

## INDEX.

- Abies, 448, 452.  
 Abietinæ, 452, 460.  
 Abortion, 198, 479, 563.  
 Absorption of assimilated substances, 642.  
 Acalyphæ, 583.  
 Acanthaceæ, 580.  
 Accumulation of characters, 826.  
 Acetabularia, 64, 226.  
 Achenium, 538.  
 Achillæa, 833.  
 Achlya, 12, 13.  
 Acorn, 536.  
 Acrocarpous Mosses, 319.  
 Acropetal order of development, 149.  
 Acrosticheæ, 361.  
 Actinostrobeæ, 460.  
 Acyclic, 523, 565.  
 Adaptation, 835.  
 Adhesion, 198, 479.  
 Adiantum, 161, 343, 344, 345.  
 Adventitious formations, 150, 152, 351, 563.  
 Aecidium, 241, 246.  
 Aesculinæ, 582.  
 Aesculus, 567.  
 Aethalium, 276, 760.  
 Agaricus, 249.  
 Aggregatæ, 581.  
 Aggregates of cells, 68.  
 Akebia, 467.  
 Albumen, 428.  
 Albuminoids, 629.  
 Albuminous, 513.  
 Aleurone, 51.  
 Algæ, 208.  
 Alisma, 514, 549.  
 Alismaceæ, 549, 554.  
 Allium, 17, 112, 546, 547.  
 Almond, 560.  
 Aloë, 171, 552.  
 Alpinia, 548.  
 Alsineæ, 583.  
 Alternate arrangement, 168, 524.  
 Alternation of generations, 202, 421, 805.  
 Althæa, 43, 86, 478, 483.  
 Amaranthaceæ, 569, 583.  
 Amentiferæ, 578.  
 Amœba-movement of protoplasm, 39, 276.  
 Amorphophallus, 162.  
 Ampelidæ, 568, 582.  
 Ampelopsis, 781, 839.  
 Amphigastria, 306.  
 Amygdalæ, 585.  
 Amygdalus, 560.  
 Amyridæ, 582.  
 Anacardiaceæ, 567, 582.  
 Anagallis, 496.  
 Ananasinæ, 555.  
 Anaptychia, 267, 270.  
 Anatropous, 427, 501.  
 Andreæa, 322.  
 Andreæaceæ, 329.  
 Andrœcium, 426, 473.  
 Androspore, 229.  
 Anemia, 89.  
 Anemophilous, 810.  
 Aneura, 296.  
 Angiocarpous Lichens, 268.  
 Angiosperms, 466.  
 Angle of divergence, 167, 181.  
 Anisocarpæ, 580.  
 Anisostemonous, 565.  
 Annonaceæ, 579.  
 Annual ring, 574.  
 Annular vessels, 23.  
 Annulus, 330, 356.  
 Anterior, 523.  
 Anthela, 521.  
 Anther, 427, 473.  
 Anther-lobes, 473.  
 Antheridium, 212, 258, 299, 321, 342, 363, 803.  
 Antherozoid, 203, 336, 384, 803.  
 Anthoceros, 302, 303.  
 Anthocerotæ, 302.  
 Antipodal cells, 507.  
 Apetalous, 565.  
 Apex, 155, 182.  
 Aphanocyclæ, 579.  
 Apical cell, 118, 153, 348, 424.  
 Apical growth, 137, 410.  
 Apocynaceæ, 112, 580.  
 Apopetalous, 471.  
 Apophyllous, 471.  
 Apophysis, 334.  
 Aposepalous, 471.  
 Apostasiaceæ, 556.  
 Apostrophe, 672.  
 Apothecium, 268.  
 Apple, 537.  
 Aquifoliaceæ, 582.  
 Aquilegia, 500, 567.  
 Araliaceæ, 584.  
 Araucariæ, 460.  
 Arbutus, 475.  
 Arc-indicator, 746.  
 Archegonium, 203, 336, 434.  
 Archetype, 843.  
 Archidium, 330.  
 Arcyria, 275.  
 Aril, 428, 501.  
 Aristolochia, 812.  
 Aristolochiaceæ, 578.  
 Aroideæ, 112, 549, 554, 646.  
 Arrangement of leaves, 173.  
 Artocarpeæ, 578.  
 Asarinæ, 578.  
 Asarum, 468.  
 Asclepiadæ, 112, 580.  
