, 340
Leontodon, 218
 Leopold, E. B. (see Wolfe, J. A.), 28, 33
Lepanus, 258
 Lepismatidae, 202
 Leptodactylidés, 233
lessingii lessingii, *Arnica*, 111, 119
 Lethrini, 245
leucopus, *Pelmatellus*, 84, 85, 86, 88, 97, 99, 100
 Lewis, C. T., 192, 201
 Lewis, T., 73-76, 278, 279
Liatongus, 252
 life support systems (see systems, life support), 156-160, 163
 lignes gondwanniennes, 239
 lignes inabrésiennes, 239
 lignes paléantarctiques, 235, 236, 251
Ligularia, 108
 Limnephilidae, 316, 337, 338, 340
Limothrips cerealium, 75
lindbergi, *Chromatomyia*, 37, 218
 Lindroth, C. H., 3, 10, 18, 19, 21, 25, 27, 28, 31, 33, 70
lineata pilifera, *Ctenolepisma*, 202
 Ling, Shao-Win., 332, 340
Linnaea, 35, 38, 39, 55
 borealis, 54, 55, 69
linnaeae, *Chromatomyia*, 35, 38, 41, 54-55, 66, 69
 Linnaniemi, W. M., 47, 59, 298, 300, 308
linsleyanus, *Scenopinus*, 131, 132, 141
Liothrips urichi, 75
Liquidambar, 89
Liriomyza, 295, 300, 301
lithograficus, *Geotrupoidea*, 259
Litocopris, 255
lividum, *Glossosoma (Eomystra)*, 335
Locusta migratoria, 192, 201
locusta, *Valerianella*, 218
longicollis, *Trachysarus*, 82, 83

- Lonicera*, 35, 38, 39, 41, 43, 45, 46, 48, 49, 50, 56
alpigena, 41, 46, 48, 50, 56, 57, 69
biflora, 44
brownii var. *fuchsioides*, 46, 50
caerulea, 39, 46, 50
caprifolium, 46, 50
dioica, 38, 41, 55, 56, 69
gracilipes, 48
implexa, 44
involuta, 38, 41, 51, 52, 56, 57, 68
japonica, 48
nigra, 41, 46, 50, 56, 57, 59
orientalis, 46
periclymenum, 43, 44, 45, 46, 49, 50, 68
ruprechtiana, 46
 sp., 44, 49, 50
Symphoricarpus, 60
tatarica, 46, 50
xylosteum, 41, 43, 46, 47, 49, 50, 57
loniceræ, *Agromyza*, 42, 44
loniceræ, *Chromatomyia*, 38, 41, 43, 44-47, 48, 62, 63, 68
loniceræ (= *xylostei*), *Chromatomyia*, 48
loniceræ, *Napomyza*, 42
loniceræ, *Phytomyza*, 42, 44, 47
loniceræ, *Phytomyza* (*Napomyza*), 42
lonicerella, *Phytomyza* (*Napomyza*), 42
Lophodonitis, 253
 Louveaux, A. (see LeBerre, J. R.), 192, 201
 Lucanidae chiasognath, 242
lucidulus, *Speophyes*, 192, 200
lucidus, *Bradycellus*, 90
lucidus, *Pelmatellus*, 81
Lucilia serricata, 192
lucublandus, *Pterostichus*, 33
 Luft, J. H. 201
lugens, *Senecio*, 117, 121
lugens var. *exaltatus*, *Senecio*, 114
lugentis, *Phytomyza*, 107, 118, 119, 121
lugubris, *Xestonotus*, 82
 Lumsden, W. H. R. (see Gordon, R. M.), 188, 194, 201
 Lundqvist, A., 111, 122
lustrans, *Pterostichus*, 4, 7, 28, 29, 30
luteoscutellata, *Paraphytomyza*, 44, 47
luzulae, *Chromatomyia*, 37
 Ma, Wei-Chun., 192, 201
macalpeni, *Pseudatrichia*, 131, 136, 137, 145
 MacDonald, (in Morris, R. F.), 179, 180
 MacGinite, H. D., 28, 33
 MacGregor, M. E., 190, 194, 195, 197, 199, 201
 Machaerodontidés, 246
 MacKerras, I. M., 201
Macroderus, 253
Macropocoprís, 252
maculipennis, *Anopheles*, 190, 191, 195, 198, 202
Madateuchus, 256
 Maguire, B., 104, 122
 Mahowald, A. P., 73
majalcai, *Scenopinus*, 131, 133-134, 142
major, *Phytomyza*, 107
Malagoniella, 256, 259
 Malicky, H., 317, 340
 Manning, S. A., 299, 308
 Manton, S. M., 263, 264, 266, 268
maritima salina, *Artemisia*, 302
 Marshall, J. F., 188, 199, 201
 marsupiaux fossiles, 242
 Martin, P. S., 100, 102
 Martinez, A. (see Halffter, G.), 236, 256, 261 (see Howden, H. F.), 262
 Martini, E., 190, 191, 201
masoni, *Scenopinus*, 131, 133, 134, 143
 Massifs précambrien, 239
matricariae, *Phytomyza*, 105, 297, 299, 302, 309
 Matsuda, R., 199, 201-202, 266, 268
 Matthew, W. D., 233, 242, 262
 Matthews, E. G., 250, 255, 262 (see Halffter, G.), 251, 255, 259, 260, 261
 Matthews, J. V. (see Hopkins, D. M.), 28, 32
 Mayflies, 340
 Mayr, E., 28, 33, 82
 McLachlan, R., 328, 340
Megalonitis, 253
Megaphanaeus, 254
Megaponerophilus, 258
Megatharsis, 255
Megathopa, 256, 259
Megathopomima, 256
Megathoposoma, 256
