

QK
1
A61
Index
v.11-30
Bot.

580.542
A61

S. I. LIBRARY

Price 5s.; to non-subscribers, 9s.

Half-morocco, price 6s.; to non-subscribers, 10s. 6d.

32
B.4
129
Index to Vols. XI-XX

OF THE

ANNALS OF BOTANY

(1897-1906)

PREPARED BY T. G. HILL, A.R.C.S., F.L.S.

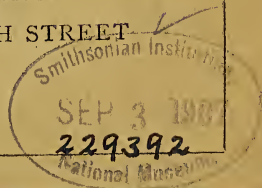
UNDER THE DIRECTION OF THE EDITORS

LONDON

HENRY FRÖWDE, M.A., AMEN CORNER, E.C.

OXFORD: CLARENDON PRESS DEPOSITORY, 116 HIGH STREET

1907



INDEX TO ANNALS OF BOTANY

VOLS. XI-XX (1897-1906)

[Synonyms are indicated by *italics*. An asterisk (*) indicates an illustration, and a dagger (†) a palaeophytological article.]

- Abies firma*, seedling-structure, xx. 472.
 Abietineae, vascular system of female 'flower' (*), xiii. 536.
 Absciss-layer in leaves of *Narcissus*, *Galanthus*, and *Leucojum* (*), xii. 151.
Acanthophoenix crinita, seedling-structure, xvii. 48.
Acer Pseudoplatanus, tricotyledonous embryos (*), xvi. 553.
Achillea Millefolium, mechanism of stomata (*), xvi. 342.
Achlya americana, var. *cambrica*, *n. var.*, amputation of hyphae, effect of, xiii. 149; apogamy, xiii. 147; biological observations, xiii. 138; cytology (*), xiii. 131, 150, 152; description, xiii. 135; fertilization (*), xiii. 159; gametangia, development (*), xiii. 139, 153; germination of oospheres (*), xiii. 143, 162; maturation of oospheres (*), xiii. 142, 160; mycelium (*), xiii. 152; oospheres, development (*), xiii. 139, 153; zoospores, cytology (*), xiii. 152.
 — de Baryana, fertilization (*), xviii. 552.
 — polyandra, fertilization (*), xviii. 549.
Acremonium fimicolum, *n. sp.*, description (*), xvi. 79.
Actea alba, embryology (*), xix. 450.
Actinococcus and *Phyllophora* (*), xiii. 253.
 — description, xiii. 265.
 — subcutaneous, anatomy and development (*), xiii. 255; description, xiii. 265.
Actinostele, definition, xvi. 522.
Actinostemma biglandulosa, stem-structure (*), xiv. 639.
Actinostrobus, seedling-structure, xx. 472.
 Adaptation shown by *Erysiphe graminis* under cultural conditions, endophytic, xix. 444.
Adenostemma viscosum, fruit-dispersal (*), xx. 311.
Aecidium, development in *Gymnosporangium clavariaeforme*, xviii. 341; in *Phragmidium violaceum* (*), xviii. 338.
 — morphology of the, xviii. 353.
Aecidium graveolens, parasitism, etc. (*), xii. 155.
 Africa, plants of the northern temperate zone in their transition to the high mountains of tropical, xviii. 523.
Agaricus Bongardi, description, xviii. 480, 489.
Agaricus caesariatus, description, xviii. 482.
 — *campestris*, proteases, xvii. 241; xix. 179.
 — *carptus*, description, xviii. 483.
 — *cervicolor*, description, xviii. 479.
 — *cinnamatus*, description, xviii. 489.
 — *deglubens*, description, xviii. 479.
 — *dulcamarus*, description, xviii. 488.
 — *echinatus*, description, xviii. 493.
 — *eriocephalus*, description, xviii. 466.
 — *fastigiatus*, description, xviii. 464, 495.
 — *fibrosus*, description, xviii. 464.
 — *frumentacea*, description, xviii. 486.
 — *fumosopurpureus*, description, xviii. 493.
 — *gratus*, description, xviii. 498.
 — *birsutus*, description, xviii. 492.
 — *Hookeri*, description, xviii. 493.
 — *hystrix*, description, xviii. 483.
 — *lanuginosus*, description, xviii. 468.
 — *lucifugus*, description, xviii. 481.
 — *mammillaris*, description, xviii. 498.
 — *maritimus*, description, xviii. 471.
 — *obscurus*, description, xviii. 482.
 — *oxyomus*, description, xviii. 493.
 — *perbrevis*, description, xviii. 490.
 — *plumosus*, description, xviii. 500.
 — *pyriodorus*, description, xviii. 475.
 — *rimosus*, description, xviii. 475.
 — *sabuletorum*, description, xviii. 468.
 — *scaber*, description, xviii. 474.
 — *Trinii*, description, xviii. 470.
 — *umbratica*, description, xviii. 467.
 — *viscosissimus*, description, xviii. 500.
 — (*Hebeloma*) *fuscodiscus*, description, xviii. 487.
 — — *griseoscabrosus*, description, xviii. 484.
 — — *ignobilis*, description, xviii. 472.
 — — *mutatus*, description, xviii. 496.
 — — *obscurus*, description, xviii. 482.
 — — *stellatosporus*, description, xviii. 469.
 — — *subochraceum*, description, xviii. 475.
 — (*Inocybe*) *alienellus*, description, xviii. 489.
 — — *asininus*, description, xviii. 474.
 — — *asterosporus*, description, xviii. 465.
 — — *caesariatus*, description, xviii. 482.
 — — var. *fibrillosus*, description, xviii. 500.
 — — *calamistratus*, description, xviii. 493.
 — — *capucinus*, description, xviii. 499.
 — — *carptus*, description, xviii. 483.
 — — *Curreyi*, description, xviii. 495.
 — — *deglubens*, description, xviii. 479.
 — — *descissus*, description, xviii. 478.
 — — *strictus*, description, xviii. 480.

- Agaricus (Inocybe) (continued)*—
 — — *ebbinatus*, description, xviii. 493.
 — — *eutbelus*, description, xviii. 476.
 — — *fasciatus*, description, xviii. 468.
 — — *focculosus*, description, xviii. 487.
 — — *fuegianus*, description, xviii. 490.
 — — *geophyllus*, description (*), xviii. 477.
 — — *gompbodes*, description, xviii. 499.
 — — *haemactus*, description, xviii. 486.
 — — *birsutus*, description, xviii. 492.
 — — *holopblebius*, description, xviii. 490.
 — — *ineditus*, description, xviii. 464.
 — — *lancerus*, description, xviii. 483.
 — — *lanuginosus*, description, xviii. 468.
 — — *margarispora*, description, xviii. 473.
 — — *maritimus*, description, xviii. 471.
 — — *muticus*, description, xviii. 485.
 — — *paludinellus*, description, xviii. 468.
 — — *perbrevis*, description, xviii. 490.
 — — *perlatus*, description, xviii. 489.
 — — *relicinus*, description, xviii. 488.
 — — *Renneyi*, description, xviii. 472.
 — — *rimosus*, description, xviii. 475.
 — — *rufoalbus*, description, xviii. 471.
 — — *sambucinus*, description, xviii. 477.
 — — *scaber*, description, xviii. 474.
 — — *schistus*, description, xviii. 501.
 — — *servatus*, description, xviii. 495.
 — — *sindonius*, description, xviii. 478.
 — — *squamiger*, description, xviii. 498.
 — — *strigiceps*, description, xviii. 499.
 — — *trechisporus*, description, xviii. 468.
 — — *Trinii*, description, xviii. 470, 481.
 — — — *var. rubescens*, description, xviii. 481.
 — — *vaticosus*, description, xviii. 491.
 — — *Victoriae*, description, xviii. 490.
 — — *violaceifolius*, description, xviii. 482.
 — — *Whitei*, description, xviii. 478.
 — (*Lepiota*) *haematophyllus*, description, xviii. 493.
 — (*Psalliota*) *campestris*, peptolysis, xviii. 312; peptonization, xviii. 309; protease, nature of, xviii. 314.
 — — *ebbinatus*, description, xviii. 493.
Agathis alba, wounds (*), xx. 387.
Agave Rovelliana, seedling-structure, xvii. 42.
 — *spicata*, seedling-structure, xvii. 41.
Aglaonema, antipodal cells (*), xiv. 11; endosperm (*), xiv. 10; ovule development (*), xiv. 8.
 — *commutatum*, embryo (*), xvii. 676; embryo-sac (*), xvii. 669, endosperm (*), xvii. 674.
 — *pictum*, embryo-sac, xvii. 677.
Aglaozonia, germination of zoospores (*), xii. 87.
Aizoaceae, seedling-anatomy, xx. 474.
Albuca Nelsoni, seedling-structure (*), xvii. 9, 23.
 Albumin, digestion of, xvii. 254; effect of desiccation upon coagulability of, xiv. 307.
 Albuminous cells of phloem of *Pinus* (*), xv. 600.
 Alcohol-producing enzyme of yeast, xi. 555; xii. 491.
 Algae, accumulation of starch in marine, xv. 678; effect of nitrates on carbon-assimilation of marine, xv. 669; methods for use in culture of (*), xiii. 563; periodical development in artificial waters at Kew, xvii. 274; polymorphism and evolution of green, xi. 97.
 — and the Flagellata, the primitive (*), xiv. 647; xv. 192.
 Alga-like fern prothallium, xvi. 165.
 ALLEN, C. E.—Nuclear Division in the Pollen-mother-cells of *Lilium canadense* (Plates VI-IX), xix. 189.
 — The Early Stages of Spindle-formation in the Pollen-mother-cells of *Larix* (Plates XIV and XV), xvii. 281.
Allionia alba, seedling-structure, xx. 473.
Allium angulosum, seedling-structure, xvii. 32.
 — *ascalonicum*, seedling-structure, xvii. 31.
 — *Cepa*, seedling-structure, xvii. 31.
 — *neapolitanum*, seedling-structure (*), xvii. 31.
 — *Porrum*, seedling-structure, xvii. 31.
 — *serufschanicum*, seedling-structure, xvii. 31.
 Aloë *Buchanii*, seedling-structure, xvii. 38.
Alsophila excelsa, structure (*), xvii. 710.
Alstroemeria, seedling-structure, xvii. 41.
 Alternation of generations, xii. 593.
 — general cytology and fertilization of the Uredineae (*), xvii. 323.
 — in the Archegoniatae, xii. 583; in the Dictyotaceae, xviii. 155; in the Thallophyta, xii. 570.
 Amarantaceae, seedling-structure, xx. 474.
Amaranthus hypochondriacus, seedling-structure, xx. 474.
 Amaryllidaceae, seedling-structure, xvii. 40.
 Amaryllis, mechanism of stomata, xvi. 339.
 Ambatch, plants allied to the, xvii. 450.
 America, 'Sadd' in, xvi. 512.
 Ammonium carbonate, effect of solution of, on nuclear division, xix. 529.
 — nitrate, effect of on carbon-assimilation of marine algae, xv. 673.
Amomum angustifolium, seedling-structure, xvii. 50.
 Amputation of hyphae of *Achlya americana* var. *cambrica*, effect of, xiii. 149.
 Amylase, occurrence in *Polyporus squamosus*, xx. 50.
Anacampteros papyracea, protective adaptations (*), xx. 126.
Ananas sativus, proteases, xix. 177.
 Anatomy, systematic value of vascular, xvii. 731.
 ANDREWS, F. M.—The Effect of Gases on Nuclear Division (one text-figure), xix. 521.
Anemarrhena asphodeloides, seedling-structure (*), xiv. 633; xvii. 4, 26.

- Anemia, comparative anatomy of species of (*), xv. 385; habit, xv. 379; petiole-structure and node (*), xv. 382; root-structure, xv. 385; seedling anatomy (*), xv. 388; stem-structure (*), xv. 379.
- *hirsuta*, anomalous leaf of, xv. 765.
- Anemone coronaria, seedling-structure, xvii. 56.
- Angiopteris evecta, arrangement and structure of the vascular strands (*), xvi. 371; leaf-structure (*), xiv. 519; morphology (*), xiv. 501; root-structure (*), xiv. 516; secondary thickening (*), xvi. 173, 388; stem-structure, xiv. 505, 512.
- Angiosperm, *Peperomia* the most primitive type of, xv. 113.
- Angiosperms, double fertilization, xiv. 689; histology of sieve-tubes, xvii. 265; phylogeny, xix. 457; xx. 173; sporangial integuments, morphology, xvi. 596; stomata, mechanism (*), xvi. 353.
- Anhalonium, morphology of embryo and seedling (*), xii. 462.
- Anixopsis stercoraria, description (*), xvi. 67.
- Anthericum Liliago, seedling-structure (*), xvii. 29.
- Antheridia of *Grinnellia americana* (*), xi. 12; of *Helminthostachys zeylanica* (*), xvi. 38; of *Ophioglossum pendulum* (*), xvi. 29.
- Antherozoids of *Chara* (*), xviii. 245; *Diclyota* (*), xii. 545; *Fegatella conica*, explosive discharge (*), xvii. 270; *Gymnosperms*, xi. 344; *Taonia* (*), xi. 545.
- of ferns, chemotaxis, xiv. 543; physiology, xiv. 543; starch in vesicle, xiv. 579; swarm period, length of, xiv. 575; withdrawal of water from, xiv. 572.
- Anthoceros laevis*, apospory in (*), xv. 503.
- multiple chromatophores, xx. 322.
- Anthurium Bakerianum*, seedling-structure, xvii. 2, 40, 45.
- development of ovule (*), xiv. 12.
- *violaceum* var. *leucocarpum*, embryo (*), xix. 334; embryo-sac (*), xix. 331; endosperm (*), xix. 333; fertilization (*), xix. 332; flower (*), xix. 330; ovule (*), xix. 330.
- Antipodal cells of *Aglaonema* (*), xiv. 11; *Lysichiton* (*), xiv. 15; *Triglochin maritimum* (*), xiv. 99.
- Anti-ferment reaction in tropistic movements of plants, xix. 75.
- Antiseptics and proteases, xvii. 602.
- Anthamnion *Plunula*, cystocarp development (*), xi. 356.
- Aphanochaete*, observations on species of (*), xvi. 403; classification, xvi. 409.
- Aplectrum hyemale*, morphology (*), xiii. 6; mycorrhiza (*), xiii. 7; structure of vegetative organs (*), xiii. 8, *et seq.*
- *spicatum*, morphology (*), xiii. 6; mycorrhiza (*), xiii. 7; structure of vegetative organs (*), xiii. 8, *et seq.*
- Apogamy in *Achlya americana* var. *cambrica*, xiii. 147; ferns, xii. 251.
- Apogeous roots of *Bowenia spectabilis* (*), xii. 480.
- Apospory in *Anthoceros laevis* (*), xv. 503.
- Aquatic plants, action of cold and of sunlight upon, xii. 363.
- Aquilegia canadensis*, embryology (*), xix. 455.
- Araceae and other Monocotyledons, relation between, xx. 424.
- and *Piperaceae*, comparison, xx. 417.
- development of flower and sexual organs (*), xiv. 1.
- studies on the (*), xiv. 1; xvii. 665; xix. 329.
- Arachniotus candidus*, description (*), xvi. 62.
- *citrinus*, *n. sp.*, description (*), xvi. 62.
- Arachnomyces nitidus*, *n. sp.*, description (*), xvi. 68.
- *sulphureus*, *n. sp.*, description (*), xvi. 68.
- *n. gen.*, description, xvi. 68.
- Araucariaceae*, persistence of leaf-traces in, xv. 423, 547; vascular system of female flower (*), xiii. 527.
- Araucaria*, wood of a Cretaceous plant allied to (* †), xx. 388; wound reaction (*), xx. 338.
- *Bidwillii*, vascular system of female flowers (*), xiii. 532.
- *Cookii*, vascular system of female flowers (*), xiii. 527.
- Araucarioxylon antiquum* (†), primary wood, xiii. 617; secondary wood, xiii. 618.
- *fasciculare* (†), primary wood, xiii. 616; secondary wood, xiii. 617.
- Araucarioxylons*, primary wood of (†), xiii. 615.
- ARBER, E. A. N.—On some species of *Lagenostoma*: A Type of Pteridospermous Seed from the Coal Measures (†), xix. 326.
- On the Effect of Nitrates on the Carbon-Assimilation of Marine Algae, xv. 669.
- On the Effect of Salts on the Assimilation of Carbon Dioxide in *Ulva latissima*, xv. 39.
- On the Past History of the Ferns (one text-figure) (†), xx. 215.
- On the Roots of *Medullosa anglica* (Plate XX) (†), xvii. 425.
- Arceuthobium occidentale*, dissemination (*), xix. 100; germination (*), xix. 104.
- Archangiopteris Henryi*, histology, xix. 266; leaf-morphology (*), xix. 260; sori and sporangia, xix. 269; stipule-structure (*), xix. 266; vascular system of petiole (*), xix. 262; vascular system of stem (*), xix. 261.
- Archegonia* of *Helminthostachys zeylanica* (*), xvi. 39; *Ophioglossum pendulum* (*), xvi. 30; *Pinus Strobus*, development (*), xv. 436; *Tsuga canadensis* (*), xiv. 583.

- Archegoniatae, alternations of generations in the, xii. 583.
- Archegonium, origin of (*), xvii. 477.
- Areca sapida, seedling-structure, xvii. 48.
- Argemone cambrica*, description, xx. 343.
- *cambro-Britanica lutea*, description, xx. 343.
- *mexicana*, description, xx. 359.
- Arisaema speciosum, seedling-structure, xvii. 45.
- Aroideae, seedling-structure, xvii. 44.
- Arthrotrichum oligospora*, description (*), xvi. 83.
- *superba*, description (*), xvi. 83.
- Arthropodium cirrhatum, seedling-structure (*), xvii. 30.
- ARTHUR, J. C.—The Movement of Protoplasm in Coenocytic Hyphae (with Woodcuts 8-11), xi. 491.
- Arum maculatum, course of bundles in stem (*), xii. 406; external morphology (*), xii. 399; internal morphology (*), xii. 404; seedling development (*), xii. 399; seedling-structure (*), xii. 408; xvii. 44.
- Asci and sporangia, cell-division in (*), xiii. 467.
- Asclepias Cornuti, development of pollinium and sperm-cells (*), xvi. 123.
- Ascobolaceae, descriptions of coprophilous (*), xv. 326; xvi. 66.
- Ascobolus perplexans, *n. sp.*, description (*), xv. 328.
- Ascocarp, morphology of, xiv. 321.
- in *Monascus*, development and morphology (*), xvii. 167.
- Ascodesmis Volutelloides, *n. sp.*, description (*), xvi. 61.
- Ascomyceteae, coprophilous (*), xvi. 61.
- Ascomycetes, binucleate cells in the (*), xix. 325; descriptions of coprophilous (*), xv. 324; origin of the, xvii. 216; sexuality of the, xiii. 581.
- Ascophanus ryparoboides*, description (*), xv. 327.
- Asparagus decumbens, seedling-structure, xvii. 37.
- *officinalis*, digestion by leaves, xix. 160; seedling-structure, xvii. 37.
- Aspergillus clavatus, description (*), xvi. 82.
- Asphodeline liburnica, seedling-structure (*), xvii. 26.
- Asphodelus albus, seedling-structure, xvii. 27.
- *cerasifer*, seedling-structure, xvii. 27.
- *fistulosus*, seedling-structure, xvii. 27.
- Aspidium falcatum, seedling-structure (*), xix. 397.
- *Tsus-Simense*, seedling-structure (*), xix. 378.
- Asplenium bulbiferum, seedling-structure (*), xix. 376.
- *ridus*, seedling-structure (*), xix. 395.
- Assimilation, effect of temperature on, xvi. 591.
- of carbon dioxide in *Ulva latissima*, effects of salts on, xv. 39.
- Assimilatory pigments, bacteria with, xi. 486.
- Astrophytum, morphology of seedling and embryo (*), xii. 457.
- Atactostele, definition, xvi. 522.
- Autolysis in *Saccharomyces cerevisiae*, xviii. 294.
- Azolla caroliniana, mechanism of stomata, xvi. 339.

B.

- Bacillus from the Thames, a violet (*), xii. 59.
- *hirtus*, cell-contents (*), xx. 254; cell-division (*), xx. 248; characters (*), xx. 255; ciliation (*), xx. 252; cultures (*), xx. 237; development of spores (*), xx. 250; germination of spores (*), xx. 236; growth (*), xx. 241; motility, xx. 252; spores (*), xx. 234.
- *membranaceus amethystinus*, life-history (*), xx. 59.
- Bacteria of the Thames (*), xii. 287; xiii. 197.
- *luminous*, xvi. 587.
- putrefactive, proteolytic action, xvi. 14.
- with assimilatory pigments, xi. 486.
- Bacteriology, recent researches in, xix. 5.
- Bacterium hirtum*, cell-contents (*), xx. 254; cell-division (*), xx. 248; characters (*), xx. 255; ciliation (*), xx. 252; cultures (*), xx. 237; development of spores (*), xx. 250; germination of spores (*), xx. 236; growth (*), xx. 241; motility, xx. 252; spores (*), xx. 234.
- *vermiforme*, fermentation produced by, xi. 341.
- BALFOUR, I. B.—Richard Spruce (with Portrait), xiv. xi.
- BARBER, C. A.—*Cupressinoxylon vectense*; a Fossil Conifer from the Lower Greensand of Shanklin in the Isle of Wight (Plates XXIII and XXIV) (†), xii. 329.
- Barbula erythrodonia*, description (*), xvii. 114.
- BARKER, B. T. P.—A Fragrant 'Mycoderma' Yeast, *Saccharomyces anomalus* (Plate XIII), xiv. 215.
- Sexual Spore-formation among the *Saccharomyces*, xv. 759.
- The Morphology and Development of the Ascocarp in *Monascus* (Plates XII and XIII), xvii. 167.
- Barley, method of obtaining Smut in, xii. 566.
- BARNARD, J. E., and MACFADYEN, A.—On Luminous Bacteria, xvi. 587.
- Bartonia lanceolata*, general description (*), xx. 442; leaf-structure (*), xx. 446; root-structure, xx. 445; stem-structure, xx. 445.
- *verna*, general description (*), xx. 442; leaf-structure, xx. 444; root-structure, xx. 443; stem-structure (*), xx. 443.
- Basidiomycetes, sexuality of, xiii. 585.
- Basidium, nuclear fusion in, xviii. 361.

- BEER, R.—On the Development of the Spores of *Helminthostachys zeylanica* (Plates XI and XII), xx. 177.
 — On the Development of the Spores of *Riccia glauca* (Plates XXI and XXII), xx. 275.
 Bengal, swamp vegetation of Lower, xvi. 509.
 Bennettites Gibsonianus, affinities (†), xiv. 717.
 BENSON, M.—*Telangium Scotti*, a new species of *Telangium* (*Calymmatotheca*), showing structure (Plate XI and one text-figure) (†), xviii. 161.
 — The Fructification of *Lyginodendron oldhamium* (with one text-figure) (†), xvi. 575.
 BENTHAM, GEORGE, Biographical Memoir (Portrait), xii. ix.
 BERKELEY, MILES JOSEPH, Biographical Sketch, xi. ix.
 BERRIDGE, E. M.—On two new Specimens of *Spencerites insignis* (Plates XI and XII, and three text-figures) (†), xix. 273.
Bertholletia excelsa, germination of seeds (*), xv. 99.
 BERTRAND, C. E.—On the Structure of the Stem of a Ribbed *Sigillaria* (†), xiii. 607.
Betula alba, proteolytic enzymes, xvii. 615.
Bistrepis in its relation to Cultivation, xiii. 395.
 BIFFEN, R. H.—A Fat-Destroying Fungus (Plate XIX), xiii. 363.
 — Note on some Grafting Experiments, xvi. 174.
 — On the Biology of *Bulgaria polymorpha* (Plate VII), xv. 119.
 — The Coagulation of Latex, xii. 165.
 — The Functions of Latex, xi. 334.
Bignonia capreolata, root-structure, xii. 327.
 — *Unguis*, root-structure (*), xii. 325.
 — *venusta*, root-structure, xii. 326.
 Binucleate cells in the Ascomycetes (*), xix. 325.
 Biologic Forms of the Erysiphaceae, cultural experiments with, xviii. 320; xix. 125.
 Biology of *Achlya americana* var. *cambrica*, xiii. 131.
 BLACKMAN, F. F.—Optima and Limiting Factors (two text-figures), xix. 281.
 — The Primitive Algae and the Flagellata. An account of modern work bearing on the Evolution of the Algae (two text-figures), xiv. 647.
 — *Id.* xv. 192.
 — and MATTHAEI, G. L. C.—On the Reaction of Leaves to Traumatic Stimulation (Plate XXIX and five text-figures), xv. 533.
 BLACKMAN, V. H.—On the Fertilization, Alternation of Generations, and General Cytology of the Uredineae (Plates XXI-XXIV), xviii. 323.
 — and FRASER, H. C. I.—Fertilization in *Sphaerotheca* (one text-figure), xix. 567.
 BLACKMAN, V. H., and FRASER, H. C. I.—Further Studies on the Sexuality of the Uredineae (Plates III and IV), xx. 35.
Blechnum brasiliense, seedling-structure, xix. 376.
Bloomeria aurea, seedling-structure, xvii. 32.
Bonnemaisionia asparagoides, cystocarp development (*), xi. 348.
 BOODLE, L. A.—Comparative Anatomy of the Hymenophyllaceae, Schizaeaceae, and Gleicheniaceae, I. On the Anatomy of the Hymenophyllaceae (Plates XXV-XXVII), xiv. 455.
 — *Id.* II. On the Anatomy of the Schizaeaceae (Plates XIX-XXI), xv. 359.
 — *Id.* III. On the Anatomy of the Gleicheniaceae (Plates XXXVIII and XXXIX), xv. 703.
 — *Id.* IV. Further Observations on Schizaeae (three text-figures), xvii. 511.
 — Lignification of Phloem in *Helianthus*, xx. 319.
 — On an Anomalous Leaf of *Anemia hirsuta*, xv. 765.
 — On Lignification in the Phloem of *Helianthus annuus*, xvi. 180.
 — On some Points in the Anatomy of the Ophioglosseae (Plate XX), xiii. 377.
 — On the Occurrence of Secondary Xylem in *Psilotum* (Plate XXXIII and seven text-figures), xviii. 505.
 — On the Structure of the Stem in two Species of Lycopodium, xiv. 315.
 — Stem-Structure in Schizaeaceae, Gleicheniaceae, and Hymenophyllaceae, xiii. 624.
 — The Monoecism of *Funaria hygrometrica* (four text-figures), xx. 293.
 Botrychium, imperfect sporangia, xv. 256.
 — *Lunaria*, root-structure (*), xiii. 381.
 — *virginianum*, gametophyte, xi. 481; sporocformation (*), xix. 465.
 Botryosporium causing disease of *Tradescantia* (*), xiv. 27.
 — *foecundissimum*, description (*), xvi. 81.
 Botrytis pilulifera, description (*), xvi. 81.
Bowenia spectabilis, peduncle-structure, xi. 410; sporophyll-structure (*), xii. 219; structure (*), xiv. 159.
 — seedling-anatomy (*), xii. 475; leaf (*), xii. 485; root (*), xii. 478; seed (*), xii. 477; stem (*), xii. 484; transition from root to stem (*), xii. 483.
 BOWER, F. O.—Imperfect Sporangia in certain Pteridophytes. Are they vestigial? xv. 225.
 — Note on abnormal Plurality of Sporangia in *Lycopodium rigidum* (one text-figure), xvii. 278.
 — *Ophioglossum simplex*, Ridley (Plate XV), xviii. 205.
 — Studies in the Morphology of the Spore-Producing Members. Part III. Marattiaceae, xi. 488.

- BOWER, F. O. *Id.* Part IV. Leptosporangiate Ferns, xiii. 320.
 — *Id.* Part V. General Comparisons and Conclusions, xvii. 618.
 Brachyphyllum, wound reactions (* †), xx. 383; structure, xx. 384.
 BRANNON, M. A.—The Structure and Development of *Grinnellia americana* (Plates I-IV), xi. 1.
 Bravao geminiflora, seedling-structure, xvii. 41.
 BREBNER, G.—On the Anatomy of *Danaea* and other Marattiaceae, xv. 777.
 — *Id.* (Plates XXII and XXIII and two text-figures), xvi. 517.
 Bridging species and their significance, xix. 42.
 Britain, Jurassic Flora of (†), xiii. 610.
 British Flora, Geological History, xii. 243.
 Brodiaea lactea, seedling-structure, xvii. 32.
 Bromelin, proteolytic action of, xvi. 4.
 Bromes, germination, xvi. 257; rusts of the, xvi. 238.
 Bromus, anatomy of the first green leaf, xvi. 305.
 — and *Puccinia dispersa*, xv. 560; xvi. 233.
 — and their brown rust, species of, xix. 19.
 BROWN, H. T., and ESCOMBE, F.—Static Diffusion of Gases and Liquids in Relation to the Assimilation of Carbon and Translocation in Plants, xiv. 537.
 Bryophyta, conducting tissue-system in (*), xv. 1; nature and origin of, xv. 30.
 Bulbine annua, seedling-structure, xvii. 9, 28.
 Bulbs, movements of in the soil, xx. 429.
 Bulgaria polymorpha, action of on wood, (*), xv. 123; biology of (*), xv. 119; development (*), xv. 121; structure (*), xv. 121.
 BULLER, A. H. R.—Contributions to our knowledge of the Physiology of the Spermatozoa of Ferns, xiv. 543.
 — The Enzymes of *Polyporus squamosus*, xx. 49.
 — The Reactions of the Fruit-bodies of *Lentinus lepideus* to External Stimuli (Plates XXIII-XXV), xix. 427.
 Bunt, preparation of, for class purposes, xi. 333.
 BURKILL, I. H.—Changes in the Sex of Willows, xii. 557.
 — On *Pelargonium rapaceum*, xiii. 181.
 — The Ovary of *Parnassia palustris* (one text-figure), xv. 186.
 — and WILLIS, J. C.—Flowers and Insects in Great Britain. Part II. Observations on the Natural Orders Dipsacaceae, Plumbaginaceae, Compositae, Umbelliferae, and Cornaceae, made in the Clova Mountains, xvii. 313.
 — *Id.* Part III. Observations on the most Specialized Flowers of the Clova Mountains, xvii. 539.
 BURNS, G. P.—Heterophylly in *Proserpinaca palustris* (Plate XXXVIII), xviii. 579.
 BURRAGE, J. H.—On *Nuytsia floribunda* (one text-figure), xiv. 312.
- C.
- Cacao, on *Diplodia cacaoicola*, a parasitic fungus on (*), xv. 683.
 Cactaceae, anatomy (*), xii. 433; colour-factors of embryo, xii. 434; ecology, xii. 423; form-factors of embryo (*), xii. 438; germination (*), xii. 429; phylogeny of genera, xii. 469; morphology (*), xii. 423; size-factors of embryo (*), xii. 436.
 Calamitean root, papillae in the epidermoidal layer (* †), xviii. 645.
 Calamite roots, epidermoidal layer of (* †), xvii. 792.
 Calamites, infranodal organs (* †), xv. 135; primitive type of structure in (†), xv. 773; relation of root to stem (* †), xix. 61.
 — *pettycurensis*, stem-structure (†), xv. 774.
 Calanthe, localization of indigo-producing substance, xix. 307.
 Calcium sulphate, effect of on carbon-assimilation in *Ulva latissima*, xv. 65.
 Callebepharis ciliata, cystocarp development (*), xi. 354.
 Callithamnion byssoides, cystocarp development (*), xi. 359; form of protoplasmic body, xii. 569.
 — *granulatum*, cystocarp development (*), xi. 359.
 Callitris, seedling-structure, xx. 472.
 Callus of sieve-tubes of *Pinus*, formation (*), xv. 590; origin (*), xv. 597; value, xv. 605.
 Caltha palustris, double-fertilization (*), xiv. 527; vermiform nuclei, xiv. 318.
Calymmatotbecca, the fructification of *Lycopodium*, xvi. 575; xvii. 625.
 — *Telangium Scotti*, *n. sp.*, structure (* †), xviii. 161.
Calymperes Lindigii, description (*), xvii. 125.
Calypso borealis, morphology (*), xiii. 25; mycorrhiza (*), xiii. 25; spontaneous variations, xiii. 25.
 — *bulbosa*, morphology (*), xiii. 25; mycorrhiza (*), xiii. 25; spontaneous variations, xiii. 25.
 CAMPBELL, D. H.—A peculiar Embryo-sac in *Peperomia pellucida*, xiii. 626.
 — Germination of the Spores of *Ophioglossum*, xx. 321.
 — Multiple Chromatophores in *Anthoceros*, xx. 322.
 — Studies on the Araceae, I. (Plates I-III), xiv. 1.
 — *Id.* II. The Embryo-sac and Embryo of

- Aglaonema and Spathicarpa (Plates XXX-XXXII), xvii. 665.
- CAMPBELL, D. H. *Id.* III. (Plates XIV-XVII), xix. 329.
- Studies on the Gametophyte of Selaginella (Plate XIX), xvi. 419.
- The Development of the Flower and Embryo in *Lilaea subulata* (Plates I-III), xii. 1.
- The Embryo-sac of *Peperomia* (Plate VI), xv. 103.
- Canaries, the Statics of the, xx. 205, 301.
- Canna, seedling-structure, xvii. 50.
- Carbohydrates of *Hyacinthus orientalis*, reserve, xiv. 155; of latex, xiv. 200.
- Carbon-assimilation, action of chloroform on, xii. 415.
- and translocation, static diffusion of gases and liquids in relation to, xiv. 537.
- of marine Algae, effect of nitrates on, xv. 669.
- Carbon dioxide assimilation, effect of salts on in *Ulva latissima*, xv. 39; effect of temperature on, xvi. 591.
- Carbon dioxide, effect of on nuclear division, xix. 526; on streaming of protoplasm, xix. 526.
- Cardiocarpon-bearing strobilus, a new (+), xiv. 160.
- Cardiocarpus, morphology (* +), xvii. 457.
- Cárica Papaya, proteases of, xix. 176.
- Carpophyll of *Encephalartos* (*), xv. 548.
- Caryophyllaceae, seedling-structure, xx. 474.
- Casein, digestion of, xvii. 254.
- Catechtaia, descriptions of species, xx. 368; generic characters, xx. 367; key to species, xx. 368.
- *beticifolia*, description, xx. 369.
- *Delavayi*, description, xx. 351.
- *integrifolia*, description, xx. 352.
- *lanceifolia*, description, xx. 349.
- *lyrata*, description, xx. 369.
- *polygonoides*, description, xx. 369.
- *villosa*, description, xx. 368.
- CAVERS, F.—Explosive discharge of Antherozoids in *Fegatella conica* (one text-figure), xvii. 270.
- On the Structure and Biology of *Fegatella conica* (Plates VI and VII and five text-figures), xviii. 87.
- Cavity parenchyma, xv. 394.
- Cedrus Deodara, seedling-structure, xx. 472.
- Cell and nuclear division in *Dictyota dichotoma* (*), xiv. 163.
- Cell-division in asci and sporangia (*), xiii. 467; in *Bacillus hirtus* (*), xx. 248.
- Cell, effect of centrifugal force on (*), xiii. 325; *Chara*, xiii. 346; *Cladophora* (*), xiii. 327; *Funaria leaves* (*), xiii. 343; *Nitella*, xiii. 346; nucleus (*), xiii. 351; *Spirogyra* (*), xiii. 332; *Tradescantia*, staminal hairs (*), xiii. 337; *Trichomanes* (*), xiii. 337; *Vallisneria*, xiii. 345; *Vaucheria*, xiii. 348.
- Cellulose enzymes, xiii. 49.
- in xylem of woody stems (*), xviii. 121.
- Cell-walls, tensile strength of, xi. 585.
- Central American species of geophilous *Peperomias* (*), xx. 407.
- Centrifugal force on the cell, effect of (*), xiii. 325; *Chara*, xiii. 346; *Cladophora* (*), xiii. 327; *Funaria leaves* (*), xiii. 343; *Nitella*, xiii. 346; nucleus (*), xiii. 351; *Spirogyra* (*), xiii. 332; *Tradescantia*, staminal hairs (*), xiii. 337; *Trichomanes* (*), xiii. 337; *Vallisneria*, xiii. 345; *Vaucheria*, xiii. 348.
- Cephalocereus, morphology of embryo and seedling (*), xii. 450.
- Cephalosporium succineum, *n. sp.*, description (*), xvi. 79.
- Cephalotaxus, flower-morphology (*), xv. 637; vascular structure of ovule, xiv. 317.
- pedunculata, seedling-structure, xx. 471.
- Ceranium rubrum, form of protoplasmic body, xii. 569.
- *tenuissimum*, cystocarp development (*), xi. 361.
- Cerastites cambrica*, description, xx. 343.
- Ceratopteris thalictroides, leaf-structure (*), xvi. 99; morphology (*), xvi. 96; root-structure (*), xvi. 109; sporangia, xvi. 114; stem-structure (*), xvi. 103; vascular system (*), xvi. 110; vegetative buds (*), xvi. 114.
- Ceratozamia latifolia, structure of sporophyll, xii. 232.
- *mexicana*, structure of peduncle, xi. 411; structure of sporophyll (*), xii. 232.
- *Miqueliana*, structure of sporophyll, xii. 233.
- Cereus, morphology of embryo and seedling (*), xii. 443.
- Ceylon, foliar periodicity, xvi. 594.
- Chaetomium arachnoides, *n. sp.*, description (*), xvi. 71.
- *bostrychoides*, description (*), xvi. 72.
- *simile*, *n. sp.*, description (*), xvi. 71.
- Chaetophoraceae - Ulvaceae, polymorphism and evolution, xi. 112.
- Chaetostroma fomicolum, *n. sp.*, description (*), xvi. 87.
- Chamaerops Fortunei, seedling-structure, xvii. 49.
- *humilis*, seedling-structure, xvii. 49.
- CHANDLER, S. E.—On the Arrangement of the Vascular Strands in the 'Seedlings' of certain Leptosporangiate Ferns (Plates XVIII-XX), xix. 365.
- Characters, distribution of parental to the germ cells, xix. 246.
- Chara, effect of centrifugal force on cell, xiii. 346; spermatozoid development (*), xviii. 245.
- Cheirostrobos, a new type of fossil cone

- from the Calciferous Sandstone (+), xi. 168.
- Cheirostrobos, *n. gen.*, diagnosis (+), xi. 173.
- *pettycurensis*, *n. sp.* (+), affinities, xi. 174; description, xi. 173; peduncle, xi. 168; strobilus, xi. 169.
- Chemotaxis and the dissociation theory, xiv. 562.
- of Fern spermatozoa, xiv. 543.
- Chenopodiaceae, seedling-structure, xx. 474.
- CHICK, E., and TANSLEY, A. G.—Notes on the Conducting Tissue-System in Bryophyta (Plates I and II), xv. 1.
- — On the Structure of Schizaea Malaccana (Plates XXV and XXVI and one text-figure), xvii. 493.
- Chlamydomonas, phylogenetic relations (*), xiv. 656.
- Chlamydomoncor racemosus*, description (*), xvi. 76.
- Chlorides, effect of on carbon-assimilation in *Ulva latissima*, xv. 53.
- Chloroform, action of on CO₂-assimilation, xii. 415; effect of on nuclear division, xix. 528.
- Chlorogalum pomeridianum, seedling-structure (*), xvii. 28.
- Chlorophyceae, phylogenetic relations, xiv. 649; polymorphism and evolution, xi. 97.
- Chloroplast and indigo-producing substance, supposed relation between, xix. 308.
- CHODAT, R.—On the Polymorphism of the Green Algae and the Principles of their Evolution, xi. 97.
- Chromatophores in *Anthoceros*, multiple, xx. 322.
- CHURCH, A. H.—Note on Phyllotaxis (two text-figures), xv. 481.
- The Polymorphy of *Cutleria multifida* (Plates VII-IX), xii. 75.
- The Principles of Phyllotaxis (seven text-figures), xviii. 227.
- Gibalocoryne*, description, xi. 240.
- *viscosula*, description, xi. 252.
- Cicuta maculata*, infranodal organs (*), xv. 141.
- Ciliation in *Bacillus hirtus* (*), xx. 252.
- Circinella umbellata*, description (*), xvi. 78.
- Cladophora, effect of centrifugal force on cell (*), xiii. 327.
- Gladorbinum foecundissimum*, description (*), xvi. 81.
- Clavaria*, description (*), xi. 240, 253, 264, 286.
- *epiphylla*, description (*), xi. 272.
- *ferruginea*, description (*), xi. 276.
- *mitrata*, description (*), xi. 266.
- — *var. viridis*, description (*), xi. 269.
- *nigrita*, description, xi. 249.
- *ophioglossoides*, description (*), xi. 241, 247.
- *pballoides*, description (*), xi. 272.
- Clavaria serpentina*, description (*), xi. 269.
- *simplex birsuta*, description (*), xi. 241.
- *spatulata*, description (*), xi. 255.
- *tremula*, description (*), xi. 288.
- *viridis*, description (*), xi. 269.
- CLIFFORD, J. B.—Notes on some Physiological Properties of a Myxomycete Plasmodium (woodcuts 3-5), xi. 179.
- Glypseus squarrosula*, description, xviii. 499.
- *subrimosus*, description, xviii. 465.
- Coagulability of albumin, effect of desiccation on, xiv. 307.
- Coagulase, occurrence of in *Polyporus squamosus*, xx. 56.
- Coagulation of latex, xii. 165; xiv. 195.
- Coal Balls in the Lower Coal Measures (+), xvi. 603.
- Coal Measures, occurrence of nodular concretions in (+), xvi. 603.
- Cocos nucifera, proteolytic action of 'milk' of, xvi. 9.
- Codium, structure (*), xi. 588.
- Coenocytic hyphae, movements of protoplasm in (*), xi. 491.
- Cold on aquatic plants, action of sunlight and of, xii. 363.
- effect of on nuclear division, xix. 528.
- Colletotrichum falcatum*, causing 'rind' disease of sugar-cane (*), xvii. 383.
- Colour-factors of embryo of Cactaceae, xii. 434.
- Compositae, insects and flowers, xvii. 321.
- Conducting strands of Liverworts (*), xv. 4.
- tissue-system in Bryophyta (*), xv. 1; nature and origin of, xv. 30.
- Conidia formation in *Pythium ultimum*, xv. 278.
- Coniferae: female flower, structure (*), xiv. 39; female flower, vascular system (*), xiii. 527; red-wood, formation of (*), xx. 201; sporangial integuments, morphology of, xvi. 597.
- Conjugatae, observations on (*), xii. 29; phylogeny (*), xii. 54.
- 'Conjugate' division in the Uredineae (*), xviii. 345.
- Conjugation in the Conjugatae (*), xii. 29.
- Convallaria majalis, raphides, xii. 149.
- COPELAND, E. B.—The Mechanism of Stomata (Plate XIII), xvi. 327.
- Coprinus velox*, description, xvi. 61.
- Coprophilous Fungi (*), xv. 313, xvi. 57; distribution, xv. 322; morphology, spore-germination, &c., xv. 314; systematic, xv. 323.
- Coptis trifolia*, mycorrhiza, xiii. 30.
- Coralloid roots of *Obolaria virginica* (*), xi. 377.
- Cordyceps and Elaphomyces, connexion between, xv. 525.
- ophioglossoides; asci and spores, development and structure (*), xv. 522; stroma, anatomy of sterile part (*), xv. 524.

- Cordyline australis*, seedling-structure, xvii. 34.
- Cornaceae, insect visitors, xviii. 343.
- Cornus stolonifera*, infranodal organs (*), xv. 142.
- Correlation, influence of on size of leaves (*), xx. 79.
- of growth of roots and shoots, xv. 615; under influence of injuries, xi. 509, xii. 117.
- Corynocarpus*, anatomy (*), xvii. 748; characters of genus, xvii. 752; economics, xvii. 755; history, xvii. 743, 745; leaf-structure (*), xvii. 749; stem-structure (*), xvii. 750.
- on the genus, xviii. 179.
- *dissimilis*, description, xvii. 754.
- *laevigata*, description (*), xvii. 752; edible fruit, xvii. 757.
- *similis*, description (*), xvii. 753.
- Cotyledons, abnormal number of in *Acer Pseudoplatanus* (*), xvi. 553; homology, xvi. 556; xvii. 70.
- of *Cycas revoluta* and *Ginkgo biloba* (*), xvii. 789.
- of Monocotyledons, homology, xvii. 70.
- Cradein of *Ficus Carica*, proteolytic action, xvi. 7.
- Crabe maritima*, proteolytic enzymes, xvii. 614.
- CROSSLAND, C.—Note on the Dispersal of Mangrove Seedlings (one text-figure), xvii. 267.
- Cryptomeria japonica*, archegonia (*), xviii. 429; embryo (*), xviii. 434; female gametophyte (*), xviii. 423; fertilization (*), xviii. 432; male gametophyte (*), xviii. 419; vascular system of female flowers (*), xiii. 541.
- Cucurbitaceae, distribution of statoliths, xviii. 653.
- Cucurbita Pepo*, var. *ovifera*, digestion by leaves, xix. 160.
- Cudonia*, description, xi. 259, 285.
- *aquatica*, description (*), xi. 292.
- *circinans*, description (*), xi. 261.
- *lutea*, description (*), xi. 262.
- *marcida*, description (*), xi. 291.
- *stagnalis*, description, xi. 293.
- Cudoniella*, description, xi. 285.
- *aquatica*, description (*), xi. 292.
- *fructigena*, description, xi. 294.
- *marcida*, description (*), xi. 291.
- *stagnalis*, description, xi. 293.
- *verpoides*, description, xi. 294.
- Cultivation, on *Biastrepis* in its relation to, xiii. 395.
- Culture of Algae, methods (*), xiii. 563.
- Cuphea Bombonasa*, *n. sp.*, description (*), xvii. 161.
- *epilobifolia* var. *Caquetae*, *n. var.*, description (*), xvii. 161.
- Heteranthus section: biology, xvii. 163; geography, xvii. 162; pollination, xvii. 163; taxonomy (*), xvii. 159.
- Cuphea tarapotensis*, *n. sp.*, description (*), xvii. 160.
- tetrapetala var. *Cosangae*, *n. var.*, description (*), xvii. 161.
- Cupressineae, vascular system of female 'flower' (*), xiii. 542.
- Cupressinoxylon vectense* (†), annual rings (*), xii. 337; bordered pits (*), xii. 348; medullary rays (*), xii. 353; medullary sheath and pith (*), xii. 343; resinous parenchyma (*), xii. 356; tracheides (*), xii. 345.
- Cupressus Lawsoniana*, seedling-structure, xx. 472; vascular system of female flowers (*), xiii. 542.
- *pisifera*, seedling-structure, xx. 472.
- Cutleria multifida*, germination of oospores (*), xii. 85; parthenogenesis (*), xii. 79; phylogeny, xii. 103; physical environment, relation to, xii. 96; polymorphy (*), xii. 75; seasonal dimorphism (*), xii. 92; sexuality, theory of, xii. 102.
- Cyathea Brunonis*, structure (*), xvii. 707.
- Cyatheaceae, anatomy (*), xv. 776; xvii. 705.
- Cyathodium*, external form (*), xix. 413; involucre (*), xix. 415; morphology (*), xix. 411; sexual organs (*), xix. 415; structure (*), xix. 413.
- Cycadaceae; axial structures, origin (* †), xx. 135; foliar structures, origin (* †), xx. 149; habit and structure (*), xx. 129; origin, xx. 129; peduncle, anatomy (* †), xi. 399; sporangial integuments, morphology, xvi. 597; sporophylls, structure (*), xii. 203; structure, xvi. 597, xx. 129.
- Cycadean integuments, double nature of (†), xix. 561.
- sporangia, development and morphology (*), xi. 421, xiv. 281.
- structures, origin (* †), xx. 135.
- Cycadofilices, structure of *Medullosa anglica* a new representative of (†), xiii. 183.
- Cycads, ovule of the (*), xvii. 463.
- Cycas circinalis*, sporophyll-structure (*), xii. 215.
- *revoluta*, cotyledons (*), xvii. 789; spermatozoids, xi. 344; sporophyll-structure (*), xii. 211; vascular bundle (*), xi. 404.
- Cyclamen, seedling-morphology, xx. 423.
- Cyperaceae, comparative anatomy and phylogeny (*), xx. 1.
- floral axis, morphology and anatomy (*), xx. 23; leaf, anatomy (*), xx. 22; insertion, xx. 22; morphology, xx. 21; stelar development, dominance in, xx. 23.
- phylogenetic considerations: inter-relationships, xx. 25; phylogeny of Monocotyledons, bearing upon the, xx. 26; position among the Monocotyledons, xx. 26.
- rhizome: amphivasae (*), xx. 6; centrivasae (*), xx. 7; descriptive table, xx.

- 12 ; generic key, xx. 9 ; morphology, xx. 5 ; root-structure, xx. 3.
- Cyperaceae, stem, aerial ; apical growth, xx. 11 ; axillary buds, xx. 21 ; cambium (*), xx. 18 ; cortical bundles (*), xx. 20 ; course of bundles (*), xx. 18 ; descriptive table, xx. 16 ; morphology, xx. 11 ; nodal complexes (*), xx. 18 ; scapose type, xx. 21 ; structure of the Chlorocyperaceae (*), xx. 14 ; structure of the Sclerocyperaceae (*), xx. 15.
- Cypripedium acaule, mycorrhiza, xiii. 24 ; root-structure, xiii. 24.
- hirsutum, mycorrhiza, xiii. 24.
- parviflorum, mycorrhiza, xiii. 23 ; root-structure, xiii. 23.
- pubescens, mycorrhiza, xiii. 24.
- Cystocarp development in *Delesseria alata* (*), xii. 183 ; *Delesseria Hypoglossum* (*), xii. 186 ; *Delesseria ruscifolia* (*), xii. 188 ; *Delesseria sanguinea* (*), xii. 174 ; *Delesseria sinuosa*, xii. 189 ; *Grinnellia americana* (*), xi. 14 ; *Nemalion multifidum* (*), xviii. 617 ; *Nitophyllum Hilliae* (*), xii. 193 ; *Nitophyllum laceratum* (*), xii. 192 ; *Rhodymeniales* (*), xi. 347 ; xii. 175.
- Cystocarp formation in *Harveyella mirabilis* (*), xiii. 90.
- Cytology of *Achlya americana* var. *cambrica* (*), xiii. 131, 150 ; gametophyte generation of the Dictyotaceae (*), xviii. 183 ; *Pythium ultimum* (*), xv. 269 ; tetrasporangium and germinating tetraspore of the Dictyotaceae (*), xviii. 141 ; Uredineae (*), xviii. 323. See also nuclear division.
- CZAPEK, F.—The Antiferment Reaction in Tropic Movements of Plants, xix. 75.
- D.
- Dahlia variabilis*, proteolytic enzymes, xvii. 610.
- Dalbergia paniculata*, stem-anatomy, xv. 183.
- DALE, E.—Intumescences of *Hibiscus vitifolius*, xiii. 622.
- Observations on the Gymnoascaceae (Plates XVII and XVIII), xvii. 571.
- On the Origin, Development, and Morphological Nature of the aerial Tubers in *Dioscorea sativa* (Plate XXVI), xv. 491.
- Danaea* and other Marattiaceae, anatomy of, xv. 777 ; xvi. 517.
- *simplicifolia*, development of vascular system (*), xvi. 523.
- DARBISHIRE, O. V.—Observations on *Mammillaria elongata* (Plates XXV and XXVI), xviii. 375.
- On *Actinococcus* and *Phyllophora* (Plate XV and seven text-figures), xiii. 253.
- Darwin, Charles, botanical work of (Portrait), xiii. ix.
- DARWIN, F.—On Geotropism and the Localization of the Sensory Region (Plate XXIX), xiii. 567.
- DARWIN, F.—The Botanical work of Darwin (Portrait), xiii. ix.
- and PERTZ, D. F. M.—On the artificial Production of Rhythm in Plants, with a Note on the Position of the Maximum Heliotropic Stimulation (four text-figures), xvii. 93.
- Dasya coccinea*, form of the protoplasmic body, xii. 569.
- Date, incapacity of endosperm of, for self-digestion, xx. 61.
- Davallia aculeata*, structure (*), xvii. 712.
- *pinnata*, structure (*), xvii. 712.
- *repens*, structure (*), xvii. 715, 729.
- *speluncae*, structure (*), xvii. 692, 724, 729.
- *tenuifolia*, structure (*), xvii. 716, 723, 729.
- DAVIS, B. M.—Nuclear Studies on *Pellia* (Plates X and XI), xv. 147.
- The Origin of the Archegonium (two text-figures), xvii. 477.
- DAWSON, M.—On the Biology of *Poronia punctata* (Plates XIV and XV), xiv. 245.
- On the Economic Importance of 'Nitragin', xv. 511.
- On the Structure of an Ancient Paper, xii. 111.
- DE FRAINE, E., and HILL, T. G.—On the Seedling-structure of Gymnosperms, xx. 471.
- Delesseria alata*, cystocarp development (*), xii. 183.
- *Hypoglossum*, cystocarp development (*), xii. 186.
- *ruscifolia*, cystocarp development (*), xii. 188.
- *sanguinea*, cystocarp development (*), xii. 174.
- *sinuosa*, cystocarp development, xii. 189.
- Delesseriaceae, cystocarp development (*), xii. 175.
- Delphinium insignis*, description (*), xv. 344.
- *moravica*, description (*), xv. 343.
- *Winteri*, description (*), xv. 345.
- Delphinium nudicaule*, seedling-structure (*), xvii. 54.
- *Requienii*, seedling-structure (*), xvii. 53.
- *tricornis*, embryology (*), xix. 454.
- Dematiaceae, coprophilous, xvi. 85.
- Descent of bulbs into the soil, xx. 430.
- Desmidiaceae, reproduction and structure (*), xii. 51.
- Desmoncus minor*, seedling-structure, xvii. 48.
- DE VRIES.—On *Blastopsis* in its Relation to Cultivation, xiii. 395.
- Dicksonia adiantoides*, structure (*), xvii. 698, 727.
- *antarctica*, seedling-structure, xix. 399.
- *apiifolia*, structure (*), xvii. 692, 698.
- *Barometz*, structure (*), xvii. 697.
- *davallioides*, structure (*), xvii. 727.
- *punctiloba*, structure (*), xvii. 692.
- *rubiginosa*, structure (*), xvii. 700.