 Ascobolus, 262.  
 Ascogonium, 257, 803.  
 Ascomycetes, 254.  
 Ascophorous hyphæ, 269.  
 Ascospore, 240, 254, 258.  
 Ascus, 240, 258.  
 Asexual generation, 203, 336, 423, 432, 805.  
 Asexual reproductive cells, 203.  
 Ashes, 36, 618.  
 Asparagin, 640.  
 Aspergillus, 257.  
 Aspidiæ, 361.  
 Aspidium, 351, 357, 359.  
 Asplenieæ, 361.  
 Asplenium, 123, 151, 358.  
 Assimilation, 626, 651, 666.  
 Aurantiaceæ, 569, 582.  
 Automatic periodic movements, 784, 801.

- Autumnal layer of wood, 733.  
 Auxanometer, 748.  
 Auxospore, 223.  
 Axial fibrovascular bundle, 146, 418  
 Axial longitudinal section, 182.  
 Axile placentation, 495.  
 Axillary branching, 155, 425.  
 Axis, 129, 166.  
 Axis of growth, 138, 182, 186.  
 Azolla, 398.
- Bacillariæ, 222.  
 Bacteria, 214.  
 Balanophora, 557.  
 Balanophoræ, 505, 585.  
 Balsamia, 255.  
 Balsamineæ, 583.  
 Bambusa, 525.  
 Barbula, 316.  
 Bark, 20, 81, 717.  
 Base, 182.  
 Basidiomycetes, 249.  
 Basidiospore, 18, 240.  
 Basidium, 18, 240, 251.  
 Basifugal growth, 138, 350.  
 Bast, 94.  
 Bast-cells, 101, 592.  
 Batrachospermum, 235.  
 Begonia, 189, 563.  
 Begoniaceæ, 585.  
 Benthamia, 537.  
 Berberidæ, 570, 579, 787.  
 Berberis, 246, 570, 787.  
 Berry, 459, 539.  
 Betulaceæ, 578.  
 Bicornes, 581.  
 Bifurcation, 156, 161.  
 Bignoniaceæ, 580.  
 Bilateral structure, 183, 765.  
 Biscutella, 500.  
 Bisexual, 426.  
 Bixaceæ, 582.  
 Blackberry, 537.  
 Blasia, 307.  
 Blastocolla, 115.  
 Bleeding of wood, 601.  
 Bloom on plants, 84.  
 Boletus, 81, 249.  
 Bordered pits, 20, 25, 464.  
 Borraginæ, 522, 580.  
 Bostrychoid cyme, 159.  
 Bostrychoid dichotomy, 157.  
 Botrychium, 378, 379, 380.  
 Botrydium, 225.  
 Bract, 519.  
 Bracteole, 291, 426, 519.  
 Branching, 148, 155.  
 Branching of leaves, 161.  
 Branching of roots, 160.  
 Branching of stem, 163.  
 Bromeliaceæ, 555.  
 Bryaceæ, 330.
- Bryonia, 777.  
 Bryophyllum, 152, 563.  
 Bryopsis, 226.  
 Bryum, 81, 314.  
 Bud, 135.  
 Bud-rudiment, 282.  
 Bud-variation, 823.  
 Bulb, 196, 841.  
 Bulbil, 151, 282.  
 Bulbochæte, 230.  
 Bundle-sheath, 105, 106.  
 Burmanniaceæ, 556.  
 Burseraceæ, 582.  
 Butomus, 489, 549.  
 Büttneriaceæ, 583.  
 Buxinæ, 583.
- Cabombeæ, 579.  
 Cactaceæ, 585.  
 Cæsalpinæ, 584.  
 Calamite, 374, 376.  
 Calanthe, 497.  
 Calcium, 622.  
 Calcium carbonate, 64.  
 Calcium oxalate, 52, 64, 112.  
 Callitrichaceæ, 585.  
 Callitris, 451.  
 Callus, 731.  
 Calothamnus, 476.  
 Calycanthaceæ, 584.  
 Calyceræ, 581.  
 Calycifloræ, 584.  
 Calyculus, 472.  
 Calypogeia, 309.  
 Calyptra, 300.  
 Calyx, 470.  
 Cambiform tissue, 100.  
 Cambium, 79, 93, 463.  
 Cambium-ring, 432, 573.  
 Camellia, 21.  
 Campanula, 566.  