 Meijere, J. C. H. de., 42, 43, 44, 45, 46, 48, 49, 50, 56, 59, 109, 116, 122, 298, 299, 300, 309

- Melanocanthon*, 257
melanocephalus group, *Calathus*, 28
melanogaster, *Drosophila*, 193, 200
melanopus, *Oulema*, 165
mellifera, *Apis*, 193
Mentophilus, 258
merula, *Chromatomyia*, 37, 40
Mésosuchiens, 237
Mesozoique, 239, 244
Metacatharsius, 255
Metallophanaeus, 254
Mexican plateau, 226, 227
 dispersal pattern, 228
Mexican zone of transition, extant insect
 fauna, 227
mice, 22, 101
Michalska, Z., 300, 309
Microcopris, 255
Micronthophagus, 251
Microsorex hoyi, 22
Microtus pennsylvanicus, 22
migration and industrial expansion, 161
migratoria, *Locusta*, 192, 201
Milichus, 252
milii, *Chromatomyia*, 37, 39, 40
milii group, *Phytomyza*, 58
Milne, L. J., 320, 329, 331, 333, 340
Mimonthophagus, 252
Miocene, 241, 259
Mitella nuda, 55
mitellae, *Chromatomyia*, 36, 40
mites, 70, 202
Mnematum, 256
moesta, *Wormaldia* (*Wormaldia*), 336
moesta group, *Wormaldia* (*Wormaldia*), 335,
 336
mollis, *Arnica*, 112
Monoplistes, 258
montana, *Arnica*, 110, 116
montana = *vulgaris* var. *vulgatissima*, *Artemisia*, 299, 303
montana, *Glossosoma* (*Ripaeglossa*), 334
monterreyi, *Scenopinus*, 131, 133, 134-135,
 143
Moran, D. T., 193, 202
Morris, R. F., 179, 180
Mosely, M. E., 318, 329, 330, 340
 (see Betten, C.), 329, 339
mosquito, 195, 196, 201, 202, 203
mosquito (continued)
 control, 285, 288-291
 larvae, 287
mosquitoes, 187, 188, 194, 196, 197, 199,
 200, 201, 279
Mound, L. A., 75
moxa, *Artemisia*, 299
Musca autumnalis, 193, 201
Musciden, 59
mutus, *Pterostichus*, 4, 7, 28, 29, 30
Myadi, 32
Myriapoda, 263, 264, 265, 266
myriapods, 267
Mystrophora intermedia, 323
Mystrophorella intermedia, 323
Myzostomida, 266
nagvakensis, *Phytomyza*, 107
Nanos, 257
Napomyza gentii, 37
 lonicerae, 42
 xylostei, 44, 45, 47, 48
Nearctic dispersal pattern, 227, 228
Nearctic region, entomofaune, 227
 migration to, 226
Neateuchus, 256
Necrotauliidae, 340
Nègre, J. (see Ball, G. E.), 28, 32, 98, 100
Nehman, B. F., 188, 190, 197, 198, 199, 202
Nematocera-Brachycera, 71
Nemaglossa brevis, 82
 flavocincta, 82, 83
 victoriensis, 83
 (*Lecanomerus*) *victoriensis*, 82
nemorensis, *Senecio*, 117
Neothyreus, 245
Neocanthidium, 253
Neomnematum, 256
Neonitis, 253
Neopachysoma, 256
Neoptera, 259
Neothremma laloukesi, 316
Neotropical dispersal pattern, 227
Neotropical fauna (origin of), 224, 226-227
Neotropical region, entomofauna, 227
nervi, *Chromatomyia*, 38, 41, 47-48, 69
Nesocanthon, 257
Nesosisyphus, 256, 260
Nesovinsonia, 258
nests, ball - Scarabaeinae, 229

- Neuroptera, 340
 nidification, 259
nigra, *Chromatomyia*, 37, 40
nigra, *Lonicera*, 41, 46, 50, 56, 57, 69
nigrilineata, *Chromatomyia*, 35, 38, 40, 41, 51, 53, 55-56, 66, 69
nigritella, *Phytomyza*, 58
 Nimmo, A. P., 315-341
nitescens, *Pelmatellus*, 80, 83, 84, 85, 86, 87, 88-89, 90, 97, 98, 99, 101
nitescens group, *Pelmatellus*, 88, 90, 100
 Noble, G. K., 232
 Noonan, G. R., 83, 102
norvegica, *Artemisia*, 296
Notiobia (*Anisotarsus*) spp., 81
Notiobia (*Notiobia*) spp., 81
novusamericanus, *Dolophilodes* (*Sortosa*), 316, 330, 332-333, 336, 337, 348
novusamericanus group, *Dolophilodes* (*Sortosa*), 335, 336
novusamericanus, *Philopotamus*, 332
novusamericanus, *Sortosa* (*Dolophilodes*), 332
novusamericanus, *Trentonius*, 332
 Nowakowski, J. T., 44, 45, 46, 48, 49, 50, 59, 115, 122, 300, 309
nubicola, *Pelmatellus*, 81, 85, 86, 93-94, 97, 99, 100
nuda, *Mittela*, 55
 numerical taxonomy, 269-270
 Nuttall, G. H. F., 188, 190, 191, 198, 199, 202
 Nymphomyiidae, 71
oblongopunctata, *Feronia*, 33
oblongopunctatus, *Pterostichus*, 4, 7, 33
obregoni, *Scenopinus*, 131, 133, 135, 144
obscurella, *Chromatomyia*, 48, 50
obscurella, *Phytomyza*, 36
obscurella group, *Phytomyza*, 105
obscurella var. *nigritella*, *Phytomyza*, 39