- Dicotyledons and Monocotyledons, comparative antiquity of, xvii. 68; origin, xix. 457.
- embryology of some anomalous (*), xix. 447; infranodal organs in (*), xv. 135; nature of vascular system of stem of certain, xvi. 599.
- Dictyostele, definition, xvi. 523.
- Dictyotaceae, gametophyte generation (*), xviii. 183; antheridium development (*), xviii. 187; antherozoids (*), xi. 183; cytology (*), xviii. 183, 545; fertilization (*), xviii. 191; oogonium development (*), xviii. 184; parthenogenesis (*), xviii. 196; segmentation (*), xviii. 194; sexual cells, periodicity (*), xix. 531.
- tetrasporangium:—alternation of generations, xviii. 155; nucleolus, xviii. 156; stalk-cell-division (*), xviii. 142; tetraspore, karyokinesis in germinating (*), xviii. 153; tetraspore mother-cell, reducing-division (*), xviii. 145; tetraspore mother-cell, second mitosis (*), xviii. 152.
- Dictyotadichotoma, cell-plate formation (*), xiv. 179; chromosomes (*), xiv. 185; cytoplasm (*), xiv. 166; karyokinesis (*), xiv. 169; nuclear and cell-division (*), xiv. 163; nucleus, xiv. 168; reproduction, xii. 559; sexual cells, periodicity (*), xix. 531.
- is the periodicity in an hereditary character? xix. 546.
- Dieffenbachia Seguine, flower development (*), xiv. 4; male flowers (*), xiv. 5; ovule (*), xiv. 6.
- Diffusion of gases and liquids in relation to carbon-assimilation and translocation, static, xiv. 537.
- Digestion by leaves, xix. 157; Asparagus officinalis, xix. 160; Cucurbita Pepo var. ovifera, xix. 160; Ficus Carica, xix. 159; Phytolacca decandra, xix. 159; Rheum officinale and undulatum, xix. 158.
- of endosperm of Phoenix dactylifera, incapacity for self-, xx. 61.
- Dimorphism of Cutleria, seasonal (*), xii. 92.
- Dioon edule, structure of sporophyll (*), xii. 221.
- Dioscorea prehensilis, spinous roots; morphology (*), xi. 327; structure (*), xvii. 413.
- sativa, origin, development, and morphological nature of aerial tubers (*), xv. 491.
- Dipcadiserotinum, seedling-structure, xvii. 12.
- Diplodia cacaoicola a parasitic fungus on Sugar-cane and Cacao in the West Indies (*), xv. 683; systematic position, xv. 698.
- Dipsaceae, insects and flowers, xvii. 319.
- Dischidia rafflesiana, evolution of pitchers (*), xvi. 365.
- Shelfordii, n. sp., description, xvii. 617.
- Dispersal of Mangrove seedlings (*), xvii. 267; of seeds by wind, xix. 351.
- Dissemination of Arceuthobium occidentale (*), xix. 100; of spores of Pythium ultimum, xv. 285.
- Dissociation theory and chemotaxis, xiv. 562.
- Distribution of spores of Uredineae, xix. 11.
- DIXON, H. H.—Gelatin as a Fixative, xii. 117.
- Resistance of Seeds to High Temperatures, xvi. 590.
- The Possible Function of the Nucleolus in Heredity, xii. 269.
- The Tensile Strength of Cell-walls, xi. 585.
- The Structure of Codium (one wood-cut), xi. 588.
- Doodia aspera, seedling-structure (*), xix. 366.
- Dorsiventrality of the Podostemaceae with reference to current views on Evolution, xvi. 593.
- Doryanthes excelsa, seedling-structure, xvii. 42.
- Palmeri, seedling-structure, xvii. 42.
- Dracaena Draco, seedling-structure, xvii. 36.
- Droppers, morphology and structure of Erythronium (*), xx. 436; of Tulip (*), xx. 431.
- Drosera, changes in the gland-cells produced by various food-materials, xii. 560.
- E.
- Echinocactus, morphology of embryo and seedling (*), xii. 454.
- Echinocereus, morphology of embryo and seedling (*), xii. 450.
- Echinopsis, morphology of embryo and seedling (*), xii. 451.
- Elaphomyces and Cordyceps, connexion between, xv. 525.
- variegatus, mycorrhiza of (*), xv. 526.
- Electrical method for estimation of seed-vitality, xv. 427.
- Elettaria cardamomum, seedling structure, xvii. 50.
- ELLIS, D.—The Life-history of Bacillus hirtus (Plate XVI), xx. 233.
- ELLIS, W. G. P.—A Method of obtaining Material for illustrating Smut in Barley, xii. 566.
- Fungi for Class-demonstration, xi. 333.
- Elvella, description, xi. 253, 286.
- clavata, description (*), xi. 255.
- cucullata, description (*), xi. 276.
- lubrica, description (*), xi. 288.
- Embryo of Anthurium violaceum var. leuocarpum (*), xix. 334;
- of Cactaceae, colour-factors, xii. 434; form-factors (*), xii. 438; morphology, comparative (*), xii. 423; size-factors (*) xii. 436.
- of Cryptomeria japonica (*), xviii. 417; of Nephthytis liberica, xix. 343; of Ophioglossum pendulum (*), xvi. 31; of Pepe-

- romia pellucida, xv. 111; of *Sequoia sempervirens* (*), xviii. 20; of *Zea Mais* (*), xix. 115.
- Embryo and seedling of *Anhalonium* (*), xii. 462; of *Astrophytum* (*), xii. 457; of *Cephalocereus* (*), xii. 450; of *Cereus* (*), xii. 443; of *Echinocactus* (*), xii. 454; of *Echinocereus* (*), xii. 450; of *Echinopsis* (*), xii. 451; of *Epiphyllum*, xii. 448; of *Leuchtenbergia* (*), xii. 459; of *Mamillaria* (*), xii. 460; of *Melocactus*, xii. 459; of *Opuntia* (*), xii. 439; of *Pelecyphora*, xii. 464; of *Pereskia* (*), xii. 438; of *Pfeiffera*, xii. 453; of *Phyllocactus* (*), xii. 446; of *Pilocereus* (*), xii. 449; of *Rhipsalis* (*), xii. 452.
- Embryology of *Actea alba* (*), xix. 450; of *Aquilegia canadensis* (*), xix. 455; of *Araceae* (*), xiv. 1; of *Delphinium tricornis* (*), xix. 454; of *Dicotyledons*, anomalous (*), xix. 447; of *Lilaea subulata* (*), xii. 1; of *Sanguinaria canadensis* (*), xix. 452; of *Stylophorum diphyllum* (*), xix. 454; of *Synedemon thalictroides*, xix. 456; of *Triglochin maritimum* (*), xiv. 100.
- Embryo-sac of *Aglaonema* (*), xiv. 8; of *Anthurium* (*), xiv. 12; of *Anthurium violaceum* var. *leucocarpum* (*), xix. 331; of *Araceae* (*), xiv. 1; of *Dieffenbachia Seguine* (*), xiv. 4; of *Lilaea subulata* (*), xii. 14; of *Lysichiton* (*), xiv. 13; of *Nepenthes liberica* (*), xix. 339; of *Peperomia pellucida* (*), xiii. 626; xv. 103; of *Triglochin maritimum* (*), xiv. 99.
- homologues of, xiv. 696; xv. 114.
- Emulsin, occurrence in *Polyporus squamosus*, xx. 532.
- Encephalartos, carphophyll of (*), xv. 548.
- villous, sporophyll-structure (*), xii. 223.
- Endodermis in roots of *Ruscus*, an irregular (*), xiv. 157.
- morphological value, xvi. 393.
- Endomyces coprophilus, *n. sp.*, description (*), xv. 324.
- *decipiens* and *Saccharomyces anomalus*, relationship between, xiv. 237.
- Endophytic adaptation shown by *Erysiphe graminis*, under cultural conditions, xix. 444.
- member of the *Erysiphaceae*, *Oidiopsis taurica* (*), xx. 187.
- Endosperm of *Aglaonema* (*), xiv. 10; of *Anthurium violaceum* var. *leucocarpum* (*), xix. 333; of *Lilaea subulata* (*), xii. 24; of *Lysichiton* (*), xiv. 17; of *Nepenthes liberica* (*), xix. 343; of *Peperomia pellucida* (*), xv. 108; of *Triglochin maritimum* (*), xiv. 102.
- of *Phoenix dactylifera*, incapacity of for self-digestion, xx. 61.
- ENGLER, A.—Plants of the Northern Temperate Zone in their Transition to the High Mountains of Tropical Africa, xviii. 523.
- Environment, relation of *Cutleria* to physical, xii. 96.
- Enzyme and oxidase, xvii. 257.
- cellulose, xiii. 49; delignifying (*), xv. 125; proteolytic, xi. 563; xii. 545; xv. 563; xvii. 237, 597.
- of *Nepenthes*, xi. 563; xii. 545; xv. 563; of *Polyporus squamosus*, xx. 49; of *Yeast*, xi. 555; xii. 491.
- Enzyme-secreting cells in seedlings of *Phoenix dactylifera* (*), xviii. 267.
- Epidermoidal layer of *Calamite* roots (* †), xvii. 792; xviii. 645.
- Epiphyllum, morphology of embryo and seedling, xii. 448.
- Equisetaceae, imperfect sporangia, xv. 255.
- Equisetum, infranodal organs (*), xv. 136; stele, nature of, xv. 774.
- Eranthis hiemalis*, seedling-structure (*), xvii. 5, 56.
- Eremurus spectabilis*, seedling-structure, xvii. 27.
- *turkestanicus*, seedling-structure, xvii. 27.
- ERIKSSON, J.—On the Vegetative Life of some *Uredineae*, xix. 55.
- ERRERA, L.—Osmotic Optimum and Measurements, xii. 568.
- Structure of the *Yeast Cell*, xii. 567.
- Erysiphaceae, cultural experiments with biologic forms of, xviii. 320; xix. 125.
- *Oidiopsis taurica*, an endophytic member of (*), xx. 187.
- Erysiphe Asterisci*, *E. taurica* var. *Duriaei* and *E. taurica* var. *Zygophylli*, an endophytic member of the *Erysiphaceae* (*), xx. 187; description (*), xx. 195; distribution, host-plants and synonymy, xx. 194, 198.
- *graminis*, endophytic adaptation under cultural conditions, xix. 444.
- *lanuginosa* and *E. lichenoides*, description, xx. 199; distribution and host-plants, xx. 199; synonymy, xx. 198.
- Erythronium droppers, morphology and structure (*), xx. 436.
- *Hartwegi*, seedling-structure (*), xvii. 25.
- Erythrophyll, protection afforded by, xi. 460, 585.
- ESCOMBE, F., and BROWN, H. T.—Static Diffusion of Gases and Liquids in Relation to the Assimilation of Carbon and Translocation in Plants, xiv. 537.
- Eucomis nana*, seedling-structure (*), xvii. 18.
- Eurotium insigne*, description (*), xv. 331.
- *microsporum*, *n. sp.*, description (*), xv. 333.
- *stercorarium*, description (*), xvi. 67.
- Eusporangiateae, past history of (†), xx. 222.
- Eustele*, definition, xvi. 522.
- Euterpe edulis*, seedling-structure, xvii. 50.
- Evolution, dorsiventrality of *Podostemaceae* with reference to current views on, xvi. 593.
- of green Algae, principles of, xi. 97; xv. 647.

- EWART, A. J.—Bacteria with Assimilatory Pigments found in the Tropics, xi. 486.
 — Root-pressure in Trees, xviii. 181.
 — The Action of Chloroform on CO₂-assimilation, xii. 415.
 — The Action of Cold and of Sunlight upon Aquatic Plants, xii. 363.
 — The Effects of Tropical Insolation, xi. 439, 585.
 — The Influence of Correlation upon the size of Leaves (two text-figures), xx. 79.
 — The Resistance to Flow in Wood Vessels (three text-figures), xix. 442.
 — and MASON - JONES, A. J. — The Formation of Red Wood in Conifers (Plate XV), xx. 201.
- Excretion of water from leaves of *Lathraea squamaria* (*), xi. 386; of *Odontites rubra*, xi. 392; of *Pedicularis palustris*, xi. 387; of *Rhinanthus Crista-galli*, xi. 390; of *Scrophulariaceae* (*), xi. 386.
- Extra-floral nectaries of *Hevea brasiliensis* (*), xviii. 217.
- F.
- Factors, optima and limiting, xix. 281.
- FARMER, J. B.—Observations on the Effect of Desiccation of Albumin upon its Coagulability, xiv. 307.
 — On the structure of a Hybrid Fern (Plates XXIII and XXIV), xi. 533.
 — The Quadripolar Spindle in the Spore-mother-cell of *Pellia epiphylla*, xv. 431.
 — and FREEMAN, W. G.—On the Structure and Affinities of *Helminthostachys zeylanica* (Plates XXI-XXIII), xiii. 421.
 — and HILL, T. G.—On the Arrangement and Structure of the Vascular Strands in Angiopteris, and some other Marattiaceae (Plates XVI-XVIII, and one text-figure), xvi. 371.
- Fat-destroying fungus (*), xiii. 363.
- Fegatella conica, air chambers (*), xviii. 89; antheridium (*), xviii. 99; antherozoids, explosive discharge (*), xvii. 270; apical branching (*), xviii. 89; apical growing-point (*), xviii. 88; archegonium (*), xviii. 105; asexual propagation, xviii. 97; capsule wall, structure and dehiscence (*), xviii. 112; elaters (*), xviii. 110; female receptacle (*), xviii. 101; germination of spores (*), xviii. 114; male receptacle (*), xviii. 98; morphology (*), xviii. 87; mucilage sacs (*), xviii. 92; mycorrhiza (*), xviii. 95; rhizoids (*), xvii. 94; sexual organs (*), xviii. 98; sporogonium (*), xviii. 108; ventral scales (*), xviii. 93; ventral tissue (*), xviii. 91.
- FERGUSON, M. C.—The Development of the Egg and Fertilization in *Pinus Strobus* (Plates XXIII-XXV), xv. 435.
 — The Development of the Pollen-tube and the Division of the Generative Nu-
- cleus in certain species of *Pinus* (Plates XII-XIV), xv. 193.
 Fermentation induced by *Saccharomyces anomalus*, xiv. 229.
 Fern prothalli, development of sporangia on, xi. 157.
 Ferns, apogamy, xii. 251; past history of (* †), xx. 215; spore-formation in Leptosporangiate (*), xviii. 445.
 Fern-stele, a new type of (*), xvi. 157.
- Fertilization in *Achlya americana* var. *cambrica* (*), xiii. 159; *Achlya de Baryana* (*), xviii. 552; *Achlya polyandra* (*), xviii. 549; Angiosperms, xiv. 689, 702; *Anthurium violaceum* var. *leucocarpum* (*), xix. 332; *Caltha palustris* (*), xiv. 318, 527; *Conjugatae* (*), xii. 29; *Cryptomeria japonica* (*), xviii. 417; *Dictyotaceae* (*), xviii. 191; *Monascus* (*), xvii. 173; *Nemalion multifidum* (*), xviii. 617; *Nephthytis liberica* (*), xix. 342; *Onoclea* (*), xii. 261; *Peperomia pellucida* (*), xv. 108; *Peronospora parasitica* (*), xiv. 263; *Picea excelsa* (*), xvii. 362; *Pinus Strobus* (*), xv. 447; *Pythium de Baryanum* (*), xv. 659; *Pythium ultimum* (*), xv. 280; *Riccia glauca* (*), xx. 275; *Saprolegnieae* (*), xiii. 447, xviii. 541; *Sequoia sempervirens* (*), xviii. 17; *Sphaerotheca* (*), xix. 567; *Tsuga canadensis* (*), xiv. 583; *Uredineae* (*), xviii. 349, 352.
 — nature of the triple nuclear fusion in Angiosperms, xiv. 702.
- Fever reaction after injury, xi. 29.
 Fibres of *Schizaeaceae* (*), xv. 400.
 Fibrin-digesting protease, nature of, xix. 172.
 Fibrin, digestion of, xvii. 252.
Ficus Carica, digestion by leaves, xix. 159; proteolytic action of cradein of, xvii. 7.
 Filicineae, imperfect sporangia, xv. 257; morphology of sporangial integuments, xvi. 598.
Fissidens aequalis, *n. sp.*, description (*), xiii. 120.
 — *Balansaeanus* var. *limosus*, description, xiii. 126.
 — *flavicans*, description, xiii. 125.
 — *Holstii*, description, xiii. 122.
 — *macrophyllus*, description, xiii. 126.
 — *mollis*, description, xiii. 126.
 — *multifloro*, description, xiii. 123.
 — *Nicholsonii*, *n. sp.*, description (*), xiii. 123.
 — *nigro-iridis*, *n. sp.*, description (*), xiii. 123.
 — *nitens*, description (*), xiii. 121.
 — — var. *neglectus*, *n. var.*, description (*), xiii. 122.
 — *radicans*, description, xiii. 125.
 — *Ravenelii*, description, xiii. 124.
 — *rufescens*, description, xiii. 121.
 — *subscriptus*, description, xiii. 126.
 — classification, xiii. 119; geographical distribution, xiii. 120; morphology (*), xiii. 103; structure (*), xiii. 106.

- Fixative, gelatine as a, xii. 117.
- Flagellata and primitive Algae (*), xiv. 647, 666; xv. 192.
- Floating-apparatus in leaves of *Pistia stratiotes*, xiii. 466.
- Flora, geological history of British, xii. 243.
- of Britain, Jurassic (?), xiii. 610.
- Florideae, form of protoplasmic body in, xii. 569.
- Flower and embryo of *Lilaea subulata*, development (*), xii. 1.
- of *Cephalotaxus*, morphology (*), xv. 637.
- of Coniferae, structure (*), xiii. 527, xiv. 39.
- of Gnetaceae, vascular structure, xv. 766.
- Flowers and insects, xvii. 313, 539.
- Flow in wood-vessels, resistance to (*), xix. 442.
- Foliar organs of *Monophyllaea*, xx. 213.
- periodicity in Ceylon, xvi. 594.
- FORD, S. O.—The Anatomy of *Ceratopteris thalictroides* (Plate VI and eight text-figures), xvi. 95.
- The Anatomy of *Psilotum triquetrum* (Plate XXXIX), xviii. 589.
- Form, influence of direction of light upon (*), xx. 456.
- Fossombronina longisetia, antheridium (*), xx. 92; archegonium (*), xx. 99; embryo (*), xx. 101; external characters (*), xx. 83; germination of spores (*), xx. 88; habitat, xx. 83; spermatogenesis (*), xx. 94.
- FRASER, H. C. I., and BLACKMAN, V. H.—Fertilization in *Sphaerotheca* (one text-figure), xix. 567.
- Further Studies on the Sexuality of the Uredineae (Plates III and IV), xx. 35.
- FREEMAN, E. M.—Experiments on the Brown Rust of Bromes (*Puccinia dispersa*), xvi. 487.
- FREEMAN, W. G., and FARMER, J. B.—On the Structure and Affinities of *Helminthostachys zeylanica* (Plates XXI–XXIII), xii. 421.
- FREEMAN, Mrs. W. G., and HILL, T. G.—The Root-structure of *Dioscorea pre-hensilis* (Plate XIX and one text-figure), xvii. 413.
- Freesia*, *sp.*, seedling-structure, xvii. 44.
- Fritillaria alpina*, seedling-structure, xvii. 25.
- *imperialis*, seedling-structure (*), xvii. 23.
- FRITSCH, F. E.—Algalogical Notes, I. Observations on Species of *Alphanochaete* (one text-figure), xvi. 403.
- *Id.* II. The Germination of the Zoospores in *Oedogonium* (one text-figure), xvi. 412.
- *Id.* III. Preliminary Report on the Phytoplankton of the Thames, xvi. 576.
- *Id.* IV. Remarks on the periodical Development of the Algae in the Artificial Waters at Kew, xvii. 274.
- *Id.* V. Some Points in the Structure of a young *Oedogonium* (one text-figure), xviii. 648.
- FRITSCH, F. E.—*Id.* VI. The Plankton of some English Rivers, xix. 163.
- Further observations on the Phytoplankton of the River Thames, xvii. 631.
- The Affinities and Anatomical characters of *Plagiopteron fragrans*, xvi. 177.
- The Structure and Development of the Young Plant in *Oedogonium* (three text-figures), xvi. 467.
- Two Fungi, parasitic on Species of *Tolypothrix* (*Resticularia nodosa* and *R. Boodlei*, *n. sp.*) (Plate XXIX), xvii. 649.
- Fruit-dispersal in *Adenostemma viscosum* (*), xx. 311.
- Fucus* hybrids, new, xiii. 187.
- Funaria*, effect of centrifugal force on cells of leaf (*), xiii. 343.
- Funaria hygrometrica*, monoecism of (*), xx. 293; stomata, mechanism, xvi. 336.
- Fungal symbionts, identity of, xiii. 3.
- Fungi, coprophilous (*), xv. 313.
- for class demonstration, xi. 333; parasitism in, xviii. 319; xix. 1; sexuality of, xiii. 575.
- parasitic on *Tolypothrix* (*), xvii. 649.
- Fungus, a fat-destroying (*), xii. 363.
- *gelatinosus flavus*, description (*), xi. 288.
- Funkia ovata*, raphides (*), xii. 148.

G.

- GAGER, C. S.—The Development of the Pollinium and Sperm-cells in *Asclepias Cornuti* (Plate VII), xvi. 123.
- Galanthus*, absciss-layer in leaf, xii. 151.
- Galtonia candicans*, seedling-structure, xvii. 12.
- Gametophyte generation of *Botrychium virginianum*, xi. 481; of *Cryptomeria japonica* (*), xviii. 417; of *Dictyotaceae* (*), xviii. 183; of *Sequoia sempervirens* (*), xviii. 5, 9.
- GANONG, W. F.—An undescribed Thermometric Movement of the Branches in Shrubs and Trees (six text-figures), xviii. 631.
- Contributions to a knowledge of the Cactaceae, II. The Comparative Morphology of the Embryo and Seedling (Plate XXVI), xii. 423.
- Gases and liquids in relation to carbon-assimilation and translocation, static diffusion of, xiv. 537.
- effect of, on nuclear division (*), xix. 521.
- Gelatinose as a fixative, xii. 117.
- Geoglossaceae, affinities (*), xi. 234; diagnosis, xi. 238; distribution, xi. 235; key to genera, xi. 239; key to species, xi. 240; morphology and reproduction (*), xi. 225.
- Geoglossum, description (*), xi. 240, 264.
- *album*, description, xi. 285.
- *americanum*, description, xi. 242.
- *atropurpureum*, description (*), xi. 266.

- Geoglossum australe*, description (*), xi. 247.
 — *Barlae*, description, xi. 251.
 — *carneum*, description, xi. 270.
 — *cucullatum*, description (*), xi. 276.
 — *difforme*, description, xi. 248.
 — Farlowi, description, xi. 243.
 — f. *leotioides*, description (*), xi. 244.
 — — f. *velutipes*, description, xi. 243.
 — *flavum*, description (*), xi. 256, 275.
 — *glabrum*, description (*), xi. 246.
 — — f. *difforme*, description, xi. 248.
 — — var. *lignicolum*, description (*), xi. 250.
 — *glutinosum*, description (*), xi. 245, 250.
 — — f. *minor*, description (*), xi. 245.
 — *Heuflerianum*, description, xi. 253.
 — *hirsutum* description (*), xi. 241.
 — — f. *americanum*, description, xi. 242.
 — — f. *Walteri*, description (*), xi. 243.
 — — var. *americanum*, description, xi. 242.
 — — var. *leotioides*, description (*), xi. 244.
244.
 — *Hookeri*, description (*), xi. 267.
 — *lignicolum*, description (*), xi. 250.
 — *luteum*, description (*), xi. 275.
 — *microsporium*, description (*), xi. 282.
 — — var. *tremellosum*, description, xi. 283.
 — *Mülleri*, description (*), xi. 245.
 — *multiforme*, description (*), xi. 281.
 — *nigratum*, description, xi. 249.
 — *olivaceum*, description, xi. 270.
 — — var. *purpureum*, description, xi. 270.
 — *ophioglossoides*, description (*), xi. 247.
 — — var. *sphagnophilum*, description (*), xi. 247.
- *Peckianum*, description (*), xi. 250.
 — — f. *Barlae*, description, xi. 251.
 — — f. *umbratile*, description, xi. 251.
 — *pistillaris*, description (*), xi. 275.
 — *pumilum*, description (*), xi. 252.
 — *purpurascens*, description (*), xi. 266.
 — *rufum*, description (*), xi. 275.
 — *simile*, description (*), xi. 247.
 — *sphagnophilum*, description (*), xi. 247.
 — *tremellosum*, description, xi. 283.
 — *umbratile*, description, xi. 251.
 — *velutipes*, description, xi. 244.
 — *viride*, description (*), xi. 269.
 — *viscosulum*, description (*), xi. 252.
 — *viscosum*, description (*), xi. 245.
 — *vitellinum*, description (*), xi. 273.
 — *Walteri*, description (*), xi. 243.
- Geological history of British Flora, xii. 243.
Geonoma oxycarpa, seedling-structure, xvii. 49.
 Geophilous habit of *Peperomias* (*), xx. 416.
 Geotropic response at various angles of inclination, xix. 311.
 — — intensity of response at equal angles above and below the horizontal, relative, xix. 319.
 — — maximum response of primary roots and shoots, angle for, xix. 311.
 — stimulation, position of maximum, xix. 569.
- Geotropism and localization of sensitive region (*), xiii. 567.
 — the gravitation stimulus in relation to position, xiii. 620.
 Germ cells, distribution of parental characters to, xix. 246.
 Germinated seeds, proteases of, xx. 115.
 Germinating seeds, proteolytic action, xvi. 10.
 Germination, influence of light upon (*), xx. 453.
 — of *Arceuthobium occidentale* (*), xix. 104; of Bromes, xvi. 257; of Cactaceae (*), xii. 429; of conidia of *Pythium ultimum* (*), xv. 276; of melon, precocious (*), xvi. 149; of oospores of *Achlya americana* var. *cambrica* (*), xiii. 143, 162; of oospores of *Cutleria* (*), xii. 85; of oospores of *Pythium ultimum*, xv. 282; of pollinium cells of *Asclepias Cornuti* (*), xvi. 138; of seeds of *Bertholletia excelsa* (*), xv. 99; of spores of *Bacillus hirtus* (*), xx. 236; of spores of coprophilous Fungi, xv. 314; of spores of *Fegatella conica* (*), xviii. 114; of spores of *Fossombronina longiseta* (*), xx. 88; of spores of *Grinnellia americana* (*), xi. 10; of spores of *Ophioglossum*, xx. 321; of spores of *Peziza aurantia*, xi. 339; of spores of *Saccharomyces anomalus* (*), xiv. 225; of uredospores, xix. 12; of uredospores of *Puccinia dispersa*, xvi. 261; of zoospores of *Aglaozonia* (*), xii. 87; of zoospores of *Oedogonium* (*), xvi. 412.
- Germinative power of seeds, influence of the temperature of liquid hydrogen on, xiii. 599.
- GIESENHAGEN, K., and GWYNNE-VAUGHAN, D. T.—*Loxsona Cunninghamii*—A Correction, xv. 433.
- Ginger Beer plant, xi. 341.
 Ginkgoaceae, fossil (* †), xiv. 135.
Ginkgo biloba, cotyledons (*), xiv. 115, xvii. 789; diagnosis, xiv. 114; female flowers (*), xiv. 122; foliage leaves (*), xiv. 117; leaf-traces (*), xiv. 130; male flowers (*), xiv. 129; root-structure (*), xiv. 134; seedling-structure (*), xiv. 131; scale-leaves (*), xiv. 116; spermatozoids, xi. 344; stem-structure (*), xiv. 131; structure, &c. (*), xv. 109.
- Gland-cells of *Drosera*, changes produced in by various food materials, xii. 560.
- Glasgow University, opening of new botanical department, xv. 551.
- Gleicheniaceae, anatomy of the (*), xv. 703.
 — stem-structure, xii. 624.
- Gleichenia*, habit, xv. 704; node (*), xv. 720; petiole, structure (*), xv. 713; rachis and pinnules, structure, xv. 726; rhizome, structure (*), xv. 705; root-structure (*), xv. 731; seedling-structure, xv. 733.
 — *pectinata*, structure (*), xv. 728.

- Gliocladium macropodium*, description (*), xv. 331.
- Glycogen vacuoles in *Saccharomyces* (*), xii. 527.
- Gnetaceae, morphology of the sporangial integuments, xvi. 597; vascular structure of female 'flowers,' xv. 766.
- Gonatonema, spore-formation (*), xii. 39.
- Goodyera repens*, morphology, xiii. 20; mycorrhiza, xiii. 20; structure of vegetative organs, xiii. 20.
- GOWAN, J., and SEWARD, A. C.—The Maidenhair Tree (*Ginkgo biloba*) (Plates VIII-X), xiv. 109.
- Grafting experiments, xvi. 174.
- Gramineae, mechanism of stomata (*), xvi. 343.
- Graphium Comatrichoides*, *n. sp.*, description (*), xvi. 88.
- stercorarium, description (*), xvi. 88.
- Graviperception (*), xiii. 567.
- Gravitation stimulus in relation to position, xiii. 620.
- GREEN, J. REYNOLDS.—The Alcohol-producing Enzyme in Yeast, xii. 491.
- The supposed Alcoholic Enzyme in Yeast, xi. 555.
- GREGORY, R. P.—Spore-Formation in Lep-
tosporangiate Ferns (Plate XXXI and
one text-figure), xviii. 445.
- Griffithsia corallina*, cystocarp development
(*), xi. 357.
- setacea, cystocarp development, xi. 357.
- Grinnellia americana*, antheridia, develop-
ment (*), xi. 12; cystocarp development
(*), xi. 14; development (*), xi. 1; ger-
mination of spores (*), xi. 10; habitat, xi.
5; morphology (*), xi. 2; physiology, xi.
7; structure (*), xi. 1.
- GROOM, P.—*Lathraea Squamaria*, xii. 118.
- On the Leaves of *Lathraea Squamaria*
and of some allied Scrophulariaceae
(Woodcut 7), xi. 385.
- Growth, correlation of, under influence of
injuries, xi. 509, xii. 117; of mycelium of
Pythium ultimum, xv. 277; of *Pythium*
ultimum, relation of to temperature, xv.
286; of roots and shoots, correlation in,
xv. 615.
- influence of light upon early (*), xx.
453.
- GWYNNE-VAUGHAN, D. T.—Observations
on the Anatomy of Solenostelic Ferns. I.
Loxosoma (Plate III), xv. 71.
- Id.* II (Plates XXXIII-XXXV), xvii. 689.
- On an unexplained Point in the Anatomy
of *Helminthostachys zeylanica* (one text-
figure), xvi. 170.
- On Polystely in the Genus *Primula*
(Plate XIV), xi. 307.
- On the Anatomy of Archangiopteris
Henryi and other Marattiaceae (Plate X),
xix. 259.
- GWYNNE-VAUGHAN, D. T.—Remarks upon
the Nature of the Stele of Equisetum,
xv. 774.
- Some Observations upon the Vascular
Anatomy of the Cyatheaceae, xv. 776.
- and GIESENHAGEN, K.—*Loxosoma Cun-*
ninghamii—A Correction, xv. 433.
- Gymnoascaceae, coprophilous (*), xv. 324,
xvi. 61; culture, xvii. 575; observations
on (*), xvii. 571; preparation, xvii. 575;
reproduction, xvii. 586.
- Gymnoascus candidus*, description (*), xvi. 62.
- candidus*, life-history (*), xvii. 583.
- Reesii*, description, xvi. 63; life-history
(*), xvii. 576.
- setosus*, description (*), xvi. 63; life-
history, xvii. 581.
- uncinatus*, description (*), xv. 325.
- Gymnodochium fimicolum*, *n. sp.*, description
(*), xvi. 89.
- n. gen.*, description, xvi. 89.
- Gymnogramme calamelanos*, structure (*),
xvii. 689.
- Gymnospermae, seedling-structure, xx. 471.
- spermatozoids, xi. 344; sporangial
integuments, morphology, xvi. 596;
stomata, mechanism (*), xvi. 345.
- Gymnosperms and Pteridophyta, anatomy
and development of stem, xv. 779.
- ovules of the older (* †), xvii. 451.
- Gymnosporangium clavariaeforme, acidium
development, xviii. 341; mycelium (*),
xviii. 336; promycelium (*), xvii. 329;
spermogonia (*), xviii. 336; teleutospore
(*), xviii. 329, 344.
- Gyrostachys cernua*, mycorrhiza, xiii. 27;
root-structure, xiii. 27.

H.

- Hairs of Schizaeaceae, xv. 403.
- Haliseris, periodicity in, xix. 552.
- HALL, A. D.—Simple Apparatus for the
Measurement of Transpiration from a
Shoot (one text-figure), xv. 558.
- HANNA, H.—The Plurilocular Sporangia of
Petrospongium Berkeleyi (one figure),
xiii. 461.
- Haplostele, definition, xvi. 523.
- Haplotrichum glomerulosum*, description (*),
xvi. 80.
- HARPER, R. A.—Cell-Division in Sporangia
and Asci (Plates XXIV-XXVI), xiii. 467.
- Sexual Reproduction in *Pyronema con-*
fluens and the Morphology of the Ascocarp
(Plates XIX-XXI), xiv. 321.
- HARTOG, M.—Alternation of Generations,
xii. 593.
- The Alleged Fertilization in the Sapro-
legnieae, xiii. 447.
- Harveyella mirabilis*, development, morpho-
logy, and structure (*), xiii. 83.
- HARVEY-GIBSON, R. J.—Contribution to-
wards a Knowledge of the Anatomy of

- the Genus *Selaginella*. Part III. The Leaf (Plate IX), xi. 123.
- HARVEY-GIBSON, R. J.—*Id.* Part IV. The Root (Plates XX and XXI), xvi. 449.
- Hautorium of *Loranthus aphyllus*, histology (*), xv. 753; morphology (*), xv. 749.
- Heat, effect of, on nuclear division, xix. 529.
- evolution of, by wounded plants, xi. 29.
- Hebeloma flavum*, description, xviii. 497.
- *subochraceum*, description, xviii. 475.
- Helianthus annuus*, lignification of phloem, xvi. 180; xx. 319.
- decapetalus, lignification of phloem, xx. 319.
- laetifolius, lignification of phloem, xx. 319.
- tuberosus, proteolytic enzymes, xvii. 614.
- Helicostylum piriforme*, description (*), xvi. 78.
- Heliotropic stimulation, position of maximum (*), xvii. 105.
- Helleborus*, mechanism of stomata, xvi. 340.
- Helminthostachys zeylanica*, affinities, xiii. 443; antheridia (*), xvi. 38; archegonia (*), xvi. 39; foliar bundles (*), xiii. 438; histology (*), xiii. 428; morphology (*), xiii. 421; nodal canals (*), xvi. 170; prothallus (*), xvi. 23; prothallus, morphology of (*), xvi. 32; prothallus, mycorrhiza of (*), xvi. 36; prothallus-structure (*), xvi. 34; root-structure (*), xiii. 440; spore-development (*), xx. 177; sporophyte, anatomy and morphology of young (*), xvi. 41; vascular skeleton (*), xiii. 426.
- Heliolum*, description, xi. 259, 285.
- *aciculare*, systematic position, xi. 286.
- *atrovirens*, description (*), xi. 287.
- *circinans*, description (*), xi. 261.
- Helvella*, description, xi. 285.
- *feritoria*, description (*), xi. 255.
- *flavo-virens*, description (*), xi. 288.
- *gelatinosa*, description (*), xi. 288.
- *laricina*, description (*), xi. 272.
- *lutea*, description (*), xi. 288.
- *platypoda*, description, xi. 293.
- *revoluta*, description (*), xi. 261.
- *spatularia*, description (*), xi. 255.
- *spatulata*, description (*), xi. 255.
- Hemiglossum*, description, xi. 296.
- *Yunnanensis*, description (*), xi. 296.
- HEMSLEY, W. B.—On the *Julianiaceae*, a new Natural Order of Plants, xx. 467.
- On the Genus *Corynocarpus*, with Descriptions of two new species (Plate XXXVI and two text-figures), xvii. 743.
- *Id.* Supplementary Note, xviii. 179.
- and ROSE, J. N.—Diagnoses *Specierum Generis Juliania, Americae tropicae*, xvii. 443.
- Hepaticae, conducting-strands of (*), xv. 4.
- Heredity in connexion with *Polypodium Schneideri*, xi. 540.
- possible function of the nucleolus in, xiii. 269.
- Heterokontae, phylogenetic relations (*), xiv. 671.
- Heterophylly in *Proserpinaca palustris* (*), xviii. 579.
- Hevea brasiliensis*, extra-floral nectaries (*), xviii. 217; exudation of latex, xiv. 205; laticiferous system of seed (*), xiv. 208; seedling, xviii. 220.
- Hibiscus vitifolius*, intumescences of, xiii. 622.
- HILL, A. W.—Notes on the Histology of the Sieve-tubes of certain Angiosperms, xvii. 265.
- The Histology of the Sieve-Tubes of *Pinus* (Plates XXXI-XXXIII), xv. 575.
- The Morphology and Seedling-structure of the Geophilous Species of *Peperomia*, together with some Views on the Origin of Monocotyledons (Plates XXIX and XXX and three text-figures), xx. 395.
- HILL, T. G.—On Secondary Thickening in *Angiopteris evecta*, xvi. 173.
- On the Anatomy of the Stem of *Dalbergia paniculata*, xv. 183.
- On the Presence of a Parichnos in Recent Plants, xviii. 654.
- *Id.* (Plates XIX and XX) (†), xx. 267.
- On the Roots of *Bignonia* (Plate XXII), xii. 323.
- On the Seedling-structure of certain *Centrospermae*, xx. 473.
- On the Seedling-structure of certain *Piperales* (Plate IX and three text-figures), xx. 161.
- On Variation in the Flowers of certain *Primulaceae* (one text-figure), xvi. 317.
- The Structure and Development of *Triglochin maritimum* (Plates VI and VII), xiv. 83.
- and DE FRAINE, E.—On the Seedling-structure of *Gymnosperms*, xx. 471.
- and FARMER, J. B.—On the Arrangement and Structure of the Vascular Strands in *Angiopteris evecta*, and some other *Marattiaceae* (Plates XVI-XVIII and one text-figure), xvi. 371.
- and FREEMAN, MRS. W. G.—The Root-structure of *Dioscorea prehensilis* (Plate XIX and one text-figure), xvii. 413.
- and SCOTT, D. H.—The Structure of *Isoetes Hystrix* (Plates XXIII and XXIV and two text-figures), xiv. 413.
- HIRASE, S., and IKENO, S.—Spermatozoids in *Gymnosperms*, xi. 344.
- HOLM, T.—*Bartonia*, an Anatomical Study (Plates XXXIII and XXXIV), xx. 441.
- *Obolaria virginica*: A Morphological and Anatomical Study (Plate XIX and one woodcut), xi. 369.

- HOOKER, SIR J. D.—A Sketch of the Life and Labours of Sir William Jackson Hooker (Portrait), xvi. ix.
—Biographical Memoir of George Bentham (Portrait), xii. ix.
- HOOKER, SIR W. J.—Biographical Sketch (Portrait), xvi. ix.
- HOPE, C. W.—The 'Sadd' of the Upper Nile: its Botany compared with that of similar Obstructions in Bengal and American Waters, xvi. 495.
—*Id.* Note on, xvii. 446.
- Hordeum sativum, proteases, xix. 179.
—vulgar, proteolytic action in germinating seeds of, xvi. 10.
- Hormospora fimetaria*, description (*), xv. 347.
—*ovina*, description (*), xv. 346.
- Host and parasite, relation between in Bromes and Puccinia dispersa, xvi. 233.
- Houttuynia cordata, seedling-structure (*), xx. 171.
- HOWARD, A.—On a Disease of Tradescantia (Plates IV and V), xiv. 27.
—On Diplodia cacaoicola; a parasitic Fungus on Sugar-cane and Cacao in the West Indies (Plate XXXVII), xv. 683.
—On some Diseases of the Sugar-cane in the West Indies (Plate XVIII), xvii. 373.
—On Trichosphaeria Sacchari; a Fungus causing a Disease of the Sugar-cane known as 'Rind Fungus,' xiv. 617.
- HUIE, L. H.—Changes in the Gland-Cells of Drosera produced by various Food Materials, xii. 560.
- Humaria salmonicolor, description, xvi. 66.
- HUMPHREY, H. B.—The Development of Fossombrovia longiseta (Plates V and VI and eight text-figures), xx. 83.
- Hyacinthus orientalis, proteases of, xix. 182; reserve carbohydrates of bulb, xiv. 155; seedling-structure, xvii. 20.
—romanus, seedling-structure (*), xvii. 14.
- Hyalodidymae, coprophilous, xvi. 75.
- Hyalostilbeae, coprophilous, xvi. 86.
- Hybrid Fern, structure of (*), xi. 533.
—of Kalanchoe (*), xvii. 435.
- Hybrids of Fucus, new, xliii. 187; of susceptible and immune varieties, xix. 37.
- Hydathodes of Lathraea Squamaria and of some allied Scrophulariaceae (*), xi. 385.
- Hydrodictyon utriculatum, starch formation in (*), xv. 619.
- Hydrogen, effect of, on nuclear division, xix. 525; on streaming of protoplasm, xix. 523.
- Hydropterideae, past history of (†), xx. 227.
- Hygromitra stipitata*, description (*), xi. 290.
—*tremula*, description (*), xi. 288.
- Hymenomyceae, coprophilous, xvi. 61.
- Hymenophyllaceae, anatomy (*), xiv. 455; phylogeny, xiv. 481; stem-structure, xliii. 624.
- Hymenophyllum, nodal region (*), xiv. 467; petiole (*), xiv. 466; root-structure (*), xiv. 465; stem-structure (*), xiv. 456.
- Hyphae, movements of protoplasm in coenocytic (*), xi. 491.
- Hyphomyceteae, coprophilous, xvi. 79.
Hypocopra macrospora, description (*), xv. 339.
—*minima*, description (*), xv. 335.
—*stercoraria*, description, xv. 343.
—*stercoris*, description (*), xv. 339.
- Hypocreaceae, coprophilous (*), xv. 351, xvi. 75.
- Hypolepis millifolia, structure (*), xvii. 693.
—repens, structure (*), xvii. 693.
—tenuifolia, structure (*), xvii. 693.
- Hysterosteles, definition, xvi. 523.

I.

- Idioplasmic activity, outward manifestation, xix. 227.
—structures, the visible, xix. 223.
- IKENO, S., and HIRASE, S.—Spermatozooids in Gymnosperms, xi. 344.
- Immune and susceptible varieties and their hybrids, xix. 37.
- Immunity and susceptibility, xix. 20.
- Indigofera, localization of indigo-producing substance (*), xix. 301.
- Indigo-producing substance and chloroplasts, supposed relation between, xix. 308.
- Indigo-yielding plants, localization of indigo-producing substance in (*), xix. 297; Calanthe, xix. 307; Indigofera (*), xix. 301; Isatis tinctoria, xix. 305; Phajus grandifolius (*), xix. 306; Phajus maculatus, xix. 307; Phajus Wallichii, xix. 307; Polygonum tinctorium, xix. 305; Strobilanthes flaccidifolius, xix. 307.
- Infection by fungus parasites, xix. 28.
—experiments with Puccinia dispersa, xvi. 487.
—of Bromes with Puccinia dispersa, xvi. 273.
- Infranodal organs in Calamites (†*), xv. 135; in Cicuta maculata (*), xv. 141; in Cornus stolonifera (*), xv. 142; in Dicotyledons (*), xv. 135; in Equisetum (*), xv. 136; in Polygonum amphibium (*), xv. 144; in Potentilla palustris (*), xv. 140.
- Injuries, correlation of growth under influence of, xi. 509, xii. 117.
- Injury, appearance of a brilliant pigment in Jacobinia after, xix. 167.
- Inocybe, description and key to species, xviii. 463.
—monograph of genus (*), xviii. 459.
—abjecta, description, xviii. 480.
—agglutinata, description, xviii. 478.
—albipes, description, xviii. 473.
—albodisca, description, xviii. 466.
—alienella, description, xviii. 489.
—asinina, description, xviii. 474.

- Inocybe asterospora*, description, xviii. 465.
 — *Bongardi*, description, xviii. 489.
 — *Bresadolae*, description, xviii. 465.
 — *brunnea*, description, xviii. 486.
 — *Bucknalli*, *n. sp.*, description (*), xviii. 473.
 — *caesariata*, description, xviii. 482.
 — *calamistrata*, description, xviii. 493.
 — *calospora*, description (*), xviii. 469.
 — *capucina*, description, xviii. 499.
 — *carpta*, description, xviii. 483.
 — *cervicolor*, description, xviii. 479.
 — *cicatricata*, description, xviii. 467.
 — *cinninata*, description, xviii. 489.
 — *Clarkii*, description, xviii. 477.
 — *comatella*, description, xviii. 487.
 — *commixta*, description, xviii. 467.
 — *concinna*, description, xviii. 480.
 — *conformata*, description, xviii. 488.
 — *confusa*, description, xviii. 480.
 — *connexifolia*, description, xviii. 497.
 — *Cookei*, description, xviii. 492.
 — *cortinata*, description, xviii. 476.
 — *corydalina*, description, xviii. 477.
 — — var. *roseola*, description, xviii. 477.
 — *cucullata*, description, xviii. 496.
 — *Curreyi*, description, xviii. 495.
 — *curvipes*, description, xviii. 467.
 — *decipiens*, description, xviii. 467.
 — *deglubens*, description, xviii. 479.
 — — var. *trivialis*, description, xviii. 479.
 — *delecta*, description, xviii. 500.
 — *descissa*, description, xviii. 478.
 — *dstricta*, description, xviii. 480.
 — *dulcamara*, description, xviii. 488.
 — *echinata*, description, xviii. 493.
 — *echinocarpa*, description (*), xviii. 470.
 — *erycephala*, description, xviii. 466.
 — *erythroxa*, description, xviii. 494.
 — *eutheles*, description, xviii. 476.
 — *eutheloides*, description, xviii. 485.
 — *fasciata*, description, xviii. 468.
 — *fastigiata*, description, xviii. 495.
 — *fibrillosa*, description, xviii. 491.
 — *fibrosa*, description, xviii. 464.
 — *flava*, description, xviii. 497.
 — *flavella*, description, xviii. 482.
 — *flocculosa*, description, xviii. 487.
 — *frumentacea*, description, xviii. 486.
 — *fugiana*, description, xviii. 490.
 — *fulvella*, description, xviii. 472.
 — *fuscodisca*, description, xviii. 487.
 — *Gaillardi*, description (*), xviii. 470.
 — *geophylla*, description (*), xviii. 477.
 — — var. *fulva*, xviii. 478.
 — — var. *violacea*, xviii. 478.
 — *Godeyi*, description, xviii. 481.
 — *gomphodes*, description, xviii. 499.
 — *grammata*, description, xviii. 473.
 — *grata*, description, xviii. 498.
 — *griseoscabrosa*, description, xviii. 484.
 — *haemacta*, description, xviii. 486.
 — *hirsuta*, description, xviii. 492.
 — *Inocybe hirtella*, description, xviii. 474.
 — *biulca*, description, xviii. 481.
 — *holophlebia*, description, xviii. 490.
 — *hystrix*, description, xviii. 483.
 — *ignobilis*, description, xviii. 472.
 — *incarnata*, description, xviii. 484.
 — *inedita*, description, xviii. 464.
 — *infelix*, description, xviii. 479.
 — *infida*, description, xviii. 467.
 — *jurana*, description, xviii. 486.
 — *lacera*, description, xviii. 483.
 — *lanuginosa*, description, xviii. 468.
 — *leucocephala*, description, xviii. 467.
 — *lucifuga*, description, xviii. 481.
 — *maculata*, description, xviii. 497.
 — *mammilaris*, description, xviii. 498.
 — *margarispora*, description, xviii. 473.
 — *maritima*, description, xviii. 471.
 — *maritimoides*, description, xviii. 469.
 — *Merletii*, description, xviii. 497.
 — *mimica*, *n. sp.*, description, xviii. 492.
 — *murino-liliacina*, description, xviii. 495.
 — *mutata*, description, xviii. 496.
 — *mutica*, description, xviii. 485.
 — *nigrodisca*, description, xviii. 485.
 — *obscura*, description, xviii. 482.
 — — var. *major*, description, xviii. 483.
 — — var. *rufus*, description, xviii. 483.
 — *pallidipes*, description, xviii. 476.
 — *paludinella*, description, xviii. 468.
 — *perbrevis*, description, xviii. 490.
 — *perlata*, description, xviii. 489.
 — *phaeocephala*, description, xviii. 501.
 — *plumosa*, description, xviii. 500.
 — *pollicaris*, description, xviii. 499.
 — *praetermissa*, description, xviii. 493.
 — *praetervisa*, description, xviii. 466.
 — *proximella*, description, xviii. 466.
 — *pusio*, description, xviii. 488.
 — *putilla*, description, xviii. 469.
 — *pyriodora*, description, xviii. 475.
 — *radiata*, description, xviii. 474.
 — *Raveneli*, *n. sp.*, description, xviii. 485.
 — *reflexa*, description, xviii. 498.
 — *relicina*, description, xviii. 488.
 — *Renneyi*, description, xviii. 472.
 — — var. *major*, description, xviii. 472.
 — *repanda*, description, xviii. 465, 481.
 — *rhodiola*, description, xviii. 486.
 — *rhombospora*, *n. sp.*, description (*), xviii. 494.
 — *rigidipes*, description (*), xviii. 469.
 — *rimosa*, description, xviii. 475.
 — *rubescens*, description, xviii. 481.
 — *rufoalba*, description, xviii. 471.
 — *sabuletorum*, description, xviii. 468.
 — *Sambucina*, description, xviii. 477.
 — *scabra*, description, xviii. 474.
 — *schista*, description, xviii. 501.
 — *servata*, description, xviii. 495.
 — *sindonia*, description, xviii. 476.
 — *squamigera*, description, xviii. 498.
 — *squamosa*, description, xviii. 484.

- Inocybe squarrosula*, description, xviii. 499.
 — *stellatospora*, description, xviii. 469.
 — *strigiceps*, description, xviii. 499.
 — *subdecurrens*, description, xviii. 491.
 — *subexilis*, description, xviii. 472.
 — *subfulva*, description (*), xviii. 470.
 — *subgranulosa*, description, xviii. 498.
 — *subochracea*, description, xviii. 475.
 — *subrimosa*, description, xviii. 465.
 — *subtomentosa*, description, xviii. 495.
 — *tenebrosa*, description, xviii. 497.
 — *tomentosa*, description, xviii. 491, 501.
 — *trechispora*, description, xviii. 468.
 — *Trinii*, description, xviii. 471, 481.
 — *Trinii*, description, xviii. 470.
 — *tuberosa*, description, xviii. 496.
 — *tuberosa* = *Agaricus* (*Stropharia*) *inunctus*, xviii. 500.
 — *umboninota*, description, xviii. 471.
 — *umbrina*, description, xviii. 471.
 — *unicolor*, description, xviii. 492.
 — *vaticosa*, description, xviii. 491.
 — *Victoriae*, description, xviii. 490.
 — *violacea*, description, xviii. 494.
 — *violaceafusca* = *Cortinarius* (*Dermo.*) *violaceafuscus*, xviii. 501.
 — *violaceifolia*, description, xviii. 482.
 — *violacens*, description, xviii. 497.
 — *viscosissima*, description, xviii. 500.
 — *Whitei*, description, xviii. 478.
 Insects and flowers in Great Britain, xvii. 313, 539.
 Insolation, effects of tropical, xi. 439, 585.
 Insular floras, plumed seeds and fruits in, xix. 360; winged-fruit plants in, xix. 358.
 Integument, double nature of the Cycadean (\dagger), xix. 561.
 Integuments, morphology of sporangial, xvi. 596.
 Intumescences of *Hibiscus vitifolius*, xiii. 622.
 Iridaceae, seedling-structure, xvii. 43.
 Iris Boissieri, seedling-structure, xvii. 43.
 — *sibirica*, seedling-structure, xvii. 43.
 Irritability in plants (*), xxi. 449.
Isatis tinctoria, localization of indigo-producing substance, xix. 304.
Isoëtes Hystrix, affinities, xiv. 444; leaf and leaf-trace structure (*), xiv. 431; *parichnos*, presence of in (*), xviii. 654; xx. 268; root-structure (*), xiv. 437; stem-structure (*), xiv. 416.
 — imperfect sporangia in, xv. 253.
 Ito Keisuké, memoir of (*), xiv. 401.
 ITO, T.—A Short Memoir of Ito Keisuké, Rigaku Hakushi (Doctor of Philosophy) (with Portrait), xiv. 401.
 — Floating Apparatus of the Leaves of *Pistia stratiotes*, xiii. 466.
 — Rhizophoreae in Japan, xiii. 465.
 — Some remarkable Marine Monocotyledons in Japan, xiii. 464.
- J.
- Jacobinia*, appearance of a brilliant pigment after injury, xix. 167.
 Japan, marine Monocotyledons in, xiii. 464; Rhizophoreae in, xiii. 465.
 JEFFREY, E. C.—On Infranodal Organs in Calamites and Dicotyledons (Plates VIII and IX), xv. 135.
 — The Anatomy and Development of the Stem in the Pteridophyta and Gymnosperms, xv. 779.
 — The Gametophyte of *Botrychium virginianum*, xi. 481.
 — The Wound Reactions of *Brachyphyllum* (Plates XXVII and XXVIII), xx. 383.
 JOHNSON, D. S.—On the Development of the Leaf and Sporocarp in *Marsilia quadrifolia* (Plates X–XII), xii. 119.
 JONES, C. E.—Anatomy of the Stem of *Species of Lycopodium*, xii. 558.
 Julianiaceae, a new Natural Order of Plants, affinities, xx. 469; general description, xx. 467; geographical distribution, xx. 468; 469.
Juliania, diagnoses of species of, xvii. 443.
 — *adstringens*, description, xvii. 443.
 — *amplifolia*, *n. sp.*, description, xvii. 444.
 — *glauca*, *n. sp.*, description, xvii. 444.
 — *Huancui*, description, xvii. 445.
 — *mollis*, description, xvii. 444.
 Jurassic Flora of Britain (\dagger), xiii. 610.
- K.
- Kalanchoe Bentii* $\text{♀} \times \text{K. flammea} \text{♂}$ (*), xvii. 439.
 — *flammea* $\text{♀} \times \text{K. Bentii} \text{♂}$ (*), xvii. 437.
 — hybrid, a (*), xvii. 435.
 Karaka as an edible fruit, xvii. 757.
 Karyokinesis. See Nuclear division.
Kaulfussia aesculifolia, morphology of leaf (*), xix. 261; vascular system of petiole (*), xix. 263.
 — vascular system of stem, xvi. 379.
 Kew, periodical development of Algae in artificial waters at, xvii. 274.
 Kinematograph, use of in demonstration of the movements of flowers (*), xvii. 761.
 KLEBS, G.—Alternation of Generations in the Thallophytes, xii. 570.
 KNY, L.—On Correlation in the Growth of Roots and Shoots (Second Paper), xv. 613.
- L.
- Laccase, occurrence of in *Polyporus squamosus*, xx. 50.
Lachenalia Nelsoni, seedling-structure, xvii. 21.
Lachnea scutellata, cell-division in ascus (*), xiii. 507.
Lagenostoma Kidstoni, description, *n. sp.* (\dagger), xix. 327.

- Lagenostoma Lomaxi, structure of the Palaeozoic seed, with a statement of the evidence upon which it is referred to Lyginodendron (†), xviii. 321.
- the seed of Lyginodendron (†), xvii. 625.
- Sinclairi, description (†), xix. 327.
- some species of: A Type of Pteridospermous Seed from the Coal Measures (†), xix. 326.
- structure (*†), xvii. 459.
- LANG, W. H.—Alternation of Generations in the Archegoniatae, xii. 583.
- On Apogamy and the Development of Sporangia upon Fern Prothallia, xii. 251.
- On Apospory in Anthoceros laevis (Plate XXVII), xv. 503.
- On a Prothallus provisionally referred to Psilotum (Plate XXXVII), xviii. 571.
- On the Morphology of Cyathodium (Plates XXI and XXII), xix. 411.
- On the Prothalli of Ophioglossum pendulum and Helminthostachys zeylanica (Plates I-III), xvi. 23.
- Preliminary Statement on the Development of Sporangia upon Fern Prothalli, xi. 157.
- Studies in the Development and Morphology of the Cycadean Sporangia, I. The Microsporangia of Stangeria paradoxa (Plate XXII), xi. 421.
- *Id.* II. The Ovule of Stangeria paradoxa (Plates XVII and XVIII), xiv. 281.
- The Prothallus of Lycopodium clavatum (Plates XVI and XVII), xiii. 279.
- Larix, seedling-structure, xx. 472.
- spindle-formation in pollen-mother-cells: felt, formation of (*), xvii. 292; pre-radial stages (*), xvii. 289; radial stages (*), xvii. 291; spindle (*), xvii. 295.
- Lastraea dilatata, var. cristata gracilis, development of sporangia on prothallus, xi. 158.
- Latex, carbohydrates of, xiv. 200; coagulation, xii. 165; xiv. 195; exudation of from severed petioles of Hevea brasiliensis and Plumiera acutifolia, xiv. 205; function, xi. 334; xiii. 620; xiv. 194; oxydases, xiv. 199; properties, difference of, between latex of old and young organs, xiv. 203; proteids, xiv. 195; wounding, effect of previous on flow, xiv. 204.
- Laticiferous plants, proteolytic enzymes in, xvii. 246.
- system of seed of Hevea brasiliensis (*), xiv. 208.
- tissue, origin and function of, xiv. 210.
- Lathraea Squamaria, function and structure of leaves (*), xi. 385; xii. 118.
- LAWSON, A. A.—The Gametophytes, Archegonia, Fertilization, and Embryo of Sequoia sempervirens (Plates I-IV), xviii. 1.
- LAWSON, A. A.—The Gametophytes, Fertilization, and Embryo of Cryptomeria japonica (Plates XXVII-XXX), xviii. 417.
- Leaf and sporocarp in Marsilia quadrifolia, development (*), xii. 119.
- of Anemia hirsuta, an anomalous, xv. 765.
- Leaf-traces in Araucariaceae, persistence, xv. 423, 547.
- LEAKE, H. M.—The Localization of the Indigo-producing Substance in Indigo-yielding Plants (Plate XIII), xix. 297.
- Leaves, digestion by, xix. 157; Asparagus officinalis, xix. 160; Cucurbita Pepo var. ovifera, xix. 160; Ficus Carica, xix. 159; Phytolacca decandra, xix. 159; Rheum officinale and undulatum, xix. 158.
- influence of correlation upon size of (*), xx. 79; reaction of to traumatic stimulation (*), xv. 533.
- Lentinus lepideus, reaction of fruit-bodies of to external stimuli (*), xix. 427.
- Leotia, description (*), xi. 259, 285.
- acicularis, systematic position, xi. 286.
- aquatica, description (*), xi. 292.
- atrovirens, description (*), xi. 286.
- Bulliardii, description (*), xi. 272.
- chlorocephala, description, xi. 290.
- — f. *Stevensoni*, description, xi. 289.
- circinans, description (*), xi. 261.
- clavus, description (*), xi. 260.
- Dicksoni, description (*), xi. 272.
- elegans, description, xi. 274.
- elegantula, description, xi. 294.
- exigua, description, xi. 285.
- fructigena, description, xi. 294.
- gelatinosa capitulo subviridi, description (*), xi. 288.
- geoglossoides, description (*), xi. 269.
- gracilis, description (*), xi. 261.
- laricina, description (*), xi. 272.
- lubrica, description (*), xi. 287.
- — f. chlorocephala, description, xi. 290.
- — f. *Stevensoni*, description, xi. 289.
- — f. stipitata, description (*), xi. 290.
- — var. *viscosa*, description (*), xi. 290.
- Ludwigii, description (*), xi. 272.
- marcida, description (*), xi. 291.
- mitrula, description (*), xi. 276.
- — var. *pusilla*, description (*), xi. 277.
- ochroleuca, description (*), xi. 262.
- platypoda, description (*), xi. 293.
- pusilla, description (*), xi. 277.
- rufa, description, xi. 294.
- stagnalis, description, xi. 293.
- *Stevensoni*, description, xi. 289.
- truncorum, description (*), xi. 260.
- uliginosa, description (*), xi. 272.
- verpoides, description, xi. 294.
- viridis, description (*), xi. 269.
- Lepidocarpon, *n. gen.*, description (†), xiv. 717; morphology, xiv. 714.
- Lepidodendron aculeatum, anatomy and morphology (*†), xx. 371, 374.