 Campanulaceæ, 110, 566, 581.  
 Campylotropous, 427, 501.  
 Canal of the style, 498.  
 Canal-cell, 336, 344, 387.  
 Candollea, 569.  
 Canna, 548.  
 Cannabineæ, 578.  
 Cannaceæ, 556.  
 Cap-cell of root, 124.  
 Capillary attraction, 608.  
 Capillitium, 255, 275.  
 Capitulum, 520.  
 Capparidæ, 527, 579.  
 Caprifoliaceæ, 566, 581.  
 Capsella, 515.  
 Capsule, 294, 538.  
 Carbon, 619.  
 Carbon dioxide, 644, 666.  
 Carboniferous fossils, 376, 420.  
 Carcerulus, 537.  
 Carpellary leaf, 429.  
 Carpogonium, 257.
- Carpophore, 537.  
 Caruncle, 540.  
 Caryophyllæ, 583.  
 Caryophyllinæ, 583.  
 Caryopsis, 538.  
 Casuarina, 473.  
 Casuarinæ, 585.  
 Cataphyllary leaves, 165, 193.  
 Caulerpa, 137, 226.  
 Cauline bundles, 134, 417, 575.  
 Caulome, 129, 136.  
 Cedreæ, 582.  
 Celastrinæ, 582.  
 Celastrus, 524.  
 Cell, Primordial, 5.  
 Cell, Structure of, 1.  
 Cell-division, 8, 12, 673, 682.  
 Cell-families, 68, 209.  
 Cell-multiplication, 8.  
 Cell-nucleus, 2, 18, 37, 44.  
 Cell-sap, 2, 62.  
 Cell-tissue, 1, 8.  
 Cell-wall, 2, 19.  
 Cells, Formation of, 7.  
 Cells, Formation of the common wall of, 70.  
 Cells, Forms of, 5, 98, 576.  
 Cellulose, 2, 19, 631.  
 Celosia, 569.  
 Celtidæ, 578.  
 Centaurea, 797.  
 Centradenia, 475.  
 Central cell, 293, 336, 342, 434, 802.  
 Centranthus, 566.  
 Centrifugal force, action of, 691.  
 Centrifugal inflorescence, 520.  
 Centripetal inflorescence, 520.  
 Centrospermæ, 553, 583.  
 Ceramiaceæ, 237.  
 Ceratonia, 36.  
 Ceratophyllaceæ, 585.  
 Ceratozamia, 440.  
 Cercis, 187.  
 Cerorchidæ, 488.  
 Chalaza, 501.  
 Chara, 132, 279, 291.  
 Characeæ, 278  
 Characteristic forms of leaves and shoots, 190.  
 Chelidonium, 571.  
 Chemical processes, 618.  
 Chenopodiaceæ, 583.  
 Chenopodium, 469.  
 Chimonanthus, 557.  
 Chlænaceæ, 582.  
 Chlamydococcus, 218.  
 Chlamydomonas, 218.  
 Chloranthæ, 578.  
 Chlorine, 622.

## INDEX.

851

- Chlorofucine, 685.  
 Chlorophyll, 6, 665, 678.  
 Chlorophyll-bodies, 45.  
 Chlorophytum, 756.  
 Chorisia, 528.  
 Chroococcaceæ, 216, 263, 273.  
 Chrysobalanæ, 585.  
 Chrysothannin, 687.  
 Cichoriaceæ, 110, 787.  
 Cichorium, 23.  
 Cical cyme, 159, 522.  
 Cical dichotomy, 157.  
 Cichinus, 160.  
 Cilia, 211, 331, 334.  
 Cinnamomum, 566.  
 Circulation of protoplasm, 39.  
 Cistineæ, 582.  
 Citrus, 113, 569.  
 Cladonia, 265, 273.  
 Claviceps, 258, 259, 260.  
 Claw, 471.  
 Cleistogamous flowers, 810.  
 Clematis, 154.  
 Cleome, 527.  
 Climbing stems, 197, 772.  
 Clusiaceæ, 582.  
 Coalescence of cells, 73.  
 Cocoa-nut, 511.  
 Cœlebogynæ, 805.  
 Cœnogonium, 268.  
 Coffee-berry, 512.  
 Coherence, 201, 471.  
 Colchicum, 545.  
 Coleochæte, 209, 231.  
 Coleorhiza, 143, 541.  