obtusus, *Pelmatellus*, 83, 85, 86, 87, 90-91, 92, 97, 98, 99, 100, 101
occidentalis, *Symphoricarpos*, 52, 53, 69
 Odonata, 278, 339
Odontoloma, 257
ogotorukensis, *Senecio*, 117
ohionis, *Pterostichus*, 4, 7, 28, 29, 30
 Ohwi, J., 296, 299, 309
 Oligocene, 237, 259, 260
 Oligochaetes, 263
 Oligoneoptera, 259
 Oniticellina, 252
 Oniticellini, 252
Oniticellus, 252
 Onitini, 252
Onitis, 252
Ontherus, 253
Onthobius, 258
Onthocharis, 253
Onthophagiellus, 251
 Onthophagini, 251
Onthophagus, 237, 245, 251, 252 (= *Onthoellus*), 251
 Onychophora, 263, 264, 265, 267
Onychothecus, 254
opacella, *Chromatomyia*, 37
Ophiomyia, 105
 Opiliones, 265
orbiculatus, *Symphoricarpos*, 50
 Orcutt, A. W. (see Betten, C.), 318, 320, 328, 329, 330, 331, 339
oreas, *Phytomyza*, 103, 107, 108, 118-119, 120, 126, 128, 129
oregonus, *Pterostichus*, 4, 7, 28, 29, 30
Organothrips bianchi, 74
orientalis, *Lonicera*, 46
 origine gondwanniene, 237
ornata, *Dolophilodes* (*Sortosa*), 336
 Ortalinae, 37
Orthopodomyia, 200
 Orthorrhapha-Cyclorrhapha, 71
Oruscatus, 253
osmorhizae, *Phytomyza*, 104, 105
Oulema melanopus, 165
 Owen, W. B., 188, 193, 194, 195, 199, 202 (see Larsen, J. R.), 197, 199, 201
Oxysternon, 254
oxytropidis, *Phytomyza*, 105
Oxitropis, 105
 Paarman, W., 3, 33
Pachylomera, 256
Pachysoma, 256
 Palaeantarctic fauna, 225, 226
Palaeocopris, 255
 Palaeoptera, 259
 Paleoamerican dispersal pattern, 228
 Paleocene, 237, 238, 239, 240
 Paleodictyoptera, 259

- Paleozoique, 238
pallipes, *Dolophilodes (Sortosa)*, 336
pallipes, *Trachysarus*, 82, 83
 Palpigrada, 263
 Panamanian (land) bridge, 227
Panelus, 258
 Paoliidae, 258
 Pappas, Larry G. (see Owen, W. B.), 193, 199, 202
Paracanthon, 257
Parachorius, 254
Paracopris, 255
Paragymnopleurus, 256
Paraphacosomoides, 258
Paraphanaeomorphus, 251
Paraphytomyza, 39, 47, 52, 58, 308
 luteoscutellata, 44, 47
Paraphytus, 254
Parapinotus, 254
Parascatonomus, 251
 parasites of cereal leaf beetle,
 Anaphus flavipes, *Diaparsis carinifer*,
 Lemophagus curtus, *Tetrastichus julis*,
 167-168
 Agricultural practices, effects on popula-
 tions of, 169
pardalianches, *Doronicum*, 116
Paroniticellus, 252
Paronitis, 253
Paronthophagus, 251
parvulum, *Glossosoma (Ripaeglossa)*, 334
parvulum group, *Glossosoma (Ripaeglossa)*,
 334, 335
 Pascual, Rosendo, 259
Pastinaca, 122
pastinacae, *Phytomyza*, 106
 Patrobini, 32
Patrobus, 3, 32
 patron de dispersion (definition), 230
 le Haut Plateau, 231, 241, 246
 Nearctique, 244, 245, 250
 Paléoaméricaine, 237, 239, 244, 252,
 260
 Patton, W. S., 190, 191, 195, 202
 Pauropoda, 265
 Pearson, T. R., 188, 190, 191, 194,
 202
pecki, *Scenopinus*, 133
Pedaria, 254
Pedaridium, 253
 Pelmatellina, 83, 95
 Pelmatellines, 83
Pelmatellus, 80-102
 balli, 81, 84, 85, 86, 87, 88, 97, 98, 99,
 100
 brachypterus, 81, 85, 86, 87, 94, 97, 99, 100
 cyanescens, 85, 86, 87, 94-95, 97, 98, 99,
 100
 infuscatus, 81, 85, 86, 87, 89, 90, 97, 98, 99,
 100
 key to the adults of the Middle and North
 American species, 84-85
 leucopus, 84, 85, 86, 88, 97, 99, 100
 lucidus, 81
 nitescens, 80, 83, 84, 85, 86, 87, 88-89,
 90, 97, 98, 99, 101
 nitescens group, 88, 90, 100
 nubicola, 81, 85, 86, 93-94, 97, 99, 100
 obtusus, 83, 85, 86, 87, 90-91, 92, 97, 98,
 99, 100, 101
 obtusus, proto-, 100,
 rotundicollis, 81, 85, 86, 87, 91, 92, 97,
 99, 100
 sinuosus, 81, 90
 stenolophoides, 91, 97, 99, 100, 101
 stenolophoides parallelus, 81, 85, 86, 87, 92,
 93, 97, 99, 101
 stenolophoides stenolophoides, 83, 85, 86,
 87, 91-93, 98
 turbatus, 81
 vexator, 85, 86, 87, 93, 94, 97, 99, 100
 vexator group, 90, 100
Peltecanthon, 257
 Penney, M. M., 33
pennsylvanicus, *Microtus*, 22
pensylvanicus, *Pterostichus*, 3-33
 Pentastomida, 266
perangusta, *Chromatomyia*, 37