- Lepidodendron obovatum*, structure (+), xx. 317.
 — *parichnos* (* +), xx. 271.
Lepidostrobos, ligule (* +), xii. 256.
Leptoglossum, description, xi. 253, 264.
 — *flavum*, description (*), xi. 256.
 — *littorale*, description, xi. 283.
 — *luteum*, description (*), xi. 275.
 — *microsporum*, description (*), xi. 282.
 — *olivaceum*, description, xi. 270.
 — *tremellosum*, description, xi. 283.
 — *viride*, description (*), xi. 269.
Leptomin, xv. 181.
Leptosporangiate, past history of (+), xx. 217.
Leptosporangiate Ferns, arrangement of vascular strands in the seedlings of (*), xix. 365.
 — — spore-formation (*), xviii. 445.
 — — studies in the morphology of the spore-producing members, xiii. 320.
Leuchtenbergia, morphology of embryo and seedling (*), xii. 459.
Leucojum, absciss-layer in leaf, xii. 151.
 LEWIS, F. J.—Formation of an irregular Endodermis in the Roots of *Ruscus* sp. (two text-figures), xiv. 157.
 — The Action of Light on *Mesocarpus*, xii. 418.
 LEWTON-BRAIN, L.—*Cordyceps ophioglossoides* (Plate XXVIII), xv. 521.
Libocedrus decurrens, seedling-structure, xx. 472.
 Life at low temperatures, suspension of, xvi. 589.
 Light, influence of direction of upon form (*), xx. 456.
 — — upon germination and early growth (*), xx. 453.
 — — on *Mesocarpus*, action of, xii. 418.
 Lignification of phloem of *Helianthus annuus*, xvi. 180, xx. 319.
 Ligule of *Lepidostrobos* (* +), xii. 256.
Lilaea subulata, embryo (*), xii. 18; embryo-sac (*), xii. 14; endosperm (*), xii. 24; flower-development, female (*), xii. 10; male (*), xii. 7; inflorescence, development (*), xii. 6; morphology of young plant (*), xii. 5; pollination, xii. 18; style and stigma (*), xii. 13.
 Liliaceae, seedling-structure (*), xvii. 8.
Lilium canadense, nuclear division in the pollen-mother-cells of (*), xix. 189; heterotypic division (*), xix. 190; homoetypic division (*), xix. 219.
 — croceum, seedling-structure, xvii. 25.
 — Henryi, seedling-structure, xvii. 25.
 — Martagon, heterotypic and homotypic division (*), xi. 214; male pronucleus, formation (*), xi. 208; pollen-grain nucleus, formation (*), xi. 190; spermatogenesis (*), xi. 187.
Lindsaya-type of fern-stele (*), xvi. 157.
 Lipase, occurrence of in *Polyporus squamosus*, xx. 53.
 Liquids and gases in relation to carbon-assimilation and translocation, static diffusion of, xiv. 537.
 Liverworts, conducting strands (*), xv. 4.
Lomaria gibba, seedling-structure, xix. 370.
 — spicant, seedling-structure (*), xix. 373.
 LOMAX, J.—On some New Features in Relation to *Lyginodendron oldhamium* (+), xvi. 601.
 — On the Occurrence of the Nodular Concretions (Coal Balls) in the Lower Coal Measures, xvi. 603.
 — and WILD, G.—A new Cardiocarbon-bearing Strobilus (+), xiv. 160.
Loranthus aphyllus, haustoria of, histology (*), xv. 753; morphology (*), xv. 749.
Loxsonia, anatomy of solenostelic Ferns, xv. 71.
 — and other Ferns, relationships between, xv. 90.
 — Cunninghamii; a correction, xv. 433; petiole-structure (*), xv. 81; root-structure, xv. 80; stem-structure (*), xv. 75.
 LULHAM, R. B. J., and TANSLEY, A. G.—A Study of the Vascular System of *Mattonia pectinata* (Plates XXXI–XXXIII and five text-figures), xix. 475.
 — — On a New Type of Fern-Stele and its probable phylogenetic Relations (ten text-figures), xvi. 157.
 Luminous bacteria, xvi. 587.
Lupinus hirsutus, proteases of, xx. 116, 118.
 Lycopodiaceous cone from the Coal Measures, on Spencerites, a new (+), xi. 590.
 Lycopodiaceae, morphology of sporangial integuments, xvi. 598; seed-like fructification in Palaeozoic (+), xiv. 713.
Lycopodium, anatomy of stem, xii. 558; imperfect sporangia of, xv. 229; parichnos in (*), xx. 269.
 — clavatum, antheridia and archegonia (*), xiii. 285; endophytic fungus of prothallus (*), xiii. 291; embryo (*), xiii. 301; prothallus, morphology and structure (*), xiii. 280; stem-structure, xii. 558; young plant (*), xiii. 289.
 — rigidum, abnormal plurality of sporangia (*), xvii. 278.
 — scariosum, stem-structure, xiv. 315.
 — squarrosus, stem-structure, xii. 558.
 — volubile, stem-structure, xiv. 315.
Lyginodendron anomalum, stem-structure (* +), xi. 80.
 — *Lagenostoma Lomaxi* the seed of (+), xvii. 625; xviii. 321.
 — oldhamium, fructification (*), xvi. 575; morphology and structure of stem (+), xvi. 601.
 — robustum, *n. sp.*, stem-structure (* +), xi. 65.

- Lygodium, habit, xv. 360; petiole-structure and node (*), xv. 366; root-structure, xv. 370; seedling-structure (*), xv. 371; stem-structure (*), xv. 361.
- Lysichiton, antipodal cells (*), xiv. 15; embryo (*), xiv. 17; endosperm (*), xiv. 16; ovule development (*), xiv. 13.
- M.
- MACDOUGAL, D. T.—Symbiotic Saprophytism (Plates I and II and one text-figure), xiii. 1.
- MACFADYEN, A., and BARNARD, J. E.—On Luminous Bacteria, xvi. 587.
- and ROWLAND, S.—On the Suspension of Life at Low Temperatures, xvi. 589.
- Macrozamia Fraseri, structure of sporophyll, xii. 224.
- Magnesium chloride, effect of on carbon-assimilation in *Ulva latissima*, xv. 62.
- nitrate, effect of on carbon-assimilation of marine Algae, xv. 673.
- sulphate, effect of on carbon-assimilation in *Ulva latissima*, xv. 65.
- MAGNUS, P.—On *Aecidium graveolens* (Plate XIV), xii. 155.
- On some Species of the Genus *Urophyctis* (Plates VII and VIII), xi. 87.
- Magnusia Bartlettii*, *n. sp.*, description (*), xv. 333.
- *nitida*, description (*), xvi. 69.
- Malayan Ferns, myrmecophilous (*), xvi. 185.
- Malinvernia anserina*, description (*), xv. 334.
- Mammillaria, morphology of embryo and seedling (*), xii. 460.
- *elongata*, morphology (*), xviii. 377; physiology, xviii. 395; root-structure (*), xviii. 381; stem-structure, xviii. 378; tubercle, homology of, xviii. 392; tubercle-structure (*), xviii. 384.
- Mangrove seedlings, dispersal (*), xvii. 267.
- Marasmius Sacchari* causing root-disease of Sugar-cane (*), xvii. 391.
- Marattiaceae, anatomy of *Archangiopteris Henryi* and other (*), xix. 259.
- anatomy of *Danaea* and other, xv. 777.
- anatomy (*), xvi. 517; comparison with *Psaronius* (†), xvi. 381; frond (*), xvi. 536; mucilage-ducts (*), xvi. 390, 547; root, xvi. 545; spore-producing members, morphology, xi. 488; stem (*), xvi. 371, 544; vascular strands, arrangement and structure (*), xvi. 371.
- Marattia fraxinea*, secondary thickening (*), xvi. 388; vascular skeleton of young sporophyte (*), xvi. 376.
- MARLOTH, R.—Some recent Observations on the Biology of *Roridula* (one text-figure), xvii. 151.
- MARSHALL-WARD, H.—A Potato Disease, xii. 561.
- A Violet Bacillus from the Thames (Plate VI), xii. 59.
- MARSHALL-WARD, H.—On *Peziza aurantia*, xi. 339.
- On the Ginger Beer Plant, xi. 341.
- On the Relations between Host and Parasite in the Bromes and their Brown Rust, *Puccinia dispersa*, xvi. 233.
- *Penicillium* as a Wood-destroying Fungus, xii. 565.
- Recent Researches on the Parasitism of Fungi, xix. 1.
- Some Methods for use in the Culture of Algae (Plate XXVIII), xiii. 563.
- Some Thames Bacteria, II (Plates XX and XXI), xii. 287.
- *Id.* III (Plates XII–XIV), xiii. 197.
- Symbiosis, xiii. 549.
- The Bromes and their Rust-fungus (*Puccinia dispersa*), xv. 560.
- Marsilia quadrifolia*, development of leaf and sporocarp (*), xii. 119; capsule (*), xii. 131; lamina (*), xii. 125; leaf (*), xii. 120; petiole (*), xii. 122; sori (*), xii. 133; sporocarp (*), xii. 127; stalk (*), xii. 130; vascular-bundle system (*), xii. 132.
- MASLEN, A. J.—The Ligule in *Lepidostrobos* (one text-figure) (†), xii. 256.
- The Relation of Root to Stem in *Calamites* (Plates I and II and one text-figure) (†), xix. 61.
- and SCOTT, D. H.—Note on the Structure of *Trigonocarpon olivaeforme* (†), xx. 109.
- MASON-JONES, A. J., and EWART, A. J.—The Formation of Red-wood in Conifers (Plate XV), xx. 201.
- MASSEE, G.—A Monograph of the Genus *Inocybe* (Plate XXXII), xviii. 459.
- A Monograph of the Geoglosseae (Plates XII and XIII), xi. 225.
- On the Origin of Parasitism in Fungi, xviii. 319.
- On the Presence of Binucleate Cells in the Ascomycetes (one text-figure), xix. 325.
- and SALMON, E. S.—Researches on Coprophilous Fungi, I (Plates XVII and XVIII), xv. 313.
- *Id.* II. (Plates IV and V), xvi. 57.
- Matonia*, functional relations of vascular system in connexion with its evolution, xix. 510.
- pectinata, affinities, xiii. 320; leaf-morphology, xix. 477; protoxylems (*), xix. 503; roots, xix. 513; structure, xiii. 319; vascular system (*), xix. 482; young plants (*), xix. 475.
- *sarmentosa*, structure, xix. 481.
- Matonia*-type of structure, morphological position and origin, xix. 508.
- MATTHAEI, G. L. C.—The Effect of Temperature on Carbon Dioxide Assimilation, xvi. 591.
- and BLACKMAN, F. F.—On the Reaction of Leaves to Traumatic Stimulation (Plate XXIX and five text-figures), xv. 533.

- Maturation in *Achlya americana* var. *cambrica* (*), xiii. 142, 160; *Nemalion multifidum* (*), xvii. 613; *Pinus Strobus* (*), xv. 442; *Pythium de Baryanum* (*), xv. 661; *Pythium ultimum* (*), xv. 281, 289.
- Meconopsis*, description of species, xx. 343; distribution, xx. 336; generic characters, xx. 340; history, xx. 323; key to species, xx. 341; morphology (*), xx. 325; properties, xx. 340; taxonomy, xx. 330.
- *aculeata*, description, xx. 347.
 - *bella*, description, xx. 341.
 - *betonicifolia*, description, xx. 369.
 - *cambrica*, description, xx. 343.
 - *chelidonifolia*, description, xx. 364.
 - *crassifolia*, description (*), xx. 345.
 - *Delavayi*, description, xx. 350.
 - *discigera*, description (*), xx. 356.
 - *grandis*, description, xx. 353.
 - *Guillemi-Waldemari*, description, xx. 347.
 - *Henrici*, description, xx. 350.
 - *heterophylla*, description (*), xx. 344.
 - *horridula*, description, xx. 348.
 - — var. *racemosa*, description, xx. 348.
 - — var. *rudis*, description, xx. 347.
 - *integrifolia*, description, xx. 352.
 - *integrifolia*, description (*), xx. 353.
 - *lancifolia*, description (*), xx. 349.
 - *napaulensis*, description, xx. 347.
 - *napaulensis*, description (*), xx. 359.
 - *nepalensis*, description, xx. 347, 357, 358.
 - *nipalensis*, description, xx. 358, 359.
 - *Oliveriana*, description, xx. 365.
 - *paniculata*, description, xx. 358.
 - — var. *elata*, description, xx. 358.
 - *paniculata*, description, xx. 359.
 - *primulina*, description, xx. 350.
 - *principis*, description, xx. 350.
 - *pseudointegrifolia*, description (*), xx. 353.
 - *punica*, description, xx. 355.
 - *quintuplinervia*, description, xx. 354.
 - *racemosa*, description, xx. 347.
 - *robusta*, description, xx. 359.
 - *robusta*, description, xx. 359.
 - *rudis*, description, xx. 347.
 - *simplicifolia*, description, xx. 354.
 - *sinuata*, description, xx. 347.
 - — var. *Prattii*, description, xx. 347.
 - *superba*, description, xx. 357.
 - *torquata*, description (*), xx. 355.
 - *Wallichii*, description (*), xx. 360.
 - — var. *rubrofusca*, description, xx. 359.
 - *Wollastonii*, description, xx. 358.
- Medeola virginica*, mechanism of stomata (*), xvi. 333.
- Medullosa anglica*: a new representative of the *Cycadofilices* (†), xiii. 183; description, xiii. 187; root-structure (*), xvii. 425; structure, xiii. 183.
- Megaloxylon Scotti*, *n. gen. et sp.*, description (†), xiii. 613; structure, xiii. 612.
- Melampsora Rostrupi*, sexuality (*), xx. 41.
- Melanospora discospora*, *n. sp.*, description (*), xv. 352.
- Melocactus*, morphology of embryo and seedling, xii. 459.
- Melon, precocious germination (*), xvi. 149.
- Meristele*, definition, xvi. 523.
- Merulius lubricus*, description (*), xi. 288.
- Mesarch bundles in *Cycadaceae*, in peduncles (* †), xi. 399; in sporophylls (*), xii. 212, *et seq.*
- Mesembryanthemum Bolusii*, protective adaptations (*), xx. 125.
- *truncatum*, protective adaptations (*), xx. 123.
- Mesocarpeae, observations on (*), xii. 37.
- Mesocarpus*, action of light on, xii. 418.
- Mexican species of geophilous *Peperomias* (*), xx. 407.
- Microascus nidicola*, *n. sp.*, description (*), xv. 350.
- *variabilis*, *n. sp.*, description (*), xv. 349.
- Microcachrys tetragona*, vascular system of female flowers (*), xiii. 537.
- Microglossum*, description, xi. 264.
- *arenarium*, description, xi. 283.
 - *atropurpureum*, description (*), xi. 267.
 - *Hookeri*, description (*), xi. 267.
 - *lutescens*, description (*), xi. 271.
 - *multiforme*, description (*), xi. 281.
 - *olivaceum*, description, xi. 270.
 - *partitum*, description, xi. 284.
 - *viride*, description (*), xi. 269.
- Microsporangia of *Stangeria paradoxa*, development and morphology (*), xi. 421.
- Migration of bulbs in the soil, xx. 429.
- Milk of *Cocos nucifera*, proteolytic action of, xvi. 9.
- Milla biflora*, seedling-structure, xvii. 32.
- Mirabilis divaricata*, seedling-structure, xx. 474.
- Mitula*, description, xi. 253, 263, 295.
- *abietis*, description (*), xi. 276.
 - *alba*, description, xi. 284.
 - *alba*, description, xi. 273.
 - *antarctica*, description, xi. 284.
 - *arenaria*, description, xi. 283.
 - *Berterii*, description (*), xi. 268.
 - *bicolor*, description, xi. 280.
 - *crispata*, description (*), xi. 295.
 - *ocullata*, description (*), xi. 276.
 - *elegans*, description, xi. 274.
 - *exigua*, description, xi. 285.
 - *fusispora*, description (*), xi. 277.
 - *glabra*, description (*), xi. 266.
 - *globosa*, description (*), xi. 281.
 - *gracilis*, description, xi. 278.
 - *Heyderi*, description (*), xi. 276.
 - *Johnsoni*, description, xi. 285.
 - *laricina*, description (*), xi. 271.
 - — f. *alba*, description, xi. 273.
 - *lilacina*, description, xi. 257.
 - *lutea*, description (*), xi. 275.
 - *luteola*, description (*), xi. 274.

- Mitruia lutescens*, description (*), xi. 271, 275.
 — microspora, description (*), xi. 281.
 — — var. littorale, description, xi. 283.
 — — var. tremellosa, description, xi. 282.
 — multiforma, description, xi. 280.
 — — f. capitata, description (*), xi. 280.
 — — f. clavata, description (*), xi. 280.
 — — f. pileata, description (*), xi. 280.
 — muscicola, description (*), xi. 279.
 — nigripes, description, xi. 257.
 — olivacea, description, xi. 270.
 — paludosa, description (*), xi. 272.
 — — var. pachycephs, description (*), xi. 272.
 — partita, description, xi. 283.
 — phalloides, description (*), xi. 272.
 — — var. alba, description, xi. 273.
 — pistillaris, description (*), xi. 275.
 — purpurascens, description (*), xi. 266.
 — pusilla, description (*), xi. 277.
 — Rehmii, description, xi. 279.
 — rufa, description (*), xi. 258, 275.
 — Saccardo, description, xi. 268.
 — sclerotiorum, description, xi. 281.
 — sclerotipes, description, xi. 278.
 — serpentina, description (*), xi. 268.
 — spatbulata, description (*), xi. 255.
 — sphaerocephala, description, xi. 277.
 — vinosa, description (*), xi. 268.
 — viridis, description (*), xi. 269.
 — vitellina, description (*), xi. 273.
- MİYAKI, K.—On the Development of the Sexual Organs and Fertilization in *Picea excelsa* (Plates XVI and XVII), xvii. 351.
 — The Fertilization of *Pythium de Baryanum* (Plate XXXVI), xv. 653.
- Mnium cuspidatum, mechanism of stomata, xvi. 336.
- Mohria, habit, xv. 392; petiole (*), xv. 393; root-structure, xv. 394; stem-structure (*), xv. 392.
- Monascus, ascocarp development (*), xvii. 169; fertilization (*), xvii. 173; systematic position, xvii. 196.
- Monocotyledonous habit, origin, xvii. 77.
- Monocotyledons and Dicotyledons, comparative antiquity, xvii. 68; origin, xix. 457.
 — in Japan, some remarkable marine, xiii. 464.
 — origin, xvii. 1, 65, xx. 26, 173, 419; raphides (*), xii. 147; relations of, xx. 429; seed-leaf, homology of, xvii. 70; seedling-structure (*), xvii. 8.
- Monoecism of *Funaria hygrometrica* (*), xx. 293.
- Monophyllaea, foliar organs, xx. 213.
- Moraea, spinous roots (*), xi. 330.
- MOTTIER, D. M.—Nuclear and Cell Division in *Dictyota dichotoma* (Plate XI), xiv. 163.
 — The Development of the Spermatozoid in *Chara* (Plate XVII), xviii. 245.
 — The Effect of Centrifugal Force upon the Cell (Plate XVIII), xiii. 325.
- MOTTIER, D. M.—The Embryology of some Anomalous Dicotyledons (Plates XXVI and XXVII), xix. 447.
- Mougeotia, structure, &c. (*), xii. 37.
- Movements of branches in shrubs and trees, thermometric (*), xviii. 631.
 — of bulbs in the soil, xx. 429.
 — of leaves against excessive insolation, protective, xi. 447, 585.
 — of plants, the antiferment reaction in tropistic, xix. 75.
 — of protoplasm in coenocytic hyphae (*), xi. 491.
- Mucedineae Amerosporae, coprophilous, xvi. 79.
- Mucilage canals in *Isoetes Hystrix* (*), xx. 268; *Lycopodium* (*), xx. 269; *Marattiaceae* (*), xvi. 390, 547.
 — sacs of *Fegatella conica* (*), xviii. 92.
- Mucoraceae, coprophilous, xvi. 76.
- Mucor racemosus*, description (*), xvi. 76.
- MURRILL, W. A.—The Development of the Archegonium and Fertilization in the Hemlock Spruce (*Tsuga canadensis*), (Plates XXXI and XXXII), xiv. 583.
- Musa Livingstonia*, seedling-structure, xvii. 50.
- Muscari armenaicum*, seedling-structure (*), xvii. 16.
 — atlanticum, seedling-structure (*), xvii. 15.
 — comosum, seedling-structure, xvii. 20.
 — neglectum, seedling-structure (*), xvii. 18.
- Mycelium-life of the Fungus, the intercellular, xix. 58.
- Mycelium of Gymnosporangium clavariaeforme (*), xviii. 336; of *Phragmidium violaceum* (*), xviii. 335, 342.
 — perennial, xix. 57.
- Mycoderma yeast, a fragrant (*), xiv. 215.
- Mycology, recent researches in, xix. 2.
- Mycoplasm-life of the Fungus, the intracellular, xix. 58.
- Mycoplasm theory of Fungus-parasitism, xix. 1, 55.
- Mycorrhiza, discovery of, xi. 175.
 — from the Lower Coal Measures (* †), xviii. 255.
 — of Angiosperms (*), xiii. 1; *Aplectrum byemale* (*), xiii. 7; *Aplectrum spicatum* (*), xii. 7; *Bartonia*, xx. 443, 445; *Calypso borealis* (*), xiii. 25; *Calypso bulbosa* (*), xiii. 25; *Coptis trifolia*, xiii. 30; *Cyripedium acaule*, xiii. 24; *Cyripedium hirsutum*, xiii. 24; *Cyripedium parviflorum*, xiii. 23; *Cyripedium pubescens*, xiii. 24; *Elaphomyces variegatus* (*), xv. 526; *Fegatella conica* (*), xviii. 95; *Goodyera repens*, xiii. 20; *Gyrostachys cernua*, xiii. 27; *Obolaria virginica* (*), xi. 379; *Peramium repens*, xiii. 20; *Pogonia ophioglossoides*, xiii. 27; *Psilotum triquetrum*, xviii. 597; *Pterospora andromedea*

- (*), xiii. 34; *Sarracenia purpurea*, xiii. 30; *Spiranthes cernua*, xiii. 27.
- Mycorrhiza of prothallus of *Helminthostachys zeylanica* (*), xvi. 36; *Lycopodium clavatum* (*), xiii. 291; *Ophioglossum pendulum* (*), xvi. 27; *Psilotum* (*), xviii. 573.
- Mycorrhizonium, description (*†), xviii. 260.
- Myrmecophilous Ferns, Malayan (*), xvi. 185.
- Myxomycetae, coprophilous, xvi. 89.
- Myxomycete plasmodium, physiological properties (*), xi. 179.
- Myxotrichum aeruginosum, description (*), xvi. 65.
- *coprogenum*, description (*), xvi. 63.
- — var. *malaccense*, description, xvi. 63.
- *Johnstoni*, n. sp., description (*), xvi. 64.
- *obraceum*, description, xvi. 63, 65.
- *spinosum*, n. sp., description (*), xvi. 64.
- *uncinatum*, description, xv. 325.
- N.
- Narcissus, absciss-layer in leaf (*), xii. 151.
- Nectaries, bud-scales serving as extra-floral (*), xviii. 217.
- Nectria ornata, n. sp., description (*), xvi. 75.
- Nectrioideae, coprophilous, xvi. 75.
- Nemalion multifidum, chromatophore-division (*), xviii. 612; chromatophore-structure (*), xviii. 610; cystocarp development (*), xviii. 617; fertilization (*), xviii. 617; maturation (*), xviii. 613; mitosis (*), xviii. 620; nucleolus (*), xviii. 621; oogenesis (*), xviii. 613; reduction-division (*), xviii. 623; sexual reproduction (*), xviii. 613; spermatogenesis (*), xviii. 615.
- Neolecta, description, xi. 297.
- *flavo-virescens*, description (*), xi. 297.
- Nepenthes, digestion products, xii. 552; proteases, xix. 183; proteolytic enzyme, xi. 563; xii. 545; xv. 563; zymogen, xii. 550.
- Nephrodium hirtipes, seedling-structure (*), xix. 393.
- *setigerum*, seedling-structure (*), xix. 392.
- *spinulosum* var. *dilatatum*, seedling-structure, xix. 369.
- Nephrolepis cordifolia, seedling-structure (*), xix. 389; stolon-structure, xix. 392.
- Nephtytis liberica, embryo, xix. 343; embryo-sac (*), xix. 339; endosperm (*), xix. 343; fertilization (*), xix. 342; flower, xix. 337; ovule (*), xix. 338.
- NEWCOMBE, F. C. — Cellulose-Enzymes, xiii. 49.
- Geotropic Response at Various Angles of Inclination, xix. 311.
- The Sensory Zone of Roots (one text-figure), xvi. 429.
- Nigella damascena*, seedling-structure, xvii. 53.
- Nile, the 'Sadd' of the Upper, xvi. 495; xvii. 446.
- Nitella, effect of centrifugal force on cell, xiii. 346.
- Nitophyllum Hilliae, cystocarp development (*), xii. 193.
- *laceratum*, cystocarp development (*), xii. 192.
- Nitragin, economic importance of, xv. 511.
- Nitrates, effect of on carbon-assimilation of marine Algae, xv. 669.
- Nodular concretions in the Lower Coal Measures, occurrence of (*), xvi. 603.
- Nothochaena Marantae, structure (*), xvii. 695, 698.
- *sinuata*, seedling-structure (*), xix. 385.
- Nuclear division in asci (*), xiii. 467; in *Botrychium virginianum* during spore-formation (*), xix. 465; in *Cryptomeria Japonica* (*), xviii. 419; in *Dictyotaceae* (*), xviii. 141, 183; in *Dictyota dichotoma* (*), xiv. 163; in *Fos-sombromia longiseta* (*), xx. 94; in *Helminthostachys zeylanica* (*), xx. 179; in *Larix*, pollen-mother-cells (*), xvii. 279; in *Leptosporangiate* Ferns during spore-formation (*), xviii. 445; in *Lilium canadense* (*), xix. 189; heterotype division (*), xix. 190; homotype division (*), xix. 219; in *Lilium Martagon* during spermatogenesis (*), xi. 187; in *Nemalion multifidum* (*), xviii. 620; in *Pellia* (*), xv. 147; in *Peronospora parasitica*, xiv. 271; in *Phaseolus* root-apex (*), xviii. 29; in *Picea excelsa* gametophytes (*), xvii. 354; in *Pinus generative nucleus* (*), xv. 193; in *Pinus Strobus* (*), xv. 436; in *Riccia glauca* (*), xv. 275; in *Saccharomyces* (*), xii. 530; in *Saprolegnieae* (*), xviii. 552; in sporangia (*), xiii. 467; in *Tsuga canadensis* archegonium (*), xiv. 588; in *Uredineae* (*), xviii. 345, 356.
- — effect of gases on (*), xix. 521; carbon dioxide, xix. 526; chloroform, xix. 528; ethyl ether, xix. 527; hydrogen, xix. 525.
- — effect of ammonium carbonate on, xix. 529; of cold, xix. 528; of heat, xix. 529; of a vacuum, xix. 527.
- fusion in *Basidiomycetes*, xviii. 361; in *Uredineae* (*), xvii. 349.
- Nucleolus of the *Dictyotaceae*, xviii. 156; of root-apex of *Phaseolus* (*), xviii. 29.
- possible function of in heredity, xiii. 269.
- Nucleus, effect of centrifugal force on (*), xiii. 351.
- of *Saccharomyces*, xii. 568.
- Nuytsia floribunda*, morphology and structure of seedling (*), xiv. 312.
- Nyctaginaceae, seedling-structure, xx. 473.

O.

- Obolaria virginica, anatomy and morphology (*), xi. 369.
- Oceanic islands, powder-seed plants in, xix. 362.
- Odontites rubra, excretion of water by leaves, xi. 392.
- Oedocephalum glomerulosum, description (*), xvi. 80.
- ochraceum, *n. sp.*, description (*), xvi. 80.
- Oedogonium, development and structure of young plants (*), xvi. 467; xviii. 648; germination of zoospores (*), xvi. 412; zoospores, abnormal formation and development (*), xvi. 481.
- Oidiopsis sicula = O. taurica, xx. 198.
- Oidiopsis taurica, an endophytic member of the Erysiphaceae (*), xx. 187; description (*), xx. 195; distribution, host-plants, and synonymy, xx. 194, 198.
- — var. lanuginosa, description, xx. 199; distribution and host-plants, xx. 199; synonymy, xx. 198.
- Oidium gigasporum = O. taurica, xx. 198.
- Haplophylli = O. taurica, xx. 198.
- OLIVER, F. W.—The Ovules of the Older Gymnosperms (Plate XXIV and one text-figure) (†), xvii. 451.
- and SCOTT, D. H.—On Lagenostoma Lomaxi, the seed of Lyginodendron (†), xvii. 625.
- — On the Structure of the Palaeozoic Seed Lagenostoma Lomaxi, with a Statement of the Evidence upon which it is referred to Lyginodendron, xviii. 321.
- Onoclea, fertilization (*), xii. 261.
- Oogenesis in Nemalion multifidum (*), xviii. 613.
- Oospore of Pinus Strobus, division of (*), xv. 449.
- Oospores of Cutleria, germination (*), xii. 85.
- Ophioglosseae, root-structure (*), xiii. 377; secondary thickening (*), xiii. 386; sporangia, imperfect, xv. 256.
- Ophioglossum, germination of spores, xx. 321; sporangia, imperfect, xv. 256.
- pendulum, antheridium development (*), xvi. 29; archegonia development (*), xvi. 30; embryo (*), xvi. 31; mycorhiza of prothallus (*), xvi. 27, 28; prothallus (*), xvi. 25; root-structure (*), xiii. 380.
- simplex, morphology and structure (*), xviii. 205.
- vulgatum, root-structure (*), xiii. 378; secondary thickening (*), xiii. 386.
- Optima and limiting factors, xix. 281.
- Opuntia, morphology of embryo and seedling (*), xii. 439.
- Orange, pleiotaxy of gynaeceum (*), xvi. 154.

- Ornithogalum exscapum, seedling-structure, xvii. 21.
- sulphureum, seedling-structure, xvii. 20.
- Osmotic optimum and measurements, xii. 568.
- Ovule, morphology and structure (*), xviii. 57; of the older Gymnosperms (* †), xvii. 451.
- Oxidase and enzyme, xvii. 257.
- Oxidases in latex, xiv. 199.

P.

- Palaeozoic Lycopods, occurrence of seed-like fructification in (†), xiv. 713.
- plants, Megaloxylon, a new genus of (†), xiii. 612.
- seed types, ordinary (* †), xvii. 453.
- Palmae, seedling-structure, xvii. 47.
- Palmellaceae, evolution and polymorphism, xi. 101.
- Papaïn, xix. 149; proteolytic action, xvi. 5.
- Papaver cambricum, description, xx. 343.
- — perenne flore sulphureo, description, xx. 343.
- crassifolium, description (*), xx. 345.
- heterophyllum, description (*), xx. 344.
- — var. crassifolium, description (*), xx. 345.
- paniculatum, description, xx. 358.
- simplicifolium, description, xx. 354.
- Paper, structure of an ancient, xii. 111.
- Papillae in epidermoidal layer of calamitean root (* †), xviii. 645.
- Parasite and host, relations between in Bromus and Puccinia dispersa, xvi. 233.
- Parasitism, Eriksson's hypothesis, xix. 21.
- of Aecidium graveolens (*), xii. 155; of Fungi, recent researches in, xix. 1; origin of, xviii. 319; of Harveyella mirabilis (*), xiii. 26; of Uredineae, xix. 14, 55; of Urophlyctis, xi. 87.
- Parental characters, distribution of to the germ cells, xix. 246.
- Parichnos, function, xx. 271; in Isoetes Hystrix, xviii. 654 (*), xx. 268; in Lepidodendron (* †), xx. 271; in Lycopodium (*), xx. 269; in recent plants (* †), xviii. 654; xx. 267.
- PARKIN, J.—Observations on Latex and its Functions (Plate XII), xiv. 193.
- On a brilliant Pigment appearing after Injury in Species of Jacobinia (N. O. Acanthaceae), xix. 167.
- On some points in the Histology of Monocotyledons (Plate XIII), xii. 147.
- On the Reserve Carbohydrates of the Bulb of the Hyacinth (Hyacinthus orientalis), xiv. 155.
- Some Observations bearing on the Function of Latex, xiii. 620.
- The Extra-floral Nectaries of Hevea brasiliensis (the Para Rubber tree), an Example of Bud-scales serving as Nectaries (Plate XVI), xviii. 217.

- Parnassia palustris*, ovary (*), xv. 186.
 Parthenogenesis in *Cutleria* (*), xii. 79;
 in *Dictyotaceae* (*), xviii. 196; in *Dictyota*
dichotoma, xii. 559.
 Pathology, recent researches on plant, xix. 8.
 PEARSON, H. H. W.—Anatomy of the
 Seedling of *Bowenia spectabilis* (Plates
 XXVII and XXVIII), xii. 475.
 — The Double Pitchers of *Dischidia Shel-*
fordii, n. sp., xvii. 617.
 Pedicelae, evolution and polymorphism,
 xi. 110.
Pedicularis palustris, leaf-structure and ex-
 cretion of water, xi. 387.
 Peduncle of *Cycadaceae*, anatomy (* †), xi.
 399.
 PEIRCE, G. J.—Studies of Irritability in
 Plants (Plate XXXV), xx. 449.
 — The Dissemination and Germination of
Arceuthobium occidentale (Plates III and
 IV), xix. 99.
Pelargonium rapaceum, morphology of
 flower, xiii. 181.
Pelecypora, seedling-morphology, xii. 464.
Pellaea rotundifolia, structure (*), xvii. 695.
Pellia epiphylla, the quadripolar spindle in
 spore-mother-cell of, xv. 431.
 — nuclear studies on (*), xv. 147.
Penicillium as a wood-destroying Fungus, xii.
 565.
 — *insigne*, description (*), xv. 331.
Peperomia, embryo-sac of (*), xv. 103.
 — geophilous species of, anatomy (*), xx.
 413; fruit and seed structure (*), xx.
 398; germination (*), xx. 401.
 — *amplexifolia*, seedling-structure (*), xx.
 167.
 — *eburnea*, seedling-structure (*), xx. 164.
 — *gracillima*, morphology, xx. 411.
 — *macandra*, seedling-morphology (*), xx.
 412.
 — *maculosa*, seedling-structure, xx. 170.
 — *mexicana*, fruit and seed (*), xx. 411;
 seedling-morphology (*), xx. 412.
 — *parvifolia*, fruit and seed (*), xx. 404;
 seedling-morphology (*), xx. 405; seed-
 ling-structure (*), xx. 404.
 — *pedicellata*, fruit and seed (*), xx. 408;
 seedling-morphology (*), xx. 409; seed-
 ling-structure (*), xx. 410.
 — *pellucida*, embryo, xv. 111; embryo-sac
 (*), xiii. 626; xv. 105, 110; endosperm
 (*), xv. 108; fertilization (*), xv. 108;
 flower, xv. 104; fruit, xv. 111; pollen
 (*), xv. 107; pollination (*), xv. 107;
 seedling-structure (*), xx. 165; systematic
 position, xv. 116.
 — *peruviana*, germination (*), xx. 401;
 morphology (*), xx. 401; seedling-structure
 (*), xx. 404, 413.
 — *polystachya*, seedling-structure, xx. 166.
 — *tithymaloides*, seedling-structure (*), xx.
 169.
Peperomia umbilicata, fruit and seed (*), xx.
 408; seedling-morphology, xx. 408.
 — *verrucosum*, fruit (*), xx. 406.
 Pepsin, xvi. 17.
 Peptolysis in *Agaricus campestris*, xviii. 312;
 in *Saccharomyces cerevisiae*, xviii. 299.
 Peptonization in *Agaricus campestris*, xviii.
 309; in *Saccharomyces cerevisiae*, xviii.
 301.
Peramium repens, morphology, xiii. 20; my-
 corrhiza, xiii. 20; structure of vegetative
 parts, xiii. 20.
 Perennial mycelium, does it exist in the
 wintering corn plant? xix. 57.
Pereskia, morphology of embryo and seed-
 ling (*), xii. 438.
 Periodicity in Ceylon, foliar, xvi. 594; in
Dictyota, is it an hereditary character?
 xix. 546; in *Haliseris*, xix. 552.
 — of sexual cells in *Dictyota dichotoma* (*),
 xix. 531; cause of, xix. 541.
Perisporiaceae, coprophilous (*), xv. 330,
 xvi. 67.
Peronospora parasitica, fertilization (*), xiv.
 263; nuclear division, xiv. 269, 271.
 PERTZ, D. F. M.—On the Distribution of
 Statoliths in *Cucurbitaceae*, xviii. 653.
 — On the Gravitation Stimulus in Relation
 to Position, xiii. 620.
 — The Position of Maximum Geotropic
 Stimulation, xix. 569.
 — and DARWIN, F.—On the Artificial Pro-
 duction of Rhythm in Plants, with a Note
 on the Position of Maximum Heliotropic
 Stimulation (four text-figures), xvii. 93.
 Petioles of Ferns, structure and phylogenetic
 importance, xv. 95.
Petrospongium Berkeleyi, plurilocular spo-
 rangia of (*), xiii. 461.
Pezizaceae, coprophilous, xvi. 66.
Peziza, description, xi. 286.
 — *aurantia*, germination of spores, xi. 339.
 — *cornucopiae*, description (*), xi. 288.
 — *verpoides*, description, xi. 294.
 — (*Humaria*) *salmonicolor*, description, xvi.
 66.
Pfeiffera, seedling-morphology, xii. 453.
Phaeophyceae, phylogenetic relations of
 primitive, xiv. 678.
Phaeostilbeae, coprophilous, xvi. 86.
Phajus grandifolius, localization of indigo-
 producing substance (*), xix. 306.
 — *maculatus*, localization of indigo-pro-
 ducing substance, xix. 307.
 — *Wallichii*, localization of indigo-producing
 substance, xix. 307.
Pballus, description, xi. 286.
 — *marcidus*, description (*), xi. 291.
Phaseolus, root-apex: nuclei, reconstitution
 of the daughter (*), xviii. 47; nucleolus,
 changes in during prophase (*), xviii. 45;
 nucleolus, structure (*), xviii. 42; nucleus,
 resting (*), xviii. 41.

- Phaseolus multiflorus*, proteases of seeds, xx. 115, 118.
 — *vulgaris*, proteases of seeds, xx. 116, 118.
Phialea verpoides, description, xi. 294.
 PHILLIPS, R. W.—On the Development of the Cystocarp in Rhodomeniales, I (Plates XVII and XVIII), xi. 347.
 — *Id.* II. Delesseriaceae (Plates XV and XVI), xii. 173.
 — The Form of the Protoplasmic Body in certain Florideae, xii. 569.
Philocopra curvicolla, description (*), xv. 337.
 — *pleiospora*, description (*), xv. 338.
 — *setosa*, description (*), xv. 336.
Philodendron, ovule, xiv. 13.
 Phloem of *Helianthus annuus*, lignification, xvi. 180; xx. 319.
Phlomis grandiflora, *n. sp.*, description, xix. 441.
 — *imbricata*, description, xix. 441.
 — *lunariaefolia*, description, xix. 440, 441.
 — *lunarifolia*, description, xix. 440; species confused with it, xix. 439.
Phoenix dactylifera, enzyme-secreting cells of, in seedling (*), xviii. 267; incapacity of endosperm for self-digestion, xx. 61; seedling-structure, xvii. 49.
Phormium tenax var. *atropurpurea*, raphides (*), xii. 149.
 Photosynthesis, action of chloroform on, xii. 415; effect of temperature on, xvi. 591.
 — and translocation, static diffusion of gases and liquids in relation to, xiv. 537.
 — in *Ulva latissima*, effect of salts on, xv. 39.
 — of marine Algae, effect of nitrates on, xv. 669.
Phragmidium violaceum, acidium development (*), xviii. 338; mycelium (*), xviii. 335, 342; promycelium (*), xviii. 327; spermogonia, xviii. 335; teleutospore (*), xviii. 327, 343.
 Phycomycetae, coprophilous, xvi. 76.
 Phycomycetes, sexuality of, xiii. 576.
Phyllocactus, morphology of embryo and seedling (*), xii. 446.
Phyllocladus alpinus, affinities, xx. 262; female cone (*), xx. 261; male cone (*), xx. 262; vegetative organs, morphology (*), xx. 260.
Phylloglossum, imperfect sporangia of, xv. 228.
Phytophthora and *Actinococcus* (*), xiii. 253.
Phyllotaxis, note on (*), xv. 481; principles of (*), xviii. 227.
 Phylogeny of Angiosperms, xx. 173; Cactaceae, xii. 469; Conjugatae (*), xii. 54; Cutleria, xii. 103; Cyperaceae, xx. 24; Hymenophyllaceae, xiv. 481; Monocotyledons, xvii. 1; xx. 173, 414; Uredineae, xix. 44.
Phytolacca decandra, digestion by leaves, xix. 159.
Phytophthora infestans, mode of obtaining, xx. 334.
 Phytoplankton of Thames, xvi. 576; xvii. 631; xix. 163.
Picea excelsa, archeogonia abnormal (*), xvii. 364; archeogonium development (*), xvii. 357; fertilization (*), xvii. 362; male gametophyte, development (*), xvii. 353; maturation of egg (*), xvii. 360; proembryo formation (*), xvii. 363; ventral canal-cell, formation (*), xvii. 359.
 Pigment in *Jacobinia*, appearance of a brilliant, after injury, xix. 167.
Pilobolus, cell-division in sporangia (*), xiii. 490.
Pilocereus, morphology of embryo and seedling (*), xii. 449.
Pinus, a proliferous cone of (*), xvii. 779.
 — development of pollen-tube and division of the generative nucleus (*), xv. 193.
 — histology of sieve-tubes (*), xv. 575; albuminous cells (*), xv. 600; callus, origin (*), xv. 597; callus rods, formation (*), xv. 590; callus, value, xv. 605; connecting threads, function, xv. 603; sieve-plate, development (*), xv. 588, 594; slime-strings, function, xv. 603.
 — excelsa, vascular system of female flowers (*), xiii. 537.
 — *Gerardiana*, seedling-structure, xx. 473.
 — *montana* var. *gallica*, seedling-structure, xx. 473.
 — *Murrayana* var. *Sargenti*, seedling-structure, xx. 472.
 — *Strobis*, archeogonium development (*), xv. 436; central cell, division (*), xv. 439; conjugation of sexual nuclei (*), xv. 447; fertilization (*), xv. 447; maturation of egg (*), xv. 442; oospore, first division in (*), xv. 449; proteid vacuoles (*), xv. 459; segmentation nuclei, division (*), xv. 455; sexual nuclei, conjugation (*), xv. 447; sperm nucleus, fate of, xv. 464; stalk-cell, fate of (*), xv. 464; vegetative nucleus, fate of (*), xv. 464; ventral canal-cell (*), xv. 441.
 — *sylvestris*, seedling-structure, xx. 473; vascular system of female flower (*), xiii. 536.
 — *Thunbergii*, seedling-structure, xx. 473.
 Piperaceae and Araceae, comparison, xx. 417.
 — seedling-structure (*), xx. 162.
 Piperales, seedling-structure, xx. 161.
Piper cornifolium, seedling-structure (*), xx. 162.
 — *geniculatum*, seedling-structure, xx. 164.
Pistia stratiotes, floating apparatus in leaves xiii. 466.
Pisum sativum, proteases of seeds, xx. 116, 118.
 Pitchers of *Dischidia rafflesiana*, evolution (*), xvi. 365; of *Dischidia Shelfordii*, xvii. 617.

- Pith, morphological status, xix. 514.
 Plagiogyria biserrata, structure (*), xvii. 698.
 Plagiopteron fragrans, affinities and anatomical characters, xvi. 177.
 Plankton of some English rivers, xix. 163; of Thames, xvi. 576; xvii. 631.
 Plasmodium, physiological properties of a Myxomycete (*), xi. 179.
 Platyzoma, habit, xv. 734; structure (*), xv. 735.
 Pleiotaxy of gynaecium of Orange (*), xvi. 154.
 Pleuroascus, *n. gen.*, description, xv. 330.
 — *Nicholsoni, n. sp.*, description (*), xv. 330.
 Plocamium coccineum, cystocarp development (*), xi. 352.
 PLOWMAN, A. B.—The Comparative Anatomy and Phylogeny of the Cyperaceae (Plates I and II and two text-figures) (†), xx. 1.
 Plumaria elegans, cystocarp development (*), xi. 361.
 Plumbaginaceae, insects and flowers, xvii. 320.
 Plumaria acutifolia, exudation of latex from, xiv. 205.
 Podocarpeae, vascular system of female flower (*), xiii. 537.
 Podospora curvicolla, description (*), xv. 337.
 — *fimiseda var. appendiculata*, description (*), xv. 340.
 — *pleiospora*, description (*), xv. 338.
 — *setosa*, description (*), xv. 336.
 Podostemaceae, dorsi-ventrality of, with reference to current views on evolution, xvi. 593.
 Pogonia ophioglossoides, mycorrhiza, xiii. 27; root-structure, xiii. 27.
 Poilanthos tuberosa, raphides (*), xii. 150.
 Pollen-mother-cells of Larix, spindle-formation; felt, formation of (*), xvii. 292; pre-radial stages (*), xvii. 289; radial stages (*), xvii. 291; spindle (*), xvii. 295.
 — of Liliun canadense, nuclear division in (*), xix. 189; heterotypic division (*) xix. 190; homoeotypic division (*), xix. 219.
 Pollen-tube, development of and division of the generative nucleus in Pinus (*), xv. 193.
 Pollination of Cuphea, xvii. 163; of Lilaea subulata, xii. 18; of Peperomia pellucida (*), xv. 107; of Pinus (*), xv. 199; of Roridula (*), xvii. 151.
 Pollinium and sperm cells in Asclepias Cornuti, development (*), xvi. 123.
 Polychaetia paniculata, description, xx. 358, 360.
 Polycotyledony (*), xvi. 553; origin of in Gymnosperms, xx. 473.
 Polygonatum biflorum, mechanism of stomata (*), xvi. 343.
 — multiflorum, raphides, xii. 149.
 Polygonum amphibium, infranodal organs (*), xv. 144.
 — tinctorium, localization of indigo-producing substance, xix. 305.
 Polymorphism of green Algae, xi. 97; of Cutleria multifida (*), xii. 75.
 Polypodium aureum, periderm (*), xix. 383; petiole-structure (*), xix. 382; seedling-structure (*), xix. 378.
 — carnosum, biological considerations, xvi. 212; leaf-structure (*), xvi. 203; morphology (*), xvi. 188; rhizome-structure (*), xvi. 193; root-structure (*), xvi. 201; systematic position, xvi. 221.
 — Schneideri, structure (*), xi. 533.
 — sinuosum, biological considerations, xvi. 212; leaf-structure (*), xvi. 211; morphology (*), xvi. 207; rhizome-structure (*), xvi. 209; root-structure, xvi. 211; systematic position, xvi. 221.
 Polyporus squamosus, enzymes of, xx. 49.
 Polytrichum, central cylinder (*), xv. 16; cortex (*), xv. 14; rhizome, histology (*), xv. 13; stem, histology of aerial leafy (*), xv. 24.
 Polystely in Primula (*), xi. 307.
 POND, R. H.—The Incapacity of the Date Endosperm for Self-Digestion, xx. 61.
 Poronia leporina, description (*), xvi. 74.
 — punctata, anatomy (*), xiv. 251; biology (*), xiv. 245; life-history (*), xiv. 246.
 Portulacaceae, seedling-structure, xx. 474.
 Position of maximum geotropic stimulation, xix. 569.
 Potassium chloride, effect of on carbon-assimilation in Ulva latissima, xv. 62.
 — nitrate, effect of on carbon-assimilation in marine Algae, xv. 670.
 — phosphate, effect of on carbon-assimilation in marine Algae, xv. 677.
 Potato disease, xii. 561.
 Potentilla palustris, infranodal organs (*), xv. 140.
 POTTER, M. C.—On the Occurrence of Cellulose in the Xylem of Woody Stems (Plate VIII), xviii. 121.
 PRAIN, D.—A Review of the Genera Mecynopsis and Cathcartia (Plates XXIV and XXV), xx. 323.
 Primoflices, ancient Ferns (†), xx. 218.
 Primula, apex, xi. 323; leaves of seedling, xi. 316; petiole-structure (*), xi. 311; polystely (*), xi. 307; seedling-structure (*), xi. 317; variations in flower of species (*), xvi. 317.
 — floribunda, variations in flowers, xvi. 321.
 — veris, variations in flowers, xvi. 318, 325.
 — vulgaris, variations in flowers (*), xvi. 319, 325.
 Primulaceae, development of pistil, xvi. 322.
 Proliferation of 'flowers' of Cephalotaxus, xv. 643; of Pinus cone (*), xvii. 779.

- Promycelium of Gymnosporangium clavariaeforme (*), xviii. 329; of Phragmidium violaceum (*), xviii. 327.
- Proserpinaca palustris, heterophylly (*), xviii. 579.
- Protease, nature of fibrin-digesting, xix. 172.
- Proteases and antiseptics, xvii. 602.
- of *Agaricus campestris*, xix. 179; *Ananas sativus*, xix. 177; *Carica Papaya*, xix. 176; *Hordeum sativum*, xix. 179; *Hyacinthus orientalis*, xix. 182; *Nepenthes*, xix. 183; *Polyporus squamosus*, xx. 51; *Saccharomyces cerevisiae*, xix. 178.
- of plants, xviii. 289; xix. 149, 171; xx. 113.
- Protective adaptations (*), xx. 123; *Anacampteros papyracea* (*), xx. 126; *Mesembryanthemum Bolusii* (*), xx. 125; *Mesembryanthemum truncatum* (*), xx. 123.
- movements of leaves against excessive insolation, xi. 447, 585.
- red dye, xi. 460, 585.
- Proteids of latex, xiv. 195.
- Proteid vacuoles of archegonium of *Pinus Strobos* (*), xv. 459.
- Proteolysis, tryptophane in, xvi. 1.
- Proteolytic enzymes in bulbs, xvii. 250; in fruits, xvii. 242; in laticiferous plants, xvii. 246; in leaves, xvii. 249; in *Nepenthes*, xi. 563; xii. 545; xv. 563; in plants, xvii. 237, 597; in roots, xvii. 251; in seeds, xvii. 241; in stems, xvii. 247; in tubers, xvii. 251.
- Prothallus of *Helminthostachys zeylanica* (*), xvi. 23; *Lycopodium clavatum* (*), xiii. 279; *Ophioglossum pendulum* (*), xvi. 23; *Psilotum triquetrum* (*), xviii. 571; *Schizaea bifida*, xvi. 165.
- Protococcaceae, evolution and polymorphism, xi. 107.
- Protoplasm, action of hydrogen on streaming of, xix. 523.
- action of carbon dioxide on streaming of, xix. 526.
- in coenocytic hyphae, movements of (*), xi. 491.
- Protoplasmic body in Florideae, form of, xii. 569.
- Protostele, definition, xvi. 523.
- Psaronius, comparison with Marattiaceae (+), xvi. 381.
- Pseudomonas birtum*, cell-contents (*), xx. 254; cell-division (*), xx. 248; characters (*), xx. 255; ciliation (*), xx. 252; cultures (*), xx. 237; development of spores (*), xx. 250; germination of spores (*), xx. 236; growth (*), xx. 241; motility, xx. 252; spores (*), xx. 234.
- Pseudo-Pleurococcus, *n. gen.*, description (*), xiii. 189, 194.
- botryoides, *n. sp.*, description (*), xiii. 191, 194.
- vulgaris, *n. sp.*, description (*), xiii. 193, 194.
- Psilotaceae, imperfect sporangia, xv. 254.
- Psilotum triquetrum*, leaf-structure (*), xviii. 594; morphology (*), xviii. 505, 589; mycorrhiza (*), xviii. 573, 597; prothallus (*), xviii. 571; secondary thickening (*), xviii. 508; sexual organs (*), xviii. 573; sporangia imperfect, xv. 254; stem-structure (*), xviii. 507, 592, 594, 596, 598.
- Pteridophyta and Gymnosperms, anatomy and development of stem, xv. 779.
- Bower's classification, xvii. 618.
- imperfect sporangia, are they vestigial? xv. 225.
- nature and origin of primitive stele, xv. 35.
- Pteridospermae, a new class of fossil plants (+), xviii. 322.
- Pteridospermous seed from the Coal Measures, new species of *Lagenostoma*, a type of (* +), xix. 326.
- Pteris elata* var. *Karsteniana*, structure (*), xvii. 702.
- palmata, seedling-structure, xix. 397.
- Pterospora andromedea, morphology (*), xiii. 31; mycorrhiza (*), xiii. 34; structure of vegetative organs, xiii. 34.
- Ptilota plumosa*, cystocarp development (*), xi. 361.
- Puccinia Adoxae*, sexuality of (*), xx. 43.
- dispersa and *Bromes*, xv. 560; xvi. 233; xix. 19.
- — experiments on, xvi. 487; germination of uredospores, xvi. 261.
- glumarum, histology, xix. 35.
- Malvacearum, sexuality of (*), xx. 42.
- Poarum, sexuality of (*), xx. 40.
- Pyronema confluens*, sexual reproduction (*), xiv. 321.
- Pythium de Baryanum*, fertilization (*), xv. 659; oosphere, formation (*), xv. 659; oospore, maturation (*), xv. 661; sexual organs, development (*), xv. 656.
- ultimum, *n. sp.*, biology and cytology (*), xv. 269; conidia-formation, xv. 278; description (*), xv. 300; dissemination of spores, xv. 285; fertilization (*), xv. 280; germination of conidia (*), xv. 276; germination of oospores, xv. 282; growth and temperature, relation between, xv. 286; growth of mycelium, xv. 277; maturation of oospores (*), xv. 281, 289; saprophytism, xv. 286; sexual organs, formation (*), xv. 278, 289; temperature and growth, relation between, xv. 286.
- Pyxisporeae, observations on (*), xii. 40.

Q.

Quadripolar spindle in the spore-mother-cells of *Pellia epiphylla*, xv. 431.

R.

Ranunculaceae, seedling-structure (*), xvii. 52.

Ranunculus Ficaria, seedling-structure (*), xvii. 63.

- Raphides of Monocotyledons (*), xii. 147.
 Reactions of fruit-bodies of *Lentinus lepideus* to external stimuli (*), xix. 427.
 Red dye, protective, xi. 460, 585.
 Red-wood in Conifers, formation (*), xx. 201.
 REED, H. S.—A Study of the Enzyme-secreting Cells in the Seedlings of *Zea Mais* and *Phoenix dactylifera* (Plate XX), xviii. 267.
 Reduction of chromosomes, xix. 233.
 REID, C.—Further Contributions to the Geological History of the British Flora, xii. 243.
 Rennetase, occurrence in *Polyporus squamosus*, xx. 53.
 Reproduction in *Conjugatae* (*), xii. 29; in *Dictyota dichotoma*, xii. 559; in *Fegatella conica* (*), xviii. 97.
 Resistance to flow in wood vessels (*), xix. 442.
Resticularia Boodlei, *n. sp.*, parasitic on *Tolypothrix*, description (*), xvii. 654.
 — *nodosa*, parasitic on *Tolypothrix* (*), xvii. 650.
 Rheotropic sensitiveness of the apex of the root (*), xvi. 430.
 Rheotropism of Myxomycete plasmodia, xi. 180.
Rheum officinale, digestion by leaves, xix. 158.
 — *undulatum*, digestion by leaves, xix. 158.
Rhinanthus Crista-galli, leaf-structure and excretion of water, xi. 390.
 Rhipsalis, morphology of seedling and embryo (*), xii. 452.
 Rhizophoreae in Japan, xiii. 465.
 Rhodymeniales, cystocarp development (*), xi. 347; xii. 175.
 Rhythm, artificial production of (*), xvii. 93.
Riccia glauca, fertilization (*), xx. 275; spore-development (*), xx. 275.
 RICHARDS, H. M.—The Evolution of Heat by Wounded Plants (*Woodcuts 1 and 2*), xi. 29.
 RIDLEY, H. N.—On the Dispersal of Seeds by Wind, xix. 351.
 — On the Foliar Organs of *Monophyllaea*, xx. 213.
 Rind disease of Sugar-cane, xiv. 610; (*), xvii. 383.
 — fungus disease of Sugar-cane, xiv. 617.
Ripartites stragiceps, description, xviii. 499.
 Rivers, Plankton of some English, xix. 163.
 ROBERTSON, A.—Some Points in the Morphology of *Phyllocladus alpinus* (Plates XVII and XVIII), xx. 259.
 — The Droppers of *Tulipa* and *Erythronium* (Plates XXXI and XXXII), xx. 429.
 — and SARGANT, E.—The Anatomy of the Scutellum in *Zea Mais* (Plate V), xix. 115.
 Root disease of Sugar-cane, xiv. 614; (*), xvii. 391.
 — pressure in trees, xviii. 181.
 — relation of, to stem in *Calamites* (* †), xix. 61.
 — structure of *Bignonia capreolata*, xii. 327; *Bignonia Unguis* (*), xii. 325; *Bignonia venusta*, xii. 326; *Dioscorea prehensilis* (*), xvii. 413.
 Roots and shoots, correlation in growth of, xv. 615.
 — new instances of spinous (*), xi. 327; xvii. 413.
 — of *Medullosa anglica* (* †), xvii. 425.
 — sensory zone of (*), xvi. 429.
Roridula, nutrition and pollination (*), xvii. 151.
 ROSE, J. N., and HEMSLEY, W. B.—Diagnoses specierum Generis *Juliania*, Schlecht., *Americae tropicae*, xvii. 443.
 ROWLAND, S., and MACFADYEN, A.—On the Suspension of Life at Low Temperatures, xvi. 589.
Ruscus, irregular endodermis in root (*), xiv. 157.
 Rusts of the Bromes, xvi. 238.
Ryparobius ascophanoides, description (*), xv. 327.
 — *monascus*, description (*), xv. 326.