 Collema, 264.  
 Collenchyma, 24, 80, 83, 105, 576.  
 Colleter, 115.  
 Colloids, 594.  
 Colours of leaves in autumn, 657.  
 Columella, 275, 295, 303, 324, 331, 359.  
 Columnæ, 534.  
 Columniferæ, 583.  
 Combined hybrids, 821.  
 Combretaceæ, 585.  
 Commelynaceæ, 112, 555.  
 Common bundles, 134, 369, 431, 463.  
 Compositæ, 115, 566, 581.  
 Compound spores, 241.  
 Conceptacle, 221, 271.  
 Concussion, Irritability to, 784.  
 Condition of aggregation of organised structures, 587.  
 Conducting tissue for the assimilated food-materials, 634.  
 Conducting tissue of style, 499.  
 Confervaceæ, 231.  
 Conidia, 244, 256.  
 Coniferæ, 115, 442.  
 Conjugatæ, 10, 220.  
 Conjugation, 8, 9, 203, 212, 221, 245, 261, 802.  
 Connective, 427, 473.  
 Contortæ, 580.  
 Contractile organs, 677, 783.  
 Convolvulaceæ, 580.  
 Corallorhiza, 194, 542, 643.  
 Coriaria, 166.  
 Cork, 80, 90.  
 Cork-cambium, 90.  
 Cormophytes, 130.  
 Cornaceæ, 584.  
 Corolla, 470.  
 Corollifloræ, 555, 584.  
 Corona, 471.  
 Corpuscula, 422, 434, 802.  
 Corrosion by roots, 625.  
 Cortex, 91, 280, 573.  
 Cortical sheath, 574.  
 Coryanthes, 601.  
 Cosmarium, 221.  
 Cotyledons, 435, 513, 557.  
 Crassulaceæ, 584.  
 Cremocarp, 537.  
 Crest, 540.  
 Crocus, 546.  
 Crown, 286.  
 Crozophora, 567.  
 Crucibulum, 69, 251.  
 Cruciferæ, 527, 570, 579.  
 Crucifloræ, 579.  
 Crustaceous Lichens, 263.  
 Crystalloids, 49, 596.  
 Crystals, 64.  
 Cucurbita, 24, 32, 33, 101, 477, 484, 779, 827.  
 Cucurbitaceæ, 566, 576, 581, 776, 838.  
 Cunninghamiæ, 460.  
 Cunoniaceæ, 584.  
 Cupressineæ, 451, 459.  
 Cupule, 473.  
 Cupuliferæ, 578.  
 Curvature of concussion, 707.  
 Cuscuta, 197, 241, 557, 561, 572, 733.  
 Cuscutæ, 580.  
 Cuticle, 34, 83.  
 Cuticularisation of the cell-wall, 20, 34.  
 Cyatheaceæ, 360.  
 Cycadæ, 436.  
 Cycas, 438.  
 Cyclantheæ, 554.  
 Cyclic, 523, 531, 565.  
 Cyclomyces, 249.  
 Cyme, 158, 160, 521.  
 Cymose branching, 158.  
 Cymose inflorescence, 520.  
 Cymose umbel, 158, 521.  
 Cynara, 655, 798.  
 Cynaraceæ, 787, 797.  
 Cyperaceæ, 548, 555.  
 Cypridium, 479, 526.  
 Cystocarp, 213, 235.  
 Cystolith, 64.  
 Cystopus, 243, 244.  
 Cytineæ, 579.  
 Dahlia, 26, 63, 101, 823.  
 Daily periodicity of growth, 743.  
 Dammara, 453.  
 Davalliæ, 361.  
 Decussate, 168, 177.  
 Dédoublement, 481, 528, 568.  
 Definite inflorescence, 520.  
 Degradation - products, 48, 628.  
 Dehiscent fruits, 538, 539.  
 Delphinium, 531.  
 Deposition in the cell-wall, 31.  
 Derivative hybrid, 821.  
 Dermatogen, 126.  
 Descent, Theory of, 842.  
 Desmidiæ, 221.  
 Desmodium, 678, 785.  
 Development of the members of one branch-system, 155.  
 Diagonal plane, 523.  
 Diagram, Floral, 524.  
 Dialypetalæ, 581.  
 Diandra, 580.  
 Dianthus, 472.  
 Diatomaceæ, 222.  