perennis, *Bellis*, 303
periclymeni, *Chromatomyia*, 38, 41, 42, 48-50,
 51, 52, 53, 54, 55, 56, 57, 61, 64, 68
periclymeni group, *Chromatomyia*, 36, 38, 39,
 50, 51
periclymeni, *Phytomyza*, 36, 48, 50, 51, 53,
 54, 55
periclymenum, *Lonicera*, 43, 44, 45, 46, 49,
 50, 68
 pest management program, 170

- Petasites*, 58, 117, 122, 218, 220, 307, 308
frigidus, 117, 121
kablikianus, 117
- Peterman, Randall M. (see Walters, Carl J.), 177-186
- Petites Antilles, l'entomofaune, 250
- Pflugfelder, O., 266, 268
- Phacosoma*, 258
- Phacosomoides*, 258
- Phalops*, 252
- Phanaeina, 234, 253, 254, 259, 260
- Phanaemorphus*, 251
- Phanaeus*, 254, 259, 260
quadridens, 248
- Philip, H. G. (see Gooding, R. H.), 287
- Philopotamidae, 315-341, 344, 349
 key to the Genera and Species in Alberta and eastern British Columbia, 330
- Philopotamus aequalis*, 331
novusamericanus, 332
- Phlaeothripidae, 74
- Phormia regina*, 201
terraenovae, 192, 201
- Phryganeidae, 340
- Phytagromyza*, 58, 308
- Phytomyza*, 36, 37, 58, 103-123, 220, 295-309
abeliae, 37
adenostylis, 116
affinalis, 107
agromyzina, 104, 105
alaskana, 295, 297, 300-301, 310, 313, 314
albiceps, 298, 299, 300, 301
albiceps group, 103, 104-105, 108-116, 295, 296, 297, 298-306, 314
 key to the North American species, 105-107
 amendment, 297
alpiginae, 56
alpina, 106, 108, 114, 116, 117
aprilina, 42
aprilina (= *xylostei*), 44
anemones group, 36
archangelicae, 105
arnicae, 103, 106, 108, 109-110, 111, 112, 124, 127, 128
arnicicola, 103, 106, 108, 111-112, 121, 124
- Phytomyza* (continued)
arnicivora, 107, 108, 118, 119, 120, 121, 126, 129
arnicophila, 116
aronici, 115-116
artemisiae, 298, 300, 301, 302
Artemisiae, 302
artemisivora, 297, 298-300, 301, 302, 310, 312, 313
asterophaga, 107
atricornis, 58, 104, 122, 220, 297, 308
aurata, 295, 297, 306-307, 312, 313, 314
californica, 103, 104, 105, 113-114, 125, 128
campestris, 103, 107, 108, 118, 119-120, 126, 128, 129
caprifoliae, 52, 55
ciliolati, 105
cnidii, 105
conioselini, 105
conyzae, 104, 107, 108, 116
demissa, 105, 295, 297, 304-305, 306, 311, 312, 313, 314
doronici, 116
farfarae, 118, 119, 120, 121, 306
Fediae, 218
gregaria, 50, 55, 56
harlemensis, 44, 47
(Napomyza) harlemensis, 44, 45
hebronensis, 107
hiemalis, 295, 296, 297, 303-304, 311, 312, 313
homogyneae, 114, 125
hyperborea, 107, 307
hypophylla, 107, 118, 119, 121
ilicis, 36
ilicis group, 36
integerrimi, 103, 107, 120-121, 127
involutratae, 51, 52
isicae, 39
japonica, 297, 299, 302-303, 304, 311
 key to mines on *Arnica*, 107-108
 key to mines on *Artemisia*, 297
lanati, 104, 106
lappae, 108
lonicerae, 42, 44, 47
(Napomyza) lonicerae, 42
(Napomyza) lonicerella, 42
lugentis, 107, 118, 119, 121

- Phytomyza* (continued),
major, 107
matricariae, 105, 297, 299, 302, 309
milii group, 58
nagvakensis, 107
nigritella, 58
obs curella, 36
obs curella group, 105
obs curella var. *nigritella*, 39
oreas, 103, 107, 108, 118-119, 120, 126, 128, 129
osmorhizae, 104, 105
oxytropidis, 105
pastinacae, 106
periclymeni, 36, 48, 50, 51, 53, 54, 55
Ringdahli, 309
robustella group, 36, 58, 103, 104, 105, 108, 118-121, 129, 295, 296, 306-307
 key to the North American species, 107
 amendment, 297
s. l., 36, 39, 104
saxatilis, 295, 297, 305-306, 312, 313, 314
saximontana, 103, 106, 108, 109, 112-113, 124, 127, 128
senecionis, 108, 117, 125
sitchensis, 105
skuratowiczi, 121
soldanellae, 36
solidaginivora, 104, 106
solidaginophaga, 107
sp., 115, 297, 313, 314
spondylii heracleiphaga, 106
swertiae, 37
syngenesiae group, 58, 104, 122, 217, 220, 308
tatrica, 121
tlingitica, 104, 106
tottoriensis, 297, 301-302, 310
tundrensis, 106, 108, 110-111, 112, 124, 128
tussilaginis, 108, 113, 117, 129
tussilaginis kevani, 106, 117
tussilaginis petasiti, 106
vernalis, 37
xylostei, 42, 44, 47, 60