S.

- Saccharomyces*, alcoholic enzymes, xi. 555; xii. 491; budding (*), xii. 530; glycogen vacuoles (*), xii. 527; nuclear apparatus (*), xii. 516; spore-formation (*), xii. 532; structure (*), xii. 515, 567; vacuole, origin (*), xii. 526.
 — *anomalus*, a fragrant *Mycoderma* yeast (*), xiv. 215; culture (*), xiv. 217; fermentation, xiv. 229; germination, xiv. 225; morphology, xiv. 216; physiology, xiv. 226; relationship with *Endomyces decipiens*, xiv. 237; spores, xiv. 224.
 — *Cerevisiae*, autolysis, xviii. 294; peptonolysis, xviii. 299; peptonization, xviii. 301; protease, xix. 178; proteolytic action, xvi. 13.
 — sexual spore-formation, xv. 759.
Saccobolus quadrisporus, *n. sp.*, description (*), xv. 329.
 ‘Sadd,’ clearing the, xvii. 449; grasses of the, xvii. 446; of the Upper Nile, xvi. 495; xvii. 446; in America, xvi. 572; *v.* ‘Sudd,’ xvii. 448.
Sagittaria variabilis, mechanism of stomata (*), xvi. 338.
Salix, change in sex of, xii. 557.
 SALMON, E. S.—A Monograph of the Genus *Streptopogon* (Plates VIII–X), xvii. 107.
 — Cultural Experiments with ‘Biologic Forms’ of the Erysiphaceae, xviii. 320.
 — Further Cultural Experiments with ‘Biologic Forms’ of the Erysiphaceae, xix. 125.

- SALMON, E. S.—On Endophytic Adaptation shown by *Erysiphe graminis* under Cultural Conditions, xix. 444.
- On *Oidiopsis taurica*, an Endophytic Member of the Erysiphaceae (Plates XIII and XIV), xx. 187.
- On the Genus *Fissidens* (Plates V-VII), xiii. 103.
- and MASSEE, G.—Researches on Coprophilous Fungi (Plates XVII and XVIII), xv. 313.
- — *Id.* II (Plates IV and V), xvi. 57.
- Sanguinaria canadensis*, embryology (*), xix. 452.
- Saprogneiae, fertilization, xiii. 447; (*), xviii. 541; structure and division of the nucleus (*), xviii. 552.
- Saprophytism of *Pythium ultimum*, xv. 286.
- symbiotic (*), xiii. 1.
- SARGANT, E.—A New Type of Transition from Stem to Root in the Vascular System of Seedlings (Plate XXXIII), xiv. 633.
- A Theory of the Origin of Monocotyledons, founded on the Structure of their Seedlings (Plates I-VII and ten text-figures), xvii. 1.
- Recent Work on the Results of Fertilization in Angiosperms, xiv. 689.
- The Formation of the Sexual Nuclei in *Lilium Martagon*, II. Spermatogenesis (Plates X and XI), xi. 187.
- and ROBERTSON, A.—The Anatomy of the Scutellum in *Zea Mais* (Plate V), xix. 115.
- and SCOTT, R.—On the Development of *Arum maculatum* from the Seed (Plate XXV), xii. 399.
- Sarracenia purpurea*, mycorrhiza, xiii. 30.
- Saururaceae, seedling-structure (*), xx. 171.
- Saururus cernuus*, seedling-structure (*), xx. 172.
- Schizaeaceae, anatomy (*), xv. 359; cavity parenchyma, xv. 394; comparison of structure of species of (*), xv. 411; fibres (*), xv. 400; hairs, xv. 403; sieve-tubes (*), xv. 395; siliceous deposits, xv. 402; stele, xv. 403; stem-structure, xiii. 624.
- Schizaea, habit, xv. 373; petiole-structure and node (*), xv. 377; root-structure, xv. 378; stem-structure (*), xv. 373.
- *bifida*, anatomy, xvii. 523; prothallus, xvi. 165.
- *dichotoma*, endodermal pockets (*), xvii. 515; endodermis, internal (*), xvii. 516; ontogeny, xvii. 527; rhizome, branching of (*), xvii. 512; tracheides, internal (*), xvii. 517.
- — structure of a small form of (*), xvii. 526.
- *malaccana*, description (*), xvii. 494; leaf and leaf-trace (*), xvii. 502; root-structure, xvii. 504; sporangia (*), xvii. 494; stelar anatomy, phylogenetic significance (*), xvii. 498; stem anatomy (*), xvii. 495; tissue-differentiation behind apex, xvii. 508; tissue systems at stem-apex, development (*), xvii. 504.
- Schizaea pusilla*, anatomy of young plant (*), xvii. 523.
- Sciadotypus verticillata*, vascular system of female flowers (*), xiii. 540.
- Scilla festalis*, seedling-structure, xvii. 20.
- *peruviana*, seedling-structure, xvii. 21.
- *sibirica*, seedling-structure (*), xvii. 20.
- Scitamineae, seedling-structure, xvii. 50.
- Scolopendrium vulgare* var. *ramulosissimum*, development of sporangia on prothalli, xi. 161.
- SCOTT, D. H.—On a Primitive Type of Structure in Calamites (†), xv. 773.
- On *Cheirostrobos*, a New Type of Fossil Cone from the Calciferous Sandstone (†), xi. 168.
- On *Medullosa anglica*: a new Representative of the Cycadofilices (†), xiii. 183.
- On *Spencerites*, a new Genus of Lycopodiaceous Cones from the Coal Measures (†), xi. 590.
- On the Occurrence of a Seed-like Fructification in Certain Palaeozoic Lycopods (†), xiv. 713.
- On the Occurrence of *Sigillariopsis* in the Lower Coal Measures of Britain (†), xviii. 519.
- On two new Instances of Spinous Roots (Plates XV and XVI), xi. 327.
- On the Primary Wood of certain *Araucarioxylons* (†), xiii. 615.
- On the Structure and Affinities of Fossil Plants from the Palaeozoic Rocks, V. On a new Type of Sphenophyllaceous Cone (*Sphenophyllum fertile*) from the Lower Coal Measures (†), xix. 168.
- The Anatomical Characters presented by the Peduncle of Cycadaceae (Plates XX and XXI), xi. 399.
- The Structure of *Lepidodendron obovatum* (†), xx. 317.
- and HILL, T. G.—The Structure of *Isoetes Hystrix* (Plates XXIII and XXIV and two text-figures), xiv. 413.
- and MASLEN, A. J.—Note on the Structure of *Trigonocarpon olivaeforme* (†), xx. 109.
- and OLIVER, F. W.—On *Lagenostoma Lomaxi*, the Seed of *Lyginodendron* (†), xvii. 625.
- — On the Structure of the Palaeozoic Seed *Lagenostoma Lomaxi*, with a Statement of the Evidence upon which it is referred to *Lyginodendron* (†), xviii. 321.
- SCOTT, R.—On the Movements of the Flowers of *Sparmannia africana* and their Demonstration by means of the Kinetograph (Plates XXXVII-XXXIX), xvii. 761.

SCOTT, R., and SARGANT, E. — On the Development of *Arum maculatum* from the Seed (Plate XXV), xii. 399.

Scrophulariaceae, function and structure of leaves of some (*), xi. 385.

Scutellum of *Zea Mais*, enzyme-secreting cells (*), xviii. 273; epithelium and glands (*), xix. 117; vascular system (*), xix. 119.

Seasonal dimorphism of *Cutleria* (*), xii. 92.

Secondary thickening in *Angiosteris evecta*, xvi. 173, 388; in *Ophioglosseae* (*), xiii. 386.

— xylem in *Psilotum* (*), xviii. 505.

Seed-leaf in *Monocotyledons*, homology of, xvii. 70.

Seed-like fructification in *Palaeozoic Lycopods* (†), xiv. 713.

Seedling of *Arum maculatum*, course of bundles in stem (*), xii. 406; morphology, external (*), xii. 399; morphology, internal (*), xii. 404; transition from stem to root (*), xii. 408.

Seedling-morphology of *Anhalonium* (*), xii. 462; of *Arum maculatum* (*), xii. 399; of *Astrophytum* (*), xii. 457; of *Cactaceae* (*), xii. 423; of *Cephalocereus* (*), xii. 450; of *Cereus* (*), xii. 443; of *Cyclamen*, xx. 423; of *Echinocactus* (*), xii. 454; of *Echinocereus* (*), xii. 450; of *Echinopsis* (*), xii. 451; of *Epiphyllum*, xii. 448; of geophilous species of *Peperomia* (*), xx. 395; of *Hevea brasiliensis*, xviii. 220; of *Leuchtenbergia* (*), xii. 459; of *Mamillaria* (*), xii. 460; of *Melocactus*, xii. 459; of *Opuntia* (*), xii. 439; of *Pelecyphora*, xii. 464; of *Peperomia inacandra* (*), xx. 412; of *Peperomia mexicana* (*), xx. 412; of *Peperomia parvifolia* (*), xx. 405; of *Peperomia pedicellata* (*), xx. 409; of *Peperomia peruviana* (*), xx. 401; of *Peperomia umbilicata* (*), xx. 408; of *Pereskia* (*), xii. 438; of *Pfeiffera*, xii. 453; of *Phyllocactus* (*), xii. 446; of *Pilocereus* (*), xii. 449; of *Proserpinaca palustris*, xviii. 581; of *Rhipsalis* (*), xii. 452.

Seedling-structure of *Angiosperms*: *Acanthophoenix crinita*, xvii. 48; *Agave Rovelliana*, xvii. 42; *Agave spicata*, xvii. 41; *Aizoaceae*, xx. 474; *Albuca Nelsoni* (*), xvii. 9, 23; *Allionia albidia*, xx. 473; *Allium angulosum*, xvii. 32; *Allium ascalonicum*, xvii. 31; *Allium Cepa*, xvii. 31; *Allium neapolitanum* (*), xvii. 31; *Allium Porrum*, xvii. 31; *Allium serufschanicum*, xvii. 31; *Aloë Buchanii*, xvii. 38; *Alstroemeria*, xvii. 41; *Amaranthaceae*, xx. 474; *Amaranthus hypochondriacus*, xx. 474; *Amaryllidaceae*, xvii. 40; *Amomum angustifolium*, xvii. 50; *Anemarrhena asphodeloides* (*), xiv. 633, xvii. 26; *Anemone coronaria*, xvii. 56; *Anthericum Liliago* (*), xvii. 29; *Anthurium Bakerianum*, xvii. 2, 40, 45; *Areca sapida*, xvii.

48; *Arisaema speciosum*, xvii. 45; *Aroidae*, xvii. 44; *Arthropodium cirrhatum* (*), xvii. 30; *Arum maculatum*, xvii. 44; *Asparagus decumbens*, xvii. 37; *Asparagus officinalis*, xvii. 37; *Asphodeline liburnica* (*), xvii. 26; *Asphodelus albus*, xvii. 27; *Asphodelus cerasifer*, xvii. 27; *Asphodelus fistulosus*, xvii. 27; *Bloomeria aurea*, xvii. 32; *Bravoa geminiflora*, xvii. 41; *Brodiaea lactea*, xvii. 32; *Bulbine annua*, xvii. 9, 28; *Canna*, xvii. 50; *Caryophyllaceae*, xx. 474; *Chamaerops Fortunei*, xvii. 49; *Chamaerops humilis*, xvii. 49; *Chenopodiaceae*, xx. 474; *Chlorogalum pomeridianum* (*), xvii. 28; *Cordyline australis*, xvii. 34; *Delphinium nudicaule* (*), xvii. 54; *Delphinium Requierii* (*), xvii. 53; *Desmoncus minor*, xvii. 48; *Dipcadi serotinum*, xvii. 12; *Doryanthes excelsa*, xvii. 42; *Doryanthes Palmeri*, xvii. 42; *Dracaena Draco*, xvii. 36; *Elettaria cardamomum*, xvii. 50; *Eranthis hiemalis* (*), xvii. 5, 56; *Eremurus spectabilis*, xvii. 27; *Eremurus turkestanicus*, xvii. 27; *Erythronium* (*), xx. 437; *Erythronium Hartwegi* (*), xvii. 25; *Eucomis nana* (*), xvii. 18; *Euterpe edulis*, xvii. 50; *Freesia*, xvii. 44; *Fritillaria alpina*, xvii. 25; *Fritillaria imperialis* (*), xvii. 23; *Galtonia candicans*, xvii. 12; *Geonoma oxycarpa*, xvii. 49; *Geophilous species of Peperomia* (*), xx. 395; *Houttuynia cordata* (*), xx. 171; *Hyacinthus orientalis*, xvii. 20; *Hyacinthus romanus* (*), xvii. 14; *Iridaceae*, xvii. 43; *Iris Boissieri*, xvii. 43; *Iris sibirica*, xvii. 43; *Lachenalia Nelsoni*, xvii. 21; *Liliaceae* (*), xvii. 8; *Lilium croceum*, xvii. 25; *Lilium Henryi*, xvii. 25; *Milla biflora*, xvii. 32; *Monocotyledons* (*), xvii. 8; *Musa Livingstonia*, xvii. 50; *Muscari armenaicum* (*), xvii. 16; *Muscari atlanticum* (*), xvii. 15; *Muscari comosum*, xvii. 20; *Muscari neglectum* (*), xvii. 18; *Nigella damascena*, xvii. 53; *Nyctaginaceae*, xvii. 473; *Ornithogalum exscapum*, xvii. 21; *Ornithogalum sulphureum*, xvii. 20; *Palmae*, xvii. 47; *Peperomia amplexifolia* (*), xx. 167; *Peperomia eburnea* (*), xx. 164; *Peperomia maculosa*, xx. 170; *Peperomia parvifolia* (*), xx. 404; *Peperomia pedicellata* (*), xx. 410; *Peperomia pellucida* (*), xx. 165; *Peperomia peruviana* (*), xx. 404, 413; *Peperomia polystachya*, xx. 166; *Peperomia tithymaloides* (*), xx. 169; *Phoenix dactylifera*, xvii. 49; *Piperaceae* (*), xx. 162; *Piper cornifolium* (*), xx. 162; *Piper geniculatum*, xx. 164; *Portulacaceae*, xx. 474; *Primula* (*), xi. 317; *Ranunculaceae* (*), xvii. 52; *Ranunculus Ficaria* (*), xvii. 63; *Scilla festalis*, xvii. 20; *Scilla peruviana*, xvii. 21; *Scilla sibirica* (*), xvii. 20; *Saururaceae* (*), xx. 171; *Saururus cer-*

- nuus, xx. 172; Scitamineae, xvii. 50; *Thrinax excelsa*, xvii. 48; *Tricyrtis hirta*, xvii. 33; *Trillium grandiflorum*, xvii. 34; *Tulip* (*), xx. 434; *Tulipa praecox* (*), xvii. 25; *Veratrum nigrum*, xvii. 33; *Yucca aloifolia*, xvii. 35, 39; *Yucca arborescens*, xvii. 35; *Yucca gloriosa*, xvii. 36, 39; *Zygadenus elegans* (*), xvii. 32.
- Seedling-structure of Ferns: *Alsophila excelsa* (*), xvii. 710; *Anemia* (*), xv. 388; *Aspidium falcatum* (*), xix. 397; *Aspidium Tsus-Simense* (*), xix. 378; *Asplenium bulbiferum* (*), xix. 376; *Asplenium nidus* (*), xix. 395; *Blechnum brasiliense*, xix. 376; *Dicksonia antarctica*, xix. 399; *Doodia aspera* (*), xix. 366; *Gleichenia*, xv. 733; *Lomaria gibba* (*), xix. 370; *Lomaria spicant* (*), xix. 373; *Lygodium* (*), xv. 371; *Marattia fraxinea* (*), xvi. 376; *Matonia pectinata* (*), xix. 482; *Nephrodium hirtipes* (*), xix. 393; *Nephrodium setigerum* (*), xix. 392; *Nephrodium spinulosum* var. *dilatatum*, xix. 369; *Nephrolepis cordifolia* (*), xix. 389; *Nothochlaena sinuata* (*), xix. 385; *Polypodium aureum* (*), xix. 378; *Pteris palmata*, xix. 397; *Schizaea pusilla* (*), xvii. 523; *Todea Fraseri*, xix. 398.
- Seedling-structure of Gymnosperms: *Abies firma*, xx. 472; *Actinostrobus*, xx. 472; *Bowenia spectabilis* (*), xii. 475; *Callitris*, xx. 472; *Cedrus Deodara*, xx. 472; *Cephalotaxus pedunculata*, xx. 471; *Cupressus Lawsoniana*, xx. 472; *Cupressus pisifera*, xx. 472; *Ginkgo biloba* (*), xiv. 131; xvii. 789; *Larix*, xx. 472; *Libocedrus decurrens*, xx. 472; *Pinus Gerardiana*, xx. 473; *Pinus montana* var. *gallica*, xx. 473; *Pinus Murrayana* var. *Sargentii*, xx. 472; *Pinus sylvestris*, xx. 473; *Pinus Thunbergii*, xx. 473; *Taxus baccata*, xx. 471; *Taxus cuspidata*, xx. 471; *Thuja orientalis*, xx. 472; *Tsuga diversifolia*, xx. 473.
- 'Seedlings' of certain Leptosporangiate Ferns, arrangement of the vascular strands (*), xix. 365.
- of Mangrove, dispersal (*), xvii. 267.
- Seeds, dispersal of by wind, xix. 351; proteases of, xx. 114; proteolytic action of, xvi. 10; xvii. 241; resistance to high temperatures, xvi. 590.
- Seed-types, ordinary Palaeozoic (* †), xvii. 453.
- Seed vitality, estimation of by an electrical method, xv. 427.
- Selaginella, anatomy of leaf (*), xi. 123; anatomy of root (*), xvi. 449; female gametophyte (*), xvi. 422; male gametophyte, xvi. 426; sporangia, imperfect, xv. 252; spore-membranes (*), xvi. 421.
- *albonitens*, leaf-structure, xi. 141.
- *apus*, leaf-structure, xi. 141.
- *atroviridis*, root-structure (*), xvi. 456.
- *Selaginella Bakeriana*, leaf-structure, xi. 143.
- *bisulcata*, leaf-structure, xi. 137.
- *Braunii*, leaf-structure, xi. 142.
- *canaliculata*, leaf-structure (*), xi. 139; root-structure (*), xvi. 460.
- *caulescens*, leaf-structure, xi. 132; root-structure (*), xvi. 458.
- *chilensis*, leaf-structure, xi. 140.
- *concinna*, leaf-structure (*), xi. 142.
- *convoluta*, leaf-structure, xi. 136.
- *cuspidata*, leaf-structure, xi. 135.
- *delicatissima*, leaf-structure (*), xi. 144.
- *denticulata*, leaf-structure (*), xi. 136.
- *Douglassii*, leaf-structure (*), xi. 138.
- *erythropus*, leaf-structure, xi. 132.
- *flabellata*, leaf-structure, xi. 136.
- *Galeotiei*, leaf-structure (*), xi. 143; root-structure (*), xvi. 459.
- *gracilis*, leaf-structure, xi. 140.
- *grandis*, leaf-structure, xi. 131; root-structure (*), xvi. 458.
- *Griffithii*, leaf-structure, xi. 132.
- *haematodes*, leaf-structure, xi. 131.
- *helvetica*, leaf-structure (*), xi. 135; root-structure (*), xvi. 459, 461.
- *inaequalifolia*, leaf-structure, xi. 138.
- *involvens*, leaf-structure, xi. 145; root-structure (*), xvi. 458.
- *Karsteniana*, leaf-structure, xi. 133.
- *Kraussiana*, leaf-structure, xi. 144; root-structure (*), xvi. 451, 460.
- *laevigata* var. *Lyallii*, leaf-structure (*), xi. 147.
- *lepidophylla*, leaf-structure, xi. 145.
- *Lobbii*, leaf-structure, xi. 140; root-structure (*), xvi. 461.
- *Lyallii*, root-structure (*), xvi. 454.
- *Martensii*, leaf-structure (*), xi. 130.
- *Mettenii*, leaf-structure, xi. 139.
- *molliceps*, leaf-structure, xi. 141; root-structure (*), xvi. 458.
- *oregana*, leaf-structure, xi. 147; root-structure (*), xvi. 459.
- *patula*, leaf-structure (*), xi. 136.
- *pilifera*, leaf-structure, xi. 146.
- *plumosa*, leaf-structure (*), xi. 138.
- *Pouleri*, leaf-structure, xi. 145.
- *producta*, leaf-structure (*), xi. 137.
- *rubella*, leaf-structure, xi. 145.
- *rupestris*, leaf-structure (*), xi. 147.
- *serpens*, leaf-structure (*), xi. 135.
- *spinosa*, leaf-structure (*), xi. 146.
- *stenophylla*, leaf-structure, xi. 134.
- *suberosa*, leaf-structure (*), xi. 133.
- *sulcata*, leaf-structure, xi. 144.
- *uncinata*, leaf-structure (*), xi. 137.
- *Victoriae*, leaf-structure, xi. 140.
- *viridangua*, leaf-structure, xi. 140.
- *viticulosa*, leaf-structure (*), xi. 134.
- *Vogelii*, leaf-structure, xi. 131; root-structure (*), xvi. 454.
- *Wallichii*, leaf-structure (*), xi. 139; root-structure (*), xvi. 461.

- Selaginella Wildenowii, leaf-structure (*), xi. 139; root-structure (*), xvi. 461.
 Sensitive region, localization of geotropic (*), xiii. 567.
 Sensory zone of roots (*), xvi. 429.
 Sepadon niveum, *n. sp.*, description (*), xvi. 80.
 Sequoia sempervirens, archeogonia (*), xviii. 14; embryo (*), xviii. 20; female gametophyte (*), xviii. 9; fertilization (*), xviii. 17; male gametophyte (*), xviii. 5.
 SEWARD, A. C.—A Contribution to our Knowledge of Lyginodendron (Plates V and VI) (†), xi. 65.
 — Anatomy of Lepidodendron aculeatum (Plate XXVI and three text-figures) (†), xx. 371.
 — A New Genus of Palaeozoic Plants (†), xiii. 612.
 — The Jurassic Flora of Britain (†), xiii. 610.
 — The Structure and Affinities of Matonia pectinata, xiii. 319.
 — and GOWAN, J.—The Maidenhair Tree (*Ginkgo biloba*) (Plates VIII–X), xiv. 109.
 Sex, change in, of Willows, xii. 557.
 Sexual cells in *Dictyota dichotoma*, periodicity of (*), xix. 531.
 — organs of *Pythium ultimum* (*), xv. 278, 281, 289.
 Sexuality of Ascomycetes, xiii. 581; Basidiomycetes, xiii. 585; *Cutleria*, xii. 102; *Melampsora Rostrupi* (*), xx. 41; *Phycomycetes*, xiii. 576; *Puccinia Adoxae* (*), xx. 43; *Puccinia Malvacearum* (*), xx. 42; *Puccinia Poarum* (*), xx. 40; *Saccharomycetes*, xv. 759; *Uredineae*, xiii. 585; (*), xx. 35; *Uromyces Ficariae* (*), xx. 43; *Uromyces Poae* (*), xx. 37; *Uromyces Scillarum* (*), xx. 43; *Ustilagineae*, xiii. 584.
 — of the Fungi, xiii. 575.
 SHAW, W. R.—The Fertilization of *Onoclea* (Plate XIX), xii. 261.
 Shoots and roots, correlation of growth in, xv. 615.
 SHOVE, R. F.—On the Structure of the Stem of *Angiopteris evecta* (Plates XXVIII and XXIX), xiv. 497.
 Sieve-plate of *Pinus*, development (*), xv. 588, 594.
 Sieve-tubes of Angiosperms, histology, xvii. 265.
 — of *Pinus*, albuminous cells (*), xv. 600; callus, origin (*), xv. 597; callus rods, formation (*), xv. 590; callus, value, xv. 605; connecting-threads, function, xv. 603; histology (*), xv. 575; sieve-plate, development (*), xv. 588, 594; slime-strings, function, xv. 603.
 — of *Schizaeaceae* (*), xv. 395.
 Sigillaria, stem-structure of a ribbed (†), xiii. 607.
 — elongata, stem-structure (†), xiii. 608.
 Sigillariopsis, occurrence of in Lower Coal Measures of Britain (†), xviii. 519.
 — sulcata, structure (†), xviii. 519.
 Siliceous deposits in *Schizaeaceae*, xv. 402.
 Size of leaves, influence of correlation upon (*), xx. 79.
 Smut in Barley, method of obtaining, xi. 333; xii. 566.
 SNOW, J. W.—*Pseudo-Pleurococcus, n. gen.* (Plate XI), xiii. 189.
 Sodium bromide, effect of on carbon-assimilation in *Ulva latissima*, xv. 63.
 — chloride, effect of on carbon-assimilation in *Ulva latissima*, xv. 53.
 — nitrate, effect of on carbon-assimilation of marine Algae, xv. 672.
 — sulphate, effect of on carbon-assimilation in *Ulva latissima*, xv. 66.
 Solenostele, definition, xvi. 523.
 Solenosteles, typical (*), xvii. 691; with internal accessory vascular strands (*), xvii. 689.
 Solenostelic Ferns, anatomy (*), xv. 71; xvii. 689; transitional types (*), xvii. 694.
 Sordaria anserina, description (*), xv. 334.
 — appendiculata, description (*), xv. 340.
 — *brevisetata*, description (*), xv. 340.
 — *bombardioides*, description, xvi. 73.
 — *curvicolla*, description, xv. 337.
 — *decipiens*, description, xv. 343.
 — *fimiseda*, description (*), xv. 340.
 — — var. *appendiculata*, description (*), xv. 340.
 — *fumicola*, description, xv. 342.
 — *globosa, n. sp.*, description (*), xv. 334.
 — *hirta*, description (*), xv. 336.
 — *macrospora*, description (*), xv. 339.
 — *minima*, description (*), xv. 335.
 — *minuta*, description, xv. 342.
 — *neglecta*, description (*), xv. 339; xvi. 73.
 — *platyspora*, description, xv. 342.
 — *pleiospora*, description (*), xv. 338.
 — *setosa*, description (*), xv. 336.
 — *stercoraria*, description, xv. 343.
 — *Winteri*, description (*), xv. 340.
 South American species of *Geophilous Peperomias* (*), xx. 400.
Sparmannia africana, movements of flowers, and their demonstration by means of the kinematograph (*), xvii. 761.
Spathicarpa sagittaeifolia, antipodal cells (*), xvii. 680; embryo (*), xvii. 681; embryo-sac (*), xvii. 678; endosperm (*), xvii. 680.
Spathularia, description, xi. 253.
 — *clavata*, description (*), xi. 254.
 — *crispata*, description, xi. 295.
 — *flava*, description (*), xi. 255.
 — *flava*, description (*), xi. 255.
 — *flavida*, description (*), xi. 255.
 — — var. *crispata*, description (*), xi. 255.
 — — var. *plicata*, description (*), xi. 255.
 — *Neesii*, description, xi. 258.

- Spathularia nigripes*, description, xi. 257.
 — *rufa*, description, xi. 257, 258.
 — — *var. badipes*, description, xi. 258.
 — *velutipes*, description (*), xi. 256.
Spathulea, description, xi. 253.
 — *rufa*, description, xi. 258.
Spencerites, a new genus of Lycopodiaceae cone from the Coal Measures (†), xi. 590.
 — *n. gen.*, description (†), xi. 592; xix. 278.
 — *insignis* (†), axis-structure (*), xix. 273; description, xi. 592; xix. 278; sporangia and sporophylls (*), xix. 276.
 — — two new specimens of (* †), xix. 273.
 — *majusculus, n. sp.*, description (†), xi. 593.
Spermatia, nature of (*), xviii. 346.
Spermatogenesis in *Fossombronina longiseta* (*), xx. 94; *Lilium Martagon* (*), xi. 187; *Nemalion multifidum* (*), xviii. 615.
Spermatozoa of Ferns, chemotaxis, xiv. 543; physiology, xiv. 543; starch in vesicle of, xiv. 579; swarm period, length in, xiv. 575; withdrawal of water from, xiv. 572.
Spermatozoid of *Chara*, development (*), xviii. 245; of *Onoclea* (*), xii. 272.
Spermatozoids of Gymnosperms, xi. 344.
Spermogonia of *Gymnosporangium clavariaeforme* (*), xviii. 336; of *Phragmidium violaceum* (*), xviii. 335.
Sphaeriaceae, descriptions of coprophilous (*), xv. 334; xvi. 71.
Sphaeria bovilla, an immature stage of *Sordaria coprophila*, xv. 343.
 — *stercoraria*, description, xv. 343.
Sphaeroderma fimbriatum, description (*), xv. 351.
 — *Hulseboschii*, description (*), xv. 352.
Sphaeronaemella fimicola, description (*), xvi. 75.
Sphaeropsidaceae, coprophilous, xvi. 75.
Sphaerotheca, fertilization (*), xix. 567.
Sphenophyllaceous cone (*Sphenophyllum* fertile) from Lower Coal Measures, new type of (†), xix. 168.
Sphenophyllum fertile, a new type of *Sphenophyllaceous* cone from the Lower Coal Measures (†), xix. 168.
Spindle-formation in pollen-mother-cells of *Larix*: felt, formation of (*), xvii. 292; pre-radial stages (*), xvii. 289; radial stages (*), xvii. 291; spindle (*), xvii. 295.
Spinous roots of *Dioscorea prehensilis*, morphology and structure (*), xi. 327; xvii. 420.
Spiranthes cernua, mycorrhiza, xiii. 27; root-structure, xiii. 27.
Spirogyra, effect of centrifugal force on cell of (*), xiii. 332.
Sporangia and asci, cell-division in (*), xiii. 467.
 — in *Lycopodium rigidum*, abnormal plurality (*), xvii. 278.
 — of *Petrospongium Berkeleyi*, plurilocular (*), xiii. 461.
Sporangia of Pteridophytes, imperfect: are they vestigial? xv. 225.
 — on Fern prothalli, development, xi. 157, xii. 251.
Sporangial integuments, morphology, xvi. 596.
Spore-development in *Helminthostachys zeylanica* (*), xx. 177.
Spore-distribution of the Uredineae, xix. 11.
Spore-formation in *Botrychium virginianum* (*), xix. 465; *Conjugatae* (*), xii. 29; *Leptosporangiate Ferns* (*), xviii. 445; *Saccharomycetes* (*), xii. 532; xv. 759.
Spore-producing members, studies in the. Part III. *Marattiaceae*, xi. 488; Part IV. *Leptosporangiate Ferns*, xiii. 320; Part V. General comparisons and conclusions, xvii. 618.
Spores of *Bacillus hirtus* (*), xx. 234; development (*), xx. 250; germination (*), xx. 236.
 — of *Ophioglossum*, germination, xx. 321.
 — of *Riccia glauca*, development (*), xx. 275.
Sporocarp and leaf of *Marsilia quadrifolia*, development (*), xii. 119.
Sporodesmium piriforme, description (*), xvi. 85.
Sporodinia, cell-division in the sporangium (*), xiii. 593.
Sporophyll-structure of *Bowenia spectabilis* (*), xii. 219; *Ceratozamia latifolia*, xii. 232; *Ceratozamia mexicana* (*), xii. 232; *Ceratozamia Miqueliana*, xii. 233; *Cycas circinalis* (*), xii. 215; *Cycas revoluta* (*), xii. 211; *Dioon edule* (*), xii. 221; *Encephalartos villosus* (*), xii. 223; *Macrocramia Fraseri*, xii. 224; *Stangeria paradoxa* (*), xii. 215; *Zamia Fischeri*, xii. 230; *Zamia furfuracea*, xii. 229; *Zamia latifolia*, xii. 225; *Zamia Leiboldii* (*), xii. 230; *Zamia Lindeni* (*), xii. 227; *Zamia Loddigesii* (*), xii. 228; *Zamia muricata*, xii. 227; *Zamia pumila*, xii. 226; *Zamia Skinneri*, xii. 226.
Sporophylls of *Cycadaceae*, vascular structure (*), xii. 203.
Sporormia fimetaria, description (*), xv. 347.
 — *gigantea*, description (*), xv. 346.
 — *longipes, n. sp.*, description (*), xv. 346.
 — *ovina*, description (*), xv. 346.
 — *pulchella*, description (*), xv. 347.
Sporormiella nigropurpurea, description (*), xv. 348.
 SPRAGUE, T. A.—On the *Heteranthus* section of *Cuphea* (*Lythraceae*) (Plate XI), xvii. 159.
 SPRUCE, RICHARD.—Biography (Portrait), xiv. xi.
Spumatoria, n. gen., description, xv. 350.
 — *longicollis, n. sp.*, description (*), xv. 351.
Stangeria paradoxa; microsporangia, development and morphology (*), xi. 421;

- xiv. 296; ovule, development and morphology (*), xiv. 281; peduncle-structure (*), xi. 402; sporophyll-structure (*), xii. 215.
- STAPP, O.—The Statices of the Canaries of the subsection Nobiles, I. xx. 205.
- *Id.* II (with Map), xx. 301.
- Starch-accumulation in marine Algae, xv. 678.
- Starch-formation in *Hydrodictyon utriculatum* (*), xv. 619.
- Starvation phenomena, xix. 39.
- Stative arborea, distribution and history, xx. 206.
- *brassicifolia*, distribution and history, xx. 304.
- *imbricata*, distribution and history, xx. 303.
- *macrophylla*, distribution and history, xx. 301.
- *preauxii*, distribution and history, xx. 308.
- *puberula*, distribution and history, xx. 305.
- Statices of the subsection Nobiles of the Canaries, xx. 205, 301; Key, xx. 309.
- Statoliths in Cucurbitaceae, distribution, xviii. 653.
- Stelar anatomy of *Schizaea malaccana*, phylogenetic significance (*), xvii. 498.
- theory, xi. 307; xiv. 481; xv. 71, 403, 739, 779; xvi. 393, 547; xvii. 498, 512, 529, 532, 736; xix. 400, 508.
- Stele of Bryophyta, xv. 33; *Ceratopteris thalictroides* (*), xvi. 103; *Equisetum*, xv. 774; *Helminthostachys zeylanica* (*), xvi. 42; *Lindsaya* (*), xvi. 157; *Marattiaceae* (*), xvi. 376; *Primula* (*), xi. 307; *Pteridophyta*, nature and origin, xv. 33.
- Stem, relation of to root in *Calamites* (* †), xix. 61.
- Stephanospermum*, morphology (* †), xvii. 453.
- STEVENS, W. C.—Spore Formation in *Botrychium virginianum* (Plates XXVIII–XXX), xix. 465.
- Stigmatic rootlets, vascular branches (* †), xvi. 559; vascular supply (*), xviii. 180.
- Stimulation, position of maximum geotropic, xix. 569; reaction of leaves to traumatic (*), xv. 533.
- Stomata, mechanism of (*), xvi. 327.
- STOPEs, M. C.—On the Double Nature of the Cycadean Integument, xix. 561.
- The 'Epidermoidal' Layer of *Calamite* Roots (three text-figures) (†), xvii. 792.
- Streaming of protoplasm, effect of carbon dioxide on, xix. 525; effect of hydrogen on, xix. 523.
- Strength of cell-walls, tensile, xi. 585.
- Streptopogon*, monograph of genus (*), xvii. 107.
- description, xvii. 113.
- Streptopogon bolivianus*, description (*), xvii. 115.
- (*Calymperella Schenckii*, description (*), xvii. 125.
- *Calymperes*, description (*), xvii. 125.
- *calymperoides*, description (*), xvii. 125.
- *Calymperopsis*, description (*), xvii. 126.
- *cavifolius*, description (*), xvii. 137.
- *claviceps*, description (*), xvii. 141.
- *clavipes*, description (*), xvii. 141.
- *erythrodonus*, description (*), xvii. 114.
- — var. *intermedius*, n. var., description, xvii. 116.
- — var. *Rutenbergii*, description, xvii. 116.
- *erythrodonus*, description (*), xvii. 141.
- *Hampeanus*, description (*), xvii. 126.
- *latifolius*, description (*), xvii. 132.
- *Lindigii*, description (*), xvii. 132.
- *Massei*, description (*), xvii. 142.
- *rigidus*, description (*), xvii. 125.
- *setiferus*, description (*), xvii. 132.
- Strobilanthes flaccidifolius*, localization of indigo-producing substance, xix. 307.
- STURCH, H. H.—*Harveyella mirabilis* (Plates III and IV), xiii. 83.
- Stylophorum cambricum*, description, xx. 343.
- *crassifolium*, description (*), xx. 345.
- *diphyllum*, embryology (*), xix. 454.
- *heterophyllum*, description (*), xx. 344.
- *nepalense*, description, xx. 347, 358, 359.
- *paniculatum*, description, xx. 358, 359.
- *simplicifolium*, description, xx. 354.
- Stysanus fimetarius*, description (*), xvi. 86.
- Sudd v. Sadd, xvii. 448.
- Sugar-cane, diseases of, xiv. 611; (*), xv. 683; (*), xvii. 373.
- , on *Plodia cacaoicola*, a Fungus parasitic on (*), xv. 683.
- *Trichosphaeria Sacchari*, causing rind fungus disease of, xiv. 617.
- Sulphates, effect of on carbon-assimilation in *Ulva latissima*, xv. 63.
- Sunlight and of cold on aquatic plants, action of, xii. 363.
- Susceptibility and immunity, xix. 20.
- Susceptible and immune varieties, and their hybrids, xix. 37.
- Swamp vegetation of Lower Bengal, xvi. 509.
- Symbionts, identity of fungal, xiii. 3.
- Symbiosis, xiii. 549; in prothallus of *Lycopodium clavatum* (*), xiii. 291. See also Mycorrhiza.
- Symbiotic saprophytism (*), xiii. 1.
- Synecephalis intermedia*, description (*), xvi. 77.
- Synchitrium*, cell-division in sporangium (*), xiii. 481.
- Syndesmon thalictroides*, embryology, xix. 456.

T.

- TANSLEY, A. G., and CHICK, E.—Notes on the Conducting Tissue-System in Bryophyta (Plates I and II), xv. 1.
 — On the Structure of *Schizaea malaccana* (Plates XXV and XXVI and one text-figure), xvii. 493.
 — and LULHAM, R. B. J.—A Study of the Vascular System of *Matonia pectinata* (Plates XXXI-XXXIII and five text-figures), xix. 475.
 — On a new Type of Fern-stele, and its probable Phylogenetic Relations (ten text-figures), xvi. 157.
 Taonia, antherozoids (*), xi. 545.
 Taxaeae, vascular system of female flower (*), xiii. 540.
 Taxodineae, vascular system of female flower (*), xiii. 540.
Taxus baccata, seedling-structure, xx. 471; vascular system of female flowers (*), xiii. 540.
 — *cuspidata*, seedling-structure, xx. 471.
 Telangium affine (* †), xviii. 164.
 — *Scotti*, a new species of *Telangium* (*Calymmatotheca*) showing structure (* †), xviii. 161.
 Teleutospore of *Gymnosporangium clavariaeforme* (*), xviii. 329, 344; of *Phragmidium violaceum* (*), xviii. 327, 343.
 Temnogametaceae, conjugation, &c. (*), xii. 50.
 Temperate Zone, transition of plants of, to the high mountains of Tropical Africa, xviii. 523.
 Temperature, effect of on carbon assimilation, xvi. 591; influence of low, on germinative power of seeds, xiii. 591; of leaves, xvi. 259; relation of, with growth of *Pythium ultimum*, xv. 286; resistance of seeds to high, xvi. 590; suspension of life at low, xvi. 589.
 Terminology in relation to morphology, xvi. 547.
 Tensile strength of cell-walls, xi. 585.
 Tetrasporangium and germinating tetraspore of *Dictyotaceae*, cytology of (*), xviii. 141.
 Thallophytes, alternation of generations, xii. 570.
 Thames, Bacteria of (*), xii. 59, 287; xiii. 197; phytoplankton of, xvi. 576; xvii. 631.
Thelebolus nanus, description (*), xv. 326.
 — *stercoreus*, description (*), xv. 326.
 Thermometric movement of branches in shrubs and trees (*), xviii. 631.
 Thermotropism of *Myxomycete* plasmodia, xi. 182.
 THISELTON-DYER, W. T.—Biographical Sketch of M. J. Berkeley (Portrait), xi. ix.
 — Morphological Notes. I. (Plate XXII), xv. 423.
 THISELTON-DYER, W. T.—*Id.* II and III (Plate XXX), xv. 547.
 — *Id.* IV (Plate XL), xv. 749.
 — *Id.* V and VI. Abnormal Fruits (Plates VII and VIII), xvi. 149.
 — *Id.* VII. *Dischidia rafflesiana* (Plates XIV and XV), xvi. 365.
 — *Id.* VIII. On Polycotyledony (Plates XXIV and XXV and one text-figure), xvi. 553.
 — *Id.* IX. A *Kalanchoe* Hybrid (Plates XXI-XXIII), xvii. 435.
 — *Id.* X. A Proliferous *Pinus* Cone (Plate XL), xvii. 779.
 — *Id.* XI. Protective Adaptations (Plates VII-IX), xx. 123.
 — Note on the Discovery of Mycorrhiza, xi. 175.
 — Note on the Sugar-cane Disease of the West Indies, xiv. 609.
 — On the Influence of the Temperature of Liquid Hydrogen on the Germinative Power of Seeds, xiii. 599.
 THOMAS, A. P. W.—An Alga-like Fern Prothallium, xvi. 165.
 THOMAS, E. N.—Double Fertilization in a Dicotyledon—*Caltha palustris* (Plate XXX), xiv. 527.
 — On the Presence of Vermiform Nuclei in a Dicotyledon, xiv. 318.
 THOMPSON, H. S.—On *Phlomis lunarifolia*, Sibth. et Smith, and some species confused with it, xix. 439.
Thrinax excelsa, seedling-structure, xvii. 48.
Thuja orientalis, seedling-structure, xx. 472.
 TIMBERLAKE, H. G.—Starch-formation in *Hydrodictyon utriculatum* (Plate XXXIV), xv. 619.
 Tissues, morphology of, xvii. 532.
Tmesipteris, imperfect sporangia, xv. 254.
Todea Fraseri, seedling-structure, xix. 398.
Tolypothrix, fungi parasitic on (*), xvii. 649.
Torreya, ovules of (*), xvii. 466.
 TOWNSEND, C. O.—The Correlation of Growth under the Influence of Injuries, xi. 509.
 — *Id.*, xii. 117.
Tradescantia, a disease of (*), xiv. 27; effect of centrifugal force on cells of staminal hairs (*), xiii. 337.
 Transfusion tissue of *Cycadaceae* (*), xii. 211.
 Translocation and carbon-assimilation, static diffusion of gases and liquids in relation to, xiv. 537.
 Transpiration, apparatus for measurement of (*), xv. 558.
 Traumatic reaction of *Brachyphyllum* and living *Araucarineae* (* †), xx. 384.
 — stimulation, reaction of leaves to (*), xv. 533.
Tremella, description, xi. 286.
 — *sipitata*, description (*), xi. 290.

- Trichocladium asperum, description (*), xvi. 85.
- Trichoglossum, description, xi. 240.
- *birsutum*, description (*), xi. 241.
- Trichomanes apiifolium, structure (*), xiv. 478.
- Bancroftii, structure (*), xiv. 477.
- ericoides, structure, xiv. 479.
- heterophyllum, structure, xiv. 478.
- Prieurii, structure (*), xiv. 474.
- pyxidiferum, structure (*), xiv. 479.
- radicans, structure (*), xiv. 471.
- reniforme, structure (*), xiv. 469.
- scandens, structure (*), xiv. 478.
- spicatum, structure, xiv. 477.
- Trichomes, effect of centrifugal force on cells of (*), xiii. 337, 340.
- Trichosphaeria Sacchari, ascigerous stage, xvii. 383; macro- and micro-conidial stage, xvii. 380; Melanconium stage, xvii. 374.
- causing disease of Sugar-cane, xiv. 617; xvii. 374.
- Trichosporium insigne, *n. sp.*, description (*), xvi. 85.
- Trichothecium inaequale, *n. sp.*, description (*), xvi. 84.
- Tricyrtis hirta, seedling-structure, xvii. 33.
- Triglochin maritimum, embryology (*), xiv. 100; embryo-sac (*), xiv. 99; endosperm (*), xiv. 102; flower development (*), xiv. 96; flowering stem structure (*), xiv. 89; leaf-structure (*), xiv. 90; rhizome-structure (*), xiv. 84; root-structure (*), xiv. 93.
- Trigonocarpon olivaeforme, structure (†), xx. 109.
- Trillium grandiflorum, seedling-structure, xvii. 34.
- Tritonia Uvaria, raphides (*), xii. 150.
- Tropical insolation, effects of, xi. 439, 585.
- Tropistic movements of plants, anti-ferment reaction in, xix. 75.
- Trow, A. H.—Observations on the Biology and Cytology of a new variety of *Achlya americana* (Plates VIII–X), xiii. 131.
- Observations on the Biology and Cytology of *Pythium ultimum*, *n. sp.* (Plates XV and XVI), xv. 269.
- On Fertilization in the Saprolegnieae (Plates XXXIV–XXXVI), xviii. 541.
- Tryptophane in plants, xvii. 256.
- in proteolysis, xvi. 1.
- Tsuga canadensis, development of archegonium and fertilization (*), xiv. 583.
- diversifolia, seedling-structure, xx. 473.
- Tuberculariaeae, coprophilous, xvi. 87.
- Tubers of *Dioscorea sativa*, origin, development, and morphological nature of the aerial (*), xv. 491.
- Tulipa praecox, seedling-structure (*), xvii. 25.
- Tulip droppers, morphology and structure (*), xx. 431.
- Tyrosinase, occurrence of in *Polyporus squamosus*, xx. 51.

U.

- Ulvaceae-Chaetophoraceae, evolution and polymorphism, xi. 112.
- Umbelliferae, insects and flowers, xvii. 338.
- Uredineae, aecidium, fertilization in (*), xviii. 349; aecidium - morphology, xviii. 353; alternations of generations (*), xviii. 323; bridging species, xix. 42; conjugate division of nuclei (*), xviii. 345; cytology (*), xviii. 323; Eriksson's Formae speciales, xix. 16; fertilization (*), xviii. 323, 349, 352; germination of uredospores, xix. 12; heteroecism, xix. 9; infection, xix. 28; life-history, xix. 10; nuclear division (*), xviii. 356; nuclear fusion in teleutospore (*), xviii. 349; phylogeny, xix. 44; relationships, xviii. 362; sexuality (*), xiii. 585; xix. 11; xx. 35; specialized parasitism, xix. 14; spermatia, nature of (*), xviii. 346; spore-distribution, xix. 11; starvation phenomena, xix. 39; teleutospores, nuclear fusion in (*), xviii. 349; uredospore, germination, xix. 12; vegetative life, xix. 55.
- Uredospores, germination, xix. 12.
- of *Puccinia dispersa*, germination, xvi. 261.
- Uromyces Ficariae, sexuality (*), xx. 43.
- Poae, sexuality (*), xx. 37.
- Scillarum, sexuality (*), xx. 43.
- Urophlyctis, life-history (*), xi. 87.
- Kriegeriana, life-history and parasitism (*), xi. 89.
- leproides, life-history and parasitism (*), xi. 91.
- pulposa, life-history and parasitism (*), xi. 93.
- Ustilagineae, sexuality, xiii. 584.

V.

- Vacuoles in *Saccharomyces* (*), xii. 526.
- Vacuum, effect of on nuclear division, xix. 527.
- Vallisneria, effect of centrifugal force on cell, xiii. 345.
- Variation in flowers of species of *Primula* (*), xvi. 317.
- Variations of *Calypso bulbosa*, spontaneous, xiii. 25.
- Vascular system of *Matonia pectinata* (*), xix. 475.
- of stem of certain Dicotyledons, nature of, xvi. 599.
- Vaucheria, effect of centrifugal force on cell, xiii. 348.
- Veratrum nigrum, seedling-structure, xvii. 33.
- Verpa, description, xi. 264.
- *ferruginea*, description, xi. 276.
- Verticillium lateritium, description, xvi. 82.
- Vibrissae, description, xi. 259.
- circinans, description (*), xi. 261.
- lutea, description (*), xi. 262.
- *Margarita*, description (*), xi. 260.

- Vibrissea ochroleuca*, description (*), xi. 262.
 — *rimarum*, description, xi. 263.
 — *truncorum*, description (*), xi. 260.
 — — *var. albipes*, description (*), xi. 260.
 — *vermicularis*, description, xi. 263.
Vicia Faba, proteolytic action in germinating seeds of, xvi. 12; xx. 115.
 — proteases of seeds of, xx. 115, 118.
 VINES, S. H.—On Leptomin, xv. 181.
 — Proteolytic Enzymes in Plants, I. xvii. 237.
 — *Id.* II. xvii. 597.
 — The Proteolytic Enzymes of *Nepenthes*, I. xi. 563.
 — *Id.* II. xii. 545.
 — *Id.* III. xv. 563.
 — The Proteases of Plants, I. xviii. 289.
 — *Id.* II. xix. 149.
 — *Id.* III. xix. 171.
 — *Id.* IV. xx. 113.
 — Tryptophane in Proteolysis, xvi. 1.
 Vitality of seeds, estimation of by an electrical method, xv. 427.
Volvocineae, evolution and polymorphism, xi. 103.
- W.
- WAGER, H.—On the Fertilization of *Peronospora parasitica* (Plate XVI), xiv. 263.
 — The Nucleolus and Nuclear Division in the Root-apex of *Phaseolus* (Plate V), xviii. 29.
 — The Nucleus of the Yeast Plant (Plates XXIX and XXX), xii. 499.
 — The Sexuality of the Fungi, xiii. 575.
 WALLACE, W.—On the Stem-structure of *Actinostemma biglandulosa* (Plate XXXIV), xiv. 639.
 WALLER, A. D.—An Attempt to estimate the Vitality of Seeds by an Electrical Method, xv. 427.
 WATSON, W.—Germination of Seeds of *Bertholletia excelsa* (Plates IV and V), xv. 99.
 WEISS, F. E.—A Mycorrhiza from the Lower Coal Measures (Plates XVIII and XIX and one text-figure) (†), xviii. 255.
 — The Vascular Branches of Stigmarian Rootlets (Plate XXVI) (†), xvi. 559.
 — The Vascular Supply of Stigmarian Rootlets (one text-figure) (†), xviii. 180.
 WEST, W., and WEST, G. S.—Observations on the Conjugatae (Plates IV and V), xii. 29.
 WIGGLESWORTH, G.—The Cotyledons of *Ginkgo biloba* and *Cycas revoluta* (one text-figure), xvii. 789.
 — The Papillae in the Epidermoidal Layer of the Calamitean Root (three text-figures) (†), xviii. 645.
 WILD, G., and LOMAX, J.—A new Cardio-carbon-bearing *Strobilus* (†), xiv. 160.
 WILLIAMS, J. LLOYD.—New *Fucus* Hybrids, xiii. 187.
 WILLIAMS, J. LLOYD.—Reproduction in *Dictyota dichotoma*, xii. 559.
 — Studies in the Dictyotaceae, I. The Cytology of the Tetrasporangium and the Germinating Tetraspore (Plates IX and X), xviii. 141.
 — *Id.* II. The Cytology of the Gametophyte Generation (Plates XII-XIV), xviii. 183.
 — *Id.* III. The Periodicity of the Sexual Cells in *Dictyota dichotoma* (six text-figures), xix. 531.
 — The Antherozoids of *Dictyota* and *Taonia* (Plate XXV), xi. 545.
 WILLIS, J. C.—On the Dorsiventrality of the Podostemaceae, with reference to current views on Evolution, xvi. 593.
 — and BURKILL, I. H.—Flowers and Insects in Great Britain. Part II. Observations on the Natural Orders Dipsacaceae, Plumbaginaceae, Compositae, Umbelliferae, and Cornaceae, made in the Clova Mountains, xvii. 313.
 — — *Id.* Part III. Observations on the most Specialized Flowers of the Clova Mountains, xvii. 539.
 Willow, change in sex of, xii. 557.
 Wind, dispersal of seeds by, xix. 351.
 WOLFE, J. J.—Cytological Studies in *Nemalion* (Plates XL and XLI and one text-figure), xviii. 607.
 Wood-destroying Fungus, *Penicillium* as a, xii. 565.
 WORSDELL, W. C.—Observations on the Vascular System of the Female 'Flowers' of *Coniferae* (Plate XXVII), xiii. 527.
 — The Affinities of the Mesozoic Fossil, *Bennettites Gibsonianus* (†), xiv. 717.
 — The Anatomical Structure of *Bowenia spectabilis*, xiv. 159.
 — The Morphology of the 'Flowers' of *Cephalotaxus* (Plate XXXV), xv. 637.
 — The Morphology of Sporangial Integuments, xvi. 596.
 — The Nature of the Vascular System of the Stem in certain Dicotyledonous Orders, xvi. 599.
 — The Structure and Morphology of the 'Ovule.' An Historical Sketch (twenty-seven text-figures), xviii. 57.
 — The Structure and Origin of the Cycadaceae (seventeen text-figures), xx. 129.
 — The Structure of the Female 'Flower' in *Coniferae*. An Historical Study (seven text-figures), xiv. 39.
 — The Vascular Structure of the 'Flowers' of the *Gnetaceae* (one text-figure), xv. 766.
 — The Vascular Structure of the Ovule of *Cephalotaxus*, xiv. 317.
 — The Vascular Structure of the Sporophylls of the Cycadaceae (Plates XVII and XVIII), xii. 203.

Wounded plants, evolution of heat by, xi. 29.
Wounding, effect of previous, on flow of latex, xiv. 204.

Wound reactions of *Brachyphyllum* (* †), xx. 383.

WRIGHT, H.—Foliar periodicity in Ceylon, xvi. 594.

X.

Xylem of woody stems, occurrence of cellulose in (*), xviii. 121.

Y.

YAPP, R. H.—Fruit-dispersal in *Adenostemma viscosum*. A Biological Study (Plate XXIII), xx. 311.

—Two Malayan 'Myrmecophilous' Ferns, *Polypodium (Lecanopteris) carnosum* and *Polypodium sinuosum* (Plates X–XII), xvi. 185.

Yeast, alcoholic enzyme, xi. 555, xii. 491; autolysis, xviii. 294; peptolysis, xviii. 299; peptonization, xviii. 301; protease, nature of, xviii. 314; proteolytic action, xvi. 13.

Yeast-cell, structure, xii. 515, 567.

Yeast-plant, budding (*), xii. 530; glycogen vacuoles (*), xii. 527; nuclear apparatus (*), xii. 516; nucleus (*), xii. 499; spore-formation (*), xii. 532; structure (*), xii. 515; vacuole, origin (*), xii. 526. See also *Saccharomyces*.

Yucca aloifolia, seedling-structure, xvii. 35, 39.

Yucca arborescens, seedling-structure, xvii. 35.

—*gloriosa*, seedling-structure, xvii. 36, 39.

Z.

Zamia Fischeri, structure of sporophyll, xii. 230.

—*furfuracea*, structure of sporophyll, xii. 229.

—*latifolia*, structure of sporophyll, xii. 225.

—*Leiboldii*, structure of sporophyll (*), xii. 230.

—*Lindeni*, structure of sporophyll (*), xii. 227.

—*Loddigesii*, structure of peduncle (*), xi. 411; of sporophyll (*), xii. 228.

—*muricata*, structure of sporophyll, xii. 227.

—*pumila*, structure of sporophyll, xii. 226.

—*Skinneri*, structure of sporophyll, xii. 226.

Zea Mais, embryo, morphology (*), xix. 115; enzyme-secreting cells in seedling (*), xviii. 267; proteases of seeds, xx. 116, 118; scutellum, structure (*), xix. 117.

Zoospore-formation in *Oedogonium*, abnormal, xvi. 481.

—germination in *Aglaonema* (*), xii. 87; in *Oedogonium* (*), xvi. 412.

Zygadenus elegans, seedling-structure (*), xvii. 32.

Zygnemaceae, structure, &c. (*), xii. 37, 40.

Zymogen in glands of *Nepenthes*, xii. 550.

ANNALS OF BOTANY, VOL. XXI.

No. LXXXI, January, 1907, contains the following Papers and Notes:—

- LAWSON, ANSTRUTHER A.—The Gametophytes, Fertilization and Embryo of *Cephalotaxus drupacea*. With Plates I-IV.
- GIBBS, L. S.—Notes on the Development and Structure of the Seed in the Alsinoideae. With Plates V and VI and four Figures in the Text.
- BERGTHEIL, C., AND DAY, D. L.—On the Cause of 'Hardness' in the Seeds of *Indigofera arrecta*. With Plate VII.
- McNICOL, MARY.—The Bulbils and Pro-embryo of *Lamprothamnus alopecuroides*. With Plate VIII.
- HEMSLEY, W. POTTING.—Two new Triuridaceae, with some Remarks on the Genus *Sciaphila*, Blume. With Plates IX and X.
- BROWN, ADRIAN J.—On the Existence of a Semi-permeable Membrane enclosing the Seeds of some of the Gramineae.
- SCOTT, D. H., AND MASLEN, A. J.—The Structure of the Palaeozoic Seeds, *Trigonocarpus Parkinsoni*, Brongniart, and *Trigonocarpus Oliveri*, sp. nov. Part I. With Plates XI-XIV.

NOTES.