 Diatomine, 223.  
 Dichasium, 158, 159, 521.  
 Dichogamy, 808.  
 Dichotomy, 148, 156, 406.  
 Diclinous, 426.  
 Dicotyledons, 433, 556.  
 Dictamnus, 114, 154, 493, 528, 767.  
 Dictyota, 156.  
 Dictyotæ, 237.  
 Didymium, 275.  
 Differentiation of cell-wall, 33.  
 Differentiation of tissues, 117.  
 Dilleniaceæ, 569, 579.  
 Dimorphism, 809.  
 Diœcious, 426, 804.  
 Diœcism, 807.  
 Dionæa, 689.  
 Dioscoreæ, 555.  
 Diosmeæ, 583.  
 Diosporinæ, 581.  
 Dipsacaceæ, 581.  
 Dipterocarpeæ, 582.  
 Directions of growth, 155, 182, 186.

- Discomycetes, 259.  
 Discophoræ, 583.  
 Displacement, 198.  
 Diurnal and nocturnal positions of organs, 784.  
 Divergence, Angle of, 167, 181.  
 Dracæna, 107, 552.  
 Dried substance of plants, 618.  
 Drosera, 522, 796.  
 Drupe, 539.  
 Dryadeæ, 585.  
 Dudresnaya, 213, 237.  
 Dwarf males, 229.  
  
 Ebenaceæ, 581.  
 Elæagnaceæ, 584.  
 Elæagnus, 490.  
 Elaëis, 54.  
 E aphomycetes, 255.  
 Elasticity, 699.  
 Elater, 23, 294, 373.  
 Elatineæ, 585.  
 Electricity, 687.  
 Elementary constituents of the food of plants, 618.  
 Eleutheropetalæ, 581.  
 Eleutheropetalous, 471.  
 Eleutherophyllous, 471.  
 Eleutherosepalous, 471.  
 Elodea, 664.  
 Embryo, 203, 205, 421, 432, 434, 513.  
 Embryo, Cell-division in, 17, 511.  
 Embryo-sac, 422, 432, 454, 506, 802.  
 Embryonic vesicles, 422, 432, 458, 507, 803.  
 Emergences, 140.  
 Empetraceæ, 585.  
 Enantioblastæ, 555.  
 Endocarp, 518, 537.  
 Endogenous formations, 141, 149, 370.  
 Endosmotic force, 597.  
 Endosperm, 205, 421, 432, 434, 510, 805.  
 Endospore, 32, 294.  
 Endostome, 501.  
 Energy of growth, 741.  
 Entomophilous, 810.  
 Epacrideæ, 567, 581.  
 Epen, 103.  
 Epenchyma, 103.  
 Ephebe, 266.  
 Ephedra, 461.  
 Epicalyx, 472.  
 Epicarp, 518, 537.  
 Epidermal tissue, 78, 79.  
 Epidermis, 80, 81, 82, 717.  
 Epigynæ, 581.  
 Epigynous, 490.  
  
 Epilobium, 486.  
 Epimedium, 500, 570.  
 Epinasty, 767.  
 Epipactis, 814.  
 Epipetalous, 524.  
 Epiphragm, 253, 331.  
 Epipogium, 542, 620, 643.  
 Episepalous, 524.  
 Epistrophe, 671.  
 Equisetaceæ, 362.  
 Equisetum, 14, 122, 153, 363.  
 Equivalent members, 148.  
 Ergot, 258.  
 Ericaceæ, 567, 581.  
 Eriocauloneæ, 555.  
 Erodium, 841.  
 Eryngium, 490.  
 Erysiphe, 256.  
 Erythrophyll, 686.  
 Erythroxyloceæ, 582.  
 Escallonieæ, 584.  
 Eucyclæ, 581.  
 Eucyclic, 524.  
 Euphorbia, 168.  
 Euphorbiaceæ, 111, 567, 583.  
 Euphorbieæ, 583.  
 Eurotium, 257.  
 Everina, 272.  
 Exalbuminous, 513.  
 Excipulum, 268.  
 Exobasidium, 249.  
 Exogenous formations, 133, 149.  
 Exospore, 32, 294, 397.  
 Exostome, 501.  
 Extensibility, 698, 703.  
 Extension, 138.  
 Extine, 34, 485.  
 Extra-axillary branching, 562.  
  
 False dichotomy, 158.  