(Napomyza) xylostei, 44
- Phytomyzes, 60
 Phytomyzinae, 309
- Picea glauca*, 4
Pieris brassicae, 192, 201
Pinacotarsus, 253
 Pipidés, 233
pipiens, *Culex*, 191, 195, 198
pipiens fatigans, *Culex*, 190, 201
pipiens pallens, *Culex*, 193
 Pitts, C. W. (see Hooper, R. L.), 188, 193, 201
Platyonitis, 253
Platyphymatia, 258
Platysma, 33
 Plecoptera, 340
 Plecopteren, 341
 Pleistocene, 242, 243, 246
Pleuronitis, 253
 Pliocene, 240, 242, 243, 245
 polychaetes, 263
Ponerotrogus, 258
 pont Centre-Américaine, 240, 242
 Popescu-Gorj, A., 46, 59-60
Populus balsamifera, 4
tremuloides, 4
potosi, *Calathus*, 100
powelli, *Brevitrichia*, 131, 138, 139, 146
 Primulaceae, 35, 36
primulae, *Chromatomyia*, 36
 Pringle, J. W. S., 193, 202
Proagoderus, 251
prologaeus, *Aphodiites*, 259
 Prosepididontidae, 340
 Protoptera, 259
Protoptila, 328, 335, 336
tenebrosa, 316, 317, 318, 328, 336, 337, 338, 344, 347
 Protoptilinae, 316, 318, 328-330
 Pselaphidae, 235
Pseudarachnodes, 257
Pseudatrichia, 131, 136
cloudcrofti, 136
gracilipennis, 136
granti, 131, 136, 137, 145
jamesi, 136
 key to the species, 136
macalpeni, 131, 136, 137, 145
rufitruncula, 136
tomichi, 131, 136, 138, 146
unicolor, 136
Pseudepilissus, 257
Pseudocanthon (= Opiocanthon), 257

- Pseudocopris*, 255
Pseudoepirinus, 257
pseudogentii, *Chromatomyia*, 37
Pseudoniticellus, 252
Pseudonthophagus, 252
Pseudopedaria, 255
Pseudoscorpions, 265
Pseuduroxys, 253
Psilogaster, 74
Psorophora, 200
 ciliata, 189, 199, 203
pterna, *Glossosoma (Ripaeglossa)*, 316,
 317, 318, 322, 334, 336, 337, 345
Pterostichini, 32
Pterostichus, 3, 22
 adstrictus, 3-33
 angustatus, 27, 33
 lucublandus, 33
 lustrans, 4, 7, 28, 29, 30
 mutus, 4, 7, 28, 29, 30
 oblongopunctatus, 4, 7, 33
 ohionis, 4, 7, 28, 29, 30
 oregonus, 4, 7, 28, 29, 30
 pennsylvanicus, 3-33
 tropicalis, 4, 7, 27, 28, 29, 30, 31
Pterygota, 258, 265
 pterygote, 263
puccinellae, *Chromatomyia*, 37, 39, 40
Pycnogonida, 266
Pycnoperanus, 258
pygmaeus, *Scenopinus*, 133
Pyrethrum, 300
pyroxum, *Glossosoma (Ripaeglossa)*, 334
quadridens, *Phanaeus*, 248
quadrimaculatus, *Anopheles*, 199, 200,
 203
Quaternaire, 246
quinata, *Akebia*, 48
racemosus, *Symphoricarpos*, 39, 49, 50
racemosus var. *laevigatus*, *Symphoricarpos*,
 39
Radford, D. S., 317, 322, 340
ramosa, *Chromatomyia*, 37
Rana, 269
Rancho la Brea, 247
Rapoport, E. H., 232, 233, 262
reciprocatus, *Scenopinus*, 133
regalensis, *Chromatomyia*, 37, 40
regina, *Phormia*, 201
Région (definition), 230
Reig, O., 229, 233, 237, 239, 242, 245, 246,
 262
Reinouts van Haga, H., 149-150
Repenning, C. A., 28, 33
reptiles, 102
resistance, host plant, 166
Reynolds, E. S., 188, 202
Reynolds, L. M., 287
Rhyacophila, 315
Rhyacophilidae, 317, 337, 338, 339, 340, 341
Rice, M. J., 194, 195, 196, 197, 202
Richardson, K. C., 188, 202
Richter, S. H. (see Lindroth, C. H.), 70
Ricinulei, 263
Ringdahl, *Phytomyza*, 309
Ripaeglossa, 318, 319-323, 334, 335
Rivard, I., 3, 31, 33
rivularis, *Symphoricarpos*, 38, 39, 45, 46, 47,
 49, 50, 54, 69
Robineau-Desvoidy, J.-B., 42, 44, 60
Robinson, G. G., 188, 189, 191, 197, 198,
 200, 202
robustella group, *Phytomyza*, 36, 58, 103, 104,
 105, 108, 118-121, 295, 296, 306-307
 key to the North American species of, 107
 amendment, 297
Rohdendorf-Holmanová, E. B., 300, 309
Romoser, W. S., 77
Ross, H. H., 78, 316, 317, 318, 319, 320, 322,
 323, 325, 326, 329, 330, 331, 332, 333,
 334, 335, 338, 340-341
rostrata, *Carex*, 5
rotundicollis, *Pelmatellus*, 81, 85, 86, 87, 91,
 92, 97, 99, 100
rotundifolius, *Symphoricarpos*, 46
rubrocinctus, *Selenothrips*, 74
Rudbeckia, 299
 laciniata, 299
 laciniata var. *hortensia*, 303
rufitruncula, *Pseudotrichia*, 136
rupestris, *Artemisia*, 296
ruprechtiana, *Lonicera*, 46
rutilus, *Toxorhynchites*, 194