- EWART, A. J.—The Delayed Dehiscence of *Callistemon rigida*, R. Br.
- ELLIS, DAVID.—On the Constancy of Cilia-insertion in Bacteriaceae.

No. LXXXII, April, 1907, contains the following Papers and Notes:—

- HILL, A. W.—A Revision of the Geophilous Species of *Peperomia*, with some additional Notes on their Morphology and Seedling Structure. With Plate XV.
- FARMER, J. BRETLAND, AND DIGBY, L.—Studies in Apospory and Apogamy in Ferns. With Plates XVI-XX.
- LANG, W. H.—On the Sporogonium of *Notothylas*. With Plate XXI.
- WIGGLESWORTH, GRACE.—The Young Sporophytes of *Lycopodium complanatum* and *Lycopodium clavatum*. With Plate XXII and four Diagrams in the Text.
- FRITSCH, F. E.—The Subaerial and Freshwater Algal Flora of the Tropics. A Phytogeographical and Ecological Study.
- STOPEs, M. C.—A Note on Wounded Calamites. With Plate XXIII and four Diagrams in the Text.
- LAWSON, A. A.—The Gametophytes and Embryo of the Cupressineae, with special reference to *Libocedrus decurrens*. With Plates XXIV-XXVI.

NOTES.

- OLIVER, F. W.—Note on the Palaeozoic Seeds, *Trigonocarpus* and *Polylophospermum*.
- BEER, RUDOLF.—The Supernumerary Pollen-grains of *Fuchsia*.
- FRASER, H. C. I.—Contributions to the Cytology of *Humaria rutilans*, Fr.

No. LXXXIII, July, 1907, contains the following Papers and Note:—

- MOTTIER, DAVID M.—The Development of the Heterotypic Chromosomes in Pollen Mother-cells. With Plates XXVII and XXVIII.
- FRASER, H. C. I.—On the Sexuality and Development of the Ascocarp in *Lachnea stercorea*, Pers. With Plates XXIX and XXX.
- CLARK, A. M.—Secondary Thickening in *Kendrickia Walkeri*, Hook f. With Plate XXXI.
- HICKLING, GEORGE.—The Anatomy of *Palaeostachya vera*. With Plates XXXII and XXXIII, and four Figures in the Text.
- BAYLISS, JESSIE S.—On the Galvanotropism of Roots. With four Figures in the Text and two Curves.
- PRIESTLY, J. H., AND IRVING, ANNIE A.—The Structure of the Chloroplast considered in Relation to its Function. With two Figures in the Text.
- RIDLEY, H. N.—Branching in Palms. With Plates XXXIV-XXXIX.
- FRITSCH, F. E., AND RICH, FLORENCE—Studies on the Occurrence and Reproduction of British Freshwater Algae in Nature. I. Preliminary Observations on *Spirogyra*. With eleven Figures in the Text.

NOTE.

- SCOTT, DAISY G.—On the Distribution of Chlorophyll in the Young Shoots of Woody Plants.

ANNALS OF BOTANY.

Vol. I, Nos. I-IV, pp. 415, and pp. cix, with eighteen plates and six woodcuts. Sold only as part of a complete set.

Vol. II, Nos. V-VIII, pp. 436, and pp. cxxxviii, with twenty-four plates and twenty-three woodcuts. Sold only as part of a complete set.

Vol. III, Nos. IX-XII, pp. 495, and pp. cxxviii, with twenty-six plates and eight woodcuts. £2 12s. 6d.

Vol. IV, Nos. XIII-XVI, pp. 385, and pp. cxviii, with twenty-two plates and thirteen woodcuts. £2 5s.

Vol. V, Nos. XVII-XX, pp. 526, with twenty-seven plates and four woodcuts. £2 10s.

Vol. VI, Nos. XXI-XXIV, pp. 383, with twenty-four plates and sixteen woodcuts. £2 4s.

Vol. VII, Nos. XXV-XXVIII, pp. 532, with twenty-seven plates and five woodcuts. £2 10s.

Vol. VIII, Nos. XXIX-XXXII, pp. 470, with twenty-four plates and five woodcuts. £2 10s.

Vol. IX, Nos. XXXIII-XXXVI, pp. 668, with twenty-five plates and thirteen woodcuts. £2 15s.

Vol. X, Nos. XXXVII-XL, pp. 661, with twenty-eight plates and three woodcuts. £2 16s.

Vol. XI, Nos. XLI-XLIV, pp. 593, with twenty-five plates and twelve woodcuts. £2 16s.

Vol. XII, Nos. XLV-XLVIII, pp. 594, with thirty plates, a portrait, and a woodcut. £2 16s.

Vol. XIII, Nos. XLIX-LII, pp. 626, with twenty-nine plates, a portrait, and nine woodcuts. £2 16s.

Vol. XIV, Nos. LIII-LVI, pp. 736, with thirty-four plates, two portraits, and fourteen woodcuts. £2 16s.

Vol. XV, Nos. LVII-LX, with forty plates and nine woodcuts. £2 16s.

Vol. XVI, Nos. LXI-LXIV, with twenty-six plates and thirty-one woodcuts; including a Life of Sir WILLIAM HOOKER, with a photogravure portrait. £2 16s.

Vol. XVII, Nos. LXV-LXVIII, with forty plates and thirty-two woodcuts. £2 16s.

Vol. XVIII, Nos. LXIX-LXXII, with plates and woodcuts. £2 16s.

Vol. XIX, Nos. LXXIII-LXXVI, with plates and woodcuts. £2 16s.

Vol. XX, Nos. LXXVII-LXXX, with plates and woodcuts. £2 16s.

Vol. XXI, Nos. LXXXI-LXXXII, with plates and woodcuts. 14s. each.

Index to Vols. I-X (1887-96). Prepared by T. G. Hill, under the direction of the Editors. Royal 8vo, paper covers, to subscribers, 5s.; to non-subscribers, 9s. Morocco back, to subscribers, 6s.; to non-subscribers, 10s. 6d.

REPRINTS FROM THE ANNALS OF BOTANY

On sale by the Publishers.

BAKER, J. G.: A Summary of New Ferns (1874-90): price 5s. net.

BAKER, J. G.: A Synopsis of the Genera and Species of Museae: price 1s. 6d. net.

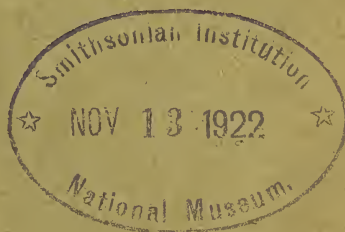
BAKER, J. G.: New Ferns of 1892-3: price 1s. net.

Life of Sir WILLIAM HOOKER, with portrait, 3s. 6d. net.

Price 7s. 6d. net; to non-subscribers, 10s. net.
Cloth, price 10s. net; to non-subscribers, 15s. net.

Index to Vols. XXI-XXX
OF THE
ANNALS OF BOTANY
(1907-1916)

PREPARED BY T. G. HILL, A.R.C.S., F.L.S.
UNDER THE DIRECTION OF THE EDITORS



LONDON
HUMPHREY MILFORD, OXFORD UNIVERSITY PRESS
AMEN CORNER, E.C.

EDINBURGH, GLASGOW, NEW YORK, TORONTO
MELBOURNE, CAPE TOWN, AND BOMBAY

1922

INDEX TO ANNALS OF BOTANY

VOLS. XXI-XXX (1907-1916)

(*) Indicates an illustration.

A.

- Abies*, *spp.*, structure (*), 23, 191.
 — *excelsa*, insect visitors, 22, 648.
Abietineae, anatomy of Jurassic woods (*), 27, 541; seedling-structure (*), 22, 706.
Abronia, *spp.*, seedling-structure (*), 26, 189.
 Absorption of acids by plant tissue (*), 30, 223.
 — water by green parts of halophytes, 25, 496; by succulents, superficial, 26, 420.
Acacia, diameter and length of vessels, 24, 94.
Acanthosicyos horridus, structure (*), 29, 584.
 Accessory food substances (*), 28, 531.
Acer negundo, mitosis in pollen mother-cells (*), 28, 115.
 — *pseudoplatanus*, anatomy of leaf-fall, 25, 74; insect visitors, 22, 618.
Achillea pyrenaica, seedling-structure, 28, 316.
 Acid reaction in plants, 29, 76.
 Acidity of shagnum, its relation to chalk and mineral salts, 29, 65.
 Acids, absorption of (*), 30, 223.
 Acquired characters, inheritance, 25, 741.
Acrophorus, phylogenetic consideration, 26, 304.
Actinostrobos pyramidalis, female cone and ovule (*), 27, 324; female gametophyte (*), 27, 326; fertilization and embryology (*), 27, 335; male gametophyte (*), 27, 332; microsporangium and microspores (*), 27, 324; seedling-structure (*), 22, 703.
 ACTON, E.: *Botrydina vulgaris*, Brébisson, a Primitive Lichen (*), 23, 580.
 — *Coccomyxa subellipsoidea*, a New Member of the Palmellaceae (*), 23, 573.
 — Observations on the Cytology of the *Chroococcaceae* (*), 28, 433.
 — Studies on Nuclear Division in Desmids.
 I. *Hyalotheca dissiliens*, (Suc.) Bréb. (*), 30, 379.
Adenocline, description of genus and species, 27, 402; distribution, 27, 409; review of, 27, 390.
Adenoclineae of South Africa, 27, 371.
 ADKINSON, J.: Some Features of the Anatomy of the *Vitaceae* (*), 27, 133.
Adonis annua, seedling-anatomy, 28, 707.
 Aerating system of *Vicia Faba* (*), 29, 627.
 Aerotropic growths of *Bacillus megatherium*, 26, 949.
Aethionema persicum, seedling-anatomy, 28, 717.
 AFFOURTIT, M. F. A., and LA RIVIÈRE, H. C. C.: On the Ribbing of the Seeds of *Ginkgo* (*), 29, 591.
Agapanthus umbellatus var. *albiflorus*, pollination and respiratory activity, 21, 498.
Agaricaceae, development of carpophore (*), 25, 683.
Agathis australis, morphology of strobili (*), 27, 1.
Ailanthus glandulosa, anatomy of leaf-fall, 25, 95.
Aizoaceae, seedling-structure (*), 26, 187.
Akebia lobata, vascular anatomy, 22, 674.
Alaria esculenta, histology, 22, 320.
Alchemilla, *spp.*, insect visitors, 22, 639.
 Aleurone layer of *Hordeum*, amyloclastic secretory power, 25, 817, 1147.
 — secretions, starch liquefying and saccharifying properties, 25, 1154.
 Algae, occurrence and reproduction of British freshwater (*), 21, 423.
 Algal flora of tropics, subaerial and freshwater, 21, 235; systematic composition of subaerial, 21, 237; systematic composition of submerged aquatic, 21, 243.
 Allelomorphs, pairing of, 23, 543.
Allium Cepa, anaphase (*), 28, 275; metaphase (*), 28, 275; mitosis in gametophyte (*), 28, 277; prophase (*), 28, 271; telophase (*), 28, 276.
Allomyces, a new aquatic fungus (*), 25, 1023; description, 25, 1027.
 — *arbuscula*, *n. sp.*, description (*), 25, 1027.
Alnus, morphology of root tubercles (*), 26, 119.
 — *spp.*, seedling-structure (*), 30, 587.
Alopecurus pratensis, insect visitors, 22, 648.
 Alpine plants, transpiration, 26, 438.
Alpinia calcarata, seedling-anatomy, 29, 215.
Alsinoideae, chalaza (*), 21, 42; embryo sac (*), 21, 31, 44, 46; endosperm (*), 21, 34; germination (*), 21, 42; integuments (*), 21, 40; nucellus (*), 21, 36; perisperm

- (*), 21, 37; polar nuclei (*), 21, 32; post-fertilization development (*), 21, 32; seed coat (*), 21, 46; seed development and structure (*), 21, 25; suspensor (*), 21, 39.
- Alternation of generations, 21, 193.
- Alyssum, *spp.*, seedling-anatomy, 28, 715.
- Amarantaceae, seedling-structure (*), 26, 181.
- Amaranthus, *spp.*, seedling-structure, 26, 181.
- Amerboa muricata, seedling-structure, 28, 320.
- Amelanchier spicata, abnormal flowers (*) 26, 948.
- Amentiferae, seedling-anatomy, (*), 30, 575.
- American Salicales, reduction and reversion in North (*), 26, 165.
- Amomum angustifolium, seedling-anatomy (*), 29, 212.
- Amyelon radicans, lateral roots and mycorrhiza (*), 23, 603.
- Amylase, content of scutellum of *Hordeum*, 25, 1167; content of, in *Tropaeolum*, 25, 1197; influence of embryo on augmentation of, 25, 1175; of ungerminated barley, inactivity of, 25, 1176.
- secretion, influence of carbohydrates on, 25, 1162.
- Amylocarpus, description, 23, 262.
- encephaloides, description (*), 23, 262.
- Amyloclastic secretory capacities of embryo and aleurone layer of *Hordeum*, 25, 799, 1147.
- Anabaena Cycadeae, gonidia formation (*), 25, 376; heterocysts (*), 25, 373; life-history (*), 25, 369; spore formation and germination (*), 25, 375; vegetative division (*), 25, 373; vegetative structure, (*), 25, 370.
- Anacyclus Pyrethrum, seedling-structure, 28, 316.
- Anaesthetics, action of on endosperm, 25, 1150.
- Anastatica hierochuntina, seedling-anatomy, 28, 715.
- Anchusa sempervirens, insect visitors, 22, 612.
- Androgynous receptacles in *Marchantia* (*), 24, 349.
- Anemia phyllitidis, development of sporangia and spores (*), 25, 1059.
- Anemone japonica, vascular anatomy, 22, 657.
- — var. alba, pollination and respiratory activity, 21, 496.
- nemorosa, insect visitors, 22, 615; variation in (*), 30, 525.
- *spp.*, seedling-anatomy (*), 28, 702.
- Angiosperms, consideration of ovule, 23, 633; evolution (*), 22, 489; monophyletic origin, 22, 123; origin of herbaceous type (*), 25, 215; phylogeny (*), 28, 547; reconstruction of a race of primitive (*), 22, 121; seedling-anatomy (*), 22, 161.
- Angiosperms, origin and dispersal of herbaceous (*), 28, 547; anatomical evidence (*), 28, 550; factors in the development of herbs, 28, 593; palaeo-botanical evidence, 28, 549; phyto-geographic evidence, 28, 565; phytological evidence, 28, 562.
- reconstruction of the primitive, 22, 123, 136; cotyledons, 22, 145; embryology, 22, 147, 159; floral structure, 22, 138; phylogenetic schemes, 22, 173; seedling-anatomy (*), 22, 161; stem-anatomy, 22, 141.
- and Gnetales, relationship (*), 22, 489; amphisporangiate condition, 22, 497; female gametophyte, 22, 505; historical, 22, 492; megasporangium, 22, 504; microsporophylls and microsporangia (*), 22, 501; morphology, 22, 496; perianth (*), 22, 498; strobili, 22, 500.
- Annual rings and medullary rays of *Quercus*, evolution (*), 25, 983.
- Anona, *spp.*, seedling-anatomy, 28, 711.
- Anonaceae, vascular anatomy (*), 22, 670.
- Antherozoid, discharge of, in *Fossombronia* and *Haplomitrium* (*), 23, 159.
- Anthocerotaceae, *Megaceros*, a new genus of (*), 21, 469.
- of Java, studies on some (*), 21, 467; 22, 91, 330; affinities, 22, 100.
- Antirrhinum majus, pollination and respiratory activity, 21, 495.
- Orontium, seedling-anatomy, 26, 739.
- Ants and epiphytes, 24, 466.
- and plants, symbiosis (*), 24, 457.
- Aphotometric leaves (*), 23, 471.
- Apogamous types of plants, classification, 21, 191.
- Apogamy and apospory in ferns (*), 21, 161.
- in *Pteris droogmantiana*, 24, 487; in *Trichomanes Kaulfussii* (*), 24, 233.
- Aposporous types of plants, classification, 21, 191.
- Apogamy and apogamy in ferns (*), 21, 161.
- in *Trichomanes Kaulfussii* (*), 24, 233.
- Aquatic plants, leaf characters, 25, 724, 735.
- Aqueous tissue of succulents, 26, 420.
- Aquilegia, *spp.*, seedling-anatomy, 28, 707.
- Arabis caucasica, insect visitors, 22, 604.
- rosea, seedling-anatomy, 28, 717.
- Arable land, weeds of, 25, 155; 26, 95; 27, 141; 30, 162.
- Araucaria Bidwillii, seedling-structure (*), 23, 321.
- brasiliensis, seedling-structure (*), 23, 216.
- Cunninghamii, seedling-structure (*), 23, 212.
- Araucariaceae, seedling-structure (*), 23, 212; structure of wood of Jurassic (*), 27, 535.
- Araucarioxylon from New Zealand, a new (*), 28, 341.

- Araucarioxylon*, wood anatomy (*), 27, 540.
 — Lindleil, description (*), 30, 117.
 — *Novae Zeelandii*, *n. sp.*, comparisons, 28, 347; description (*), 28, 341; diagnosis, 28, 348.
 ARBER, A.: A Note on *Trigonocarpus* (*), 28, 195.
 — On the Structure of the Androecium of *Parnassia* and its bearing on the Affinities of the Genus (*), 27, 491.
 — On the Structure of the Palaeozoic Seed *Mitrospermum compressum* (Will.) (*), 24, 491.
 — The Anatomy of the Stamens in certain Indian Species of *Parnassia* (*), 29, 159.
 — see BEER, R.
 — see SARGANT, E.
 ARBER, E. A. N.: A Revision of the Seed Impressions of the British Coal Measures (*), 28, 81.
 — On a New Pteridosperm possessing *Sphenopteris* Type of Foliage (*), 22, 57.
 — and PARKIN, J.: Studies on the Evolution of the Angiosperms. The Relationship of the Angiosperms to the Gnetales (*), 22, 489.
 — and THOMAS, H. M.: A Note on the Structure of the Cortex of *Sigillaria mamillaris*, Brong., 23, 513.
Archytaea alternifolia, leaf-buds (*), 25, 1015.
Arctium majus, seedling-structure, 28, 319.
Arctotis calendacea, seedling-structure, 28, 319.
Areca Catechu, branching (*), 21, 418.
Arenaria sedoides, insect visitors, 22, 643.
Aristea dichotoma, chorisis (*), 26, 947.
Armillaria mucida, biology (*), 23, 515; description (*), 23, 516; disorganization of tissues of host (*), 23, 529; development of fructification (*), 23, 503; germination (*), 23, 520; inoculations, 23, 526; life-history, 23, 517; parasitism, 23, 528; remedial and protective measures, 23, 531; sporophores (*), 23, 522.
 ARMSTRONG, H. E., and ARMSTRONG, E. F.: The Function of Hormones in regulating Metabolism, 25, 507.
Arsenic, action of compounds of, on growth (*), 28, 288.
Artabotrys odoratissimus, vascular anatomy, 22, 670.
Artemisia, *spp.*, seedling-structure, 28, 317.
Asarum europaeum, mycorrhiza (*), 26, 769.
 Ascent of sap, rate of, in *Eucalyptus* trees, 24, 91; diameter and length of vessels, 24, 94; resistance to flow, 24, 98.
Ascobolus furfuraceus, cytology of ascus (*), 23, 539.
Ascarp, development in *Lachnea creta* (*), 27, 553; of *Ascophanus carneus*, sexuality and development (*), 23, 399; of *Lachnea stercorea*, sexuality and development (*), 21, 349.
Ascomycetes, ascus formation, 22, 43; conjugate nuclei (*), 30, 415; cytology (*), 22, 465; new genus of (*), 23, 335; sexual and asexual fusions, 22, 473; sexuality, 22, 41, 471; spore-formation, 22, 474.
Ascophanus carneus, apothecium development (*), 23, 403; ascogenous hyphae (*), 23, 408; ascus (*), 23, 410; chlamydospores (*), 23, 402; cytology (*), 23, 404; fertilization, 23, 406; germination of spores, 23, 400; mycelium (*), 23, 402.
 Ascus, cytology (*) 22, 469; 23, 537; of *Ascobolus furfuraceus* (*), 23, 539; of *Humaria granulata* (*), 23, 538; of *Lachnea stercorea* (*), 23, 541; pairing of allelomorphs, 23, 543; spore-formation (*), 23, 545.
Asplenium, phylogeny (*), 28, 411.
 Assimilation, effect of chloroform on (*), 25, 1091.
Athyrium Filix foemina vars., apogamy and apospory (*), 21, 163, 167, 171.
Atrichum undulatum, spermatogenesis (*), 25, 433.
Atriplex, *spp.*, seedling-structure, 26, 183.
Atropa Belladonna, seedling-anatomy (*), 26, 734.
Aubretia Antilibani, seedling-anatomy, 28, 717.
Avena sativa, seedling-anatomy (*), 29, 170.
 Axillary strands of *Trichomanes javanicum* vestigial (*), 25, 1037.
Azobacter, conditions influencing fixation of nitrogen and growth of organism, 26, 871.
- B.
- Baccharis halimifolia*, anatomy of leaf-fall, 25, 78.
 BACKMANN, F. M.: A New Type of Spermatogonium and Fertilization in *Collema* (*), 26, 747.
Bacillus megatherium, aerotropic growths, 26, 949.
 — *Tubifex*, *n. sp.*, life-history (*), 26, 133.
 Bacteria of the genus *Hillhousia*, the lime sulphur (*), 27, 83.
 Bacteriaceae, cilia insertion, 21, 137.
 Bacterial disease of potato leaves (*), 26, 133.
 Bacterized peat (*), 28, 531.
 BADEN, M. L.: Observations on the Germination of the Spores of *Coprinus sterquilinus*, Fr. (*), 29, 135.
Baeria coronaria, seedling-structure, 28, 315.
Baieropsis, systematic position (*), 25, 194.
 BAILEY, I. W.: A Cretaceous *Pityoxylon* with Marginal Tracheides (*), 25, 315.
 — The Evolutionary History of the Foliar Ray in the Wood of Dicotyledons: and its Phylogenetic Significance (*), 26, 647.
 — The Relation of the Leaf-trace to the

- Formation of Compound Rays in the Lower Dicotyledons (*), **25**, 225.
- BAKER, S. M.: Note on a New Treatment for Silver-leaf Disease in Fruit Trees, **22**, 172.
- Quantitative Experiments on the Effect of Formaldehyde on Living Plants (*), **27**, 411.
- BALLANTINE, A. J.: A Preliminary Note on the Embryo-Sac of *Protea* *Lepidocarpon*, **23**, 161.
- BALLS, W. L.: Apparent Fallacies of Electrical Response in Cotton Plants (*), **27**, 103.
- Temperature and Growth (*), **22**, 557.
- The Mechanism of Nuclear Division (*), **24**, 653.
- Balsamia, description of species (*), **23**, 252.
- Banana, elephantiasis caused by *Ustilaginoidella oedipigera* (*), **25**, 363.
- BANCROFT, C. K.: Researches on the Life-history of Parasitic Fungi (*), **24**, 359.
- BANCROFT, N.: A Contribution to our Knowledge of *Rachiopteris cylindrica*, Will. (*), **29**, 531.
- Note on Vegetative Reproduction in some Indian *Selaginellas* (*), **28**, 685.
- On the Xylem Elements of the Pteridophyta (*), **25**, 745.
- Barbarea vulgaris*, insect visitors, **22**, 619; seedling-anatomy, **28**, 718.
- Barley, development of grain (*), **26**, 903; influence of copper sulphate and manganese sulphate on growth (*), **24**, 571.
- grain, entry of starch, **26**, 922; nuclear disorganization, **26**, 924; nutritive processes (*), **26**, 903.
- BARRATT, K.: A Note on an Abnormality in the Stem of *Helianthus annuus* (*), **30**, 481.
- The Origin of the Endodermis in the Stem of *Hippuris* (*), **30**, 91.
- BARRETT, J. T.: Development and Sexuality of some Species of *Olpidiopsis*, (*Cornu*) Fischer (*), **26**, 209.
- Bars of *Sanio* in *Coniferales*, distribution (*), **24**, 119.
- BARTLETT, A. W.: Note on the Occurrence of an Abnormal Bisporangiate Strobilus of *Larix europaea*, D.C. (*), **27**, 575.
- Bast, structure of fibres (*), **22**, 265; structure of parenchyma cells (*), **22**, 264.
- BAYLISS, J. S.: On the Galvanotropism of Roots (*), **21**, 387.
- BAYLISS-ELLIOTT, J. S., and GROVE, W. B.: *Roesleria pallida*, Sacc. (*), **30**, 407.
- Beehive fungus, *Pericystis alvei* (*), **26**, 795.
- BEER, R.: Notes on the Development of the Carpophore of some *Agaricaceae* (*), **25**, 683.
- On *Elaioplasts* (*), **23**, 63.
- BEER, R.: Studies in Spore Development (*), **25**, 199.
- *Id.* II. On the Structure and Division of the Nuclei in the *Compositae* (*), **26**, 705.
- *Id.* III. The Premeiotic and Meiotic Nuclear Divisions of *Equisetum arvense* (*), **27**, 643.
- The Supernumerary Pollen-grains of *Fuchsia*, **21**, 305.
- and ARBER, A.: On the Occurrence of Binucleate and Multinucleate Cells in Growing Tissues, **29**, 597.
- Begonia*, a bisexual gymnospermous (*), **26**, 1123.
- semperflorens, pollination and respiratory activity, **21**, 492.
- BENSON, M.: *Cordaitea Felicis*, *sp. nov.*, a Cordaitean Leaf from the Lower Coal Measures of England (*), **26**, 201.
- New Observations on *Botryopteris antiqua*, Kidston (*), **25**, 1045.
- Root Parasitism in *Exocarpus* (with Comparative Notes on the *Haustoria* of *Thesium*) (*), **24**, 667.
- and WELSFORD, E. J.: The Morphology of the Ovule and Female Flower of *Juglans regia* and a few Allied Genera (*), **23**, 623.
- Bensonites fusiformis*, *n. sp.*, description (*), **22**, 683.
- BENTLEY, B. H.: An Arrangement for using the Blades of Safety Razors in the Microtome (*), **25**, 273.
- Berberidaceae, vascular anatomy (*), **22**, 673.
- Berberidopsis corallina*, vascular anatomy (*), **22**, 674.
- Berberis*, *spp.*, seedling-anatomy (*), **28**, 708.
- *aquifolium*, insect visitors, **22**, 618; vascular anatomy, **22**, 674.
- BERGTHEIL, C., and DAY, D. L.: On the Cause of 'Hardness' in the Seeds of *Indigofera arrecta* (*), **21**, 57.
- BERRIDGE, E. M.: Fertilization in *Ephedra altissima* (*), **23**, 509.
- Note on the Mesarch Structure of certain Vascular Bundles in the Cotyledons of some *Scitamineae* (*), **24**, 485.
- The Structure of the Female Strobilus in *Gnetum Gnemon* (*), **26**, 987.
- The Structure of the Flower of *Fagaceae*, and its Bearing on the Affinities of the Group (*), **28**, 509.
- see SYKES, M. G.
- BERRY, E. W.: A Lower Cretaceous Species of *Schizaeaceae* from Eastern North America (*), **25**, 193.
- Beta, *spp.*, seedling-structure, **26**, 183.
- BETTS, A. D.: A Beehive Fungus, *Pericystis alvei*, *gen. et sp. nov.* (*), **26**, 795.
- Betula*, *spp.*, seedling-structure, **30**, 589.
- *alba*, insect visitors, **22**, 648.
- *verrucosa*, anatomy of leaf-fall (*), **25**, 62.
- Bidens pilosa*, seedling-structure (*), **28**, 313.

- Bignoniaceae, seedling-anatomy (*), 26, 740.
 Binucleate cells in growing tissue, 29, 597.
 BLACK, C. A.: The Morphology of *Riccia Frostii*, Aust. (*), 27, 511.
 BLACKLEDGE, L. M.: Variations in the NaCl Content of Non-halophytes, 27, 168.
 BLACKMAN, V. H., and PAINE, S. G.: A Recording Transpirometer (*), 28, 109.
 BLACKMAN, V. H., and WELSFORD, E. J.: Fertilization in *Lilium* (*), 27, 111.
 — Studies in the Physiology of Parasitism. II. Infection by *Botrytis cinerea* (*), 30, 389.
 — The Development of the Perithecium of *Polystigma rubrum*, D.C. (*), 26, 761.
 BLACKWELL, E. M.: Preliminary Note on Occurrence of Stomata in Hypogeal Cotyledons, 28, 545.
Blasia pusilla, spermatogenesis (*), 27, 93.
 Blechnum, description (*), 28, 370; phylogeny (*), 28, 371, 415; sorus (*), 28, 371, 405.
 Blepharoplast of *Derbesia* (*), 22, 6.
 BLISS, M. C.: Contribution to the Life-history of *Viola* (*), 26, 155.
 BLOMFIELD, J. E., and SCHWARTZ, E. J.: Some Observations on the Tumours on *Veronica chamaedrys* caused by *Sorosphaera Veronicae* (*), 24, 35.
Bocconia japonica, seedling-structure, 28, 719.
 Bonnier and Mangin's apparatus for air analysis, on (*), 27, 565.
 BOODLE, L. A.: Abnormal Phyllotaxy in the Ash, 29, 307.
 — On the Occurrence of Different Types of Hair in the Wallflower (*), 22, 714.
 — On the Production of Dwarf Male Prothalli in Sporangia of *Todea* (*), 22, 231.
 — On the Trifoliate and other Leaves of the Gorse (*Ulex europaeus*, L.), 28, 527.
 — and HILEY, W. E.: On the Vascular Structure of some Species of *Gleichenia* (*), 23, 419.
 Boron, action of compounds of, on growth of plants (*), 28, 293.
 BOSE, J. C.: On Diurnal Variation of Motorexcitability in *Mimosa* (*), 27, 759.
 Bothrodendron, branching and branch shedding (*), 29, 223; description of new specimens (*), 29, 226.
 — minutifolium, description (*), 29, 226; relationship with *B. punctatum*, 29, 229.
 — punctatum and minutifolium, relationship, 29, 229.
Botrychium Lunaria, axillary buds (*), 27, 225; external features, 27, 203; rhizome, branching of (*), 27, 225; rhizome, vascular anatomy (*), 27, 217; stelar anatomy (*), 27, 205.
Botrydina vulgaris, cultures, 23, 580; envelope (*), 23, 581; multiplication (*), 23, 583; origin and nature (*), 23, 583; structure (*), 23, 582.
Botryopteris, affinities of genus, 25, 1053.
 — antiqua, branching of diarch petiolar bundle (*), 25, 1048; general morphology and range of variation (*), 25, 1046; leaf-trace and petiolar bundle (*), 25, 1047; monarch petiolar bundle and aplebiae (*), 25, 1048; node and internode (*), 25, 1047; pseudo-secondary thickening (*), 25, 1052; root-bearing zones of stem-stele (*), 25, 1051; sporangia attributed to (*), 24, 819.
Botrytis cinerea, action of, 29, 313, 328; biology (*), 22, 479; chemistry of extract, 29, 338; infection by (*), 30, 389; lethal principle of extract, 29, 345; physical relationships of extract, 29, 335; preparation of extract, 29, 318.
 BOTTOMLEY, W. B.: The Root-nodules of *Ceanothus americanus* (*), 29, 605.
 — The Root-nodules of *Myrica Gale* (*), 26, 111.
 — The Significance of Certain Food Substances for Plant Growth (*), 28, 531.
Bowenia spectabilis, ovule: comparison with Pteridosperms, 26, 642; description (*), 26, 626; pollen chamber (*), 26, 641; vascular supply (*), 26, 631.
 BOWER, F. O.: Note on *Ophioglossum simplex*, Ridley, 22, 327.
 — Notes on the Morphology of *Ophioglossum (Cheiroglossa) palmatum*, L. (*), 25, 277.
 — Medullation in the Pteridophyta (*), 25, 555, 1206.
 — On the Primary Xylem and the Origin of Medullation in the Ophioglossaceae (*), 25, 537.
 — Studies in the Phylogeny of the Filicales. I. *Plagiogyria* (*), 24, 423.
 — *Id.* II. *Lophosoria* and its Relation to the Cyatheoideae and other Ferns (*), 26, 269.
 — *Id.* III. On *Metaxyla* and certain other Primitive Ferns (*), 27, 443.
 — *Id.* IV. *Blechnum* and Allied Genera (*), 28, 363.
 — *Id.* V. *Cheiropleuria bicuspis*, (Bl.) Presl, and certain other related Forms (*), 29, 495.
 Bulbils, of *Lamprothamnus alopecuroides* (*), 21, 61; of *Lilium* (*), 28, 355.
 BULLER, A. H. R.: The Function and Fate of the Cystidia of *Coprinus atramentarius*, together with some General Remarks on *Coprinus* Fruit-bodies (*), 24, 613.
Bupththalmum speciosum, seedling-structure, 28, 308.
 BURKILL, I. H.: see WILLIS, J. C.
 BUTLER, E. J.: On *Allomyces*, a new Aquatic Fungus (*), 25, 1023.
 BUTLER, O.: A Study on Gummosis of *Prunus* and *Citrus*, with Observations on

- Squamosis and Exanthema of the Citrus (*), **25**, 107.
- Brachyphilum Horsfieldii, seedling-anatomy (*), **29**, 215.
- Brachyoxylon, wood-anatomy (*), **27**, 540.
- Bracts of Welwitschia mirabilis, morphology (*), **27**, 547.
- Brainea insignis, description and phylogeny (*), **28**, 396.
- Branch shedding of Bothrodendron (*), **29**, 223.
- Branching in leafy Hepaticae (*), **26**, 1.
- Brassica Sinapis, insect visitors, **22**, 619.
- BRENCHLEY, W. E.: On the Action of Certain Compounds of Zinc, Arsenic, and Boron on the Growth of Plants (*), **28**, 283.
- On the Structure and Development of the Grain of Wheat (*Triticum vulgare*) (*), **23**, 117.
- The Effect of the Concentration of the Nutrient Solution on the Growth of Barley and Wheat in Water Culture (*), **30**, 77.
- The Development of the Grain of Barley, **26**, 903.
- The Influence of Copper Sulphate and Manganese Sulphate upon the Growth of Barley (*), **24**, 571.
- The Weeds of Arable Land in relation to the Soils on which they Grow, **25**, 155.
- *Id.* II. **26**, 95.
- *Id.* III. **27**, 141.
- BRIERLEY, W. B.: The 'Endoconidia' of *Thielavia basicola*, Zopf. (*), **29**, 483.
- British Tubercaceae, structure and affinities (*), **23**, 243.
- BROOKS, F. T.: Observations on the Biology of *Botrytis cinerea* (*), **22**, 479.
- The Development of *Gnomonia erythrostroma*, Pers., the Cherry-leaf-scorch Disease (*), **24**, 585.
- and STILES, W.: The Structure of *Podocarpus spinulosus*, (Smith) R. Br. (*), **24**, 305.
- BROOKS, W. E. ST. J.: *see* FRASER, H. C. I.
- Broussonetia papyrifera, anatomy of leaf-fall, **25**, 89.
- Browallia viscosa, seedling-anatomy, **26**, 737.
- BROWN, A. J.: On the Existence of a Semi-permeable Membrane enclosing the Seeds of some of the Gramineae, **21**, 79.
- BROWN, H. T.: Some Studies on Yeast, **28**, 197.
- BROWN, I. M. P.: Contributions to our Knowledge of the Anatomy of the Cone and Fertile Stem of *Equisetum* (*), **26**, 663; **27**, 168.
- A Second Contribution to our Knowledge of the Anatomy of the Cone and Fertile Stem of *Equisetum* (*), **29**, 231.
- BROWN, W.: Studies in the Physiology of Parasitism. I. The Action of *Botrytis cinerea*, **29**, 313.
- BROWN, W. *Id.* III. On the Relation between the 'Infection Drop' and the underlying Host Tissue, **30**, 399.
- Brown Oak, biology and effects of fungus, **29**, 400; cause of production, **29**, 395; general distribution, **29**, 393; identity of fungus, **29**, 405; origin, **29**, 393; structure and development, **29**, 398.
- BRUSCHI, D.: Researches on the Vitality and Self-digestion of the Endosperm of some Gramineaceae, **22**, 449.
- Bryophyta, spermatogenesis (*), **25**, 415.
- BURKILL, I. H.: *see* WILLIS, J. C.

C.

- Cactaceae, seedling-structure (*), **24**, 125; tubercle (*), **24**, 144.
- Calamites, a note on wounded (*), **21**, 277; branching (*), **21**, 421.
- leptospadix, branching, **21**, 421.
- Calandrinia, *spp.*, seedling-structure (*), **26**, 175.
- Calcium, rôle of, **21**, 504, 526.
- Callistemon rigida, dehiscence (*), **21**, 135.
- Callitris, abnormalities (*), **24**, 563; female cone (*), **24**, 558; female gametophyte (*), **24**, 559; fertilization and embryology (*), **24**, 561; male cone (*), **24**, 558; male gametophyte (*), **24**, 560; megasporogenesis (*), **24**, 558; ovule (*), **24**, 558.
- *spp.*, seedling-anatomy, **22**, 704.
- Callitroideae, phylogeny (*), **27**, 598.
- Calluna vulgaris, insect visitors, **22**, 606.
- — obligate symbiosis in (*), **29**, 97; distribution of fungus (*), **29**, 116, 123; endophyte, the (*), **29**, 122, 128; origin of ovarian infection (*), **29**, 111.
- Callus of sieve tubes (*), **22**, 277.
- Caltha palustris, insect visitors, **22**, 618
- seedling-anatomy, **28**, 707.
- Calycanthaceae, vascular anatomy, **22**, 668.
- Calycanthus, *spp.*, seedling-anatomy (*), **28**, 711.
- floridus, pollen mother-cells (*), **23**, 30.
- CAMPBELL, D. H.: Studies on some Javanese Anthocerotaceae. I. (*), **21**, 467.
- *Id.* II. (*), **22**, 91.
- Supplementary Note to 'Studies on some Javanese Anthocerotaceae', **22**, 330.
- The Embryo-Sac of Pandanus. — Preliminary Note, **22**, 330.
- The Embryo-Sac of Pandanus (*), **25**, 773.
- The Prothallium and Embryo of Danaea. Preliminary Note, **23**, 691.
- The Structure and Affinities of Macroglusum Alidae, Copeland (*), **28**, 651.
- Canada, fossil plants from Eastern (*), **27**, 243.
- Cananga odorata, vascular anatomy (*), **22**, 672.
- Canna indica, pollination and respiratory activity, **21**, 497.
- Cannabis sativa, proteases of seeds, **22**, 104; seedling-structure (*), **27**, 806.

- Capillitium in Myxomycetes, formation (*), 28, 1.
- Capparis, *spp.*, seedling-structure (*), 28, 720.
- Capsella Bursa-pastoris, insect visitors, 22, 620.
- Cardamine hirsuta, seedling-anatomy, 28, 718.
- *pratensis*, insect visitors, 22, 603.
- Cardiopus, description (*), 28, 89, 97.
- *congruens*, description (*), 28, 97.
- *gutbieri*, description (*), 28, 97.
- Carex dioica, insect visitors, 22, 648.
- *glauca*, insect visitors, 22, 648.
- Carica Papaya, development of seed-coat (*), 24, 607.
- Carmichaelia australis, seedling-anatomy, 27, 816.
- Carpinus Betulus, anatomy of leaf-fall, 25, 83; morphology of ovule (*), 23, 630; seedling-anatomy, 30, 589.
- *Ostrya*, seedling-structure, 30, 589.
- Carpolithus Nathorsti, a new Pteridosperm with Sphenopteris type of foliage (*), 22, 57; description (*), 22, 57.
- Carpophore of Agaricaceae, development (*), 25, 683.
- CARRUTHERS, D.: Contributions to the Cytology of *Helvella crispa*, Fries. (*), 25, 243.
- CARTER, M. G.: A Reconsideration of the Origin of 'Transfusion Tissue' (*), 25, 975.
- Carteria Fritschii, *n. sp.*, description (*), 30, 369; diagnosis, 30, 372.
- Carthamus tinctorius, seedling-structure, 28, 321.
- Carya, *spp.*, seedling-structure, 30, 586.
- Caryophyllaceae, development and structure of seed of Alsinoideae (*), 21, 25.
- Castanea sativa, anatomy of leaf-fall (*), 25, 52; seedling-structure (*), 30, 592.
- Castanopsis chrysophylla, affinity with *Rosa*, 28, 523; anatomy of flower (*), 28, 518; comparison with *Juglans regia* (*), 28, 522; morphology (*), 28, 511.
- Casuarina, *spp.*, seedling-structure, 30, 579.
- Catalpa Kaempferi, anatomy of leaf-fall (*), 25, 99.
- Catnella Opuntia, fruiting of, 27, 167.
- Cavity parenchyma and thyloses in ferns (*), 22, 401.
- Ceanothus americanus, root-nodules (*), 29, 605.
- *gloire-de-Versailles*, anatomy of leaf-fall, 25, 74.
- Cedrus, *spp.*, seedling-structure, 23, 198.
- Celastrus articulatus, anatomy of leaf-fall (*), 25, 96.
- Cell reproduction in *Saccharomyces* in relation to supply of oxygen, 28, 197.
- structure as studied by dark-ground illumination (*), 28, 601.
- Cells, action of strychnine on somatic, 25, 1069.
- Celosia, *spp.*, seedling-structure, 26, 181.
- Celtis occidentalis, anatomy of leaf-fall (*), 25, 73.
- Centaurea, *spp.*, seedling-structure, 28, 321.
- Central American species of *Peperomia*, 21, 147.
- Centrifugal force as geotropic stimuli, value of different degrees of (*), 27, 719.
- Centrifuge, description of the intermittent (*), 27, 725.
- Centripetal xylem in *Equisetum* (*), 23, 587.
- Centrospermae, seedling-structure (*), 26, 175.
- Cephalocuros, notes on (*), 27, 781.
- Cephalotaxus, *spp.*, seedling-structure (*), 22, 690.
- drupacea, gametophytes, fertilization and embryo, (*), 21, 1.
- — archegonia (*), 21, 9; embryo (*), 21, 15; female gametophyte (*), 21, 7; fertilization (*), 21, 12; male gametophyte (*), 21, 3; seedling-structure, 22, 692.
- Ceraria and *Portulacaria*, comparative anatomy (*), 26, 1111.
- Cerastium alpinum, insect visitors, 22, 627.
- *perfoliatum*, seedling-structure, 26, 180.
- *triviale*, insect visitors, 22, 627.
- Ceratonia siliqua, seedling-anatomy, 28, 726.
- Cercis siliquastrum, anatomy of leaf-fall, 25, 82.
- Cereal rusts, development of *Uredo* mycelia (*), 21, 441.
- Cereus, *spp.*, seedling-structure (*), 24, 137.
- Ceylon, evolution of species in (*), 30, 1.
- CHAMBERS, H. S.: The Vestigial Axillary Strands of *Trichomanes javanicum*, Bl., (*), 25, 1037.
- CHANDLER, B.: *Utricularia emarginata*, Benj., 23, 339; 24, 549 (*).
- Characium Sieboldii, cell-structure (*), 30, 460; growth of young cell (*), 30, 464; zoospore formation (*), 30, 463.
- Charis heterophylla, seedling-structure (*), 28, 308.
- Cheilanthes, anatomy of xerophilous species (*), 28, 671.
- Cheiranthus, *spp.*, seedling-anatomy (*), 28, 714.
- *Cheiri*, insect visitors, 22, 603; pollination and respiratory activity, 21, 494.
- Cheiroleuria bicuspis, anatomy (*), 29, 502; phylogeny (*), 29, 495; sporangia (*), 29, 516; sporophyll (*), 29, 510.
- Chelidonium majus, seedling-anatomy (*), 28, 719.
- Chenopodiaceae, seedling-structure (*), 26, 182.
- Chenopodium, *spp.*, seedling-structure, 26, 183.
- *Bonus-Henricus*, insect visitors, 22, 646.
- Cherry laurel, effect of chloroform on respiratory exchanges (*), 27, 700.

- Cherry-leaf-scorch disease, *see* *Gnomonia erythrostoma*.
- China, plant-formation of arid regions of Western, **26**, 1105.
- Chlamydomonas, action of poisons on, **23**, 181; descriptions of species, **30**, 376.
- *sphagnicola*, description (*), **30**, 373; diagnosis, **30**, 377.
- Chloroform, effect of, on assimilation (*), **25**, 1077; on respiratory exchanges of leaves, **25**, 1077; (*), **27**, 697.
- Chlorophyll, development (*), **24**, 805; distribution in shoots of woody plants (*), **21**, 437.
- Chloroplasts, organs for light perception (*), **23**, 480; splitting of (*), **21**, 410; studied under dark-ground illumination (*), **28**, 617; structure (*), **21**, 407.
- Choeromyces, description, **23**, 261.
- *meandriformis*, description (*), **23**, 261.
- Choris in *Aristea dichotoma* (*), **26**, 947.
- Chroococcaceae, cytology (*), **28**, 433.
- Chroococcus macrococcus*, cell-wall (*), **28**, 444; protoplast (*), **28**, 445; systematic position, **28**, 447.
- *turgidus*, protoplast (*), **28**, 438.
- Chromatin, extrusion in pollen mother-cells of *Lilium candidum* (*), **29**, 285.
- in meiotic divisions of *Vicia Faba*, behaviour of (*), **28**, 633.
- bodies, observation on and relation to nucleolus (*), **23**, 491; origin (*), **23**, 492, 493, 497.
- Chromosomes, conjugation of, in prophase of first division (*), **23**, 46; in pollen mother-cells, heterotypic (*), **21**, 309; longitudinal fission (*), **25**, 849; permanence of (*), **23**, 19.
- Chrysalidocarpus lutescens*, branching (*), **21**, 419.
- Chrysanthemum*, *spp.*, seedling-structure, **28**, 316.
- CHRYSLER, M. A.: The Nature of the Fertile Spike in *Ophioglossaceae* (*), **24**, 1.
- Chrysosplenium oppositifolium*, insect visitors, **22**, 638.
- Chytrideae and Plasmodiophoraceae, relationship (*), **28**, 227.
- Cichorium intibus*, seedling-structure, **28**, 321.
- Cilia-insertion in *Bacteriaceae*, **21**, 137.
- Citrullus*, *spp.*, structure (*), **29**, 580.
- Citrus, *exanthema* (*), **25**, 145; *gummosis* (*), **25**, 107, 116; *squamosis* (*), **25**, 141.
- Cladophoraceae of the Tropics, freshwater, **21**, 248.
- Cladosporium*, effect of temperature on germination of conidia, **24**, 365; growth and development of microsclerotia, **24**, 366; relationship with *Hormodendron*, **24**, 363, 367.
- herbarium, life-history (*), **24**, 359.
- CLARK, A. M.: Secondary Thickening in *Kendrickia Walkeri*, Hook. f. (*), **21**, 361.
- CLARKE, J. J.: Abnormal Flowers of *Ame-lanchier spicata* (*), **26**, 948.
- Claytonia perfoliata*, seedling-structure, **26**, 177.
- Clematis*, *spp.*, seedling-structure (*), **28**, 705; vascular anatomy (*), **22**, 661.
- Cleome sesquiorgialis*, seedling-anatomy (*), **28**, 720.
- Clerodendron myrmecophilum*, relationship with ants, **24**, 470.
- *trichotomum*, anatomy of leaf-fall, **25**, 81.
- Climate, alteration of the flora due to, **30**, 557.
- Clova Mountains, insect visitors of flowers of, **22**, 603.
- Coal Measures, revision of seed-impressions of British (*), **28**, 81.
- COBURN, H.: The Fruiting of *Catanella Opuntia*, **27**, 167.
- Coccomyxa subellipsoideae*, a new member of the *Palmellaceae* (*), **23**, 573; systematic position, **23**, 575; zoogonidia formation (*), **23**, 574.
- Cochlearia officinalis*, insect visitors, **22**, 619.
- Coco-nut, branching in a bulbiferous (*), **21**, 420; germination of the double (*), **24**, 223.
- Cocos nucifera*, branching, **21**, 419.
- Coix *Lacryma-Jobi*, seedling-anatomy (*), **29**, 195.
- Colchicum autumnale*, seedling-anatomy, **29**, 218.
- COLE, R. D.: *see* JEFFREY, E. C.
- Coleoptile, an abnormal (*), **30**, 509; nature of (*), **30**, 510.
- Collera, a new type of spermatogonium and fertilization in (*), **26**, 747.
- *pulposum*, fertilization (*), **26**, 741.
- Colloidal silica, supposed origin of life in (*), **30**, 383.
- Commelina coelestis*, seedling-anatomy (*), **29**, 217.
- Companion cells, anatomy (*), **22**, 264.
- Compositae, nuclear division (*), **26**, 705; anaphase (*), **26**, 714; diakinesis (*), **26**, 713; homotype division (*), **26**, 716; metaphase (*), **26**, 714; presynapsis (*), **26**, 706; second contraction (*), **26**, 711; somatic divisions (*), **26**, 719; spireme (*), **26**, 709; synapsis (*), **26**, 708; telophase (*), **26**, 714.
- pollen-presentation mechanism (*), **29**, 457; stamens and styles, description (*), **29**, 461.
- seedling-structure (*), **28**, 303.
- COMPTON, R. H.: An Anatomical Study of *Syncotly* and *Schizocotly* (*), **27**, 793.
- Note on a Case of Doubling of Embryosac, Pollen-tube, and Embryo, **26**, 243.
- Concentration of nutrient solution in water-cultures, effect of, **29**, 89; **30**, 77.
- of poison, variation of death-rate with, **23**, 185.

- Cone and fertile stem of *Equisetum*, anatomy (*), 29, 231.
- Confervales in the Tropics, 21, 255.
- Coniferae, efficiency and survival, 24, 261; insect pests, 24, 267; tracheidal wood, reason for, 24, 254; transpiration, 24, 242; vulnerability and suppression, 24, 263; xerophytism, rationale of, 24, 260.
- Coniferales, distribution of bars of *Sanio* (*), 24, 119.
- Coniferous woods, identification (*), 25, 317; structure of Jurassic from Yorkshire (*), 27, 533.
- Conifers, anatomy of mesozoic (*), 27, 533.
- Conjugate nuclei in Ascomycetes (*), 30, 415.
- Conjugation of chromosomes in prophase of first division (*), 23, 46.
- Conostoma, diagnosis, 25, 37.
- affinities and structure of the group (*), 25, 1; classification and diagnoses, 25, 36; comparisons (*), 25, 31.
- anglo-germanicum, *n. sp.*, diagnosis, 25, 38; enumerations of specimens, 25, 23; general features (*), 25, 24; lagenostome (*), 25, 30; nucellus (*), 25, 30; plinth (*), 25, 31; testa (*), 25, 28; vascular system (*), 25, 29.
- oblongum, 'blow off' layer (*), 25, 14; diagnosis, 25, 37; enumeration of specimens, 25, 5; general features (*), 25, 7; lagenostome and plinth (*), 25, 16; nucellus (*), 25, 16; soft integument (*), 25, 13; testa (*), 25, 9; vascular system (*), 25, 13.
- Convolvulaceae, seedling-anatomy (*), 26, 728.
- Convolvulus tricolor*, seedling-anatomy (*), 26, 728, 731.
- Copper sulphate, influence of, on growth of barley (*), 24, 572.
- Coprinus*, fruit bodies, 24, 623.
- atramentarius, function and fate of cystidia (*), 24, 616.
- sterquilinus, germination of spores (*), 29, 135.
- Cordia*, description (*), 28, 91, 100.
- areolatus, description (*), 28, 100.
- Cordai, description, 28, 100.
- ovoidens, description (*), 28, 100.
- Cordaites Felicis*, *n. sp.*, comparison with other species (*), 26, 205; description, 26, 206; leaf, general account (*), 26, 202.
- Corispermum hyssopifolium*, seedling-structure, 26, 184.
- Cornucarpus*, *n. gen.*, description (*), 28, 88, 96.
- acutus, description (*), 28, 97.
- Cornus*, *spp.*, anatomy of leaf-fall (*), 25, 93.
- Corona of *Narcissus*, morphology (*), 28, 541.
- Corrigiola littoralis*, seedling-structure, 26, 181.
- Cortex of *Sigillaria mamillaris*, 23, 513.
- Corydalis*, *spp.*, seedling-anatomy, 28, 720.
- Corylus avellana*, proteases of seeds, 22, 109; seedling-structure, 30, 590.
- *Colurna*, anatomy of leaf-fall, 25, 81.
- Costaria Turneri*, embryonal stages (*), 25, 692; post-embryonal stages (*), 25, 702.
- Cotoneaster affinis*, seedling-anatomy, 28, 724.
- microphylla, insect visitors, 22, 609.
- Cotyledon of grass, position (*), 30, 516; of Scitamineae, mesarch structure (*), 24, 485; stomata in hypogeal, 28, 545.
- Cotyledon orbiculare*, seedling-anatomy, 28, 724.
- Crambe tartarica*, seedling-anatomy, 28, 718.
- Crataegus Oxyacantha*, insect visitors, 22, 639; seedling-anatomy, 28, 724.
- Crepis rubra*, seedling-structure, 28, 322.
- Cretaceous of New Zealand, early type of Abietineae from (*), 30, 111.
- plants, structure and affinities, 24, 231.
- species of *Pinus*, leaf-structure (*), 22, 207; 24, 395.
- Cretovarium, flower-structure (*), 24, 679.
- Crops and weeds, interrelationship, 27, 155.
- Crupina* *Crupinastrum*, seedling-structure, 28, 320.
- Cryptomeria japonica*, seedling-structure, 22, 708.
- Cryptomeriopsis*, a reply to Prof. Jeffrey, 25, 269.
- Cucubalus baccifer*, seedling-structure, 26, 177.
- Cucumis*, *spp.*, structure, 29, 579.
- sativus, root-system, 26, 951.
- Cucurbita*, development of sieve tubes (*), 22, 273.
- *spp.*, structure (*), 29, 574.
- Cucurbitaceae*, origin and meaning of medullary phloem in stem (*), 29, 567.
- Cunninghamia*, traumatic ray tracheides (*), 22, 593.
- Cupressineae*, gametophytes and embryo (*), 21, 281; seedling-anatomy (*), 22, 696.
- Cupressoideae*, phylogeny (*), 27, 598.
- Cupressus*, *spp.*, seedling-anatomy (*), 22, 699.
- Cuscuta*, histology (*), 25, 655, 658.
- *Epilinum*, seedling-anatomy (*), 26, 732.
- CUTTING, E. M.: On Androgynous Receptacles in *Marchantia* (*), 24, 349.
- On the Sexuality and Development of the Ascocarp in *Ascophanus carneus*, Pers. (*), 23, 399.
- Cyatheoideae*, relationship of Lophosoria to (*), 26, 269.
- Cycadaceae*, centripetal and centrifugal xylems of petioles (*), 28, 183; relationship with Monocotyledons, 25, 724; root nodules (*), 29, 619; seedling-structure (*), 23, 437.
- Cystidia* of *Coprinus atramentarius*, function and fate (*), 24, 616.