 Fascicular tissue, 79.  
 Female reproductive cell, 203, 802.  
 Ferments, 254.  
 Ferns, 340.  
 Fertilisation, 203, 430, 509, 803.  
 Fertilisation of hybrids, 821.  
 Fibrovascular bundles, 79, 92, 353, 431.  
 Ficus, 111, 200.  
 Fig, 200, 518, 537.  
 Filament, 427, 473.  
 Filices, 340.  
 Filiform apparatus, 507.  
 Fissidens, 313.  
 Flat pro-embryo, 318.  
 Flexibility of internodes, 703.  
 Floral diagram, 524.  
 Floral formulæ, 529, 565.  
 Florideæ, 233.  
 Flower, 319, 425, 523, 564.  
  
 Flowers of tan, 276.  
 Fluorescence of chlorophyll, 680.  
 Foliaceous Lichens, 264.  
 Foliage-leaves, 193.  
 Foliose Hepaticæ, 297.  
 Follicle, 538.  
 Fontinalis, 132, 331.  
 Food-materials, 619, 626.  
 Foot, 346, 389.  
 Foramen, 427.  
 Formative materials, 628.  
 Fossil Equisetaceæ, 376.  
 Fossil Lycopodiaceæ, 420.  
 Four-fold pollen-grains, 488.  
 Fovea, 408.  
 Foveola, 408.  
 Fovilla, 486.  
 Francoaceæ, 584.  
 Frangulineæ, 582.  
 Frankeniaceæ, 582.  
 Freecell-formation, 8, 11, 507.  
 Freezing, effects of, 653.  
 Frenela, 451.  
 Fritillaria, 172, 544.  
 Fruit, 430, 518, 536.  
 Fruticose lichens, 265.  
 Fucaæ, 226.  
 Fucoxanthine, 685.  
 Fucus, 3, 227.  
 Fumariaceæ, 526, 535, 570, 579.  
 Funaria, 47, 82, 312, 320, 321, 331.  
 Fundamental tissue, 78, 102, 355.  
 Fungi, 238.  
 Funiculus, 427, 501.  
 Funkia, 15, 23, 482, 503, 508.  
  
 Gamopetalæ, 580.  
 Gamopetalous, 201, 471.  
 Gamophyllous, 471.  
 Gamosepalous, 201, 471.  
 Gases, movements of, 614.  
 Gasteromycetes, 251.  
 Gelatinous lichens, 265.  
 Gemmæ, 151, 298, 318.  
 General vital conditions of plants, 647.  
 Generating tissue, 79.  
 Generations, Alternation of, 202, 421, 805.  
 Genetic spiral, 169, 774.  
 Gentianaceæ, 580.  
 Genus, 829, 844.  
 Genus-hybrid, 817.  
 Geographical distribution of plants, 845.  
 Geotropism, 758.  
 Geraniaceæ, 583, 842.  
 Germ-cell, 203, 802.  
 Germinal vesicles, 203, 422, 507.

- Germination of Phanerogams, 422, 541, 558, 638, 651.  
 Gesneraceæ, 580.  
 Geum, 201.  
 Glands, 110, 113.  
 Glandular hairs, 86, 139.  
 Glans, 538.  
 Gleba, 253.  
 Gleicheniaceæ, 360.  
 Globoids, 52.  
 Globulariaceæ, 580.  
 Globule, 284.  
 Glomerulus, 237.  
 Glume, 554.  
 Glumifloræ, 554.  
 Gnetaceæ, 460.  
 Gnetum, 461.  
 Gonidium, 263, 272.  
 Goodeniaceæ, 581.  
 Gramineæ, 525, 555.  
 Grand curve of growth, 737.  
 Granulose, 57, 60.  
 Graphis, 264.  
 Grass, flower of, 525.  
 Gravitation, action of, 187, 690, 758.  
 Grossulariaceæ, 584.  
 Growth, 692, 695, 712.  
 Growth, directions of, 182.  
 Growth in length, 735.  
 Growth in length of the root, 124.  
 Growth in thickness of the cell-wall, 22.  
 Growth in thickness of the stem, 107, 572.  
 Growth of starch-grains, 58.  
 Gruinales, 583.  
 Guard-cells of stomata, 75, 87.  
 Gum-passages, 77, 115.  
 Gum-resin, 116.  
 Guttiferæ, 582.  