Rydén, N., 47, 50, 60, 110, 123, 300, 309
sacrorum, *Artemisia*, 299
Saha, J. G., 287
Salama, H. S., 188, 193, 194, 202
salvadorensis, *Brevitrichia*, 131, 138, 139-140, 147

- Sand, P. F. (see Wiersma, G. B.), 287, 288
Saphobius, 258
Saproecius, 254
Sarophorus, 253
Sasakawa, M., 46, 48, 60, 108, 115, 123, 298, 299, 302, 303, 309
Sauvagesinella, 258
saxatilis, *Phytomyza*, 295, 297, 305-306, 312, 313, 314
Saxifragaceae, 35, 36, 55, 58, 308
saxifragae, *Chromatomyia*, 36
saximontana, *Phytomyza*, 103, 106, 108, 109, 112-113, 124, 127, 128
scabiosae, *Chromatomyia*, 37
scabiosarum, *Chromatomyia*, 37
Scaptocnemis, 252
Scaptomyza graminum, 70
Scarabaeina, 234, 256
Scarabaeidae, 261, 262
Scarabaeinae, 234, 235, 251, 258, 259, 261
Scarabaeinae, ball nests, 229
Scarabaeini, 234, 255
Scarabaeolus, 256
Scarabaeus, 256
Scaritini, 102
Scatimus, 255
Scatomus, 253
Sceliages, 256
Scenopinidae, 131-140
Scenopinids, 131
Scenopinus, 131, 132, 133
breviterminus, 132
cooki, 133
Fenestralis group, 131, 132
hagai, 133
johnsoni, 133
kuiterti, 135, 136
linsleyanus, 131, 132, 141
majalcai, 131, 133-134, 142
masoni, 131, 133, 134, 143
monterreyi, 131, 133, 134-135, 143
obregoni, 131, 133, 135, 144
pecki, 133
pygmaeus, 133
reciprocatus, 133
stegmaieri, 131, 133, 135-136, 144
Velutinus group, 131, 132, 133
key to the species, 133
Schiemenz, H., 188, 190, 191, 197, 202
Schizogenius, 100, 102
Schmid, F., 333, 335, 341
Schmidt, K. P., 232
Schuler, L., 7, 33
Schutzmann, R. (see Wiersma, G. B.), 287, 288
Scoloplos armiger, 267
Scorpionida, 265
Scybalocanthon, 257
Scybalophagus, 257
Sebasteos, 256
Sebecosuchiens, 237
Sehgal, V. K., 40, 51, 53, 54, 55, 60, 105, 107, 120, 123, 217, 218, 220, 302, 309
Sekhon, S. S. (see Slifer, E. H.), 188, 202
Selander, R. B., 90, 102
Selenothrips, 74
rubrocinctus, 74
Senecio, 58, 103, 108, 118, 122, 218, 219, 220, 308
indecorus, 220
integerrimus, 121
lugens, 117, 121
lugens var. *exaltatus*, 114
nemorensis, 117
ogotorukensis, 117
subalpinus, 117
triangularis, 113, 114, 128
vulgaris, 220
Senecioneae, 58, 103-123, 220, 295, 307, 308
senecionella, *Chromatomyia*, 37, 40, 217, 218
senecionis, *Phytomyza*, 108, 117, 125
seneciovora, *Chromatomyia*, 37
sericeus, *Anisodactylus (Pseudamphasia)*, 82
serricata, *Lucilia*, 192
Serrophorus, 251
Sharov, A. G., 258, 262
Shiple, A. E. (see Nuttall, G. H. F.), 188, 190, 191, 198, 199, 202
shrews, 22
Siewing, R., 266, 268
Silberman, M. L. (see Hopkins, D. M.), 28, 32
Simmons, P., 333, 341
Simpson, G. G., 232, 239, 243, 262
Sinapisoma, 257
Sinton, J. A., 195, 202
sinuosus, *Pelmatellus*, 81, 90
Sisyphina, 256, 259
Sisyphus, 256

- sitchensis*, *Phytomyza*, 105
sitchensis, *Valeriana*, 219
 Skala, H., 300, 309
skuratowiczi, *Chromatomyia*, 37
skuratowiczi, *Phytomyza*, 121
 Slifer, E. H., 188, 190, 192, 202
 Smith, D. S., 192, 193, 202
 Smith, H. M., 233, 262
 Smith, S. D., 332, 341
smithii, *Wyeomyia*, 191
 Sneath, P. H. A., 269-270
 Snodgrass, R. E., 188, 189, 195, 197, 199, 202
 sociocybernetic control, 155
 Sokal, R. R. (see Sneath, P. H. A.), 269-270
soldanellae, *Phytomyza*, 36
solidaginivora, *Phytomyza*, 104, 106
solidaginophaga, *Phytomyza*, 107
 Solifugae, 265
 Sønnderup, H. P. S., 46, 50, 60, 116, 123, 300, 309
 Sonorienne, sous-région, 241, 243
Sortosa, 330-333, 335, 336
 (*Dolophilodes*) *aequalis*, 331
 (*Dolophilodes*) *novusamericanus*, 332
 sous-région (definition), 230
 Andino Patagonique, 250
 Araucane, 251
 Guyano-Brésilien, 250
 soustraction faunistique, 236
 South America, composition of insect fauna, 228
 Southwood, T. R. E., 9, 33
 Spencer, G. J., (see Ross, H. H.), 319, 320, 331, 333, 341
 Spencer, K. A., 40, 42, 43, 44, 45, 46, 47, 50, 51, 52, 53, 55, 56, 60, 104, 105, 106, 107, 110, 116, 123, 298, 299, 302, 304-309
 (see Hering, E. M.), 116