- Cystopteris, phyletic consideration (*), **26**, 302.
- Cytase secretion by embryo and aleurone layer of *Hordeum*, **25**, 1169.
- Cytology of Ascomycetes (*), **22**, 465; of Chroococaceae (*), **28**, 433; of *Helvella crispa* (*), **25**, 243; of hybrid and varietal ferns (*), **24**, 191; of Protococcales (*), **30**, 459, 467; of *Saccharomyces* (*), **24**, 45; of tumours of *Veronica* caused by *Sorosphaera* (*), **24**, 37.
- D.
- Daemonorops, symbiosis with ants, **24**, 461.
- longipes, branching, **23**, 339.
- DALE, E.: A Bacterial Disease of Potato Leaves (*), **26**, 133.
- On the Cause of 'Blindness' in Potato Tubers, **24**, 129.
- Danaea, prothallium and embryo, **23**, 691.
- Datura*, *ssp.*, seedling-anatomy (*), **26**, 734.
- Davallia*, phylogeny (*), **27**, 461.
- fumarioides, structure (*), **30**, 502.
- DAVEY, A. J.: Seedling Anatomy of certain Amentiferae (*), **30**, 575.
- DAVIE, R. C.: The Development of the Sorus and Sporangium and the Prothallus of *Peranema cyatheoides*, D. Don (*), **30**, 101.
- The Structure and Affinities of *Peranema* and *Dialcalpe* (*), **26**, 245.
- DAVIS, B. M.: Cytological Studies on *Oenothera*. I. Pollen Development of *Oenothera grandiflora* (*), **23**, 551.
- *Id.* II. The Reduction Divisions of *Oenothera biennis* (*), **24**, 631.
- *Id.* III. A Comparison of the Reduction Divisions of *Oenothera Lamarckiana* and *O. gigas* (*), **25**, 941.
- Spore Formation in *Derbesia* (*), **22**, 1.
- DAY, D. L.: *see* BERGTHEIL, C.
- Death-rate, variation of, with concentration of poison, **23**, 185.
- DE BRUYN, H.: The Ontogenetic Development of the Stele in Two Species of *Dipteris* (*), **25**, 761.
- Decaisnea Fargesii*, seedling-anatomy (*), **28**, 709.
- Defoliation, effect of, on growth and structure of wood of *Larix* (*), **27**, 621.
- DE FRAINE, E.: On *Medullosa centrofilis*, a New Species of *Medullosa* from the Lower Coal Measures (*), **28**, 251.
- On the Structure and Affinities of *Sutcliffia*, in the Light of a Newly Discovered Specimen (*), **26**, 1031.
- The Morphology and Anatomy of the Genus *Statice* as represented at Blakeney Point. Part I. *Statice binervosa*, G. E. Smith, and *S. bellidifolia*, D. C. (= *S. reticulata*). With Systematic and Ecological Notes by E. J. Salisbury (*), **30**, 239.
- DE FRAINE, E.: The Seedling Structure of certain Cactaceae (*), **24**, 125.
- *see* HILL, T. G.
- Dehiscence of *Callistemon rigida* (*), **21**, 135.
- DELF, E. M.: Note on an attached Species of *Spirogyra* (*), **27**, 366.
- Studies of Protoplasmic Permeability by Measurement of Rate of Shrinkage of Turgid Tissues. I. The Influence of Temperature on the Permeability of Protoplasm to Water (*), **30**, 283.
- The Attaching Discs of the *Ulvaceae* (*), **26**, 403.
- The Transpiration and Behaviour of Stomata in Halophytes (*), **25**, 485.
- Transpiration in Succulent Plants (*), **26**, 409.
- Delphinium*, *ssp.*, seedling-anatomy, **28**, 707.
- Dendroceros*, embryo (*), **22**, 94; reproductive organs (*), **22**, 93; thallus-anatomy (*), **22**, 93.
- Derbesia*, blepharoplast, development (*), **22**, 6; segmentation of protoplasm (*), **22**, 5; sporangium, development and nuclear changes (*), **22**, 2; spore-formation (*), **22**, 1; taxonomic characters of zoospore and motile gamete, **22**, 14; zoospore, germination (*), **22**, 9; zoospore, habits (*), **22**, 2.
- Desert plants, transpiration, **26**, 435; water balance (*), **26**, 71.
- Desiccating plants, growth activities, **26**, 83.
- Desmids, nuclear division (*), **30**, 379; tropical, **21**, 263.
- Destruction of species by man, **30**, 554.
- Dialcalpe*, phylogenic consideration, **26**, 306.
- *aspidioides* (*), **26**, 255; external characters, **26**, 257; internal structure (*), **26**, 257.
- Dianthus*, *ssp.*, seedling-structure, **26**, 179.
- Diascia Barberae*, seedling-anatomy (*), **26**, 738.
- Diastase: malt diastase, **24**, 213; taka diastase, **24**, 217.
- Dicksonieae, phylogeny (*), **27**, 453.
- Dicotyledons, origin of multiseriate ray (*), **25**, 1005; relation of leaf-trace to formation of compound rays in lower (*), **25**, 225.
- DIGBY, L.: Observations on 'Chromatin Bodies' and their Relation to the Nucleolus in *Galtonia candicans* (*), **23**, 491.
- The Cytology of *Primula Kewensis* and of other related *Primula* Hybrids (*), **26**, 357.
- The Somatic, Premeiotic, and Meiotic Nuclear Divisions of *Galtonia candicans* (*), **24**, 727.
- *see* FARMER, J. B.
- Digestion of endosperm of Gramineae, self-, **22**, 449.
- Digitalis*, *ssp.*, seedling anatomy, **26**, 740.

- Digitalis purpurea*, pollination and respiratory activity, **21**, 492.
- Dimorphotheca pluvialis*, seedling-structure (*), **28**, 318.
- Dioon edule*, seedling-structure (*), **23**, 446.
- Diospyrus virginiana*, anatomy of leaf-fall, **25**, 76.
- Diplanthera*, stem-anatomy (*), **28**, 643, 646.
- Dipteris*, sporangia (*), **29**, 516; sporophyll (*), **29**, 510.
- *conjugata* and *Lobbiana*, ontogenetic development of stele (*), **25**, 761.
- Dischidia rafflesiana*, symbiosis with ants, **24**, 462.
- Dischisma arenarium*, seedling anatomy, **26**, 439.
- Discs of *Ulvaceae*, attaching (*), **26**, 403.
- Distribution of species in New Zealand (*), **30**, 437; in woods of north-east Kent (*), **25**, 857.
- Doodia*, phylogeny (*), **28**, 401.
- Doubling of embryo-sac, pollen-tube, and embryo in *Lychnis*, **26**, 243.
- DOYLE, J.: Note on the Structure of the Ovule of *Larix leptolepis* (*), **30**, 193.
- On the Proliferous Form of the Scape of *Plantago lanceolata* (*), **30**, 353.
- Draba Aizoon*, seedling-anatomy (*), **28**, 716.
- DREW, G. H.: The Reproduction and Early Development of *Laminaria digitata* and *Laminaria saccharina* (*), **24**, 177.
- Drosera*, vegetative propagation (*), **29**, 308.
- Drimys*, *spp.*, anatomy, **22**, 667; **29**, 311; traumatically induced structures (*), **30**, 359.
- DÜMMER, R. A.: A Bisexual 'Gymnospermous' *Begonia* (*), **26**, 1123.
- Grape Sugar as an Excretion of *Platyserium* (*), **25**, 1205.
- *Peloria* in *Saintpaulia ionantha*, *Wendland* (*), **26**, 946.
- DUTHIE, A. V.: Anatomy of *Gnetum africanum* (*), **26**, 593.
- DUTT, C. P.: *Pityostrobos macrocephalus*, L. and H. A Tertiary Cone showing Ocular Structures (*), **30**, 529.
- Dysmorphococcus variabilis*, *n. gen. et sp.*, description (*), **30**, 151.
- E.
- EAMES, A. J.: On the Occurrence of Centripetal Xylem in *Equisetum* (*), **23**, 587.
- On the Origin of the Herbaceous Type in the Angiosperms (*), **25**, 215.
- The Morphology of *Agathis australis* (*), **27**, 1.
- EASTWOOD, A.: see SUTHERLAND, G. K.
- Ecballium elaterium*, structure (*), **29**, 582.
- Echinocactus*, *spp.*, seedling-structure (*), **24**, 150.
- *Wislizeni*, water balance (*), **26**, 72.
- Echinocereus*, *spp.*, seedling-structure (*), **24**, 143.
- Echinopsis*, *spp.*, seedling-structure (*), **24**, 143, 149.
- Elaeagnus*, morphology of root-tubercles (*), **26**, 119.
- Elaioplasts* (*), **23**, 63.
- Elaphomyces*, description (*), **23**, 248.
- *spp.*, description (*), **23**, 248.
- Electrical conditions, respiration of plants under various (*), **28**, 135.
- response and germination, seed testing by, **30**, 181.
- — in cotton plants (*), **27**, 103.
- Electrolytes as criteria of antagonistic ion-action, exosmosis of (*), **29**, 349.
- Elephantiasis of banana caused by *Ustilaginoidella oedipigera* (*), **25**, 363.
- Elettaria Cardamomum*, seedling-anatomy (*), **29**, 209.
- ELLIS, D.: On the Constancy of Cilia-insertion in *Bacteriaceae*, **21**, 137.
- Embryo, morphology of monocotyledonous, particularly that of the grass (*), **30**, 509.
- of *Cephalotaxus drupacea* (*), **21**, 1; of *Cupressineae* (*), **21**, 281; of *Libocedrus decurrens* (*), **21**, 281; of *Penaeaceae* (*), **23**, 363; of *Pseudotsuga Douglasii* (*), **23**, 163; of *Sciadopitys verticillata* (*), **24**, 403.
- and seedling in the Gramineae, comparative morphology (*), **29**, 161.
- gametophytes, and fertilization of *Cephalotaxus drupacea* (*), **21**, 1.
- of *Hordeum*, amyloclastic secretory capacity, **25**, 811.
- secretions, starch liquefying and saccharifying properties, **25**, 1154.
- Embryo-sac of *Pandanus*, **22**, 330; **25**, 773 (*); of *Penaeaceae*, **22**, 329; **23**, 363 (*); of *Protea* *Lepidocarpon*, **23**, 161.
- mother-cell of *Lilium*, heterotypic mitosis (*), **23**, 343.
- Encephalartos Altensteinii*, seedling-structure (*), **23**, 449.
- Endemic flora of Ceylon (*), **30**, 1.
- species, **30**, 558.
- Endemism and the Mutation Theory, **30**, 551.
- Endocalyx*, the genus, **22**, 389.
- *spp.*, descriptions (*), **22**, 390.
- *cinctus*, *n. sp.*, description (*), **22**, 394.
- Endoconidia* of *Thielavia basicola* (*), **29**, 483.
- Endodermis in stem of *Hippuris*, origin of (*), **30**, 91.
- Endosperm of Gramineae, vitality and self-digestion, **22**, 449.
- Endospermic respiration of seeds, **22**, 415.
- Entorhiza Cypericola*, life-history (*), **24**, 520.
- Enzymes of Panama disease, **25**, 357.
- Ephedra*, anatomy and morphology of bract (*), **26**, 955; female strobilus (*), **26**, 957, 976; flower (*), **26**, 955; inflorescence

- (*), 26, 953, 955; male flower (*), 26, 970, 974; male strobilus (*), 26, 970; ovule (*), 26, 963; peduncle (*), 26, 956.
- Ephedra, structure: bast (*), 26, 1095; cortex (*), 26, 1096; leaf (*), 26, 1097; pith (*), 26, 1078; primary vascular strands (*), 26, 1079; secondary wood (*), 26, 1084; root, 26, 1097.
- *spp.*, seedling-structure (*), 24, 319.
- *altissima*, fertilization (*), 23, 509.
- and *E. distachya*, relationship (*), 26, 962.
- Epiblast, nature of (*), 30, 514.
- Epidermis, optical behaviour (*), 23, 460.
- Epigyny, discussion, 23, 632.
- Epilobium, *spp.*, insect visitors, 22, 612.
- Epimedium pinnatum, vascular anatomy (*), 22, 674.
- Epiphytes, ants and, 24, 466; transpiration, 26, 436.
- Equisetales, cones of, 29, 258.
- Equisetum, anatomy of cone and fertile stem (*), 26, 663; 27, 168; alternation and superposition of whorls of cone (*), 26, 679; apex of cone, 26, 682; centripetal xylem (*), 23, 587; transition from fertile stem to cone (*), 26, 690; vegetative nodes, structure (*), 26, 683.
- *arvense*, anatomy of cone (*), 26, 665; meiotic divisions (*), 27, 648; premeiotic divisions (*), 27, 644.
- *debile*, antheridium development (*), 28, 174; embryo (*), 28, 176; prothallus (*), 28, 163, 166; sexual organs (*), 28, 172; spore germination (*), 28, 164.
- *limosum*, anatomy of cone (*), 26, 675.
- *maximum*, branching cone (*), 29, 249; cone anatomy (*), 29, 232; course of vascular strands (*), 29, 235, 242; fertile stem (*), 29, 252; medullary tracheides (*), 29, 240; phylogeny of cone, 29, 258; whorls of cone, position, 29, 238.
- *palustre*, anatomy of cone (*), 26, 665.
- Ericaceae, distribution of endophyte in symbiotic, 29, 123.
- Erysimum pulchellum, seedling anatomy, 28, 715.
- Erythrocooccus, the genus, 25, 575; description of species, 25, 609; diagnosis, 25, 606; distribution, 25, 632; historical review, 25, 587; key to species, 25, 608; properties, 25, 638.
- ESSED, E.: Rice Disease caused by *Ustilaginoidella graminicola* (*), 25, 367.
- The Panama Disease. Preliminary Notice (*), 24, 488.
- The Panama Disease. I. (*), 25, 343.
- *Id.* II. (*), 25, 353.
- The Surinam Disease. A Condition of Elephantiasis of the Banana caused by *Ustilaginoidella oedipigera* (*), 25, 363.
- Eucalyptus trees, rate of ascent of sap, 24, 91.
- Eucalyptus Calophylla, pollination and respiratory activity, 21, 489.
- Euchlaena mexicana, seedling-anatomy, 29, 198.
- Eupomatia Bennettii, vascular anatomy, 22, 671.
- EVANS, A. W.: Branching in Leafy Hepaticae (*), 26, 1.
- Vegetative Reproduction in Metzgeria (*), 24, 271.
- EVANS, I. B. P.: The Cereal Rusts. I. The Development of their *Uredo* mycelia (*), 21, 441.
- Evaporation and temperature, relation between, in marsh vegetation (*), 23, 275.
- as a measure of the atmospheric promotion of transpiration (*), 23, 282; mutual protection of shoots, 23, 303.
- Evaporimeter (*), 23, 284.
- Evolution of Angiosperms (*), 22, 489; of species in Ceylon with reference to the dying out of species (*), 30, 1.
- EWART, A. J.: The Delayed Dehiscence of *Callistemon rigidus*, R. Br. (*), 21, 135.
- and REES, B.: Transpiration and the Ascent of Water in Trees under Australian Conditions (*), 24, 85.
- Exanthema of Citrus, cause, 25, 148; description (*), 25, 145; histology (*), 25, 146; historical, 25, 145; preventive and remedial measures, 25, 149.
- Exocarpus, comparison of haustorium with that of *Thesium* (*), 24, 674; haustorium (*), 24, 669; haustorium and root morphology (*), 24, 669; phloeotracheides (*), 24, 671.
- Exochorda, *spp.*, seedling-anatomy, 28, 723.
- Exosmosis of electrolytes as criterion of antagonistic ion-action (*), 29, 349.
- Extrafloral nectaries of *Polygonum* (*), 23, 229.

F.

- Fagaceae, medullary rays, 26, 1124; structure of flower and its bearing on affinity of the group (*), 28, 509.
- Fagus sylvatica, seedling-structure, 30, 594.
- Farm land, plant communities of, 30, 161.
- FARMER, J. B.: Telosynapsis and Parasynapsis, 26, 623.
- and DIGBY, L.: On the Cytological Features exhibited by certain Varietal and Hybrid Ferns (*), 24, 191.
- *—* Studies in Apospory and Apogamy in Ferns (*), 21, 161.
- Fasciated seedlings, morphology and physiology (*), 26, 389.
- FAULL, J. H.: The Cytology of *Laboulbenia chaetophora* and *L. Gyrinidarum* (*), 26, 325.
- The Cytology of the *Laboulbeniales*, 25, 649.
- Fegatella, spermatogenesis (*), 25, 299.

- FERDINANDSEN, C., and WINGE, Ö.: *Ostentfeldiella*, a New Genus of Plasmodiophoraceae (*), **28**, 643.
- Fermentation by *Saccharomyces*, thermal phenomena, **28**, 217.
- Ferns, apogamy and apospory (*), **21**, 161; cavity parenchyma and thyloses (*), **22**, 401; cytology of hybrid and varietal (*), **24**, 191; nature of tracheae (*), **22**, 517; phyletic relation, **26**, 311.
- Fertile stem and cone of *Equisetum*, anatomy (*), **29**, 231.
- Fertilization of *Cephalotaxus drupacea* (*), **21**, 1; of *Collema* (*), **26**, 747; in *Ephedra altissima* (*), **23**, 509; in *Lilium* (*), **27**, 111.
- Ficus Carica*, anatomy of leaf-fall, **25**, 89.
- Filicales, phylogeny (*), **24**, 423; **26**, 269; **27**, 443; **28**, 363; **29**, 495.
- Filicmean leaf-trace evolution (*), **25**, 167; petiolar wound reactions (*), **26**, 777.
- FISCHER, C. C. E.: On the Development of the Fructification of *Armillaria mucida*, Schrad. (*), **23**, 503.
- The Biology of *Armillaria mucida*, Schrad. (*), **23**, 515.
- Fixing and other reagents, action on cell (*), **28**, 623.
- Flora, alterations of, due to climatic changes, **30**, 557.
- Florideae of Tropics, freshwater, **21**, 268.
- Flora and Insects in Great Britain, **22**, 603.
- Foliar gaps in *Osmundaceae* (*), **24**, 107.
- ray of dicotyledonous wood, diffusion, **26**, 653; evolution (*), **26**, 647; roots (*), **26**, 655; reduction (*), **26**, 653; traumatic regions (*), **26**, 655; twigs (*), **26**, 654, 656.
- Formaldehyde, quantitative experiments on effect of, on living plants (*), **27**, 411.
- question, the, **27**, 426.
- Forsythia Fortunei*, anatomy of leaf-fall, **25**, 77.
- Fortunea chinensis*, seedling-structure (*), **30**, 587.
- Fossil flora of Eastern Canada (*), **27**, 243.
- Fossombronina*, discharge of antherozoids (*), **23**, 159.
- Fragaria indica*, seedling-anatomy, **28**, 723.
- vesca, insect visitors, **22**, 624.
- FRASER, H. C. I.: Contributions to the Cytology of *Humaria rutilans*, **21**, 307.
- Contributions to the Cytology of *Humaria rutilans*, Fries. (*), **22**, 35.
- On the Sexuality and Development of the Ascocarp in *Lachnea stercorea*, Pers. (*), **21**, 349.
- (Mrs. GWYNNE-VAUGHAN): The Behaviour of the Chromatin in the Meiotic Divisions of *Vicia Faba* (*), **28**, 633.
- — The Development of the Ascocarp in *Lachnea cretea* (*), **27**, 553.
- FRASER, H. C. I., and BROOKS, W. E. St. J.: Further Studies on the Cytology of the Ascus (*), **23**, 537.
- and SNELL, J.: The Vegetative Divisions in *Vicia Faba* (*), **25**, 845.
- and WELSFORD, E. J.: Further Contributions to the Cytology of the Ascomycetes (*), **22**, 465.
- FRASER, M. T.: Parallel Tests of Seeds by Germination and by Electrical Response (Preliminary Experiments), **30**, 181.
- Fraxinus excelsior*, anatomy of leaf-fall, **25**, 98; phyllotaxy, abnormal, **29**, 307.
- FRITSCH, F. E.: The Morphology and Ecology of an Extreme Terrestrial Form of *Zygnema (Zygonema) ericetorum*, (Kuetz.) Hansg. (*), **30**, 135.
- The Subaerial and Freshwater Algal Flora of the Tropics. A Phytogeographical and Ecological Study, **21**, 235.
- and RICH, F.: Studies on the Occurrence and Reproduction of British Freshwater Algae in Nature. I. Preliminary Observations on *Spirogyra* (*), **21**, 423.
- and TAKEDA, H.: On a Species of *Chlamydomonas* (*C. sphagnicola*, F. E. Fritsch and Takeda—*Isococcus sphagnicolus*, F. E. Fritsch) (*), **30**, 373.
- Fuchsia*, supernumerary pollen-grains, **21**, 305.
- *serratifolia*, pollination and respiratory activity, **21**, 490.
- Fuirena oedipus* (*), **22**, 189; histology of aerial stem (*), **22**, 190; of basal internode (*), **22**, 191; of leaf (*), **22**, 192; of rhizome (*), **22**, 187.
- *stricta* and *subdigitata*, leaf-structure, **22**, 192.
- FUJII, K.: see STOPES, M. C.
- Fungi, on parasitic (*), **24**, 359.
- Fungus spores and their germination studied by dark-ground illumination (*), **28**, 611.

G.

- Gaillardia aristata*, seedling-structure, **28**, 316.
- *Lorenziana*, elaioplasts (*), **23**, 63.
- Galinsoga parviflora*, seedling-structure, **28**, 315.
- Galium*, *spp.*, insect visitors, **22**, 642.
- morphology of stipulus (*), **30**, 197, 601.
- GALLAGHER, W. J.: The Cytology of *Rhoeo discolor*, **22**, 117.
- Galtonia*, heterotypic chromosomes in pollen mother-cells, **21**, 329.
- candicans, chromatin bodies, origin from nucleolus (*), **23**, 495; from presynaptic framework (*), **23**, 493; from synaptic knot (*), **23**, 492.
- — meiotic divisions (*), **24**, 736, 746; presynapsis (*), **23**, 491; somatic and premeiotic divisions (*), **24**, 728; synapsis (*), **23**, 491; walls of pollen mother-cells (*), **23**, 494.

- Galvanotropism of roots (*), **21**, 387.
- Gametophytes of *Cephalotaxus drupacea* (*), **21**, 1; of Cupressineae (*), **21**, 281; of *Libocedrus decurrens* (*), **21**, 281; of *Pseudotsuga Douglasii* (*), **23**, 163; of *Sciadopitys verticillata* (*), **24**, 403.
- Gaseous exchanges of plants, on Bonnier and Mangin's apparatus (*), **27**, 565.
- Gastrodia elata* and its mycorrhiza, **25**, 521.
- GATES, R. R.: Pollen Formation in *Oenothera gigas* (*), **25**, 909.
- Somatic Mitoses in *Oenothera* (*), **26**, 993.
- Gemmae of *Metzgeria* (*), **24**, 273.
- Genea, description, **23**, 251.
- *spp.*, descriptions (*), **23**, 251.
- Geographical Distribution and Natural Selection (*), **30**, 1.
- Geophilous species of *Peperomia* (*), **21**, 139.
- GEORGEVITCH, P.: Preliminary Note on Apospory and Apogamy in *Trichomanes Kaulfussii*, Hk. et Grew. (*), **24**, 233.
- Geotropic stimuli, value of different degrees of centrifugal force as (*), **27**, 719.
- Geranium sylvaticum*, insect visitors, **22**, 610.
- Germination, *Alsinoideae* (*), **21**, 42; double coco-nut (*), **24**, 223; *Helianthus annuus* (*), **24**, 693, 889; *Marah*, *spp.* (*), **30**, 215; spores of *Coprinus sterquilinus* (*), **29**, 135.
- and electrical response, seed testing by, **30**, 181.
- of seeds, studies in (*), **30**, 215.
- GERRY, E.: The Distribution of the 'Bars of Sanio' in the Coniferales (*), **24**, 119.
- Geum*, *spp.*, seedling-anatomy, **28**, 723.
- GIBBS, L. S.: Bio-histological Notes on some New Rhodesian Species of *Fuirena*, *Hesperanthera*, and *Justicia* (*), **22**, 187.
- Notes on the Development and Structure of the Seed in the *Alsinoideae* (*), **21**, 25.
- On the Development of the Female Strobilus in *Podocarpus* (*), **26**, 515.
- GIBSON, R. H.: A Photosynthetic Theory of Photosynthesis, **22**, 117.
- GIBSON, R. J. H.: The Extent of the Root-system of *Cucumis sativus*, **26**, 951.
- Gibsonia*, a new genus of Ascomycetes (*), **23**, 336.
- phaeospora, *n. sp.*, description (*), **23**, 336.
- Ginkgo, ribbing of seeds (*), **29**, 591; seedling-structure (*), **23**, 433.
- and *Trigonocarpus*, relationship, **30**, 356.
- Glands of succulents, **26**, 422; of *Undaria*, mucilage (*), **23**, 613.
- Glaucium serpiery*, seedling-anatomy (*), **28**, 719.
- Glaucocystis Nostochinearum*, description and structure (*), **29**, 423.
- Gleditschia triacanthos*, anatomy of leaf-fall (*), **25**, 79.
- Gleichenia*, phyletic consideration (*), **26**, 270; vascular structure (*), **23**, 419.
- GLÜCK, H.: Contributions to our Knowledge of the Species of *Utricularia* of Great Britain, with Special Regard to the Morphology and Geographical Distribution of *Utricularia ochroleuca* (*), **27**, 607.
- Glycogen of *Saccharomyces* (*), **24**, 61.
- Gnetales, anatomy and relationships (*), **26**, 1077; ancestors of, **22**, 509; comparison of flowers of, **26**, 979; seedling-structure (*), **24**, 319.
- and Angiosperms, relationship (*), **22**, 489.
- — —, amphisporangiate condition primitive, **22**, 497; female gametophyte, **22**, 505; historical, **22**, 492; megasporangium, **22**, 504; microsporophylls and microsporangia (*), **22**, 501; morphology, **22**, 496; perianth (*), **22**, 498; strobili, aggregates of, **22**, 500.
- Gnetopsis elliptica*, comparison with *Conostoma* (*), **25**, 31.
- Gnetum*, comparison of female flower with that of *Welwitschia*, **25**, 1124; comparison of seeds with those of Bennettitales, **25**, 1125; inflorescence axis structure, **26**, 621; microsporangium, microspore, and structure of inflorescence (*), **26**, 603.
- *spp.*, seedling-structure (*), **24**, 326.
- africanum, anatomy of inflorescence axis and cupule (*), **25**, 1103; anatomy of stalk of ovule (*), **25**, 1110; external characters, **26**, 593; inflorescence and ovule, morphology (*), **25**, 1102; leaf-structure (*), **26**, 598; ovule development (*), **25**, 1118; seed (*), **25**, 1112; stem-structure (*), **26**, 594.
- *Gnemon*, stoma development (*), **27**, 365; structure of female strobilus (*), **26**, 987.
- scandens, anatomy of inflorescence axis and cupule (*), **25**, 1103; anatomy of stalk of ovule (*), **25**, 1110; inflorescence and ovule, morphology (*), **25**, 1102; male inflorescence, abortive ovule (*), **25**, 1123; ovule development (*), **25**, 1118; seed, **25**, 1118.
- Gnomonia erythrostoma*, appearance of affected leaves, **24**, 586; cytology of ascus (*), **24**, 596; mycelium (*), **24**, 587; perithecium development (*), **24**, 594; spermogonia (*), **24**, 589; trichogynes and ascogonia (*), **24**, 591.
- Gomphrena*, *spp.*, seedling-structure, **26**, 182.
- Goniothalamus*, symbiosis with ants, **24**, 461.
- GORDON, W. T.: Note on the Prothallus of *Lepidodendron Veltheimianum* (*), **24**, 821.
- Gossypium*, nuclear division (*), **24**, 656.
- GRAHAM, M.: Studies in Nuclear Division of *Preissia commutata* (*), **27**, 661.
- Graminaceae, vitality and self-digestion of endosperm, **22**, 449.
- Gramineae, comparative morphology of the

embryo and seedling (*), 29, 161; semi-permeable membranes of seeds, 21, 79.

Grape sugar excreted by *Platycerium* (*), 25, 1205.

Grass embryo, morphology (*), 30, 509.

— seedlings, comparative anatomy (*), 29, 170.

Grasses, a new parasitic root-fungus, 25, 270.

Great Britain, flowers and insects in, 22, 603.

GREEN, M. L.: Note on Anomalous Bulbils in a Lily (*), 28, 355.

GRIFFITHS, B. M.: On *Glaucozystis Nostochinearum*, Itzigsohn (*), 29, 423.

— see WEST, G. S.

Griffithsia *Bornetiana*, life-history (*), 23, 639.

— —, asexual reproduction (*), 23, 663; sexual reproduction (*), 23, 654; spore-germination (*), 23, 673; tetraspore-like structures (*), 23, 671; tetraspores (*), 23, 663; vegetative characters (*), 23, 641; vegetative multiplication (*), 23, 673.

GROOM, P.: A Note on the Vegetative Anatomy of *Pterosphaera Fitzgeraldi*, F. v. M. (*), 30, 311.

— 'Brown Oak' and its Origin, 29, 393.

— Remarks on the Oecology of Coniferae, 24, 241.

— The Evolution of the Annual Ring and Medullary Rays of *Quercus* (*), 25, 983.

— The Medullary Rays of *Fagaceae*, 26, 1124.

GROVE, W. B.: see BAYLISS-ELLIOTT, J. S.

Growth action of compounds of zinc, arsenic, and Boron on (*), 28, 283.

— activities of desiccating plants, 26, 83.

— of barley, influence of copper sulphate and manganese sulphate on (*), 24, 571.

— of *Pisum sativum*, influence of temperature on rate of (*), 30, 25.

— of *Salicornia*, effect of salt on (*), 29, 143.

— in water-culture, effect of concentration of nutrient solution on, 29, 89; 30, 77 (*).

— significance of certain food substances for plant (*), 28, 531.

— temperature and (*), 22, 557.

Gunmosis of *Prunus* and *Citrus* (*), 25, 107; cause (*), 25, 129; chemistry of genus, 25, 122; description (*), 25, 118; histology (*), 25, 125; historical, 25, 117; nature of, 25, 131; preventive and remedial measures, 25, 136; technique, 25, 123.

Gums of *Prunus* and *Citrus*, chemistry, 25, 122; reactions, 25, 123.

GWYNNE-VAUGHAN, DAVID THOMAS: Biography (*), 30, 1.

— Observations on the Anatomy of the Leaf in the *Osmundaceae* (*), 30, 487.

— On a 'Mixed Pith' in an Anomalous Stem of *Osmunda regalis* (*), 28, 351.

GWYNNE-VAUGHAN, DAVID THOMAS: On some Climbing *Davallias* and the Petiole of *Lygodium* (*), 30, 495.

— On the Real Nature of the Tracheae in the Ferns (*), 22, 517.

— Prefatory Note to Two Unpublished Papers by the late, 30, 485.

— Some Remarks on the Anatomy of the *Osmundaceae* (*), 25, 525.

GWYNNE-VAUGHAN, H. C. I.: Biography of Ernest Lee, 1886-1915, 29, 639.

Gymnosperms, seedling-structure (*), 22, 689; 23, 189, 433; 24, 329.

Gypsophila *Saxifraga*, seedling-structure, 26, 179.

H.

Habenaria viridis, insect visitors, 22, 606.

Hair, different types of, in wallflower (*), 22, 714; production on *Tropaeolum peregrinum* (*), 26, 589.

Hairiness in marsh plants, 26, 816.

Hairs, cause of formation, 26, 842; effect of environment on production (*), 26, 834; of tomentum and ovary of *Rhododendron Falconeri* and *R. Hodgsoni* (*), 29, 635; physiological effect (*), 26, 850.

Halesia tetraptera, anatomy of leaf-fall (*), 25, 76.

HALKET, A. C.: The Effect of Salt on the Growth of *Salicornia* (*), 29, 143.

Halonia, general discussion, 28, 495.

Halophytes, absorption of water by green parts, 25, 496; transpiration and behaviour of stomata, 25, 486 (*); 26, 437.

Haplomitrium *Hookeri*, discharge of antherozoids (*), 23, 159.

Hardness in seeds of *Indigofera arrecta*, cause of (*), 21, 57.

HARPER, A. G.: Defoliation: its Effects upon the Growth and Structure of the Wood of *Larix* (*), 27, 621.

HARPER, R. A., and DODGE, B. O.: The Formation of the Capillitium in Certain *Myxomycetes* (*), 28, 1.

HARRIS, J. A.: On a Chemical Peculiarity of the Dimorphic Anthers of *Lagerstroemia indica*, with a Suggestion as to its Ecological Significance (*), 28, 499.

HARVEY, H. W.: The Action of Poisons upon *Chlamydomonas* and other Vegetable Cells, 23, 181.

Haustorium, function, 24, 675.

— of *Striga lutea*, structure and development (*), 26, 1067.

Helianthemum vulgare, insect visitors, 22, 634.

Helianthus annuus, abnormality in stem-structure (*), 30, 481; physiology of germination (*), 24, 693; seedling-structure (*), 27, 795.

— *tuberosus*, anatomy of tuber (*), 24,

- 543; effect of chloroform on respiratory exchanges (*), **27**, 705.
- Helichrysum bracteatum*, seedling-anatomy (*), **27**, 816.
- Helioperception (*), **23**, 459.
- Heliopsis laevis*, seedling-structure (*), **28**, 310.
- Helleboreus*, *spp.*, vascular anatomy (*), **22**, 659.
- foetidus, seedling-structure, **28**, 707; vascular anatomy, **22**, 660.
- Helminthostachys*, anatomy and morphology (*), **28**, 19.
- zeylanica, adult rhizome structure (*), **29**, 3; anatomical relationship of actual branches to main rhizome (*), **29**, 14; juvenile rhizome, anatomy (*), **29**, 24; rhizome and stelar structure, interpretation of (*), **29**, 34; suspensor, **24**, 611.
- Helvella crispa*, ascus development and formation (*), **25**, 243, 247; chromatin bodies, **25**, 249; meiosis (*), **25**, 244, 246, 248; morphology, **25**, 246; sexuality, **25**, 247; spore-formation (*), **25**, 246; vegetative tissue (*), **25**, 243.
- Hemitella setosa*, phylogeny (*), **27**, 450.
- HEMSLEY, W. B.: Two new *Triuridaceae*, with some Remarks on the Genus *Sciaphila*, Blume (*), **21**, 71.
- HENSLow, G.: The Origin of Monocotyledons from Dicotyledons, through Self-adaptation to a Moist or Aquatic Habit, **25**, 717.
- Hepaticae*, branching in leafy (*), **26**, 1; *Acromastigum* type (*), **26**, 23; *Frullania* type (*), **26**, 4; intercalary branching (*), **26**, 26; *Microlepidozia* type (*), **26**, 21; *Radula* type (*), **26**, 24; terminal branching (*), **26**, 4.
- spermatogenesis, **25**, 299.
- Herbaceous type, origin of, in Angiosperms (*), **25**, 215.
- Heredity, idioplasmic theory of, **22**, 550.
- Hesperantha matopensis*, scale leaves (*), **22**, 197.
- Hesperis tristis*, seedling-anatomy, **28**, 716.
- Heterotypic chromosomes in pollen mother-cells (*), **21**, 309.
- reduction in somatic cells, occurrence (*), **24**, 775; in *Hyacinthus candicans* (*), **24**, 781; in *Pisum sativum* (*), **24**, 793; in *Vicia Faba* (*), **24**, 788.
- Heuchera alba*, seedling-anatomy, **28**, 724.
- Hibiscus syriacus*, anatomy of leaf-fall, **25**, 71.
- HICKLING, G.: The Anatomy of *Palaeostachya vera* (*), **21**, 369.
- Hieracium alpinum*, seedling-structure (*), **28**, 323.
- HILEY, W. E.: On the Value of Different Degrees of Centrifugal Force as Geotropic Stimuli (*), **27**, 719.
- : see BOODLE, L. A.
- HILL, A. W.: A Revision of the Geophilous Species of *Peperomia*, with some additional Notes on their Morphology and Seedling-structure (*), **21**, 139.
- Studies in Seed Germination. The Genus *Marah* (*Megarrhiza*), *Cucurbitaceae* (*), **30**, 215.
- The Floral Morphology of the Genus *Sebaea* (*), **27**, 479.
- The Production of Hairs on the Stems and Petioles of *Tropaeolum peregrinum* (*), **26**, 589.
- The Histology of the Sieve Tubes of Angiosperms (*), **22**, 245.
- The Origin of Monocotyledons (*), **22**, 713.
- HILL, T. G., and DE FRAINE, E.: A Consideration of the Facts relating to the Structure of Seedlings (*), **27**, 257.
- On the Classification of Seed Leaves, **28**, 359.
- On the Seedling-structure of certain *Centrospermae* (*), **26**, 175.
- On the Seedling-structure of *Gymnosperms*. I. (*), **22**, 689.
- *Id.* II. (*), **23**, 189.
- *Id.* III. (*), **23**, 433.
- *Id.* IV. (*), **24**, 319.
- Hillhousia*, lime-sulphur bacteria of the genus (*), **27**, 83.
- Hippuris*, origin of endodermis in stem (*), **30**, 91.
- HIND, M.: Studies in Permeability. III. The Absorption of Acids by Plant Tissue (*), **30**, 223.
- HOAR, C. S.: A Comparison of the Stem Anatomy of the Cohort *Umbelliflorae* (*), **29**, 55.
- HOLDEN, R.: Contributions to the Anatomy of Mesozoic Conifers. No. 1. Jurassic Coniferous Woods from Yorkshire (*), **27**, 533.
- Reduction and Reversion in the North American *Salicales* (*), **26**, 165.
- Some Fossil Plants from Eastern Canada (*), **27**, 243.
- HOLDEN, H. S.: On the Occlusion of the Stomata in *Tradescantia pulchella* (*), **27**, 369.
- Preliminary Note on Periderm Formation in Filicenean Petioles, **24**, 611.
- Further Observations on the Wound Reactions of the Petioles of *Pteris aquilina* (*), **30**, 127.
- Some Wound Reactions in Filicenean Petioles (*), **26**, 777.
- HOOKEr, H. D.: Hydrotropism in Roots of *Lupinus albus*, **29**, 265.
- Hordeum*, amyloclastic secretory capacities of embryo and aleurone layer, **25**, 799, 1147; respirations of seeds, **22**, 419.
- distichum, vitality and self-digestion of endosperm, **22**, 456.

Hordeum vulgare, seedling-anatomy (*), **29**, 203.
Hormodendron, disease caused by (*), **24**, 359; origin of *Cladosporium* from, **24**, 363; production of, from *Cladosporium*, **24**, 363.
 — and *Cladosporium*, relationship, **24**, 367.
 Hormones, function of, in regulating metabolism, **25**, 507.
 HORNE, A. S.: Discharge of Antherozoids in *Fossombronina* and *Haplomitrium Hookeri* (*), **23**, 159.
 — Preliminary Note on *Spongospora Solani*, Brunch., **25**, 272.
 Host and parasite, relationship, **25**, 653, 661 (*).
 — tissue and infection drop, relationship, **30**, 399.
Hottonia, anatomy (*), **25**, 255; morphology and life-history (*), **25**, 253; seedling-anatomy (*), **25**, 262.
Humaria granulata, cytology of ascus (*), **23**, 538.
 — rutilans, cytology, **21**, 307; ascocarp development (*), **22**, 35; ascus formation (*), **22**, 36; meiotic phase (*), **22**, 37; mitosis (*), **22**, 39; nuclear association, **22**, 51; spore-formation (*), **22**, 51.
 HUME, E. M. M.: The Histology of the Sieve-tubes of *Pteridium aquilinum*, with some Notes on *Marsilia quadrifolia* and *Lygodium dichotomum* (*), **26**, 573.
 HUNTER, C.: The Aerating System of *Vicia Faba* (*), **29**, 627.
Hyacinthus candicans, question of heterotypical reduction in somatic cells (*), **24**, 781.
Hyalotheca dissiliens, nuclear division (*), **30**, 379.
 Hybrid ferns, cytology (*), **24**, 191.
 Hydnoberolites, description, **23**, 253.
 — cerebriformis, description (*), **23**, 253.
 Hydnotrya, description, **23**, 254.
 — *Tulasnei*, description (*), **23**, 254.
Hydrastis canadensis, vascular anatomy (*), **22**, 675.
 Hydrochloric acid as a poison, reaction velocity, **23**, 182.
 Hydrogen ion, effect of temperature on the permeability of plant cells to (*), **29**, 611.
 Hydrotropism in roots of *Lupinus albus*, **29**, 265.
Hypericum pulchrum, insect visitors, **22**, 634.
Hypoderris, phyletic consideration (*), **26**, 308.

I.

Iberis, spp., seedling-anatomy (*), **28**, 717.
 — *amara*, insect visitors, **22**, 620.
Ibervillea sonorae, water-balance (*), **26**, 81.
 Idioplasmic theory of heredity, **22**, 550.
Illicium floridanum, vascular anatomy (*), **22**, 667.

Illicium religiosum, seedling-anatomy, **28**, 710.
Incarvillea Delayvei, seedling-anatomy (*), **26**, 740.
Indigofera arrecta, cause of hardness in seed (*), **21**, 57.
 Infection by *Botrytis cinerea* (*), **30**, 389.
 'Infection drop' and underlying tissue of host, relationship, **30**, 399; presence of oxalate in, **30**, 405; presence of toxin in, **30**, 404.
 Insect pests of Coniferae, **24**, 267.
 Insects and flowers in Great Britain, **22**, 603.
 Integument in Trigonocarpeae and Lagenostomales, origin, **28**, 73.
 Intraxylary phloem in stems of Dicotyledons, origin and meaning (*), **29**, 567.
Inula Helenium, seedling-structure, **28**, 308.
 Ion-action, exosmosis of electrolytes as a criterion of antagonistic (*), **29**, 349.
Ipomoea; spore development (*), **25**, 200.
 Iron in Saccharomyces (*), **24**, 69.
 IRVING, A. A.: The Beginning of Photosynthesis and the Development of Chlorophyll (*), **24**, 805.
 — The Effect of Chloroform upon Respiration and Assimilation (*), **25**, 1077.
 — see PRIESTLEY, J. H.
 Isolation and Natural Selection, **25**, 743.
 Isomers, toxic action of, on vegetable cells, **23**, 181.

J.

Jasminum nudiflorum, distribution of chlorophyll in young shoots (*), **21**, 437.
Java, Anthocerotaceae of (*), **21**, 467; **22**, 91, 330.
 JEFFREY, E. C.: On the Affinities of the Genus *Yezonia* (*), **24**, 767.
 — On the Structure of the Leaf in Cretaceous Pines (*), **22**, 207.
 — Traumatic Ray-Tracheides in *Cunninghamia sinensis* (*), **22**, 593.
 — and COLE, R. D.: Experimental Investigations on the Genus *Drimys* (*), **30**, 359.
 JESSON, E. M.: On the Hairs of the Tomentum and Ovary in *Rhododendron Falconeri*, Hook. f., and *Rhododendron Hodgsoni*, Hook. f. (*), **29**, 635.
 JOHNSON, J. C.: On well-marked Aerotropic Growths of *Bacillus megatherium*, **26**, 949.
 JØRGENSEN, I.: see STILES, W.
Juglans, spp., anatomy of leaf-fall, **25**, 92; seedling-structure (*), **30**, 583.
 — *regia*, anatomy of leaf-fall, **25**, 93; morphology of ovule and female flower (*), **23**, 623; gynoeceium (*), **23**, 625; ovule, **23**, 628; seedling-structure, **30**, 585.
 Juliaceae, relationship (*), **23**, 336.
 Juncaceae, parasitic root disease (*), **24**,

- 511; *Sorosphaera Junci*, a new parasitic disease of, **24**, 236.
Juniperus, *sp.*, seedling-anatomy (*), **22**, 696.
 Jurassic coniferous woods from Yorkshire, structure (*), **27**, 533.
 — *Osmundaceae* from New Zealand (*), **28**, 471.
Justicia elegantula, morphology, **22**, 201.

K.

- KASHYAP, S. R.: The Structure and Development of the Prothallus of *Equisetum debile*, Roxb. (*), **28**, 163.
 KAUFFMAN, C. H.: A Contribution to the Physiology of the Saprolegniaceae, with Special Reference to the Variations of the Sexual Organs (*), **22**, 361.
 KEENE, M. L.: Cytological Studies of the Zygospores of *Sporodinia grandis* (*), **28**, 455.
 KEMP, H. P.: Note on the Action of Strychnine upon some Somatic Cells, **25**, 1069.
 — On the Question of the Occurrence of 'Heterotypical Reduction' in Somatic Cells (*), **24**, 775.
Kendrickia Walkeri, secondary thickening (*), **21**, 361.
 Kent, plant distribution in woods of North-east (*), **25**, 857.
 KERSHAW, E. M.: A Fossil Solenostelic Fern (*), **24**, 683.
 — Note on the Relationship of the *Julianiaceae* (*), **23**, 336.
 — Structure and Development of the Ovule of *Bowenia spectabilis* (*), **26**, 625.
 — The Structure and Development of the Ovule of *Myrica Gale* (*), **23**, 353.
 — Further Observations on the Structure of the Ovules of *Myricaceae* and Allied Groups, **23**, 692.
 — see STOPES, M. C.
 KIDSTON, R.: Note on the Petiole of *Zygopteris Grayi*, Will. (*), **24**, 451.
 KISCH, M. H.: The Physiological Anatomy of the Periderm of Fossil *Lycopodiales* (*), **27**, 281.
 KNIGHT, M.: Anatomy of the *Magnoliaceae*, **29**, 310.
 KNIGHT, R. C.: On the Use of the Porometer in Stomatal Investigation (*), **30**, 57.
 — see LAIDLAW, C. G. P.
 — and PRIESTLEY, J. H.: The Respiration of Plants under various Electrical Conditions (*), **28**, 135.
Kochia trichophylla, seedling-structure, **26**, 184.
Korthalsia, symbiosis with ants, **24**, 459.
 — *ferox*, branching, **23**, 338.
 KUSANO, S.: Preliminary Note on *Gastrodia elata* and its Mycorrhiza, **25**, 521.

L.

- LA RIVIÈRE, H. C. C.: see AFFOURTIT, M. F. A.
Laboulbenia chaetophora and *L. Gyridarum*, cytology (*), **26**, 325; antheridia, **26**, 335; ascogenic cells (*), **26**, 338; ascus (*), **26**, 339; cell-wall and envelope (*), **26**, 328; procarp (*), **26**, 335; protoplasmic bridges (*), **26**, 330; protoplast (*), **26**, 333; spores (*), **26**, 343.
Laboulbeniales, cytology, **25**, 649; ascus, **25**, 652; antheridia, **25**, 650; procarp, **25**, 651; relation to host, **25**, 653; spores, **25**, 649; thallus, **25**, 649.
Lachnea cretea, archicarp formation (*), **27**, 554; ascogonial region (*), **27**, 555; mycelium (*), **27**, 554; trichogyne (*), **27**, 554.
 — *stercorea*, antheridium (*), **21**, 353; apothecium (*), **21**, 352; cytology of ascus (*), **23**, 541; fertilization (*), **21**, 354; germination of spores (*), **21**, 350; mycelium (*), **21**, 352; sporophyte (*), **21**, 355; trichogyne (*), **21**, 353.
Lactucasagittata, seedling-structure, **28**, 322.
Lagenaria, *sp.*, structure, **29**, 572.
Lagenostoma, comparison with *Conostoma* (*), **25**, 35.
 — *Lomaxii*, diagnosis, **25**, 39.
 — *ovoides*, diagnosis, **25**, 39.
 — *Sinclairii*, diagnosis, **25**, 39.
Lagenostomales, origin of integument, **28**, 73; pollination mechanisms, **25**, 38.
Lagenostomeae, diagnosis, **25**, 38.
Lagerstroemia indica, chemical peculiarity of dimorphic anthers (*), **28**, 499; ecological relationships of flower, **28**, 504; floral structure and anthesis, **28**, 499; physiology of anthers (*), **28**, 500.
 LAIDLAW, C. G. P., and KNIGHT, R. C.: A Description of a Recording Porometer and a Note on Stomatal Behaviour during Wilting (*), **30**, 47.
Laminaria, embryonal stages (*), **25**, 709.
 — *digitata*, characters, **24**, 178; culture, **24**, 181; development (*), **24**, 186; histology, **22**, 319; reproduction (*), **24**, 183.
 — *saccharina*, anatomy (*), **22**, 309; callus (*), **22**, 315; cell-walls (*), **22**, 312; characters, **24**, 178; comparison with *Macrocystis*, **22**, 317; culture, **24**, 181; development (*), **24**, 186; protoplasmic continuity (*), **22**, 312; reproduction (*), **24**, 183; sieve-plate development (*), **22**, 316; sieve-tubes (*), **22**, 313.
Lamprothamnus alopecuroides, bulbils, **21**, 62; description (*), **21**, 61; distribution, **21**, 61; pro-embryo (*), **21**, 64; tubercles, growth of (*), **21**, 62.
 LANG, W. H.: On a Suspensor in *Helminthostachys zeylanica*, **24**, 611.

- LANG, W. H.: On the Sporogonium of *Notothyas* (*), 21, 201.
- Studies in the Morphology and Anatomy of the Ophioglossaceae. I. On the Branching of *Botrychium Lunaria*, with Notes on the Anatomy of Young and Old Rhizomes (*), 27, 203.
- *Id.* II. On the Embryo of *Helminthostachys* (*), 28, 19.
- *Id.* III. On the Anatomy and Branching of the Rhizome of *Helminthostachys zeylanica* (*), 29, 1.
- Larix, effect of defoliation on growth and structure of wood of (*), 27, 621.
- *europaea*, bisporangiate strobilus (*), 27, 575; seedling-structure (*), 23, 210.
- *leptolepis*, seedling-anatomy, 23, 210; structure of ovule (*), 30, 193.
- *occidentalis*, seedling-structure, 23, 210.
- Lastrea pseudo-mas, apogamy and apospory in varieties of (*), 21, 175, 180.
- Laurus, *ssp.*, seedling-anatomy (*), 28, 712.
- LAWSON, A. A.: The Gametophytes and Embryo of *Pseudotsuga Douglasii* (*), 23, 163.
- The Gametophytes, Fertilization, and Embryo of *Cephalotaxus drupacea* (*), 21, 1.
- The Gametophytes and Embryo of *Sciadopitys verticillata* (*), 24, 403.
- The Gametophytes and Embryo of the Cupressineae, with special reference to *Libocedrus decurrens* (*), 21, 281.
- LE GOC, M. J.: Observations on the Centripetal and Centrifugal Xylems in the Petioles of Cycads (*), 28, 183.
- Leaf anatomy of Cretaceous pines (*), 22, 207; of Osmundaceae (*), 30, 487.
- Leaf-fall, anatomy and morphology of (*), 25, 51; *Acer pseudoplatanus*, 25, 74; *Ailanthus glandulosa*, 25, 95; *Baccharis halimifolia*, 25, 78; *Betula verrucosa* (*), 25, 62; *Broussonetia papyrifera*, 25, 89; *Carpinus Betulus*, 25, 83; *Castanea sativa* (*), 25, 52; *Catalpa Kaempferi* (*), 25, 99; *Ceanothus Gloire-de-Versailles*, 25, 74; *Celastrus articulatus* (*), 25, 96; *Celtis occidentalis* (*), 25, 73; *Cercis siliquastrum*, 25, 82; *Clerodendron trichotomum*, 25, 81; *Cornus Mas*, 25, 95; *C. sanguinea* (*), 25, 93; *Corylus Colurna*, 25, 81; *Diospyrus virginiana*, 25, 76; *Ficus Carica*, 25, 89; *Forsythia Fortunei*, 25, 77; *Fraxinus excelsior*, 25, 98; *Gleditschia triacanthos* (*), 25, 79; *Halesia tetraptera* (*), 25, 76; *Hibiscus syriacus*, 25, 71; *Juglans nigra*, 25, 92; *J. regia*, 25, 93; *J. rupestris*, 25, 93; *Ligustrum vulgare*, 25, 72; *Liriodendron tulipifera*, 25, 100; *Magnolia*, 25, 100; *Morus alba* (*), 25, 90; *M. nigra*, 25, 90; *Nyssa sylvatica*, 25, 95; *Phellodendron amurense*, 25, 97; *Platanus orientalis*, 25, 86; *Populus balsamifera* (*), 25, 69; *Prunus Cerasus*, 25, 84; *P. communis-dulcis*, 25, 85; *P. virginiana*, 25, 85; *Pyrus floribunda*, 25, 74; *Quercus palustris*, 25, 72; *Rhus typhina* (*), 25, 87; *Ribes nigrum*, 25, 76; *R. sanguineum* (*), 25, 57; *Robinia pseudacacia*, 25, 81; *Salix caprea* (*), 25, 62; *Tilia europaea* (*), 25, 60.
- Leaf-trace, evolution of filicinean (*), 25, 167; relation to formation of compound rays in Dicotyledons (*), 25, 225.
- LECHMERE, A. E.: see WEST, C.
- LEE, D. G.: Notes on the Anatomy and Morphology of *Pachypodium namaquanum*, Welw. (*), 26, 929.
- LEE, ERNEST: Biography, 29, 639.
- Observations on the Seedling Anatomy of certain Sympetalae. I. *Tubiflorae* (*), 26, 727.
- *Id.* II. *Compositae* (*), 28, 303.
- The Morphology of Leaf-fall (*), 25, 51.
- Leersia oryzoides, seedling-anatomy, 29, 183.
- Leidesia, description of genus and species, 27, 399; distribution, 27, 409; review of, 27, 386.
- LEITCH, I.: Some Experiments on the Influence of Temperature on the Rate of Growth in *Pisum sativum* (*), 30, 25.
- Lens-cells (*), 23, 460; in *Mesembryanthemum pseudotruncatellum* (*), 25, 1137.
- Lepidium sativum, seedling-structure (*), 27, 813.
- Lepidodendron Veltheimianum, prothallus (*), 24, 821.
- Leptosyne Douglasii, seedling-structure (*), 28, 311.
- LEWIS, I. F.: The Life-history of *Griffithsia Bornetiana* (*), 23, 639.
- The Behaviour of the Chromosomes in *Pinus* and *Thuja* (*), 22, 530.
- Libocedrus decurrens, archegonia (*), 21, 289; embryo (*), 21, 294; female gametophyte (*), 21, 286; fertilization (*), 21, 292; male gametophyte (*), 21, 282; seedling-anatomy (*), 22, 702.
- Lichen, *Botrydina vulgaris*, a primitive (*), 23, 579; structure and life-history of *Verrucaria margacea*, an aquatic (*), 28, 241.
- Life, supposed origin in solutions of colloidal silica (*), 30, 383.
- Light, perception of, in plants (*), 23, 459.
- Ligniera Alismatis, *n. sp.*, description, 28, 233.
- *Bellidis, n. sp.*, description (*), 28, 232.
- *Menthae, n. sp.*, description (*), 28, 232.
- Ligustrum vulgare, anatomy of leaf-fall, 25, 72.
- Lilium, anomalous bulbils (*), 28, 355; fertilization (*), 27, 111; genesis of male nuclei (*), 23, 265; heterotypic mitosis in embryo-sac mother-cell (*), 23, 343;

- heterotypic chromosomes in pollen mother-cells (*), **21**, 314.
- Lilium candidum*, chromatin extrusion in pollen mother-cells (*), **29**, 285; pollination and respiratory activity, **21**, 496.
- Lime-sulphur-bacteria of genus *Hillhousia* (*), **27**, 83.
- Linaria*, *spp.*, seedling-anatomy, **26**, 738.
- Lindsaya*, phylogeny (*), **27**, 459.
- LINDSEY, M.: The Branching and Branch Shedding of *Bothrodendron* (*), **29**, 223.
- Linnaea borealis*, insect visitors, **22**, 606.
- Linum catharticum*, insect visitors, **22**, 617.
- *usitatissimum*, proteases of seeds, **22**, 109.
- Liquidambar styraciflua*, seedling-anatomy, **28**, 725.
- Liriodendron tulipifera*, anatomy of leaf-fall, **25**, 100; seedling-anatomy (*), **28**, 710.
- Listera cordata*, insect visitors, **22**, 616.
- Lodoicea sechellarum*, germination of seed (*), **24**, 223.
- Loiseleuria procumbens*, insect visitors, **22**, 628.
- Lolium italicum*, seedling-anatomy, **29**, 184.
- Lophosoria*, phyletic consideration (*), **26**, 269.
- *pruinata* (*), **26**, 279; anatomy of axis (*), **26**, 281; hairs, **26**, 286; leaf-structure (*), **26**, 284; morphological discussion (*), **26**, 291; sporangium (*), **26**, 287; spore and prothallus (*), **26**, 291.
- Lotus corniculatus*, seedling-structure (*), **27**, 814.
- Lower Cretaceous species of *Schizaeaceae* from eastern North America (*), **25**, 193.
- Loxsona*, phylogeny (*), **27**, 463.
- Lunaria*, *spp.*, seedling-anatomy (*), **28**, 718.
- Lupinus albus*, hydrotropism in roots, **29**, 265.
- Lychnis*, doubling of embryo-sac, pollen-tube, and embryo, **26**, 243.
- *Viscaria*, seedling-structure, **26**, 178.
- Lycopodiales, physiological anatomy of periderm of fossil (*), **27**, 281; external manifestation of periderm development, **27**, 314; periderm (*), **27**, 297; phellogen (*), **27**, 287.
- Lycopodium clavatum*, young sporophyte: foot, **21**, 221; leaf-structure, **21**, 230; root-structure (*), **21**, 213; stem-structure, **21**, 225.
- *complanatum*, young sporophyte: external features (*), **21**, 212; foot (*), **21**, 219; leaf-structure (*), **21**, 230; root-structure (*), **21**, 213; stem-structure (*), **21**, 222.
- *Selago*, roots (*), **22**, 21; course through cortex (*), **22**, 27; growth (*), **22**, 26; origin (*), **22**, 23; structure (*), **22**, 29.
- Lygodium*, *spp.*, structure of petiole (*), **30**, 497.
- *dichotomum*, petiole-structure (*), **30**, 501; sieve-tubes, **26**, 581.
- Lysimachia*, *spp.*, insect visitors, **22**, 635.
- M.
- Macaranga*, *spp.*, relationship with ants (*), **24**, 470.
- MACDOUGAL, D. T.: The Water-balance of Desert Plants (*), **26**, 71.
- Macrocystis pyrifera*, anatomy (*), **22**, 299; callus (*), **22**, 308; cell-wall (*), **22**, 303; comparison with *Laminaria saccharina*, **22**, 317; historical summary, **22**, 291; protoplasmic continuity (*), **22**, 303; sieve-tubes (*), **22**, 304; sieve-plate development, **22**, 316.
- MacroGLOSSUM Alidae*, antheridium (*), **28**, 654; archegonium (*), **28**, 655; cotyledon (*), **28**, 658; embryo (*), **28**, 655; gametophyte (*), **28**, 652; root (*), **28**, 660, 663; sporangia (*), **28**, 663; sporophyte (*), **28**, 662; systematic position, **28**, 665.
- Macrozamia spiralis*, seedling-structure (*), **23**, 438.
- Madia sativa*, seedling-structure, **28**, 315.
- Magnesium, rôle of (*), **21**, 508, 532.
- Magnolia*, anatomy of leaf-fall, **25**, 100.
- *spp.*, seedling-anatomy (*), **28**, 709.
- tripetala, vascular anatomy, **22**, 665.
- Magnoliaceae, anatomy, **22**, 665; **29**, 310.
- Malaxis paludosa*, insect visitors, **22**, 616.
- Malcolmia littorea*, seedling-anatomy, **28**, 715.
- Malt diastase, **24**, 213.
- Mamillaria*, *spp.*, seedling-anatomy (*), **24**, 156.
- Manganese sulphate, influence of, on growth of barley (*), **24**, 578.
- MANGHAM, S.: Observations on the Ozazone Method of locating Sugars in Plant Tissues (*), **29**, 369.
- Mangroves, transpiration, **26**, 436.
- Marah*, *spp.*, germination of seeds (*), **30**, 215.
- Marattiaceae, development and structure of secretory tissues (*), **29**, 209; mucilage canals (*), **29**, 411; tannin ducts and sacs (*), **29**, 417.
- Marchantia*, androgynous receptacles (*), **24**, 349; spermatogenesis (*), **25**, 299.
- MARSH, A. S.: The Anatomy of some Xerophilous Species of *Cheilanthes* and *Pellaea* (*), **28**, 671.
- Marsh vegetation (*), **23**, 275; evaporation (*), **23**, 287; mutual protection of shoots, **23**, 303; specific differences, **23**, 306; stratification of aerial shoots (*), **23**, 276; temperature and evaporation, **23**, 298, 301; xeromorphy (*), **26**, 815.
- Marsilia quadrifolia*, histology of sieve-tubes, **26**, 581.
- MASLEN, A. J.: The Structure of *Mesoxylon Sutcliffii* (Scott) (*), **25**, 381.
- *see* SCOTT, D. H.
- MASSEE, G.: On a New Genus of *Ascomycetes* (*), **23**, 335.