 Gymnocarpous lichens, 268.  
 Gymnosperms, 423, 433.  
 Gymnostachys, 549.  
 Gymnostomum, 331.  
 Gynæceum, 426, 488, 491.  
 Gynandrx, 556.  
 Gynobasic style, 498.  
 Gynophore, 479.  
 Gynostemium, 479, 796.  
 Hæmodoraceæ, 555.  
 Hairs, 84, 130, 138.  
 Haloragideæ, 585.  
 Haplomycetes, 238.  
 Haustoria, 244, 733.  
 Head, 284.  
 Heat, Action of, 647.  
 Heat, Conduction of, 648.  
 Heat, Production of, 646.  
 Heat, Radiation of, 648.  
 Heat-expansion, Coefficients of, 649.  
 Heating apparatus for the microscope, 658.  
 Hedera, 76, 859.  
 Hedychium, 548.  
 Helianthus, 42, 63, 69, 133, 497.  
 Helicoid cyme, 159, 521.  
 Helicoid dichotomy, 157.  
 Heliotropism, 190, 676, 752.  
 Helobiæ, 553.  
 Helvelleæ, 259.  
 Hemicyclic, 523, 565.  
 Hepaticæ, 295.  
 Heracleum, 533.  
 Hereditary characters, 696, 821, 822.  
 Hermaphrodite, 426.  
 Herminium, 198.  
 Herpothamnion, 236.  
 Hesperideæ, 582.  
 Hesperidium, 539.  
 Heterocyst, 215.  
 Heterœcism, 241, 246.  
 Heteromorous Lichens, 265.  
 Heterosporous Vascular Cryptogams, 339.  
 Heterostylism, 809.  
 Hieracium, 829.  
 Hilum, 540.  
 Hippocastaneæ, 567, 582.  
 Hippocrateaceæ, 582.  
 Hippurideæ, 585.  
 Hippuris, 133, 470.  
 Homoömerous Lichens, 265.  
 Hoya, 29, 592.  
 Humiriaceæ, 582.  
 Humulus, 111, 115.  
 Hyacinthus, 75, 87.  
 Hybrid, 817.  
 Hybridisation, 816.  
 Hydнора, 505.  
 Hydnoneæ, 579.  
 Hydnum, 249.  
 Hydrangeæ, 584.  
 Hydrilleæ, 554.  
 Hydrocharideæ, 554.  
 Hydrodictyeæ, 217.  
 Hydrodictyon, 217.  
 Hydrogen, 620.  
 Hydropeltidineæ, 579.  
 Hydrophyllaceæ, 580.  
 Hymenium, 240.  
 Hymenomycetes, 249.  
 Hymenophyllaceæ, 359.  
 Hymenophyllum, 341.  
 Hypericineæ, 582.  
 Hypericum, 476, 524.  
 Hyphæ, 238.  
 Hypoderma, 80, 83, 105.  
 Hypodermal tissue, 376.  
 Hypodermiæ, 246.  
 Hypogynæ, 580.  
 Hypogynous, 489.  
 Hyponasty, 767.  
 Hypophysis, 515.  
 Hypothecium, 269.  
 Hypsophyllary leaves, 193, 519.  
 Ice, Formation of, 655.  
 Ilex, 35.  
 Imbibition, 710.  
 Incombustible deposits in cell-wall, 36.  
 Indefinite inflorescence, 520.  
 Indehiscent fruits, 538, 539.  
 Indusium, 356.  
 Inferior ovary, 497.  
 Inflorescence, 426, 431, 519.  
 Inherited characters, 822.  
 Innovation, 292.  
 Insect-agency in pollination, 429, 808.  
 Insertion, 167.  
 Insertion of leaves, 134.  
 Integument, 427, 501.  
 Intercalary growth of cell-wall, 22, 137.  
 Intercellular spaces, 71, 73.  
 Intercellular substance, 70, 74, 101.  
 Interfascicular cambium, 552, 573.  
 Intermediate tissue, 105.  
 Internodes, 135.  
 Internodes, Elongation of, 737.  
 Interposed members, 524, 568.  
 Intine, 32, 485.  
 Intrapetiolear buds, 562.  
 Intussusception, 31, 58, 590.  
 Inuline, 63.  
 Involucel, 520.  
 Involucre, 473, 520.  
 Iridex, 548, 555.  
 Iron, 622.  