Speophyes lucidulus, 192, 200
Sphaerocanthon, 258
 spiders, 22, 23, 33
 black widow, 32
splendens, *Toxorhynchites*, 194
spondylii heracleiphaga, *Phytomyza*, 106
 spruce budworm, 177-186
 Spurr, A. R., 188, 202
 Staley, J. (see Marshall, J. F.), 188, 199, 201
 Stander, J., 178, 180
 Starý, B., 46, 50, 60, 115, 116, 123, 300, 309
stegmaieri, *Scenopinus*, 131, 133, 135-136, 144
stelleriana, *Artemisia*, 299
stenolophoides, *Pelmatellus*, 91, 97, 100, 101
stenolophoides parallelus, *Pelmatellus*, 81, 85, 86, 87, 92, 93, 97, 99, 101
stenolophoides stenolophoides, *Pelmatellus*, 83, 85, 86, 87, 91-93, 98
 Stenopsychidae, 340
 Steyskal, G. C., 40, 60
stimulans, *Aedes*, 191
Stiptopodius, 254
 stoneflies, 340
Strandius, 251
Streblopus (= *Streblopodes*), 257
subalpinus, *Senecio*, 117
succisae, *Chromatomyia*, 37
Sulcophanaeus, 254
 Sumner, A. K. (see Saha, J. G.), 287
swertiae, *Phytomyza*, 37
symphoricarpi, *Chromatomyia*, 35, 38, 41, 42, 52, 62, 64, 69
Symphoricarpos, 35, 38, 39, 41, 45, 46, 49, 50, 52, 53, 54, 56
 albus, 39, 53, 54
 albus subsp. *laevigatus*, 39
 occidentalis, 52, 53, 69
 orbiculatus, 50
 racemosus, 39, 49, 50
 racemosus var. *laevigatus*, 39, 50
 rivularis, 38, 39, 45, 46, 47, 49, 50, 54, 69
 rotundifolius, 46
Symphoricarpus, *Lonicera*, 60
 Symphyla, 265
Synopsis, 255
syngenesiae, *Chromatomyia*, 37, 40, 104, 108, 218, 219, 220
syngenesiae group, *Chromatomyia*, 37, 108, 217, 218, 219-220, 297
 revised key to adults of, 217-218
syngenesiae group, *Phytomyza*, 58, 104, 122, 217, 220, 308
 synthetic hypothesis (faunal origin), 225
 system, human life-support,
 ecological control on, 158
 mass energy characteristics of, 155
 mass energy dynamics of, 156

- system, human life-support (continued),
 models of, 156, 157, 160
 physical and technological structure of,
 158, 160, 163
 pricing mechanism to control evolution
 of, 159
 policies, 157
 successional changes in, 156
 Systeme Volcanique transversal, 241, 245
 systems models,
 beef production, 163
 cereal leaf beetle, 163, 170-173
 power plant design, 163
 spruce budworm, 177
tabaci, *Thrips*, 75
 Tabaniden, 203
Tanacetum vulgare, 302
 Tapiridés, 246
Taraxacum, 218
 Tardigrada, 266
tasmanicus, *Thenarotes*, 82, 83
tatarica, *Lonicera*, 46, 50
tatrica, *Phytomyza*, 121
 Tawfik, M. S., 285-293,
 (see Gooding, R. H.), 287
 taxonomy, numerical, 269-270
 Tayassuidés, 246
 Taylor, L. R. (see Lewis, T.), 74
 technology,
 impact on human society, 160
 impact on problems of social regulation,
 161
Temnoplectron, 258
Tenebrio, 22
 sp., 9, 10
tenebrosa, *Agapetus*, 328
tenebrosa, *Hydroptila*, 328-330
tenebrosa, *Protoptila*, 316, 317, 318, 328,
 336, 337, 338, 344, 347
tenebrosus, *Agapetus*, 329
 Tephritidae s. l., 37
terraenovae, *Phormia*, 192, 201
Tesserodon, 258
Tetraechma, 257
Tetramereia, 254
Tetrastichus julis, 167
 life history, 171
thapsus, *Verbascum*, 151
Thenarellus, 81, 84, 85, 100
Thenarellus (continued),
 leucopus, 84
Thenarotes discoidalis, 82, 83
 sp., 82
 tasmanicus, 82, 83
Theobaldia, 202
 annulata, 190, 191
 Thiele, H. U., 3, 10, 22, 26, 33
 Thompson, M. A., 199, 203
 Thripidae, 75
 Thrips, 73, 74, 75, 76, 151
Thrips, 76
 imaginis, 75
 tabaci, 75
 Thurm, U., 192, 193, 194, 203
Thyregis, 254
 Thysanoptera, 73, 74, 75, 76
 Thysanura, 202, 265
tiarella, *Chromatomyia*, 36, 40
 ticks, 202, 263
tilesii, *Artemisia*, 296, 297, 301
tilesii elatior, *Artemisia*, 301, 313
tilesii tilesii, *Artemisia*, 307, 313
Tiniocellus, 252
tingitica, *Phytomyza*, 104, 106
tomichi, *Pseudotrachia*, 131, 136, 138, 146
iottoriensis, *Phytomyza*, 297, 301-302, 310
Toxorhynchites, 194
 brevipalpus, 194
 rutilus, 194
 splendens, 194
Trachysarus longicollis, 82, 83
 pallipes, 82, 83
 Trägårdh, I., 44, 45, 46, 60