- MASSE, G.: The Structure and Affinities of British Tuberales (*), 23, 243.
- Matonia, sporangium (*), 29, 516; sporophyll (*), 29, 510.
- Matricaria eximia, seedling-structure, 28, 316.
- Matteuccia intermedia, description (*), 28, 367, phylogeny (*), 28, 415.
- MATTHEWS, J. R.: Note on Abnormal Flowers in *Orchis purpurea*, Huds. (*), 29, 155.
- Matthiola tricuspidata, seedling-anatomy (*), 28, 715.
- MCALLISTER, F.: Nuclear Division in *Tetraspora lubrica* (*), 27, 681.
- McNICOL, M.: On Cavity Parenchyma and Thyloses in Ferns (*), 22, 401.
- The Bulbils and Pro-embryo of *Lamprothamnus alopecuroides*, A. Braun. (*), 21, 61.
- Medicago, *spp.*, seedling-anatomy, 28, 726.
- Medullary phloem in stems of Dicotyledons, origin and meaning of (*), 29, 567.
- rays of Fagaceae, 26, 1124.
- and annual ring of *Quercus*, evolution (*), 25, 983.
- Medullation in Ophioglossaceae (*), 25, 537; in the Pteridophyta (*), 25, 555; 25, 1206.
- Medullosa: on *M. centrofilis*, a new species from the Lower Coal Measures (*), 28, 251.
- *centrofilis*, affinities, 28, 261; diagnosis, 28, 263; general structure (*), 28, 252; leaf-base (*), 28, 259; leaf-trace (*), 28, 258; periderm (*), 28, 259; steles (*), 28, 254.
- Megaceros, a new genus of Anthocerotaceae (*), 21, 469; description (*), 21, 484.
- antheridia (*), 21, 474; archegonia (*), 21, 476; chromophores (*), 21, 471; embryo (*), 21, 477; germination, 21, 482; sexual organs (*), 21, 474; thallus structure (*), 21, 473.
- relation to other Anthocerotaceae, 21, 482.
- *Salakensis*, *n. sp.*, description (*), 21, 484.
- *Tjibodensis*, *n. sp.*, description (*), 21, 484.
- Megalospermum, *n. gen.*, description, 28, 91, 101.
- *Wildi*, *n. sp.*, description (*), 28, 101.
- Meiotic divisions in the microspore mother-cells of *Smilacina racemosa* (*), 29, 471.
- in *Vicia Faba*, behaviour of chromatin in (*), 28, 633.
- Mentha rotundifolia*, insect visitors, 22, 606.
- Menyanthes trifoliata*, insect visitors, 22, 610.
- Mercurialineae of South Africa, 27, 371.
- Mercurialis, description of genus and species, 27, 397.
- *procumbens*, history of, 27, 371.
- Mesarch structure in cotyledons of Scitamineae (*), 24, 485; in stamens of *Parnassia* (*), 27, 492.
- Mesembryanthemum, *spp.*, seedling-structure (*), 26, 187.
- pseudotruncatellum, lens-cells of epidermis (*), 25, 1137.
- Mesostrobos, a new genus of lycopodiaceous cones from the Lower Coal Measures (*), 23, 379.
- *Scottii*, *n. sp.*, description (*), 23, 379.
- Mesoxylon, *n. gen.*, description, 24, 237; diagnosis, 25, 384.
- *Lomaxii*, *n. sp.*, description, 24, 238; (*), 26, 1012, 1016.
- structure: comparisons, 26, 1023; cortex (*), 26, 1016; leaf-trace (*), 26, 1013; phloem and pericycle (*), 26, 1016; pith (*), 26, 1013; wood (*), 26, 1015.
- multirame, *n. sp.*, description, 24, 238.
- platypodium, *n. sp.*, description, 24, 239.
- poroxyloides, *n. sp.*, description, 24, 237; (*), 26, 1017, 1023.
- comparisons, 26, 1023; cortex (*), 26, 1021; leaf-trace (*), 26, 1019; phloem and pericycle (*), 26, 1021; pith (*), 26, 1018; wood (*), 26, 1020.
- *Sutcliffii*, axillary buds (*), 25, 406; cortex and leaf-bases (*), 25, 404; description, 24, 237; diagnosis, 25, 409; general characters (*), 25, 385; leaf-traces (*), 25, 393, 398; pith (*), 25, 391; vascular tissues (*), 25, 398.
- Mesozoic conifers, anatomy (*), 27, 533.
- Metabolism, function of hormones in regulating, 25, 507.
- Metacedroxylon araucaroides, anatomy of wood (*), 27, 538.
- latiporum, anatomy of wood (*), 27, 540.
- Metaxyla, phylogeny (*), 27, 443.
- Metroxylon Rumphii, branching of, 23, 338.
- *Sagus*, branching of, 23, 338.
- Metzgeria, vegetative reproduction (*), 24, 271.
- *spp.*, gemmae of (*), 24, 273.
- *disciformis*, *n. sp.*, description (*), 24, 291.
- *oligotricha*, *n. sp.*, description (*), 24, 280.
- *uncigera*, *n. sp.*, description (*), 24, 276.
- *vivipara*, *n. sp.*, description (*), 24, 287.
- Mexican species of *Peperomia*, 21, 147.
- MICHELL, M. R.: On the Comparative Anatomy of the Genera *Ceraria* and *Portulacaria* (*), 26, 1111.
- Microchemical methods, 21, 515; reactions for pectic substances, 25, 747.
- Micrococca, the genus, 25, 575; descriptions of species, 25, 629; distribution, 25, 632; historical review, 25, 580; key to species, 25, 629; non-perulate *Claoxyla*, 25, 578; perulate *Claoxyla*, 25, 578; properties, 25, 638.

- Microsclerotia of Cladosporium, growth and development, **24**, 366.
- Miospermum, *n. gen.*, description (*), **28**, 90, 100.
- samaroides, description (*), **28**, 100.
- Microspore mother-cells of Smilacina racemosa, meiotic divisions (*), **29**, 471.
- Microtome, device for using blade of safety razors (*), **25**, 273.
- Migration of nuclei in Phragmidium violaceum (*), **29**, 293.
- MILLER, E. C.: A Physiological Study of the Germination of Helianthus annuus (*), **24**, 693.
- *Id.* II. The Oily Reserve, **26**, 889.
- Mineral salts and chalk, acidity of Sphagnum and its relation to, **29**, 65.
- Mimosa, diurnal variation of moto-excitability (*), **27**, 759.
- Mimulus luteus, seedling-anatomy, **26**, 739.
- Mirabilis, *spp.*, seedling-structure (*), **26**, 193.
- MITCHELL, G.: Contributions towards a Knowledge of the Anatomy of the Genus Selaginella, Spr. Part V. The Strobilus (*), **24**, 19.
- Mitosis, mechanism of **25**, 851.
- in embryo-sac mother-cell of Lilium (*), **23**, 343; in Oenothera (*), **26**, 993; in pollen mother-cells of Acer negundo and Staphylea trifolia (*), **28**, 115.
- Mitospermum, *n. gen.*, description, **24**, 503.
- compressum, attribution to Cordaites, **24**, 504; characters (*), **24**, 491; description, **24**, 503; inner flesh (*), **24**, 496; nomenclature, **24**, 501; nucellus and embryo sac (*), **24**, 497; sarcotesta (*), **24**, 495, 499; sclerotesta (*), **24**, 492, 499; seed base (*), **24**, 500; vascular supply (*), **24**, 497, 501.
- MIYAKE, K., and YASUI, K.: On the Gametophytes and Embryo of Pseudolarix (*), **25**, 639.
- Mnium affine var. ciliaris, spermatogenesis (*), **29**, 441; androcyte (*), **29**, 447; blepharoplast (*), **29**, 450; chromosome formation (*), **29**, 446; resting stages and prophase (*), **29**, 445; sperm-cell vacuoles (*), **29**, 449; sperm, final stages in development (*), **29**, 452; telophases (*), **29**, 446.
- hornum, meiotic divisions (*), **23**, 146; nuclear division, **22**, 328; (*), **23**, 141; premeiotic development (*), **23**, 143; sex-determination (*), **29**, 433; spermatogenesis **24**, 235; (*), **25**, 422; spore-formation (*), **23**, 141.
- MOCKERIDGE, F. A.: Some Conditions influencing the Fixation of Nitrogen by Azobacter and the Growth of the Organism, **26**, 871.
- Monocotyledons, origin (*), **22**, 713; **25**, 717; cytology, **25**, 738; degeneracy, **25**, 720; distribution, **25**, 719; embryology, **25**, 738; geological evidence, **25**, 718; inheritance of acquired characters, **25**, 741; isolation and natural selection, **25**, 743; percentages of natural orders, **25**, 719; reproductive organs, **25**, 737; structure, **25**, 732; water requirements, **25**, 724; water-storage organs, **25**, 724.
- Monocotyledons and Cycads, **25**, 725.
- Monocotyledonous Dicotyledons, **25**, 727.
- embryo, morphology (*), **30**, 509.
- Monodora Myristica, vascular anatomy, **22**, 671.
- Morus alba, anatomy of leaf-fall (*), **25**, 90.
- nigra, anatomy of leaf-fall, **25**, 90; morphology of ovule (*), **23**, 632.
- Moto-excitability in Mimosa, diurnal variation (*), **27**, 759.
- MOTTIER, D. M.: Mitosis in the Pollen Mother-cells of Acer negundo, L., and Staphylea trifolia, L. (*), **28**, 115.
- On the Prophases of the Heterotypic Mitosis in the Embryo-sac Mother-cell of Lilium (*), **23**, 343.
- The Development of the Heterotypic Chromosomes in Pollen Mother-cells (*), **21**, 309.
- Mucilage canals of Marattiaceae, development and structure (*), **29**, 411.
- glands of Undaria (*), **23**, 613.
- Multinucleate cells in growing tissues (*), **29**, 598, 599.
- Multiseriate ray of Dicotyledons, origin (*), **25**, 1005.
- MURPHY, P. A.: Morphology and Cytology of the Sexual Organs of Phytophthora erythrospica, Pethyb. (Preliminary Note), **28**, 735.
- Mutation theory, **30**, 560; and endemism, **30**, 551.
- Mycetozoa and Plasmodiophoraceae, relationship (*), **28**, 227.
- Mycorrhiza, historical account, **29**, 99; of Amyelon radicans (*), **23**, 603; of Asarum europaeum (*), **26**, 769; of Gastrodia elata, **25**, 521.
- Myosotis, *spp.*, insect visitors, **22**, 611.
- Myosurus minimus, seedling-anatomy, **28**, 707.
- Myrica Gale, nodules: bacteria, **26**, 114; effect of, on growth of plants, **26**, 115; nitrogen fixation, **26**, 115; origin (*), **26**, 114; structure (*), **26**, 112.
- ovule: morphology (*), **23**, 629; structure and development (*), **23**, 353.
- *spp.*, seedling-structure (*), **30**, 581.
- Myricaceae, structure of ovule, **23**, 692.
- Myristica, internal phloem (*), **22**, 526.
- Myxomycetes, formation of capillitium (*), **28**, 1.

N.

Names of weeds, common and local, **27**, 163.

Nandina domestica, vascular anatomy (*), **22**, 674.

- Narcissus, morphology of corona (*), 28, 541.
 Narthecium Ossifragum, insect visitors, 22, 635.
 Natural selection and geographical distribution (*), 30, 1; and isolation, 25, 743.
 Nectarines of Polygonum, extra floral (*), 23, 229.
 Nemesia, *spp.*, seedling-anatomy, 26, 738.
 Nereocystis Luetkeana, histology, 22, 320.
 Neurospermum, *n. gen.*, description (*), 28, 93, 103.
 — Kidstoni, *n. sp.*, description (*), 28, 103.
 New Brunswick, fossil plants from (*), 27, 248.
 New Zealand, distribution of species in (*), 30, 437; early type of Abietineae from Cretaceous of (*), 30, 111; Jurassic Osmundaceae from (*), 28, 471.
 Nicandra physaloides, seedling-anatomy (*), 26, 733.
 Nicotiana alata, seedling-anatomy, 26, 736.
 Nierembergia gracilis, seedling-anatomy, 26, 737.
 Nigella, *spp.*, seedling-anatomy, 28, 707.
 Nilssonia orientalis, structure (*), 24, 389.
 Nitrogen fixation by Azobacter, conditions, 26, 871.
 Nopalea, seedling-structure (*), 24, 134.
 Notothylas, sporogonium (*), 21, 201.
 — javanicus (*), 22, 96; embryo (*), 22, 97; reproductive organs (*), 22, 97.
 Nuclear division in Compositae (*), 26, 705; Desmids (*), 30, 379; Galtonia candicans (*), 24, 726; mechanism of (*), 24, 653; Mnium hornum (*), 23, 141; Preissia commutata (*), 27, 661; Rusts, vegetative (*), 22, 331; Tetraspora lubrica (*), 27, 681.
 — migration in Phragmidium violaceum (*), 29, 293.
 Nuclei in Ascomycetes, conjugate (*), 30, 415.
 Nucleolus, relation of, to chromatin bodies in Galtonia candicans (*), 23, 491.
 — rôle of (*), 29, 288.
 Nucleus, double nature of somatic, 23, 43; genesis of male in Lilium (*), 28, 265; organization of, in pollen mother-cells (*), 23, 19; studied under dark-ground illumination (*), 28, 615; unisexual plants, 23, 341.
 Nutrient solution in water-culture, effect of concentration of, 29, 89; (*), 30, 77.
 — solutions, 21, 511.
 Nutritive elements to the plant-cell (*), 21, 501.
 Nyctaginaceae, seedling-structure (*), 26, 189.
 Nyssa sylvatica, anatomy of leaf-fall, 25, 95.
- O.
- Obione portulacoides, seedling-structure (*), 26, 184.
 Odontosoria, phylogeny (*), 27, 459.
 Oedogoniaceae in the Tropics, 21, 265.
 Oenothera, cytology (*), 23, 551; 24, 631; 25, 941; 26, 993.
 — — anaphase (*), 26, 1000; chromosome number (*), 26, 993; metaphase (*), 26, 999; prophase (*), 26, 995; reducing divisions (*), 25, 941; 26, 1003; somatic mitoses (*), 26, 993; telophase (*), 26, 1000.
 — biennis, reducing divisions in ovule (*), 24, 640; in pollen mother-cell (*), 24, 633; vegetative mitosis in ovule (*), 24, 643.
 — gigas, archesporium (*), 25, 911; chromosome formation (*), 25, 955, 959; mitosis (*), 25, 921, 923, 930, 956, 957; nuclear extensions (*), 25, 915; pollen formation (*), 25, 909; pollen tetrads and pollen-grains (*), 25, 925; presynapsis (*), 25, 954; size of cells and nuclei (*), 25, 958; sterility (*), 25, 927; synapsis (*), 25, 911, 919, 954.
 — grandiflora: chromosomes, formation of bivalent (*), 23, 557; mitosis (*), 23, 522, 560, 563; synapsis (*), 23, 555; vegetative mitosis in anther (*), 552.
 — Lamarckiana, chromosome formation (*), 25, 946; mitosis (*), 25, 948, 950; presynapsis (*), 25, 944; sterility of pollen (*), 25, 952; synapsis (*), 25, 945.
 Oil of Helianthus annuus, chemical nature, 26, 894; reserve in germination, 26, 889.
 Oil-containing seeds, proteases of, 22, 104.
 OLIVE, E. W.: Sexual Cell Fusions and Vegetative Nuclear Divisions in the Rusts (*), 22, 331.
 OLIVER, F. W.: Note on the Palaeozoic Seeds, Trigonocarpus and Polylophospermum (*), 21, 303.
 — On Physostoma elegans, Williamson, an Archaic Type of Seed from the Palaeozoic Rocks (*), 23, 73.
 — and SALISBURY, E. J.: On the Structure and Affinities of the Palaeozoic Seeds of the Conostoma Group (*), 25, 1.
 Olpidiopsis (*), 26, 209; description of species, 26, 230; infection of host (*), 26, 215; nuclear division, 26, 229; sexual organs (*), 26, 219, 227; sporangium development (*), 26, 217, 255; zoospores (*), 26, 213.
 — luxurians, *n. sp.*, description, 26, 231.
 — Saprolegniae, description, 26, 232.
 — vexans, *n. sp.*, description, 26, 231.
 Onoclea, phyletic consideration, 26, 300.
 Onopordon tauricum, seedling-structure, 28, 320.
 Ophioglossaceae, morphology and anatomy (*), 24, 1; 27, 203; 28, 19; 29, 1; primary xylem and origin of medullation (*), 25, 537.

- Ophioglossaceous spike, morphology, **25**, 291.
- Ophioglossum granulatum, nature of the Cretaceous plant (*), **25**, 903.
- palmatum, anatomy of stock and leaf-trace (*), **25**, 278; morphology of fertile spikes (*), **25**, 282; morphology of the Ophioglossaceous spike, **25**, 291.
- simplex, morphology, **22**, 327.
- Opuntia, *spp.*, seedling-structure (*), **24**, 129.
- Orchis purpurea, abnormal flowers (*), **29**, 155.
- Orthoheliotropic organs (*), **23**, 470.
- OSBORNE, T. G. B.: A Preliminary Note on the Life-history and Cytology of Spongospora subterranea, Wallroth, **25**, 271.
- Spongospora subterranea, (Wallroth) Johnson (*), **25**, 327.
- The Lateral Roots of Amyelon radicans, Will., and their Mycorrhiza (*), **23**, 603.
- Osmundaceae, anatomy (*), **25**, 525; **30**, 487; foliar gaps (*), **24**, 107; leaf-structure (*), **30**, 487; leaf-trace structure (*), **25**, 529; sporeling-structure (*), **25**, 528.
- Jurassic from New Zealand (*), **28**, 471.
- regalis, 'mixed pith' in an anomalous stem (*), **28**, 351.
- Ostenfeldiella, *n. gen.*, description, **28**, 648.
- Diplantherae, *n. sp.*, biology (*), **28**, 646; diagnosis, **28**, 648.
- Otidea aurantia, cytology (*), **22**, 465.
- OVERTON, J. B.: On the Organization of the Nuclei in the Pollen Mother-cells of Certain Plants, with Especial Reference to the Permanence of the Chromosomes (*), **23**, 19.
- Ovule, of Angiosperms, consideration of, **23**, 633; of Bowenia spectabilis, structure and development (*), **26**, 625; of Myrica Gale, structure and development (*), **23**, 353.
- Oxalate, presence of in 'infection drop', **30**, 405.
- Oxalis acetosella, insect visitors, **22**, 617.
- Oxygen, relation of reproduction in Saccharomyces to supply of free, **28**, 197.
- Ozazone method of locating sugars in plant tissues (*), **29**, 369.
- P.
- Pachyphloeus, description, **23**, 255.
- citrinus, description, **23**, 255.
- conglomeratus, description, **23**, 255.
- melanoxanthus, description (*), **23**, 255.
- Pachypodium namaquanum, anatomical relationships, **26**, 939; leaf-structure (*), **26**, 935; protuberances and species (*), **26**, 933, 938; stem-structure (*), **26**, 931.
- Paeonia, *spp.*, seedling-anatomy (*), **28**, 707; vascular anatomy (*), **22**, 663.
- Paeoniaceae, vascular anatomy (*), **22**, 663.
- PAINE, S. G.: On the Supposed Origin of Life in Solutions of Colloidal Silica (*), **30**, 383.
- see BLACKMAN, V. H.
- Palaeobotanical reconstruction, methods of (*), **27**, 273.
- Palaeostachya vera, anatomy (*), **21**, 369; axis (*), **21**, 372; bracts (*), **21**, 377; cone affinities, **21**, 381; cortex (*), **21**, 372; general features (*), **21**, 371; medulla (*), **21**, 373; sporangiophore (*), **21**, 375, 378; spores, **21**, 379; vascular system (*), **21**, 374.
- Palaeozoic seeds, structure (*), **21**, 89.
- of the Conostoma type, structure and affinities (*), **25**, 1.
- Palisade cells, cause of formation, **26**, 842; effect of environment on production (*), **26**, 834.
- Palmellaceae, Coccomyxa subellipsoidea, a new member of (*), **23**, 573.
- Palms, aquatic origin, **25**, 723; branching in (*), **21**, 416; **23**, 338.
- Panama disease (*), **24**, 488; **25**, 243, 353; enzymes, **25**, 357; haustoria (*), **25**, 356; hyphae, **25**, 358; mycocecidia (*), **25**, 357; pegmatia (*), **25**, 353; pycnidia (*), **25**, 356; spores (*), **25**, 355.
- Pandanus, antipodal cells (*), **25**, 781; embryo (*), **25**, 784; embryo-sac (*), **25**, 776; fertilization (*), **25**, 782; ovule (*), **25**, 775; pollen (*), **25**, 776.
- *spp.*, embryo-sac, **22**, 330; (*), **25**, 776, 779.
- Papain, **23**, 1.
- Papaver, *spp.*, seedling-anatomy, **28**, 719.
- Papayotin, **23**, 1.
- Paracupressinoxylon cedroides, anatomy of wood (*), **27**, 537.
- cupressoides, anatomy of wood (*), **27**, 538.
- Paradenocone, review of, **27**, 388.
- Paraphyllocladoxylon araucaroides, anatomy of wood (*), **27**, 536.
- eboracense, anatomy of wood (*), **27**, 536.
- Parasite and host, relationship (*), **25**, 653, 661.
- Parasitism in Exocarpus, root (*), **24**, 667.
- physiology of, **29**, 313; (*), **30**, 389, 399.
- Parasynapsis and telosynapsis, **26**, 623.
- PARKIN, J.: see ARBER, E. A. N.
- Parnassia, affinities, **27**, 500; anatomy of stamens of Indian species (*), **29**, 159; structure of androecium (*), **27**, 491.
- palustris, insect visitors, **22**, 626.
- PEARSON, H. H. W.: On the Embryo of Welwitschia (*), **24**, 759.
- On the Microsporangium and Microspore of Gnetum, with some Notes on the Structure of the Inflorescence (*), **26**, 603.
- Pectic substances, microchemical reactions, **25**, 747.

- Pediastrum* Boryanum, cell-structure and zoospore formation (*), **30**, 467.
- Pelargonium zonale*, pollination and respiratory activity, **21**, 491.
- Pellaea*, anatomy of xerophilous species (*), **28**, 671.
- Pellia* epiphylla, spermatogenesis (*), **25**, 436.
- Peloria* in *Saintpaulia ionantha* (*), **26**, 946.
- Peltaria alliacea*, seedling-anatomy, **28**, 717.
- Penaeaceae, embryo (*), **23**, 369; embryonic, **22**, 329; (*), **23**, 364; endosperm (*), **23**, 367; ovule (*), **23**, 364.
- PENISTON, A.: see WAGER, H.
- Peperomia*, geophilous species: geographical distribution, **21**, 158; history, **21**, 139; inflorescence, **21**, 145; key to species, **21**, 147; leaves (*), **21**, 143; Mexican and Central American species, **21**, 147; morphology (*), **21**, 141; revision (*), **21**, 139; seedlings (*), **21**, 146; systematic arrangement, **21**, 146.
- bracteata, description (*), **21**, 155.
- campylotropa, *n. sp.*, description, **21**, 156.
- claytonioides, description (*), **21**, 154.
- cyclaminoides, *n. sp.*, description (*), **21**, 149.
- falsa, description (*), **21**, 151.
- Gaudichaudii, *n. sp.*, description, **21**, 154.
- gracillima, description, **21**, 155.
- macandra, description, **21**, 156.
- minuta, *n. sp.*, description (*), **21**, 150.
- monticola, description (*), **21**, 157.
- parvifolia, description, **21**, 149.
- peruviana, description, **21**, 150.
- rupiceda, description (*), **21**, 157.
- umbilicata, description, **21**, 150.
- verruculosa, *n. sp.*, description, **21**, 149.
- Peranema*, phyletic consideration, **26**, 306.
- cyatheoides, external characters (*), **26**, 247; internal structure (*), **26**, 248; prothallus development (*), **30**, 107; sorus and sporangia (*), **26**, 252; development (*), **30**, 101, 104.
- Pereskia*, spp., seedling-structure (*), **24**, 126.
- Pericystis*, *n. gen.*, description, **26**, 798.
- alvei, *n. sp.*, a beehive fungus (*), **26**, 795, 798.
- Periderm formation in filicinean petioles, **24**, 611.
- of fossil Lycopodiales, physiological anatomy (*), **27**, 281.
- Perithecium of *Polystigma rubrum*, development (*), **26**, 761.
- Permeability of cells to the hydrogen ion, effect of temperature on (*), **29**, 611.
- of protoplasm, measured by rate of shrinkage of turgid tissues (*), **30**, 283.
- to water, influence of temperature (*), **30**, 283.
- Permeability, studies in, **29**, 349; (*), **29**, 611; (*), **30**, 223.
- PETCH, T.: A Preliminary Note on *Sclerocystis coremioides*, **22**, 116.
- Note on the Biology of the Genus *Septobasidium*, **25**, 842.
- The Genus *Endocalyx*, Berkeley and Broome (*), **22**, 389.
- Petunia violacea*, seedling anatomy, **26**, 737.
- Peuce Lindleii, description (*), **30**, 117.
- Peziza vesiculosa*, cytology (*), **22**, 467.
- Phacelia tanacetifolia*, seedling-structure, **27**, 811.
- Phellodendron amurense*, anatomy of leaf-fall, **25**, 97.
- Pherosphaera Fitzgeraldi*, anatomy (*), **30**, 311.
- Philadelphus coronarius*, insect visitors, **22**, 621.
- grandiflorus, seedling-anatomy, **28**, 724.
- Phloem, general anatomy (*), **22**, 263.
- of Angiosperms, histology (*), **22**, 245; of *Myristica* (*), **22**, 526.
- origin and meaning of medullary phloem in stems of Dicotyledons (*), **29**, 567.
- parenchyma cells (*), **22**, 264.
- Phosphorus in *Saccharomyces* (*), **24**, 70; rôle of, **21**, 504, 522.
- Photosynthesis, beginning of (*), **24**, 805; photo-electric theory of, **22**, 117.
- Phragmidium violaceum*, nuclear migrations (*), **29**, 293.
- Phylloctactus Hookeri*, seedling-structure (*), **24**, 136.
- Phylloglossum*, sporeling attached to prothallus (*), **30**, 605.
- Drummondii, branching (*), **30**, 328; morphology (*), **24**, 336; **30**, 316, 318; vascular anatomy, **30**, 318.
- Phyllotaxy in *Fraxinus excelsior*, abnormal, **29**, 307.
- Phylogeny of Angiosperms (*), **28**, 547; of Filicales (*), **26**, 269; **28**, 363; **29**, 495.
- Physostoma*, comparison with *Conostoma*, **25**, 35.
- elegans, abortive seeds (*), **23**, 100; diagnosis, **23**, 101; epidermis (*), **23**, 87; ground tissue of integument (*), **23**, 89; integument (*), **23**, 85; megaspore membrane (*), **23**, 100; nucellus (*), **23**, 106; pollen chamber (*), **23**, 90; pollen-grains (*), **23**, 93; pollination (*), **23**, 91; prothallus (*), **23**, 100; secretory sacs (*), **23**, 97; seed organization (*), **23**, 75; series of transverse sections (*), **23**, 79; spermatozooids, **23**, 93; systematic position, **23**, 108; tapetum (*), **23**, 98; variation (*), **23**, 83; vascular system (*), **23**, 95.
- Physostomeae*, diagnosis, **25**, 37.
- Phytolacca*, spp., seedling-structure, **26**, 187.
- Phytolaccaceae, seedling-structure, **26**, 187.

- Phytophthora erythroseptica, morphology and cytology of sexual organs, **28**, 735.
- Picea, *spp.*, seedling-structure (*), **23**, 196.
- Picris echioides, seedling-structure, **28**, 322.
- Pilacre and Roesleria pallida, relationship (*), **30**, 411.
- Pilocereus, *spp.*, seedling-structure (*), **24**, 141.
- Pinus, chromosome formation and distribution (*), **22**, 536; homotype mitosis (*), **22**, 540; prophase (*), **22**, 530.
- leaf-structure of Cretaceous species (*), **22**, 207.
- *spp.*, seedling-structure (*), **23**, 199.
- granulata, *n. comb.*, description (*), **25**, 905.
- Inops, development of Sanio's bars (*), **30**, 419.
- maritima, abnormal prothallus (*), **26**, 943.
- yezoensis, *n. sp.*, description, **24**, 400; leaf-anatomy (*), **24**, 399.
- Pisum sativum, heterotypical reduction in somatic cells (*), **24**, 793; influence of temperature on rate of growth (*), **30**, 25.
- Pitostrobis macrocephalus, a Tertiary cone showing ovular structures (*), **30**, 529.
- — anatomical details: bract scales (*), **30**, 535; cone axis (*), **30**, 533; female gametophyte and embryo (*), **30**, 541; integument (*), **30**, 537; male gametophyte (*), **30**, 542; nucellar column (*), **30**, 540; nucellus (*), **30**, 538; ovule (*), **30**, 537; ovuliferous scale (*), **30**, 536.
- — diagnosis, **30**, 547.
- Pittosporum crassifolium, seedling-anatomy (*), **28**, 725.
- Pityoxylon with marginal tracheides, a Cretaceous (*), **25**, 315.
- Plagiogyria, anatomy (*), **24**, 428; description (*), **28**, 366; external characters (*), **21**, 426; phylogeny (*), **24**, 423; **28**, 415; sorus and sporangia (*), **24**, 438.
- Planoxylon, *n. gen.*, diagnosis, **30**, 119.
- Hectori, comparison with other fossils, **30**, 116; description (*), **30**, 111; diagnosis, **30**, 120.
- Lindlei, diagnosis, **30**, 120.
- Plant communities of farm land, **30**, 161.
- formations from the arid regions of Western China, **26**, 1105.
- Plantago lanceolata, insect visitors, **22**, 648; proliferous form of scape (*), **30**, 353.
- Plasmodiophoraceae and their relationship to Mycetozoa and Chytrideae (*), **28**, 227.
- Ostendfeldiella, a new genus of (*), **28**, 643.
- Plasmolysis studied under dark-ground illumination (*), **28**, 618.
- Platanus, *spp.*, seedling-anatomy, **28**, 725.
- orientalis, anatomy of leaf-fall, **25**, 86.
- Platyserium, anatomy (*), **29**, 507; sporangia (*), **29**, 519; sporophyll (*), **29**, 510.
- Platyserium, grape sugar excreted by (*), **25**, 1205.
- bifforme, relationship with ants, **24**, 469.
- Platyspermum, *n. gen.*, description (*), **28**, 87, 95.
- elongatum, description (*), **28**, 96.
- Kidstoni, *n. sp.*, description (*), **28**, 96.
- multistriatum, description (*), **28**, 96.
- rugosum, *n. sp.*, description (*), **28**, 96.
- Platystemon, californicus, seedling-anatomy, **28**, 719.
- Plectocomia branching, **21**, 417.
- Podocarpeae, affinities (*), **27**, 63; embryology (*), **26**, 484; **27**, 54; external features, **26**, 445; female fructification (*), **26**, 462; **27**, 41; female gametophyte (*), **26**, 477; **27**, 54; fossils, **26**, 486; genera and species, **26**, 445; geographical distribution, **26**, 485; inter-relationship of genera and species (*), **26**, 489; leaf (*), **26**, 453; male cone (*), **26**, 459; **27**, 41; male gametophyte (*), **26**, 479; **27**, 52; phylogeny, **26**, 496; root, **26**, 458; root nodules, formation and physiology (*), **26**, 801; seedling-structure (*), **22**, 694; **26**, 485; stem (*), **26**, 449.
- Podocarpylon, anatomy of wood (*), **27**, 542.
- Podocarpus, development of female strobilus (*), **26**, 515.
- bracteata, strobilus: histology (*), **26**, 548; morphology, **26**, 548.
- chinensis, seedling-anatomy (*), **22**, 694.
- dacrydioides, strobilus: histology (*), **26**, 532; morphology (*), **26**, 532.
- elata, strobilus: histology (*), **26**, 545; morphology (*), **26**, 544.
- ferruginea, strobilus: histology (*), **26**, 542; morphology (*), **26**, 541.
- Hallii, strobilus: histology (*), **26**, 555; morphology, **26**, 555.
- imbricata, strobilus: histology (*), **26**, 527; morphology (*), **26**, 525.
- neriifolia, strobilus: histology (*), **26**, 550; morphology, **26**, 549.
- nivalis, strobilus (*), **26**, 557.
- polystachya, strobilus: morphology (*), **26**, 546; histology (*), **26**, 546.
- saligna, description, **26**, 551.
- spicata, strobilus: histology (*), **26**, 540; morphology (*), **26**, 537.
- spinulosus, structure (*), **24**, 305; female fructification (*), **24**, 310; leaf, **24**, 307; male cone (*), **24**, 307; pollen (*), **24**, 308; stem, **24**, 306.
- Totara, strobilus: histology (*), **26**, 553; morphology (*), **26**, 551.
- vitiensis, strobilus (*), **26**, 533; histology (*), **26**, 536; morphology (*), **26**, 534.
- Podophyllum Emodi, seedling-anatomy, **28**, 708.
- peltatum, heterotypic chromosomes in pollen mother-cells (*), **21**, 310; vascular anatomy (*), **22**, 673.

- Podostemaceae and Tristichaceae, origin of, 29, 299.
- Poisons, action of, on Chlamydomonas and other vegetable cells, 23, 181.
- Pollen-grains of Fuchsia, supernumerary, 21, 305.
- Pollen mother-cells, chromatin extrusion in *Lilium candidum* (*), 29, 285; heterotypic chromosomes (*), 21, 309; walls (*), 23, 494.
- of *Calycanthus floridus* (*), 23, 30; of *Richardia africana* (*), 23, 34; of *Thalictrum purpurascens* (*), 23, 21.
- Pollen-presentation mechanism in the Compositae (*), 29, 457.
- Pollination, influence of, on respiratory activity of gynoceium, 21, 487.
- insect visitors of flowers of Clova Mountains, 22, 603.
- mechanisms of Lagenostomales (*), 25, 38.
- Polyalthia suberosa*, vascular anatomy (*), 22, 670.
- Polycarpon tetraphyllum, seedling-structure, 26, 181.
- Polygonum, *sp.*, extra-floral nectaries of (*), 23, 229.
- viviparum, insect visitors, 22, 608.
- Polylophospermum, note on (*), 21, 303.
- Polymorphism of organism causing root-tubercles of *Alnus* and *Elaeagnus* (*), 26, 119.
- Polyphagus Euglenae, chromidial fusion, 27, 184; chromidia (*), 27, 182; cysts, 27, 179; effect on Euglena, 27, 175; germination of zygote (*), 27, 185; nuclear division (*), 27, 189; occurrence and habit, 27, 174; relationships, 27, 192; reproduction (*), 27, 178; thallus-structure (*), 27, 176; zoospores (*), 27, 177; zygote formation (*), 27, 179.
- Polypodium aureum, cytology (*), 24, 193.
- *Schneideri*, cytology (*), 24, 200.
- sinuosum, symbiosis with ants, 24, 465.
- vulgare, cytology (*), 24, 195.
- var. *elegantissimum*, cytology (*), 24, 198.
- Polystigma rubrum, ascogonia (*), 26, 763; mycelium (*), 26, 762; spermogonia (*), 26, 763.
- Polytrichum, abnormal cell fusion in archeogonium and spermatogenesis (*), 27, 115.
- Populus, structure of North American (*), 26, 165.
- *balsamifera*, anatomy of leaf-fall (*), 25, 69.
- Porella, spermatogenesis (*), 25, 299.
- Porometer, a recording (*), 30, 47.
- in stomatal investigation, use of (*), 30, 57.
- Proxylon Sutcliffi, description, 24, 237.
- Portulaca oleracea, seedling-structure (*), 26, 177.
- Portulacaceae, seedling-structure (*), 26, 175.
- Portulacaria and Ceraria, comparative anatomy (*), 26, 1111.
- Potassium, rôle of (*), 21, 502, 517.
- Potato leaves, bacterial disease, 26, 133; histology of affected plants (*), 26, 135; infection (*), 26, 143; symptoms and mode of occurrence, 26, 133; the parasite (*), 26, 137.
- tubers, cause of 'blindness', 26, 129.
- Potentilla, *sp.*, insect visitors, 22, 624; seedling-anatomy, 28, 723.
- POULTON, E. M.: The Structure and Life-history of *Verrucaria margacea*, Wahl., an Aquatic Lichen (*), 23, 241.
- PRAIN, D.: A Review of the Genera *Erythrococca* and *Micrococca*, 25, 575.
- The Mercurialineae and Adenoclineae of South Africa, 27, 370.
- PRANKHERD, T. L.: Notes on the Occurrence of Multinucleate Cells (*), 29, 599.
- On the Structure and Biology of the Genus *Hottonia* (*), 25, 253.
- Preissia commutata, mitosis in vegetative cells (*), 27, 661; sporogenesis (*), 27, 670.
- Prepinus, description, 24, 398.
- *japonicus*, *n. sp.*, description, 24, 398; leaf-structure (*), 24, 396.
- PRICE, S. R.: Some Studies on the Structure of the Plant Cell by the Method of Dark-ground Illumination (*), 28, 601.
- PRIESTLEY, J. H.: see KNIGHT, R. C.
- and IRVING, A. A.: The Structure of the Chloroplast considered in Relation to its Function (*), 21, 407.
- Primula, chromosome numbers, 26, 359; cytology (*), 26, 357; premeiotic divisions (*), 26, 361.
- *floribunda*, cytology (*), 26, 363.
- — *isabellina* × *P. kewensis*, cytology, 26, 377.
- *kewensis*, seedling-form, cytology (*), 26, 372.
- — type, cytology (*), 26, 370.
- — *farinosa*, cytology (*), 26, 376.
- *verticillata*, cytology (*), 26, 369.
- — × *P. floribunda*, cytology, 26, 376.
- Prince Edward Island, fossil plants from (*), 27, 244.
- Pro-embryo and bulbils of *Lamprothamnus alopecuroides* (*), 21, 61.
- Proliferous form of scape of *Plantago lanceolata* (*), 30, 353.
- Propagation in *Drosera*, vegetative (*), 29, 308.
- Prophase of first division, conjugation of chromosomes in (*), 23, 46.
- of heterotypic mitosis in the embryo-sac mother-cell of *Lilium* (*), 23, 343.
- Protea *Lepidocarpon*, embryo-sac, 23, 161.
- Proteases of oily seeds, separation, 22, 110.
- of plants, 22, 103; 23, 1; 24, 213.

- Proteins, rôle of, in absorption of acids by potato cells, **30**, 233.
- Prothallus of *Equisetum debile* (*), **28**, 163; of *Lepidodendron Veltheimianum* (*), **24**, 821; of *Pinus maritima*, abnormal (*), **26**, 943.
- production of male in sporangia of *Todea* (*), **22**, 231.
- Protobrachyoxylon eboracense, anatomy of wood (*), **27**, 541.
- Protococcales, cytology (*), **30**, 459, 467.
- Prunus*, *spp.*, gummosis (*), **25**, 107, 116; leaf-fall anatomy, **25**, 84; seedling-structure, **27**, 799; (*), **28**, 722.
- *Padus*, insect visitors, **22**, 608.
- Pseudolarix*, embryo (*), **25**, 644; female gametophyte (*), **25**, 641; male gametophyte (*), **25**, 640.
- *Kaempferi*, seedling-structure, **23**, 212.
- Pseudotsuga Douglasii*, archegonia (*), **23**, 170; embryo (*), **23**, 175; female gametophyte (*), **23**, 168; fertilization (*), **23**, 172; male gametophyte (*), **23**, 163.
- Psilotaceae, systematic position, **24**, 383.
- Psilotum flaccidum*, morphology (*), **24**, 374; structure (*), **24**, 375.
- triquetrum, abnormal sporangia (*), **22**, 525.
- and *Sphenophyllum*, comparison, **22**, 78.
- Pteridium aquilinum*, histology of sieve-tubes (*), **26**, 573.
- Pteridophyta*, medullation (*), **25**, 555, 1206; xylem elements (*), **25**, 745.
- Pteridosperm* possessing *Sphenopteris* type of foliage (*), **22**, 57.
- Pteris aquilina*, wound reactions of petioles (*), **30**, 127.
- *droogmantiana*, apogamy, **24**, 487.
- Pterocarya rhoifolia*, seedling-structure (*), **30**, 587.
- Pterospermum*, *n. gen.*, description (*), **28**, 93, 104.
- *anglicum*, *n. sp.*, description (*), **28**, 104.
- Pterostylis*, life-history (*), **23**, 265.
- Puccinia coronifera*, **21**, 459; histology, **21**, 460.
- *dispersa*, **21**, 454; haustoria (*), **21**, 455; histology (*), **21**, 454; hyphae, **21**, 455; nuclei, **21**, 455.
- *glumarum*, haustoria (*), **21**, 453; histology, **21**, 450; nuclei (*), **21**, 453; septation of hyphae, **21**, 452; spore-formation, **21**, 453; spore-germination (*), **21**, 451.
- *graminis Tritici*, **21**, 444; histology (*), **21**, 445.
- *malvacearum*, effect of external stimuli on sporidia of (*), **28**, 331.
- *Phlei-pratensis*, germination of spore (*), **21**, 447; haustoria (*), **21**, 448; nuclei (*), **21**, 448.
- *simplex*, **21**, 457; haustoria, **21**, 459; histology (*), **21**, 457; hyphae, **21**, 458; nuclei, **21**, 459.
- Puccinia Sorghi*, description (*), **21**, 461.
- *triticina*, **21**, 456; histology (*), **21**, 456.
- Pupalia purpurea*, seedling-structure, **26**, 182.
- Pyrola*, *spp.*, insect visitors, **22**, 616.
- Pyrus*, *spp.*, insect visitors, **22**, 621, 638; seedling-anatomy (*), **28**, 723.
- *floribunda*, anatomy of leaf-fall, **25**, 74.

Q.

- Quercus*, evolution of annual ring (*), **25**, 984; of medullary ray (*), **25**, 992; tannin of heart-wood, **29**, 407.
- *spp.*, seedling-structure, **30**, 591.
- *palustris*, anatomy of leaf-fall, **25**, 72.

R.

- Rachiopteris cylindrica*, description (*), **29**, 532; discussion, **29**, 553; distribution and horizon, **29**, 532; organs in association with (*), **29**, 551.
- Radiospermum*, *n. gen.*, description (*), **28**, 92, 101.
- *elongatum*, *n. sp.*, description (*), **28**, 101.
- *grande*, *n. sp.*, description (*), **28**, 101.
- *inflatum*, description (*), **28**, 101.
- *Kidstoni*, description (*), **28**, 102.
- *marginatum*, description (*), **28**, 102.
- *ornatum*, *n. sp.*, description (*), **28**, 102.
- *ovatum*, description (*), **28**, 87, 102.
- *perpusillum*, description (*), **28**, 102.
- *problematicum*, *n. sp.*, description (*), **28**, 103.
- *Sinclairi*, description (*), **28**, 103.
- Ranales*, seedling-anatomy (*), **28**, 695; vascular system (*), **22**, 651.
- Ranunculaceae*, vascular anatomy (*), **22**, 657.
- Ranunculus*, *spp.*, insect visitors, **22**, 621; seedling-anatomy (*), **28**, 704.
- Raphanus Raphanistrum*, insect visitors, **22**, 604.
- RAYNER, M. C.: Obligate Symbiosis in *Calluna vulgaris* (*), **29**, 97.
- Rays of dicotyledons, origin of multiseriate (*), **25**, 1005; relation of leaf-trace to formation of compound (*), **25**, 225.
- of *Quercus*, evolution of medullary (*), **25**, 992.
- Ray-tracheides in *Cunninghamia sinensis* (*), **22**, 593.
- Reconstruction, methods of palaeobotanical (*), **27**, 273.
- Reduction divisions of *Oenothera biennis* (*), **24**, 631.
- REED, H. S.: The Value of Certain Nutritive Elements to the Plant Cell (*), **21**, 501.
- REED, T.: On the Anatomy of some Tubers (*), **24**, 537.
- Some Points in the Morphology and Physiology of Fasciated Seedlings (*), **26**, 389.

- REED, T.: The Nature of the Double Spireme in *Allium Cepa* (*), **28**, 271.
- REES, B.: see WAGER, H.
- Rehmannia angulata, seedling-anatomy, **26**, 740.
- Reinealmia racemosa, seedling-anatomy, **29**, 212.
- Reproduction in Indian species of Selaginella, vegetative (*), **28**, 685; in Metzgeria, vegetative, **24**, 271.
- Reseda, *spp.*, seedling-anatomy, **28**, 719.
- Resistance to flow of transpiration current, **24**, 98.
- Respiration, carbon dioxide output by seeds, **22**, 434; effect of anaesthetics, **22**, 440; (*), **25**, 1078; effect of diminished pressure on initial output of carbon dioxide, **22**, 439.
- of gynoeceum, influence of pollination on, **21**, 487.
- of seeds, endospermic, **22**, 415; *Hordeum*, **22**, 419; *Ricinus*, **22**, 432; *Zea*, **22**, 427.
- in darkness, quantitative results, **27**, 433.
- under various electrical conditions (*), **28**, 135.
- Temperature and, **22**, 433.
- Respiratory enzymes, **22**, 443.
- exchanges of leaves, effect of chloroform on (*), **27**, 697.
- quotient, **22**, 443.
- Rhabdocarpus, description (*), **28**, 87, 99.
- Lillieanus, *n. sp.*, description (*), **28**, 99.
- Rheum undulatum, morphology of ovule (*), **23**, 632.
- Rhipsalis, *spp.*, seedling-structure (*), **24**, 142.
- Rhodesia, bio-histological notes on some new species of *Fuirena*, *Hesperantha*, and *Justicia* (*), **22**, 187.
- Rhododendron, *spp.*, hairs of tomentum and ovary (*), **29**, 635.
- Rhodotyphus kerrioides, seedling-anatomy, **28**, 723.
- Rhoeadales, seedling-anatomy (*), **28**, 695.
- Rhoeo discolor, cytology, **22**, 117.
- Rhus typhina, anatomy of leaf-fall (*), **25**, 87.
- Ribes, *spp.*, anatomy of leaf-fall (*), **25**, 57, 76; insect visitors, **22**, 610.
- Riccia Frostii, diagonal division (*), **27**, 523; general characters (*), **27**, 511; sexual organs, development (*), **27**, 515; sperm development (*), **27**, 524; spermatogenous cell (*), **27**, 522; spore development (*), **27**, 520; sporogenesis (*), **27**, 518; sporophyte (*), **27**, 517; thallus-structure, **27**, 512.
- Rice disease caused by *Ustilaginoidella graminicola* (*), **25**, 367.
- RICH, F.: see FRITSCH, F. E.
- Richardia africana, pollen mother-cells (*), **23**, 34.
- Ricinus communis*, proteases of seeds, **22**, 109; respiration of seeds, **22**, 432.
- RIDLEY, H. N.: Branching in Palms (*), **21**, 416.
- Branching Palms, **23**, 338.
- On Endemism and the Mutation Theory, **30**, 551.
- Symbiosis of Ants and Plants (*), **24**, 457.
- Robinia pseudacacia, anatomy of leaf-fall, **25**, 81.
- ROBINSON, W.: Some Experiments on the Effect of External Stimuli on the Sporidia of *Puccinia Malvacearum* (*), **28**, 331.
- Roesleria pallida, description (*), **30**, 407; relation with *Pilacre* (*), **30**, 411.
- Root-nodules of *Ceanothus americanus* (*), **29**, 605; of *Cycadaceae* (*), **29**, 619; of *Myrica Gale* (*), **26**, 111; of *Podocarpiaceae* (*), **26**, 801.
- Root-system of *Cucumis sativus*, extent, **26**, 951.
- Root-tubercles of *Alnus* and *Elaeagnus*, morphology (*), **26**, 119.
- Roots, effect of water on, **25**, 731; galvanotropism of (*), **21**, 387.
- of *Amyelon radicans*, mycorrhiza of (*), **23**, 603.
- Rosa, *spp.*, seedling-anatomy, **28**, 722.
- mollis, insect visitors, **22**, 634.
- Rosales, seedling-anatomy (*), **28**, 695.
- Roscoea purpurea, seedling-anatomy (*), **29**, 213.
- Rubus, *spp.*, insect visitors, **22**, 608; seedling-anatomy, **28**, 722.
- Rudbeckia amplexicaulis, seedling-structure, **28**, 311.
- RUSHTON, W.: The Development of 'Sanio's Bars' in *Pinus Inops* (*), **30**, 419.
- Rusts, development of *Uredo mycelia* of cereal (*), **21**, 441; sexual cell fusions and vegetative nuclear divisions (*), **22**, 331.

S.

- Saccharomyces, cell reproduction to free oxygen supply, relation, **28**, 197; fermentation, thermal phenomena, **28**, 217; metabolism, **28**, 217.
- budding (*), **24**, 73; cytology (*), **24**, 45; fixing and staining, **24**, 51; glycogen, (*), **24**, 61; iron (*), **24**, 69; nucleolus (*), **24**, 58; phosphorus (*), **24**, 70; spore formation (*), **24**, 73; vacuole (*), **24**, 55; volutin (*), **24**, 64.
- cerevisiae, proteolytic activity, **23**, 7.
- Sacchoriza (*Laminaria*) bulbosa, histology, **22**, 319.
- Saccoloma, phylogeny (*), **27**, 457.
- Sadleria cyatheoides, description (*), **28**, 385.
- Sagina procumbens, insect visitors, **22**, 628.

- Saintpaulia ionantha, peloria in (*), **26**, 946.
 Salicales, reduction and reversion in North American (*), **26**, 165.
 Salicornia, effect of salt on growth (*), **29**, 143; seedling-anatomy (*), **26**, 184.
 SALISBURY, E. J.: Methods of Palaeobotanical Reconstruction (*), **27**, 273.
 — On the Occurrence of Vegetative Propagation in Drosera (*), **29**, 308.
 — On the Relation between Trigonocarpus and Ginkgo, **30**, 356.
 — On the Structure and Relationships of Trigonocarpus Shorensis, *sp. nov.* A New Seed from the Palaeozoic Rocks (*), **28**, 39.
 — The Extra-floral Nectaries of the Genus Polygonum (*), **23**, 229.
 — Variations in Anemone nemorosa (*), **30**, 525.
 — *see* OLIVER, F. W.
 Salix, *spp.*, insect visitors, **22**, 628; seedling-structure, **30**, 580; structure of North American (*), **26**, 165.
 — Caprea, anatomy of leaf-fall (*), **25**, 62.
 Salpiglossis sinuatus, seedling-anatomy, **26**, 737.
 Salsola Kali, seedling-structure, **26**, 186.
 Salvia, histology (*), **25**, 657.
 Salvinia natans (*), **25**, 469; embryo (*), **25**, 478; female gametophyte (*), **25**, 476; fertilization (*), **25**, 478; macrospore formation (*), **25**, 474; male prothallium (*), **25**, 472; microspore formation (*), **25**, 470.
 Samaropsis, description (*), **28**, 89, 97.
 — crassa, description (*), **28**, 98.
 — emarginata, description (*), **28**, 98.
 — fluitans, description (*), **28**, 98.
 — Meachemi, description (*), **28**, 98.
 — subacuta, description (*), **28**, 99.
 Samarospermum, *n. gen.*, description (*), **28**, 90, 99.
 — moravicum, description (*), **28**, 99.
 SAMPSON, K.: Note on a Sporeling of Phylloglossum attached to a Prothallium (*), **30**, 605.
 — The Morphology of Phylloglossum Drummondii, Kunze (*), **30**, 315.
 Sanio's bars in Pinus Inops, development (*), **30**, 419.
 Sap particles or inclusions studied under dark-ground illumination (*), **28**, 613.
 Saponaria, *spp.*, seedling-structure, **26**, 179.
 Saprolegniaceae, physiological varieties (*), **22**, 379; problem of species, **22**, 382; relation of growth and reproduction, **22**, 371; sexual organs (*), **22**, 361, 373.
 SARGANT, E.: The Reconstruction of a Race of Primitive Angiosperms (*), **22**, 121.
 — and ARBER, A.: The Comparative Morphology of the Embryo and Seedling in the Gramineae (*), **29**, 161.
 SARGENT, O. H.: Notes on the Life-history of Pterostylis (*), **23**, 265.
 Saussurea albescens, seedling-structure, **28**, 320.
 SAXELBY, E. M.: The Origin of the Roots in Lycopodium Selago (*), **22**, 21.
 Saxifraga, *spp.*, insect visitors, **22**, 609, 626, 638; seedling anatomy, **28**, 724.
 SAXTON, W. T.: Contributions to the Life-history of Actinostrobus pyramidalis (*), **27**, 321.
 — Contributions to the Life-history of Callitris (*), **24**, 557.
 — Contributions to the Life-history of Tetraclinis articulata, Masters, with some Notes on the Phylogeny of the Cupressaceae and Callitroideae (*), **27**, 577.
 — Note on an Abnormal Prothallus of Pinus maritima, L. (*), **26**, 943.
 Schizaeaceae, a Lower Creaceous species from eastern North America (*), **25**, 193.
 Schizaeopsis expansa, description (*), **25**, 194.
 Schizanthus pinnatus, seedling-anatomy, **26**, 737.
 Schizocotyly, anatomical study (*), **27**, 793.
 Schizospermus, *n. gen.*, description (*), **28**, 86.
 — Noeggerathi, description (*), **28**, 86, 103.
 SCHWARTZ, E. J.: A New Parasitic Disease found in the Roots of Grasses.—Preliminary Note, **25**, 270.
 — A New Parasitic Disease of the Juncaceae.—Preliminary Note, **24**, 236.
 — Observations on Asarum europaeum and its Mycorrhiza (*), **26**, 769.
 — Parasitic Root Disease of the Juncaceae (*), **24**, 511.
 — The Life-history and Cytology of Sorosphaera Graminis (*), **25**, 791.
 — The Plasmodiophoraceae and their Relationship to the Mycetozoa and the Chytrideae (*), **28**, 227.
 — *see* BLOMFIELD, J. E.
 Sciadopitys verticillata, archegonia (*), **24**, 412; embryo (*), **24**, 414; female gametophyte (*), **24**, 407; fertilization (*), **24**, 414; male gametophyte (*), **24**, 403; seedling-structure (*), **22**, 708.
 Sciaphila, flowers, **21**, 72; remarks on genus, **21**, 71.
 — aneitensis, *n. sp.*, description (*), **21**, 75.
 — tenella, description (*), **21**, 75.
 Scitamineae, mesarch-structure in cotyledons (*), **24**, 485.
 Sclerocystis coremioides, general account, **22**, 116.
 Scolopendrium, phylogeny (*), **28**, 409.
 — var. crispum Drummondiae, apospory (*), **21**, 172.
 SCOTT, D. G.: On the Distribution of Chlorophyll in the Young Shoots of Woody Plants (*), **21**, 437.
 SCOTT, D. H.: David Thomas Gwynne-Vaughan, **30**, i.

SCOTT, D. H.: On a Palaeozoic Fern, the *Zygopteris Grayi* of Williamson (*), 26, 39.
 — On *Bensonites fusiformis*, *sp. nov.*, a Fossil associated with *Stauropteris burntislandica*, P. Bertrand, and on the Sporangia of the latter (*), 22, 683.
 — Sporangia attributed to *Botryopteris antiqua*, Kidston (*), 24, 819.
 — The Structure of *Mesoxylon Lomaxii* and *M. poroxyloides* (*), 26, 1011.
 — and MASLEN, A. J.: On *Mesoxylon*, a New Genus of Cordaitales.—Preliminary Note, 24, 236.
 — — The Structure of the Palaeozoic Seeds, *Trigonocarpus Parkinsoni*, Brongniart, and *Trigonocarpus Oliveri*, *sp. nov.* Part I (*), 21, 89.
 SCOTT, R. (Mrs. D. H. SCOTT): On *Traquairia* (*), 25, 459.
Scourfieldia cordiformis, *n. sp.*, description (*), 30, 157.
Scrophularia nodosa, seedling-anatomy, 26, 739.
 Scrophulariaceae, seedling-anatomy (*), 26, 738.
 Scutellum, nature of (*), 30, 510.
 — of *Hordeum*, amylase content, 25, 1167.
Sebacia, floral morphology of genus (*), 27, 479.
 Secale cereale, vitality and self-digestion of endosperm, 22, 459.
 Secretory tissues of Marattiaceae, structure and development (*), 29, 409.
Sedum glaucum, seedling-anatomy, 28, 724.
 — *Rhodiola*, insect visitors, 22, 621.
 Seed, endospermic respiration, 22, 415.
 — impressions of the British Coal Measures, revision (*), 28, 81.
 — of *Alsinoideae*, development and structure (*), 21, 25.
 — of Gramineae, semipermeable membranes, 21, 79.
 — of *Indigofera arrecta*, cause of hardness (*), 21, 57.
 — leaves, classification, 28, 359.
 — testing by germination and electrical response, 30, 181.
 Seedling-structure, classification of seed leaves, 28, 359; phylogeny, 24, 165; 27, 257; physiology (*), 27, 264; value in classification, 24, 164.
 Seedling-structure of *Abies*, *spp.* (*), 22, 194; *Abietineae* (*), 22, 706; *Abronia*, *spp.* (*), 26, 189; *Achillea pyrenaica*, 28, 316; *Actinostrobis pyramidalis* (*), 22, 703; *Adonis annua*, 28, 707; *Aethionema persicum*, 28, 717; *Aizoaceae* (*), 26, 187; *Alnus*, *spp.* (*), 30, 587; *Alpinia calcarata*, 29, 215; *Alyssum*, *spp.*, 28, 715; *Amarantaceae* (*), 26, 181; *Amaranthus*, *spp.*, 26, 181; *Amberboa muricata*, 28, 320; *Amentiferae* (*), 30, 575; *Amomum angustifolium* (*), 29, 212;

Anacyclus Pyrethrum, 28, 316; *Anastatica hierochuntina*, 28, 715; *Anemone*, *spp.* (*), 28, 702; *Anona*, *spp.*, 28, 711; *Antirrhinum Orontium*, 26, 739; *Aquilegia*, 28, 707; *Arabis rosea*, 28, 717; *Araucaria*, *spp.* (*), 22, 212; 23, 321; *Arctium majus*, 28, 319; *Arctotis calendacea*, 28, 319; *Artemisia*, *spp.*, 28, 317; *Atriplex*, *spp.*, 26, 183; *Atropa Belladonna* (*), 26, 734; *Aubretia antilibani*, 28, 717; *Avena sativa* (*), 29, 170; *Baeria coronaria*, 28, 315; *Barbarea vulgaris*, 28, 718; *Berberis*, *spp.* (*), 28, 708; *Beta*, *spp.*, 26, 183; *Betula*, *spp.*, 30, 589; *Bidens pilosa* (*), 28, 313; *Bignoniaceae* (*), 26, 740; *Bocconia japonica*, 28, 719; *Brachyichilum Horsfieldii* (*), 29, 215; *Browallia viscosa*, 26, 737; *Bupthalmum speciosum*, 28, 308; *Cactaceae* (*), 24, 125; *Calandrinia*, *spp.* (*), 26, 175; *Callitris*, *spp.*, 22, 704; *Caltha palustris*, 28, 707; *Calycanthus*, *spp.* (*), 28, 711; *Cannabis sativa* (*), 27, 806; *Capparis*, *spp.* (*), 28, 720; *Cardamine hirsuta*, 28, 718; *Carmichaelia australis*, 27, 816; *Carpinus*, *spp.*, 30, 589; *Carya*, *spp.*, 30, 586; *Castanea sativa* (*), 30, 592; *Casuarina*, *spp.*, 30, 579; *Cedrus*, *spp.*, 23, 198; *Celosia*, *spp.*, 26, 181; *Centrospermae* (*), 26, 175; *Cephalotaxus*, *spp.* (*), 22, 690; *Cerastium perfoliatum*, 26, 180; *Ceratonia siliqua*, 28, 726; *Cereus*, *spp.* (*), 24, 137; *Cheiranthus*, *spp.* (*), 28, 714; *Chelidonium majus* (*), 28, 719; *Chenopodiaceae* (*), 26, 182; *Chenopodium*, *spp.*, 26, 183; *Claytonia perfoliata*, 26, 177; *Clematis*, *spp.*, 28, 705; *Cleome sesquiorgialis* (*), 28, 720; *Coix Lacryma-Jobi* (*), 29, 195; *Colchicum autumnale*, 29, 218; *Commelina coelestis* (*), 29, 217; *Compositae* (*), 28, 303; *Convolvulaceae* (*), 26, 728; *Convolvulus*, *spp.* (*), 26, 728; *Corispermum hyssopifolium*, 26, 184; *Corrigiola litoralis*, 26, 181; *Corydalis*, *spp.*, 28, 720; *Corylus Avellana*, 30, 590; *Cotoneaster affinis*, 28, 724; *Cotyledon orbiculare*, 28, 724; *Crambe tartarica*, 28, 718; *Crataegus Oxyacantha*, 28, 724; *Cryptomeria japonica*, 22, 708; *Cucubalus baccifera*, 26, 177; *Cupressineae* (*), 22, 696; *Cupressus*, *spp.* (*), 22, 699; *Cuscuta Epilinum* (*), 26, 732; *Cycadaceae* (*), 23, 437; *Datura*, *spp.* (*), 26, 734; *Decaisnea Fargesii* (*), 28, 709; *Delphinium*, *spp.*, 28, 707; *Dianthus*, *spp.*, 26, 179; *Diascia Barberae* (*), 26, 738; *Digitalis*, *spp.*, 26, 740; *Dimorphotheca pluvialis* (*), 28, 318; *Dioon edule* (*), 23, 446; *Dischisma arenarium*, 26, 739; *Echinocactus*, *spp.* (*), 24, 150; *Echinocereus*, *spp.* (*), 24, 143; *Echinopsis*, *spp.* (*), 24, 143; *Elettaria Cardamomum* (*),

- 29, 209; *Encephalartos Altensteinii* (*), 23, 449; *Ephedra*, *spp.* (*), 24, 319; *Erysimum pulchellum*, 28, 715; *Euchlaena mexicana*, 29, 198; *Exochorda*, *spp.*, 28, 723; *Fagus sylvatica*, 30, 594; *Fortunea* (*), 30, 587; *Fragaria indica*, 28, 723; *Gaillardia aristata*, 28, 316; *Galinsoga parviflora*, 28, 315; *Geum*, *spp.*, 28, 723; *Ginkgo biloba* (*), 23, 433; *Glaucium serpiieri* (*), 28, 719; *Gnetales* (*), 24, 319; *Gnetum*, *spp.* (*), 24, 326; *Gomphrena*, *spp.*, 26, 182; *Gymnosperms* (*), 22, 689; 23, 189, 433; 24, 319; *Gypsophila saxifraga*, 26, 179; *Helianthus annuus* (*), 27, 795; *Helichrysum bracteatum* (*), 27, 816; *Heliopsis laevis* (*), 28, 310; *Helleborus foetidus*, 28, 707; *Hesperis tristis*, 28, 716; *Heuchera alba*, 28, 724; *Hieracium alpinum* (*), 28, 323; *Hordeum vulgare* (*), 29, 203; *Hottonia* (*), 25, 262; *Iberis*, *spp.* (*), 28, 717; *Illicium religiosum*, 28, 710; *Incarvillea Delavrei* (*), 26, 740; *Inula Helenium*, 28, 308; *Juglans*, *spp.* (*), 30, 583; *Juniperus*, *spp.* (*), 22, 696; *Kochia trichophylla*, 26, 184; *Lactuca sagittata*, 28, 322; *Larix*, *spp.* (*), 23, 210; *Laurus*, *spp.* (*), 28, 712; *Leersia oryzoides*, 29, 183; *Lepidium sativum* (*), 27, 813; *Leptosyne Douglasii* (*), 28, 311; *Libocedrus decurrens* (*), 22, 702; *Linaria*, *spp.*, 26, 738; *Liquidambar styraciflua*, 28, 725; *Liriodendron tulipifera* (*), 28, 710; *Lolium italicum*, 29, 184; *Lotus corniculatus* (*), 27, 814; *Lunaria*, *spp.* (*), 28, 718; *Lychnis Viscaria*, 26, 178; *Macrozamia spiralis* (*), 23, 438; *Madia sativa*, 28, 315; *Magnolia*, *spp.* (*), 28, 709; *Malcolmia littorea*, 28, 715; *Mamillaria*, *spp.* (*), 24, 156; *Matricaria eximia*, 28, 316; *Matthiola tricuspidata* (*), 28, 715; *Medicago*, *spp.*, 28, 726; *Mesembryanthemum*, *spp.* (*), 26, 187; *Mimulus luteus*, 26, 739; *Mirabilis*, *spp.* (*), 26, 193; *Myosurus minimus*, 28, 707; *Myrica*, *spp.* (*), 30, 581; *Nemesia*, *spp.*, 26, 738; *Nicandra physaloides* (*), 26, 733; *Nicotiana alata*, 26, 736; *Nierembergia gracilis*, 26, 737; *Nigella*, *spp.*, 28, 707; *Nopalea* (*), 24, 134; *Nyctaginaceae* (*), 26, 188; *Obione portulacoides* (*), 26, 184; *Onopordon tauricum*, 28, 320; *Opuntia*, *spp.* (*), 24, 129; *Paeonia*, *spp.* (*), 28, 707; *Papaver*, *spp.*, 28, 719; *Peltaria alliacea*, 28, 717; *Peperomia* (*), 21, 139; *Pereskia*, *spp.* (*), 24, 126; *Petunia violacea*, 26, 737; *Phacelia tanacetifolia*, 27, 811; *Philadelphus grandiflorus*, 28, 724; *Phyllocactus Hookeri* (*), 24, 136; *Phytolaccaceae*, 26, 187; *Phytolacca*, *spp.*, 26, 187; *Picea*, *spp.* (*), 23, 196; *Picris echioides*, 28, 322; *Pilocereus*, *spp.* (*), 24, 141; *Pinus*, *spp.* (*), 23, 199; *Pitto-*
- sporum crassifolium* (*), 28, 725; *Platanus*, *spp.*, 28, 725; *Platystemon californicus*, 28, 719; *Podocarpeae* (*), 22, 694; 26, 1485; *Podocarpus chinensis* (*), 22, 694; *Podophyllum emodi*, 28, 708; *Polycarpon tetraphyllum*, 26, 181; *Portulacaceae* (*), 26, 175; *Portulaca oleracea* (*), 26, 177; *Potentilla*, *spp.*, 28, 723; *Prunus*, *spp.*, 27, 799; (*), 28, 722; *Pseudolarix Kaempferi*, 28, 212; *Pterocarya rhoifolia* (*), 30, 587; *Pupalia purpurea*, 26, 182; *Pyrus*, *spp.* (*), 28, 723; *Quercus*, *spp.*, 30, 591; *Ranales* (*), 28, 695; *Ranunculus*, *spp.* (*), 28, 704; *Rehmannia angulata*, 26, 740; *Renalemia racemosa*, 29, 212; *Reseda*, *spp.*, 28, 719; *Rhipsalis*, *spp.* (*), 24, 142; *Rhodotypos kerrioides*, 28, 723; *Rhoeadales* (*), 28, 695; *Rosa*, *spp.*, 28, 722; *Rosales* (*), 28, 695; *Roscoea purpurea* (*), 29, 213; *Rubus*, *spp.*, 28, 722; *Rudbeckia amplexicaulis*, 28, 311; *Salicornia*, *spp.* (*), 26, 184; *Salix*, *spp.*, 30, 580; *Salpiglossis sinuatus*, 26, 737; *Sal-sola Kali*, 26, 186; *Saponaria*, *spp.* (*), 26, 179; *Saussurea albescens*, 28, 320; *Schizanthus pinnatus*, 26, 737; *Scrophularia nodosa*, 26, 739; *Scrophulariaceae* (*), 26, 738; *Saxifraga*, *spp.*, 28, 724; *Sciadopitys verticillata* (*), 22, 708; *Sedum glaucum*, 28, 724; *Senecio clivorum*, 28, 317; *Sequoia*, *spp.* (*), 22, 706; *Serratula tinctoria*, 28, 321; *Silene*, *spp.* (*), 26, 178; *Silybium Marianum* (*), 28, 317; *Silphium perfoliatum* (*), 28, 308; *Sisymbrium carpaticum*, 28, 717; *Solanaceae* (*), 26, 733; *Solanum guineense*, 26, 734; *Solidago ulmifolia* (*), 28, 306; *Sollya heterophylla* (*), 28, 725; *Sorghum vulgare* (*), 29, 185; *Spergularia*, *spp.*, 26, 180; *Spinachia oleracea*, 26, 184; *Spiraea callosa*, 28, 723; *Stangeria* (*), 23, 442; *Stellaria graminea*, 26, 180; *Suaeda*, *spp.*, 26, 186; *Swainsona Cadelli* (*), 27, 794; *Sympetala* (*), 26, 727; 28, 303; *Tagetes*, *spp.*, 28, 316; *Tanacetum vulgare*, 28, 316; *Taxaceae* (*), 22, 690; *Taxus*, *spp.* (*), 22, 692; *Teesdalia nudicaulis*, 28, 717; *Tetragonia expansa*, 26, 188; *Tetranema mexicanum*, 26, 740; *Thalictrum*, *spp.*, 28, 706; *Thuja*, *spp.*, 22, 703; *Torenia*, *spp.*, 26, 739; *Tragopogon dubius*, 28, 322; *Tridax procumbens* (*), 28, 314; *Triticum vulgare* (*), 29, 199; *Trollius asiaticus*, 28, 707; *Tsuga*, *spp.*, 23, 190; *Tubiflorae* (*), 26, 727; *Tunica prolifera*, 26, 180; *Ulex europaens*, 27, 810; *Urticales*, 30, 595; *Verbascum pulverulentum*, 26, 738; *Veronica*, *spp.*, 26, 740; *Wel-witschia* (*), 24, 322; *Widdringtonia*, *spp.* (*), 22, 706; *Xanthium strumarium*, 28, 309; *Zaluzianskya capensis*, 26, 740; *Zea Mays* (*), 29, 191; *Zingiberaceae*

- (*), **29**, 209; *Zinnia pauciflora*, **28**, 311; *Zizania aquatica* (*), **29**, 179.
- Seedling and embryo in the Gramineae, comparative morphology (*), **29**, 161.
- Seedlings, morphology and physiology of fasciated (*), **26**, 389.
- Seeds of the Conostoma group, structure and affinities of Palaeozoic (*), **25**, 1.
- structure of Palaeozoic (*), **21**, 89.
- Seidelia, description of genus and species, **27**, 398; distribution, **27**, 409; review of, **27**, 385.
- Selaginella, anatomy of strobilus (*), **24**, 19; cones (*), **24**, 523; ligule (*), **24**, 32; sporangia (*), **24**, 22, 23, 24; spore dispersal (*), **24**, 25; variation in number of spores, **24**, 24; vegetative reproduction in Indian species (*), **28**, 685.
- Semi-permeable membranes of seeds of Gramineae, **21**, 79.
- Senecio clivorum, seedling-structure, **28**, 317.
- vulgaris, anomalies in ovary (*), **30**, 191.
- Septobasidium, biology of genus, **25**, 842.
- Sequoia, *sp.*, seedling-structure (*), **22**, 706.
- Serratula tinctoria, seedling-structure, **28**, 321.
- Sex determination in Mnium hornum (*), **29**, 433.
- Sexual cell fusions and vegetative nuclear divisions in the Rusts (*), **22**, 331.
- organs of Saprolegniaceae, variation (*), **22**, 361.
- Sexuality of Ascomycetes, **22**, 41, 471.
- Seychellaria, description, **21**, 74.
- Thomassetii, description (*), **21**, 74.
- SHAW, F. J. F.: The Seedling-structure of *Araucaria Bidwillii* (*), **23**, 321.
- Shrinkage of turgid tissues, permeability of protoplasm measured by rate of (*), **30**, 283.
- Sieve fields, development (*), **22**, 265.
- Sieve-plates, development (*), **22**, 269; of *Cucurbita* (*), **22**, 273; of *Vitis* (*), **22**, 274; of *Wistaria* (*), **22**, 270.
- Sieve-tubes, anastomosing strings (*), **22**, 276; intercellular connexions (*), **22**, 278; structure of active (*), **22**, 261.
- of Angiosperms (*), **22**, 245; of *Lygodium dichotomum*, **26**, 581; of *Marsilia quadrifolia*, **26**, 581; of *Pteridium aquilinum* (*), **26**, 573.
- Sigillaria mamillaris, cortex, **23**, 513.
- Silene, *sp.*, seedling-structure, **26**, 178.
- Silphium perfoliatum, seedling-structure (*), **23**, 308.
- Silver-leaf disease, treatment by cytoclastic enzyme, **27**, 172.
- Silybium Marianum, seedling-structure (*), **28**, 317.
- Sinapis alba, proteases of seeds (*), **22**, 108.
- SINNOTT, E. W.: Foliar Gaps in the Osmundaceae (*), **24**, 107.
- SINNOTT, E. W.: Some Jurassic Osmundaceae from New Zealand (*), **28**, 471.
- The Evolution of the Filicinean Leaf-trace (*), **25**, 167.
- The Morphology of the Reproductive Structures in the Podocarpaceae (*), **27**, 39.
- and BAILEY, I. W.: Investigations on the Phylogeny of the Angiosperms. No. 4. The Origin and Dispersal of Herbaceous Angiosperms (*), **28**, 547.
- Siphonales, zoospore and motile gamete as taxonomic characters, **22**, 14.
- Siphoneae of the Tropics, freshwater and terrestrial, **21**, 254.
- Sisymbrium carpaticum, seedling-anatomy, **28**, 717.
- SKENE, M.: The Acidity of Sphagnum and its Relation to Chalk and Mineral Salts, **29**, 65.
- SMALL, J.: Anomalies in the Ovary of *Senecio vulgaris* (*), **30**, 191.
- The Pollen-presentation Mechanism in the Compositae (*), **29**, 457.
- Smilacina racemosa, meiotic divisions in microspore mother-cells (*), **29**, 471.
- SMITH, G. M.: Cytological Studies in the Protococcales. I. Zoospore Formation in *Characium Sieboldii*, A. Br. (*), **30**, 459.
- *Id.* II. Cell Structure and Zoospore Formation in *Pediastrum Boryanum*, (Tump.) Menegh. (*), **30**, 467.
- SNELL, J.: see FRASER, H. C. I.
- Sodium chloride content of non-halophytes, variations in, **27**, 168.
- on growth of *Salicornia*, effect of (*), **29**, 143.
- Soils, weeds of arable land in relation to, **26**, 95.
- Solanaceae, seedling-anatomy (*), **26**, 733.
- Solanum guineense*, seedling-anatomy, **26**, 734.
- *tuberosum*, anatomy of tubers (*), **24**, 539.
- bacteria pathogenic to, **26**, 151.
- Solenostopteris*, *n. gen.*, description, **24**, 689.
- *japonica*, *n. sp.*, affinities, **24**, 690; description, **24**, 689; leaf-trace and branch (*), **24**, 686; rootlets (*), **24**, 688; stem-structure (*), **24**, 683.
- Solidago ulmifolia*, seedling-structure (*), **28**, 306.
- Sollya heterophylla*, seedling-anatomy (*), **28**, 725.
- Soral position, phyletic value, **27**, 467.
- Sorghum vulgare*, seedling-anatomy (*), **29**, 185.
- Sorosphaera Graminis, a parasite on roots of grasses, **25**, 270.
- life-history and cytology (*), **25**, 791.
- Junci, parasitic disease of Juncaceae, **24**, 236; (*), **24**, 511.
- akaryote stage (*), **24**, 516; infection (*), **24**, 514; sporont, **24**, 516; structure of diseased roots (*), **24**, 517; systematics,

- 24, 518; vegetative nuclear division (*), 24, 515.
- Sorospheara Veroniceae, tumours on *Veronica chamaedrys* caused by (*), 24, 35.
- Spartina Townsendii*, morphology, 30, 335; physiological anatomy (*), 30, 336.
- Spencerites, systematic position, 23, 379.
- Spergula arvensis*, insect visitors, 22, 628; seedling-structure, 26, 180.
- *salina*, seedling-structure, 26, 180.
- Spermatogenesis in *Blasia pusilla* (*), 27, 93; in Bryophyta (*), 25, 415; in Hepaticae (*), 25, 299, 307; in *Mnium affine* var. *ciliaris* (*), 29, 441; in *M. hornum*, 24, 255; in *Polytrichum* (*), 27, 115.
- Spermatogonium and fertilization in *Collema*, new type of (*), 26, 747.
- Sphagnum, acidity of, 29, 65; liberation of acids from their salts, 29, 74; localization of the acid compounds, 29, 75; variation in acidity, 29, 78.
- and chalk, relationship, 29, 80.
- and mineral solutions, relationship, 29, 85.
- Sphenophyllum* and *Psilotum*, comparison, 22, 78.
- Sphenopteris* type of foliage, a Pteridosperm possessing (*), 22, 57.
- Spinachia oleracea*, seedling-structure, 26, 184.
- Spiraea*, distribution of hairy species (*), 26, 816.
- *callosa*, seedling-anatomy, 28, 723.
- *Ulmaria*, comparison with other hairy plants, 26, 821; distribution and pubescence of leaves (*), 26, 819; effect of environment on hair production and palisade cells (*), 26, 834; habit and habitats (*), 26, 817; hair formation and palisade cells, cause of formation, 26, 842; hairs, physiological effect (*), 26, 842; insect visitors, 22, 635; leaf development (*), 26, 830; localization of leaf withering (*), 26, 840; seasonal differences in leaf-structure (*), 26, 822; xeromorphy (*), 26, 852.
- Spireme* in *Allium Cepa*, nature of the double (*), 28, 271.
- Spirogyra*, an attached species of (*), 27, 366.
- occurrence, 21, 424; reproduction (*), 21, 429; systematics, 21, 433.
- Spongospora Solani*, preliminary note, 25, 272.
- *subterranea*, 25, 271; (*), 25, 327; life-history (*), 25, 329; vegetative phase (*), 25, 329; reproductive phase (*), 25, 331.
- Sporangia attributed to *Botryopteris antiqua* (*), 24, 819.
- of *Todea*, production of dwarf male prothalli in (*), 22, 231.
- Spore development, in Compositae (*), 26, 705; in *Ipomoea* (*), 25, 200; studies in (*), 27, 643.
- Spore formation in ascus (*), 23, 545; in *Derbesia* (*), 22, 1; in *Mnium hornum* (*), 23, 141.
- Sporeling of *Osmundaceae*, anatomy (*), 25, 528.
- Sporidia of *Puccinia malvacearum*, effect of external stimuli on (*), 28, 331.
- Sporodinia grandis*, cytology of zygospores (*), 28, 455.
- Sporogonium of *Notothylas* (*), 21, 201.
- Sporophytes of *Lycopodium complanatum* and *L. clavatum* (*), 21, 211.
- SPRATT, E. R.: Some Observations on the Life-history of *Anabaena Cycadeae* (*), 25, 369.
- The Formation and Physiological Significance of Root Nodules in the *Podocarpaceae* (*), 26, 801.
- The Morphology of the Root Tubercles of *Alnus* and *Elaeagnus*, and the Polymorphism of the Organism causing their Formation (*), 26, 119.
- The Root-nodules of the *Cycadaceae* (*), 29, 619.
- Squamosis of *Citrus*, cause, 25, 144; description (*), 25, 141; histology (*), 25, 143; historical, 25, 141; preventive and remedial measures, 25, 145.
- Stamens of Indian species of *Parnassia*, anatomy of (*), 29, 159.
- Stangeria*, seedling-structure (*), 23, 442.
- STAFF, O.: Rediscovery of *Statice arborea* and Discovery of a New Allied Species, 22, 115.
- Staphylea trifolia*, mitosis in pollen mother-cells (*), 28, 123.
- STAPLEDON, R. G.: On the Plant Communities of Farm Land, 30, 161.
- Statice arborea*, rediscovery, 22, 115.
- *bellidifolia*, anatomy and morphology (*), 30, 250, 276; description of species (*), 30, 246; habitat and oecological factors, 30, 240.
- *binervosa*, anatomy and morphology (*), 30, 250, 279; description of species (*), 30, 246; habitat and oecological factors, 30, 240.
- *Perezii*, *n. sp.*, description, 22, 116.
- Stauropteris burntislandica*, *Bensonites fusiformis* associated with (*), 22, 683.
- Stelar anatomy of *Trichomanes javanicum* (*), 25, 1038.
- development in *Dipteris* (*), 25, 761.
- Stellaria graminea*, insect visitors, 22, 628; seedling-anatomy, 26, 180.
- *stela*, insect visitors, 22, 627.
- Stellatae*, morphology of stipules (*), 30, 197, 601.
- Stem anatomy of *Umbelliferae* (*), 29, 55.
- Stenochlaena sorbifolia*, description and phylogeny (*), 28, 391.
- STEPHENS, E. L.: A Preliminary Note on the Embryo-sac of certain *Penaeaceae*, 22, 329.

- STEPHENS, E. L.: Note on the Anatomy of *Striga lutea*, Lour., **26**, 1125.
 — The Development of the Seed-coat of *Carica Papaya* (*), **24**, 607.
 — The Embryo-sac and Embryo of certain Penaeaceae (*), **23**, 363.
 — The Structure and Development of the Haustorium of *Striga lutea* (*), **26**, 1067.
 — and SYKES, M. G.: Preliminary Note on Apogamy in *Pteris droogmantiana*, **24**, 487.
 STEPHENSIA, description, **23**, 254.
 — *bombycina*, description (*), **23**, 254.
 Sterility in *Oenothera gigas* (*), **25**, 927; in *O. Lamarckiana* (*), **25**, 952.
 STEVENS, W. C.: On the Development of the Sporangia and Spores of *Aneimia phyllitidis* (*), **25**, 1059.
Stigeosporium, *n. gen.*, diagnosis, **30**, 357.
 — *marattiacearum*, *n. sp.*, diagnosis, **30**, 357.
Stigmaria with centripetal wood (*), **22**, 221; periderm (*), **22**, 222; secondary wood (*), **22**, 224.
 STILES, W.: On the Interpretation of the Results of Water Culture Experiments, **30**, 427.
 — On the Relation between the Concentration of the Nutrient Solution and the Rate of Growth of Plants in Water Culture, **29**, 89.
 — The Podocarpeae (*), **26**, 443.
 — The Structure of the Aerial Shoots of *Pisilotum flaccidum*, Wall. (*), **24**, 373.
 — see BROOKS, F. T., and also SYKES, M. G. and JØRGENSEN, I.: Studies in Permeability. I. The Exosmosis of Electrolytes as a Criterion of Antagonistic Ion-action (*), **29**, 349.
 — — *Id.* II. The Effect of Temperature on the Permeability of Plant Cells to the Hydrogen Ion (*), **29**, 611.
Stipulus in the Stellatae, morphology (*), **30**, 197, 601.
 Stomata, development in *Gnetum Gnetum* (*), **27**, 365; of halophytes, behaviour (*), **25**, 499; in hypogeal cotyledons, **28**, 545; of succulents, **26**, 416; of *Tradescantia pulchella*, occlusion, **27**, 369.
 Stomatal behaviour during wilting (*), **30**, 47.
 — investigation, use of porometer in (*), **30**, 57.
 STOPES, M. C.: A New Araucarioxylon from New Zealand (*), **28**, 341.
 — A Note on Wounded *Calamites* (*), **21**, 277.
 — A Reply to Prof. Jeffrey's Article on *Yezonia* and *Cryptomeriopsis*, **25**, 269.
 — An Early Type of the Abietineae (?) from the Cretaceous of New Zealand (*), **30**, 111.
 — Further Observations on the Fossil Flower, *Cretovarium* (*), **24**, 679.
 — On the True Nature of the Cretaceous Plant *Ophioglossum granulatum* (*), **25**, 903.
 STOPES, M. C.: The Internal Anatomy of *Nilssonia orientalis* (*), **24**, 389.
 — and FUJII, K.: Studies on the Structure and Affinities of Cretaceous Plants, **24**, 231.
 — and KERSHAW, E. M.: The Anatomy of Cretaceous Pine Leaves (*), **24**, 397.
 STOWARD, F.: A Research into the Amyeloclastic Secretory Capacities of the Embryo and Aleurone Layer of *Hordeum*, with Special Reference to the Question of the Vitality and Auto-depletion of the Endosperm. Part I, **25**, 799.
 — *Id.* Part II, **25**, 1147.
 — On Endospermic Respiration in Certain Seeds, **22**, 415.
 Stratification in the vegetation of a marsh, and its relations to evaporation and temperature (*), **23**, 275.
 Strength and development of grain of *Triticum vulgare* (*), **23**, 117.
Striga lutea, the plant (*), **26**, 1067; anatomy, **26**, 1125.
 — — the haustorium, connexion with host (*), **26**, 1070; development and origin (*), **26**, 1068; nutrition mechanism, **26**, 1073; structure (*), **26**, 1068.
Struthiopteris, phyletic consideration (*), **26**, 300.
 Strychnine on somatic cells, action of, **25**, 1069.
 Suaeda, *spp.*, seedling-structure, **26**, 186.
 Succulence, transpiring surface in relation to, **26**, 410.
 Succulent plants, transpiration (*), **26**, 409.
 Sugar, method of locating by ozones (*), **29**, 369.
 SUMMERS, F.: On the Occurrence of Lens-cells in the Epidermis of *Mesembryanthemum pseudotruncatellum* (*), **25**, 1137.
 Surinam disease (*), **25**, 363.
 Suspensor of *Helminthostachys zeylanica*, **24**, 611.
 Sutcliffia, affinities and structure of a new specimen (*), **26**, 1031.
 — *insignis*, affinities, **26**, 1058; extra-fascicular strands (*), **26**, 1053; ground tissue and secondary cortex (*), **26**, 1051; histology of leaf-traces (*), **26**, 1047, of phloem (*), **26**, 1046, of wood (*), **26**, 1043; meristemes, course (*), **26**, 1037; structure (*), **26**, 1033.
 SUTHERLAND, G. K., and EASTWOOD, A.: The Physiological Anatomy of *Spartina Townsendii* (*), **30**, 333.
 Swainsona *Cadelli*, seedling-structure (*), **27**, 794.
 Swamp xerophytes, a *résumé* and tentative hypothesis, **26**, 854.
 SYKES, M. G.: Anatomy and Histology of

- Macrocystis pyrifera and Laminaria saccharina (*), **22**, 291.
 SYKES, M. G.: Note on an Abnormality found in *Psilotum triquetrum* (*), **22**, 525.
 — Note on the Nuclei of some Unisexual Plants, **23**, 341.
 — The Anatomy and Morphology of *Tmesipteris* (*), **22**, 63.
 — see STEPHENS, E. L.
 — see THODAY, D.
 — and STILES, W.: The Cones of the Genus *Selaginella* (*), **24**, 523.
 Symbiosis of ants and plants (*), **24**, 457;
Clerodendron myrmecophilum, **24**, 470;
Daemonorops, **24**, 461; *Dischidia rafflesiana*, **24**, 462; *Goniothalamus*, **24**, 461;
Korthalsia, **24**, 459; *Macaranga*, *spp.* (*), **24**, 470; *Platynerium bifforme*, **24**, 469;
Polypodium sinuosum, **24**, 465; *Thamnopteris*, **24**, 468.
 — in *Calluna vulgaris* (*), **29**, 97.
 Sympetalae, seedling-anatomy (*), **26**, 727;
28, 303.
 Syncotily, anatomical study (*), **27**, 793.
Syringa vulgaris, insect visitors, **22**, 604.

T.

- TABOR, R. J.: The Leaf Buds of *Archytaea alternifolia* (*), **25**, 1015.
 Tagetes, *spp.*, seedling-structure, **28**, 316.
 Taka-diaxylase, **24**, 217.
 TAKEDA, H.: A Theory of 'Transfusion-tissue', **27**, 359.
 — Development of the Stoma in *Gnetum Gnemon* (*), **27**, 365.
 — *Dysmorphococcus variabilis*, *gen. et sp. nov.* (*), **30**, 151.
 — Morphology of the Bracts in *Welwitschia mirabilis* (*), **27**, 547.
 — On *Carteria Fritschii*, *sp. nov.* (*), **30**, 369.
 — *Scourfieldia cordiformis*, a New Chlamydomonad (*), **30**, 157.
 — Some Points in the Anatomy of the Leaf of *Welwitschia mirabilis* (*), **27**, 349.
 — Some Points in the Morphology of the Stipules in the *Stellatae*, with Special Reference to *Galium* (*), **30**, 197.
 — *Id.* Additional Note (*), **30**, 601.
 — see FRITSCH, F. E.
Tanacetum vulgare, seedling-structure, **28**, 316.
 Tannin in oak heart-wood, **29**, 407.
 Tannin-ducts and sacs of *Marattiaceae*, development and structure (*), **29**, 417.
Taxaceae, seedling-structure (*), **22**, 690.
Taxus baccata, seedling-anatomy (*), **22**, 692.
Tecoma capensis, pollination and respiration, **21**, 493.
Teesdalia nudicaulis, seedling-anatomy, **28**, 717.
Telosynapsis and *parasynapsis*, **26**, 623.

- Temperature, influence of, on germination of conidia of *Cladosporium*, **24**, 365; on permeability of cells to the hydrogen ion (*), **29**, 611; on permeability of protoplasm (*), **30**, 283; on rate of growth in *Pisum* (*), **30**, 25.
 — and evaporation, relation between, in marsh vegetation (*), **23**, 275.
 — and growth (*), **22**, 557.
 — and respiration, **22**, 433.
Terfezia, description, **23**, 261.
 — *leonis*, description (*), **23**, 261.
 Testa, discussion on (*), **25**, 41.
Tetraclinis articulata (*), **27**, 577; fertilization and development of pro-embryo (*), **27**, 593; male gametophyte (*), **27**, 585; megasporangiate strobilus and female gametophyte (*), **27**, 586; microsporangiate strobilus and microsporogenesis (*), **27**, 579; phylogeny (*), **27**, 598.
Tetragonia expansa, seedling-structure, **26**, 188.
Tetranema mexicanum, seedling-anatomy, **26**, 740.
Tetraspora lubrica, nuclear division (*), **27**, 681.
Thalictrum, *spp.*, seedling-anatomy, **28**, 706.
 — *flavum*, vascular anatomy (*), **22**, 658.
 — *purpurascens*, pollen mother-cells (*), **23**, 21.
Thamnopteris, symbiosis with ants, **24**, 468.
 Thermal phenomena of fermentation in *Saccharomyces*, **28**, 217.
 Thesium as a host (*), **24**, 674.
 THODAY, D.: On the Capillary Endiometric Apparatus of *Bonnier* and *Mangin* for the Analysis of Air in investigating the Gaseous Exchanges of Plants (*), **27**, 565.
 — On the Effect of Chloroform on the Respiratory Exchanges of Leaves (*), **27**, 697.
 — and SYKES, M. G.: Preliminary Observations on the Transpiration Current in Submerged Water-plants, **22**, 635.
 THODAY, M. G. (SYKES): Note on the Inflorescence Axis in *Gnetum*, **26**, 621.
 — On the Histological Relations between *Cuscuta* and its Host (*), **25**, 655.
 — The Female Inflorescence and Ovules of *Gnetum africanum*, with Notes on *Gnetum scandens* (*), **25**, 1101.
 — and BERRIDGE, E. M.: The Anatomy and Morphology of the Inflorescences and Flowers of *Ephedra* (*), **26**, 953.
 THOMAS, E. N.: Seedling-anatomy of *Ranales*, *Rhoeadales*, and *Rosales* (*), **28**, 695.
 THOMAS, H. M.: see ARBER, E. A. N.
 THOMAS, N.: Notes on *Cephaluros* (*), **27**, 781.
 THOMPSON, W. P.: On the Origin of the Multiseriate Ray of the Dicotyledons (*), **25**, 1005.

- THOMPSON, W. P.: The Anatomy and Relationships of the Gnetales. I. The Genus *Ephedra* (*), 26, 1077.
- Thielavia basicola*, endoconidia of (*), 29, 483.
- THISELTON-DYER, W. T.: Morphological Notes. XII. Germination of the Double Coco-nut (*), 24, 223.
- Thuja*, chromosome formation and distribution (*), 22, 536; homotype mitosis (*), 22, 540; prophase (*), 22, 530.
- *ssp.*, seedling-anatomy, 22, 703.
- Thyloses and cavity parenchyma in Ferns, (*), 22, 401.
- Thymus Serpyllum*, insect visitors, 22, 605.
- Tilia europaea*, anatomy of leaf-fall (*), 25, 60.
- Tmesipteris*, anatomy (*), 22, 67; distribution, 22, 63; external features (*), 22, 64; habitat, 22, 63; historical, 22, 66; systematic position, 22, 83.
- Todea*, production of dwarf male prothalli in sporangia of (*), 22, 231.
- Torenia*, *ssp.*, seedling-anatomy, 26, 739.
- Toxic action of isomers on vegetable cells, 23, 181.
- Toxin, presence of, in 'infection drop', 30, 404.
- Tracheae of Ferns, nature of (*), 22, 517.
- Tracheidal wood of Coniferae, reason for, 24, 254.
- Tracheides, a cretaceous Pityoxylon with marginal (*), 25, 315.
- Tradescantia*, heterotypic chromosomes in pollen mother-cells (*), 21, 327.
- *pulchella*, occlusion of stomata (*), 27, 369.
- Tragopogon dubius*, seedling-structure, 28, 322.
- Transfusion tissue, origin (*), 25, 975; theory of, 27, 359.
- Transpiration, evaporation as a measure of (*), 23, 282.
- of Coniferae, 24, 242; of halophytes (*), 25, 486; in submerged plants, 23, 635; in succulents (*), 26, 409, 435.
- in succulents in relation to habitat, 26, 435; alpine plants, 26, 438; desert plants, 26, 435; epiphytes, 26, 436; halophytes, 26, 437; mangroves, 26, 436.
- in relation to structure, 26, 410; aqueous tissue, 26, 420; conducting system, 26, 433; glands, 26, 422; protective means, 26, 412; reaction and nature of cell sap, 26, 425; stomata, 26, 416; superficial absorption, 26, 423; water conservation, 26, 428; water-storage, 26, 425.
- under Australian conditions (*), 24, 86; *Dracaena Draco*, 24, 91; *Eucalyptus corynocalyx*, 24, 89; *E. maculata* var. *citriodora*, 24, 88; *Nerium Oleander*, 24, 88.
- Transpiring surface in relation to succulence, 26, 410.
- Transpirometer, a recording (*), 28, 109.
- Traquairia* (*), 25, 459; description (*), 25, 462.
- *burntlandica*, *n. sp.*, description (*), 25, 465.
- *Carruthersii*, *n. sp.*, description (*), 25, 463.
- *Spenceri*, *n. sp.*, description (*), 25, 464.
- *stellata*, *n. sp.*, description (*), 25, 465.
- Traumatic ray-tracheides in *Cunninghamia sinensis* (*), 22, 593.
- response in *Drimys* (*), 30, 359.
- Trichodiscus*, *n. gen.*, description, 26, 241.
- *elegans*, *n. sp.*, description, 26, 241; morphology (*), 26, 239.
- Trichomanes Kaulfussii*, apospory and apogamy (*), 23, 233.
- *javanicum*, habit (*), 25, 1037; morphology of axillary branch (*), 25, 1040; stelar anatomy (*), 25, 1038.
- Trichosanthes anguina*, structure, 29, 583.
- Tridax procumbens*, seedling-structure (*), 28, 314.
- Trientalis europaea*, insect visitors, 22, 635.
- Trigonocarpeae*, origin of integument, 28, 73.
- Trigonocarpus*, casts and impressions (*), 21, 127; description, 21, 303; 28, 94; (*), 28, 195; historical *résumé* of British forms, 21, 94; relationship with Ginkgo, 30, 356.
- *clavatus*, description (*), 28, 85, 95.
- *Dawesi*, description (*), 28, 85, 95.
- *Moyseyi*, *n. sp.*, description (*), 28, 85, 95.
- *Oliveri*, *n. sp.*, description (*), 21, 124.
- *Parkinsoni*, chalazal end of seed (*), 21, 111; characters (*), 21, 96; descriptions of forms (*), 28, 84, 94; inner flesh, 21, 110; micropylar end of seed (*), 21, 115; nucellus (*), 21, 119; pollen chamber (*), 21, 119; sarcotesta (*), 21, 99; sclerotesta (*), 21, 106; testa (*), 21, 99; wing of seed (*), 21, 115.
- *shorensis*, *n. sp.*, comparison with other types, 28, 62; diagnosis, 28, 76; general features (*), 26, 41; nucellus (*), 28, 59; origin of integument in *Trigonocarpeae* and *Lagenostomales*, 28, 73; pollen chamber (*), 28, 61; relation to vegetative organs, 28, 76; testa (*), 28, 44, 68; vascular organization (*), 28, 52.
- Tristichaceae* and *Podostemaceae*, origin of, 29, 299.
- Triticum*, vitality and self-digestion of endosperms, 22, 457.
- *vulgare*, embryo development (*), 23, 133; endosperm (*), 23, 125; nuclear disorganization in endosperm, 23, 131; seedling-anatomy (*), 29, 199; starch infiltration into endosperm (*), 23, 126; strength and development of grain (*), 23, 117.

- Triuridaceae, new (*), **21**, 71.
 Trollius asiaticus, seedling-anatomy, **28**, 707.
 — europaeus, insect visitors, **22**, 620.
 Tropaeolum, amylase content, **25**, 1197.
 — majus, effect of chloroform on respiratory exchanges (*), **27**, 710; pollination and respiratory activity, **21**, 494.
 — peregrinum, hair production on stem and petiole (*), **26**, 589.
 Tropics, subaerial and freshwater algal flora, **21**, 235.
 Tsuga, *spp.*, seedling-structure, **23**, 190.
 Tuber aestivum, description, **23**, 256.
 — bituminatum, description, **23**, 256.
 — brumale, description (*), **23**, 259.
 — dryophilum, description, **23**, 258.
 — excavatum, description (*), **23**, 257.
 — ferrugineum, description, **23**, 260.
 — foetidum, description, **23**, 257.
 — intidum, description, **23**, 260.
 — macrosporum, description, **23**, 257.
 — puberulum, description, **23**, 258.
 — rapaeodorum, description, **23**, 258.
 — rufum, description, **23**, 259.
 — saleroneuron, description, **23**, 260.
 Tuberaeae, affinities and structure of British (*), **23**, 243.
 — British, descriptions (*), **23**, 248; geographical distribution, **23**, 246; habitats, **23**, 247; key to families, **23**, 248.
 Tubercle of Echinopsis (*), **24**, 144; vascular arrangement with cotyledons (*), **24**, 146.
 Tubereae, description (*), **23**, 250; key to genera, **23**, 250.
 Tubers, anatomy (*), **24**, 537.
 Tubiflorae, seedling-anatomy (*), **26**, 727.
 Tumamoca, water-balance (*), **26**, 83.
 Tumours on Veronica Chamaedrys caused by Soro-sphaera Veroniceae (*), **24**, 35.
 Tunica prolifera, seedling-structure, **26**, 180.

U.

- Ulex europaeus, seedling-structure, **27**, 810; tripartite and other leaves of, **28**, 527.
 Ulodendroid scar, structure and origin (*), **28**, 481.
 Ulodendron, description (*), **28**, 489; discussion, **28**, 493.
 Ulotrichales in the tropics, **21**, 257.
 Ulvaceae, attaching discs (*), **26**, 403.
 Umbelliflorae, stem-anatomy (*), **29**, 55.
 Undaria, embryonal stages (*), **25**, 704; mucilage glands (*), **23**, 613; post-embryonal stages (*), **25**, 707.
 — pinnatifida, forms of, **25**, 708.
 Uredineae, general account, **21**, 443.
 Uredo mycelia of cereal rusts, development (*), **21**, 441.
 — *spp.*, see under Puccinia.
 Urtica dioica, insect visitors, **22**, 648.
 Urticales, seedling-structure, **30**, 595.
 Ustilaginoidella graminicola causing rice disease (*), **25**, 367.
 — oedipigera causing Elephantiasis of banana (*), **25**, 363.
 Utricularia of Great Britain, species of (*), **27**, 607.
 — emarginata, bladders (*), **24**, 554; conditions of germination, **24**, 550; morphology (*), **24**, 549, 554; notes on, **23**, 339; seed and germination (*), **24**, 550.
 — ochroleuca, biology and morphology (*), **27**, 609; geographical distribution in Great Britain, **27**, 617; historical, **27**, 608.
 Uvaria zeylanica, vascular anatomy (*), **22**, 671.

V.

- Vaccinium oxycoccus, insect visitors, **22**, 619.
 Valeriana officinalis, insect visitors, **22**, 607.
 Variation in Anemone nemorosa (*), **30**, 525; in sexual organs of Saprolegniaceae (*), **22**, 361.
 Varietal ferns, cytology (*), **24**, 191.
 Vascular anatomy of Akebia lobata, **22**, 674; Anemone japonica, **22**, 657; Anonaceae (*), **22**, 670; Artabotrys odoratissimus, **22**, 670; Berberidaceae (*), **22**, 673; Berberidopsis corallina (*), **22**, 674; Berberis aquifolium, **22**, 674; Calycanthaceae, **22**, 668; Cananga odorata (*), **22**, 672; Clematis, *spp.* (*), **22**, 661; Drimys, *spp.*, **22**, 667; Epimedium pinnatum (*), **22**, 674; Eupomatia Bennettii, **22**, 671; Helleborus, *spp.* (*), **22**, 659; Hydrastis canadensis (*), **22**, 675; Illicium floridanum (*), **22**, 667; Magnolia tripetala, **22**, 665; Magnoliaceae (*), **22**, 665; Monodora myrsinica, **22**, 671; Nandina domestica (*), **22**, 674; Paeonia, *sp.* (*), **22**, 663; Paeoniaceae (*), **22**, 663; Podophyllum peltatum (*), **22**, 673; Polyalthia suberosa (*), **22**, 670; Ranales (*), **22**, 651; Ranunculaceae (*), **22**, 657; Thalictrum flavum (*), **22**, 658; Uvaria zeylanica (*), **22**, 671.
 Verbascum pulverulentum, seedling-anatomy, **26**, 738.
 Veronica, *spp.*, insect visitors, **22**, 610; seedling-anatomy, **26**, 740.
 — chamaedrys, tumours caused by Soro-sphaera Veroniceae (*), **24**, 35; chromidial or akaryote stage (*), **24**, 38; infection, **24**, 39; nuclear division of vegetative phase (*), **24**, 37; plant nucleus (*), **24**, 41; structure of tumour (*), **24**, 40.
 Verrucaria margacea, cultural experiments (*), **28**, 245; external characters (*), **28**, 241; nomenclature, **28**, 245; reproduction (*), **28**, 243; systematic position, **28**, 245; thallus structure (*), **28**, 242.
 Verticillium albo-atrum, cause of blindness in potato tubers, **26**, 129.

- Vessels, diameter and length of, in *Acacia*, 24, 94; in *Deeringia altissima*, 24, 97; in *Eucalyptus*, 24, 96; in *Ficus elastica*, 24, 97; in *Nerium Oleander*, 24, 97; in *Tecoma*, 24, 97.
- Vicia Faba*, aerating system (*), 29, 627; behaviour of chromatin in meiotic divisions (*), 28, 633; mitosis in gametophyte (*), 25, 848; mitosis in sporophyte (*), 25, 845; question of heterotypical reduction in somatic cells (*), 24, 788.
- VINES, S. H.: Harry Marshall Ward (*), 21, ix.
- The Proteases of Plants. V. 22, 103.
- *Id.* VI. 23, 1.
- *Id.* VII. 24, 213.
- Viola*, archesporium and tapetum (*), 26, 157; axial row (*), 26, 157; development of chasmogamic flowers (*), 26, 155; female gametophyte (*), 26, 158; ovule origin, 26, 157; pollination and pollen-tube development (*), 26, 160; size of flower-bud and stage of development, 26, 156.
- Vitaceae, structure of wood (*), 27, 133.
- Vitality and self-digestion of endosperm of Gramineae, 22, 449.
- Vitis*, development of sieve-tubes (*), 22, 274.
- Volutin of *Saccharomyces* (*), 24, 64.
- W.
- WAGER, H.: The Life-history and Cytology of *Polyphagus Euglenae* (*), 27, 173.
- The Perception of Light in Plants (*), 23, 459.
- and PENISTON, A.: Cytological Observations on the Yeast Plant (*), 24, 45.
- WALKER, N.: On Abnormal Cell-fusion in the Archegonium; and on Spermatogenesis in *Polytrichum* (*), 27, 115.
- Wallflower, different types of hair (*), 22, 714.
- WARD, F. K.: Some Plant Formations from the Arid Regions of Western China, 26, 1105.
- WARD, HARRY MARSHALL, Biography (*), 21, ix.
- Water, effect of, on roots, 25, 731.
- Water-balance of desert plants (*), 26, 71.
- Water-culture, factors, 30, 428; interpretation of results, 30, 427; limitations, 30, 435; relationship between concentration and rate of growth, 29, 89; 30, 77.
- Water-plants, transpiration current in submerged, 23, 635.
- Water-requirements of terrestrial Monocotyledons, 25, 724.
- Water-storage, organs, 25, 724; in succulents, 26, 425.
- WATSON, D. M. S.: On *Mesostrobis*, a New Genus of Lycopodiaceous Cones from the Lower Coal Measures, with a Note on the Systematic Position of *Spencerites* (*), 23, 379.
- WATSON, D. M. S.: On the Structure and Origin of the Ulodendroid Scar (*), 28, 481.
- Weed flora of Norfolk, comparison with that of Bedfordshire and the West Country, 27, 154.
- Weeds, common and local names, 27, 163.
- and crops, inter-relationship, 27, 155.
- of arable land in relation to soil, 25, 155; 26, 95; 27, 141; 30, 162.
- WEISS, F. E.: A *Stigmara* with Centripetal Wood (*), 22, 221.
- WELSFORD, E. J.: Conjugate Nuclei in the Ascomycetes (*), 30, 415.
- Nuclear migrations in *Phragmidium violaceum* (*), 29, 293.
- The Genesis of the Male Nuclei in *Lilium* (*), 28, 265.
- The Morphology of *Trichodiscus elegans*, *gen. et sp. nov.* (*), 26, 239.
- see BENSON, M.
- see BLACKMAN, V. H.
- see FRASER, H. C. I.
- Welwitschia mirabilis*, embryo (*), 24, 759; leaf-structure (*), 27, 347; morphology of bracts (*), 27, 547; seedling-structure (*), 24, 322.
- WERNHAM, H. F.: The Morphology of *Phylloglossum Drummondii* (*), 24, 335.
- WEST, C.: On the Structure and Development of the Secretory Tissues of the Marattiaceae (*), 29, 409.
- *Stigeosporium marattiacearum*, *gen. et sp. nov.*, 30, 357.
- and LECHMERE, A. E.: On Chromatin Extension in Pollen Mother-cells of *Lilium candidum*, Linn. (*), 29, 285.
- WEST, G. S., and GRIFFITHS, B. M.: The Lime-sulphur Bacteria of the Genus *Hillhousia* (*), 27, 83.
- WHITE, J.: The Influence of Pollination on the Respiratory Activity of the Gynoecium, 21, 487.
- Widdringtonia, *spp.*, seedling-structure (*), 22, 706.
- WIGGLESWORTH, G.: The Young Sporophytes of *Lycopodium complanatum* and *Lycopodium clavatum* (*), 21, 211.
- WILLIS, J. C.: The Distribution of Species in New Zealand (*), 30, 437.
- The Evolution of Species in Ceylon, with Reference to the Dying Out of Species, (*), 30, 1.
- The Origin of the Tristichaceae and Podostemaceae, 29, 299.
- and BURKILL, I. H.: Flowers and Insects in Great Britain. Part IV. Observations on the less Specialized Flowers of the Clova Mountains, 22, 603.
- WILSON, M.: On Spore Formation and

- Nuclear Division in *Mnium hornum* (*), **23**, 141.
- WILSON, M.: Preliminary Note on Nuclear Division in *Mnium hornum*, **22**, 328.
- Preliminary Note on the Spermatogenesis of *Mnium hornum*, **24**, 235.
- Plant Distribution in the Woods of North-east Kent. Part I (*), **25**, 857.
- Sex Determination in *Mnium hornum* (*), **29**, 433.
- Spermatogenesis in the Bryophyta (*), **25**, 415.
- Wilting, stomatal behaviour during (*), **30**, 47.
- WINGE, Ö.: see FERDINANDSEN, C.
- Wistaria, development of sieve-plate (*), **22**, 270.
- Wood, origin of herbaceous type in Angiosperms (*), **25**, 215.
- of Dicotyledons, evolutionary history and phylogenetic significance of foliar ray (*), **26**, 647.
- of *Larix*, effect of defoliation on growth and structure of (*), **27**, 621.
- WOODBURN, W. L.: Spermatogenesis in *Blasia pusilla* (*), **27**, 93.
- Spermatogenesis in certain Hepaticae (*), **25**, 299.
- Spermatogenesis in *Mnium affine*, var. *ciliaris*, (Grev.) C. M. (*), **29**, 441.
- Woods of North-east Kent, plant distribution (*), **25**, 857.
- Woodsia, phyletic consideration (*), **26**, 306.
- Woodwardia, phylogeny (*), **28**, 401.
- Woody plants, distribution of chlorophyll in young shoots (*), **21**, 437.
- WOOLERY, R.: Meiotic Divisions in the Microspore Mother-cells of *Smilacina racemosa*, (L.) Desf. (*), **29**, 471.
- WORSDELL, W. C.: A Study of the Vascular System in certain Orders of the Ranales (*), **22**, 651.
- Internal Phloem in *Myristica* (*), **22**, 526.
- The Morphology of the 'Corona' of *Narcissus* (*), **28**, 541.
- The Morphology of the Monocotyledonous Embryo and that of the Grass in particular (*), **30**, 509.
- The Origin and Meaning of Medullary (Intraxylary) Phloem in the Stems of Dicotyledons. I. Cucurbitaceae (*), **29**, 567.
- Wound reactions in filicinean petioles (*), **26**, 777; in *Pteris aquilina* (*), **30**, 127.
- X.
- Xanthium strumarium*, seedling-structure, **28**, 309.
- Xenoxylon, *spp.*, structure of wood (*), **27**, 535.
- Xeromorphy in marsh plants (*), **26**, 815.
- Xerophilous species of *Cheilanthes* and *Pellaea*, anatomy (*), **28**, 671.
- Xerophytes, *résumé* and hypothesis on swamp, **26**, 854.
- Xerophytism of Coniferae, rationale of, **24**, 260.
- Xylem elements of Pteridophyta (*), **25**, 745.
- — physical tests for, **25**, 748.
- of *Equisetum*, centripetal (*), **23**, 587.
- of Ophioglossaceae, primary (*), **25**, 537.
- of petioles of Cyads, the centripetal and centrifugal (*), **28**, 103.
- Y.
- YAPP, R. H.: On Stratification in the Vegetation of a Marsh, and its Relations to Evaporation and Temperature (*), **23**, 275.
- *Spiraea Ulmaria*, L., and its Bearing on the Problem of Xeromorphy in Marsh Plants (*), **26**, 815.
- YASUI, K.: On the Life-history of *Salvinia natans* (*), **25**, 469.
- see MIYAKE, K.
- YENDO, K.: Development of *Costaria*, *Undaria*, and *Laminaria* (*), **25**, 692.
- On the Mucilage Glands of *Undaria* (*), **23**, 613.
- Yezonia*, external form, **24**, 767; internal structure (*), **24**, 768; stomata (*), **24**, 768; structure of axis (*), **24**, 769.
- a reply to criticism, **25**, 269.
- Z.
- Zaluzianskya capensis*, seedling-anatomy, **26**, 740.
- Zea*, respiration of seeds, **22**, 427; seedling-anatomy (*), **29**, 191; vitality and self-digestion of endosperm, **22**, 454.
- Zinc, action of compounds of, on growth of plants (*), **28**, 284.
- Zingiberaceae, seedling-anatomy (*), **29**, 209.
- Zinnia pauciflora*, seedling-structure, **28**, 311.
- Zizania aquatica*, seedling-anatomy (*), **29**, 179.
- Zoospore formation in *Characium Sieboldii* (*), **30**, 459; in *Pediastrum Boryanum* (*), **30**, 467.
- Zygnema ericetorum*, morphology and ecology of an extreme terrestrial form (*), **30**, 135.
- — cell contents (*), **30**, 136; cell wall (*), **30**, 139; comparison of forms, **30**, 147; reaction to drought (*), **30**, 141.
- Zygnemaceae in the Tropics, **21**, 260.
- Zygopteris Grayi*, affinities, **26**, 61; an ankyropteris, **26**, 55; *aphlebiae* (*), **26**, 50, 60; leaf-trace emission (*), **26**, 47; leaf-trace morphology and structure (*), **26**, 45, 57; petiole (*), **25**, 451; roots (*), **26**, 52; stelar structure (*), **26**, 44, 49, 57; the Shore specimen (*), **26**, 43.
- Zygosporae of *Sporodinia grandis*, cytology (*), **28**, 455.

ANNALS OF BOTANY

	NET
Complete sets of Vols. I-XXXIV, 1887-1920, 136 parts in original wrappers, subscription price	£55
34 volumes, morocco back (only a few sets remain).	£75
Single volumes (I, II, XXIV, and XXV are sold only as part of complete sets) each	56s.
Single parts, paper wrappers each	14s.

Cases for back volumes. Prices on application.

From No. 137 (beginning Vol. XXXV)

Subscription price per volume, in paper wrappers	each	40s.
" " " in cloth	each	45s.
Single volumes, in cloth each		65s.
Single parts, paper wrappers each		15s.
Cases, cloth each		5s.
Index to Vols. I-X and XI-XX in paper wrappers	each	10s.
Ditto, morocco back (or cloth, as old stocks are exhausted) each		15s.

SMITHSONIAN INSTITUTION LIBRARIES



3 9088 00839 3639