Tragiscus (= *Deronitis*), 252
 trematodes, 270
tremuloides, *Populus*, 4
Trentonius aequalis, 331
 novusamericanus, 332
triangularis, *Senecio*, 113, 114, 128
 Triassique, 235, 237, 240
Trichillum, 253
Trichocanthon, 257
Trichoprosopon, 200
 Trichoptera, 315-341
 Trichopteren, 341
trifurcata, *Artemisia*, 296
 Trigonotomi, 32
trinervius, *Aster*, 115

- tripolium*, *Aster*, 217
- tropicalis*, *Pterostichus*, 4, 7, 27, 28, 29, 30, 31
- Tropidonitis*, 252
- tryoni*, *Dacus*, 267
- Tschirnhaus, M., von., 38, 60, 217, 218, 219, 220
- Tschitschérine, T., 27, 28, 33
- tsetse flies, 197
- Tubulifera, 151
- Tummala, R. L., (see Koenig, H. E.), 155, 159, 160, 162, 164
- tundrensis*, *Phytomyza*, 106, 108, 110-111, 112, 124, 128
- turbatus*, *Pelmatellus*, 81
- tussilaginis*, *Phytomyza*, 108, 113, 117, 129
- tussilaginis kevani*, *Phytomyza*, 106, 117, 129
- tussilaginis petasiti*, *Phytomyza*, 106, 129
- Tussilago*, 58, 122, 220, 308
- Tyo, R. M., 286, 288
- Udvardy, M. D. F., 233, 262
- Ulmer, G., 320, 328, 329, 341
- Umbelliferae, 104, 122
- umbellus*, *Bonasa*, 22
- unemployment and economic expansion, 161
- unicolor*, *Pseudatrachia*, 136
- Uniramia, 264, 265, 267
- Uranotaenia*, 200
- urichi*, *Liothrips*, 75
- Uropygi, 265
- Uroxys*, 253, 255
- ussuricum*, *Glossosoma (Eomystra)*, 335
- Valeriana*, 217-220
- capitata*, 219, 222
- sitchensis*, 219
- Valerianaceae, 217
- key to *Chromatomyia* mines on, 218
- Valerianella*, 218
- locusta*, 218
- Vaurie, P. (see Selander, R. B.), 90, 102
- velona*, *Glossosoma (Ripaeglossa)*, 316, 318, 319-320, 334, 336, 337, 343, 345
- Velutinus group (*Scenopinus*), 131, 132, 133
- key to the species, 133
- ventrale*, *Glossosoma (Ripaeglossa)*, 334
- verbasci*, *Haplothrips (Neoheegeria)*, 151
- Verbascum thapsus*, 151
- verdona*, *Glossosoma (Eomystra)*, 316, 318, 325-326, 334, 336, 337, 338, 343, 346
- vernalis*, *Phytomyza*, 37
- verticalis*, *Anisodactylus (Spongopus)*, 82
- vexans*, *Aedes*, 279
- vexator*, *Pelmatellus*, 85, 86, 87, 93, 94, 97, 99, 100
- vexator* group, *Pelmatellus*, 90, 100
- victoriensis*, *Nemaglossa*, 83
- victoriensis*, *Nemaglossa (Lecanomerus)*, 82
- Vizzi, F. F., 188, 199, 200, 203
- Voerman, S., 287, 288
- Vogel, R., 188, 191, 197, 203
- Voigt, G., 46, 60
- von Gernet, G., 190, 191, 192, 193, 194, 195, 196, 203
- Vulcananthon*, 257
- vulgare*, *Tanacetum*, 302
- vulgaris*, *Artemisia*, 296, 299, 300, 301, 302, 313
- vulgaris*, *Senecio*, 220
- Walbauer, G. P., 188, 189, 190, 197, 198, 199, 200, 203
- Walker, F., 37, 60, 328, 341
- Walters, Carl J., 177-186
- Wattal, B. L. (see Bhatia, M. L.), 188, 200
- Wegener, A. (see Koppen, W.), 236
- wenatchee*, *Glossosoma (Ripaeglossa)*, 334
- Wenk, P., 197, 203
- Wensler, R. J., 197, 203
- Westfall, J. A. (see Hooper, R. L.), 188, 193, 201
- Weyenbergh, H., 44, 60
- Whitcomb, W. H. (see Harris, D. L.), 3, 32
- Whitehead, D. R., 82, 100, 102
- Wiersma, G. B., 287, 288
- wireworm, 32
- Wold, J. L. (see Anderson, N. H.), 333, 339
- Wolfe, J. A., 28, 33
- (see Hopkins, D. M.), 28, 32
- Wormaldia*, 333-334, 335, 336, 341
- (*Wormaldia gabriella*), 316, 330, 333-334, 336, 337, 344, 348
- (*Wormaldia moesta*), 336
- (*Wormaldia moesta* group), 335, 336
- worms, gordian, 23
- Wyeomyia smithii*, 191
- Xenocanthon*, 257
- Xestonotus lugubris*, 82

- Xinidium*, 254
Xiphosura, 265
xylostei, *Agromyza*, 44
xylostei, *Napomyza*, 44, 45, 47, 48
xylostei, *Phytomyza*, 42, 44, 47, 60
xylostei, *Phytomyza (Napomyza)*, 44
xylosteum, *Lonicera*, 41, 43, 46, 47, 49,
50, 57
yomena, *Kalimerus*, 302
yucatanii, *Brevitrichia*, 138
Zacharuk, R. Y., 192, 193, 203
Zavřel, H., 300, 309
(see Skala, H.), 300, 309
Zoerner, H., 46, 50, 60, 299, 309
Zone de Transition Méxicaine, 231, 233, 237
Zonocopris (= Plesiocanthon), 253