 Irritability, 776, 781.  
 Isatis, 155.  
 Isoëtes, 161, 401, 402, 407.  
 Isocarpx, 581.  
 Isosporous Vascular Cryptogams, 338.  
 Isostemonous, 565.  
 Ivy, 76, 859.  
 Jasminiaceæ, 580.  
 Juglandæ, 585.  
 Julifloræ, 578.  
 Juncaceæ, 555.  
 Juncagineæ, 549, 554.  
 Jungermannia, 310.  
 Jungermanniæ, 306.  
 Juniperineæ, 460.  
 Juniperus, 447, 451.

- Knight's experiments on the influence of gravitation, 763.  
 Labiatae, 580.  
 Labiatiflorae, 580.  
 Labium, 408.  
 Lamina, 191, 471, 564.  
 Lamium, 480.  
 Lateral arrangement, 184.  
 Lateral plane, 523.  
 Lateral roots, 144.  
 Lateral shoots, 152, 166.  
 Latex, 110.  
 Lathraea, 50, 572.  
 Laticiferous vessels, 74, 109.  
 Latticed cells, 101.  
 Lauraceae, 566, 579.  
 Leaf, 109, 131, 136, 161, 173, 190.  
 Leaf-blade, 191, 564.  
 Leaf-forming axis, 131, 151.  
 Leaf-sheath, 365.  
 Leaf-stalk, 191, 564.  
 Leaf-tendrils, 194, 775.  
 Leaf-thorns, 194.  
 Leaf-trace, 134, 431.  
 Leaf-veins, 192.  
 Leaflet, 191.  
 Legume, 538.  
 Legumin, 642.  
 Leguminosae, 584, 640.  
 Lejolisia, 235.  
 Lemnaceae, 553.  
 Lentibulariaceae, 581.  
 Lenticels, 91.  
 Lepidodendron, 420.  
 Lepidostrobus, 421.  
 Leptogium, 265.  
 Levisticum, 162.  
 Leycesteria, 566.  
 Librifrom tissue, 35, 100.  
 Lichens, 262.  
 Lichina, 272.  
 Lichnoerythrine, 686.  
 Lichnoxanthine, 686.  
 Light, Action of, 659, 752, 784, 790.  
 Light, Intensity of, 662.  
 Light, Refrangibility of, 666.  
 Lignification of the cell-wall, 7, 20, 35.  
 Ligule, 192, 408, 547.  
 Liliaceae, 524, 555.  
 Liliiflorae, 555.  
 Limnanthaceae, 583.  
 Linaceae, 583.  
 Loasaceae, 582.  
 Lobelia, 566.  
 Lobeliaceae, 111, 581.  
 Loculicidal dehiscence, 538.  
 Lodicule, 471.  
 Loganiaceae, 580.  
 Lomentum, 537.  
 Lonicera, 566.  
 Loranthaceae, 505, 513, 557, 585.  
 Lunularia, 298.  
 Lupinus, 52, 641.  
 Lychnis, 472.  
 Lycogala, 276.  
 Lycopodiaceae, 400.  
 Lycopodieae, 416.  
 Lycopodium, 70, 400, 404, 416.  
 Lygodium, 197, 360, 772.  
 Lythraeae, 585.  
 Macrosporangium, 393, 396.  
 Microspore, 335, 396, 403, 432.  
 Magnesium, 622.  
 Magnoliaceae, 579.  
 Mahonia, 475, 787.  
 Malaxis, 544.  
 Male reproductive cells, 203, 426, 802.  
 Malpighiaceae, 582.  
 Malvaceae, 583.  
 Manglesia, 478.  
 Manubrium, 284.  
 Marattia, 361.  
 Marattiaceae, 361.  
 Marchantia, 23, 76, 89, 298, 301, 305.  
 Marchantieae, 305.  
 Marcraviaceae, 582.  
 Marsilea, 140, 163, 384, 388, 393, 398, 399.  
 Mechanical laws of growth, 692.  
 Mechanical structure of irritable parts, 792.  
 Median plane, 167.  
 Medullary rays, 573.  
 Medullary sheath, 463, 574.  
 Megaclinium, 785.  
 Melanosporae, 229.  
 Melastomaceae, 585.  
 Meliaceae, 582.  
 Melobesiaceae, 64, 234.  
 Members, 130.  
 Menispermaceae, 566, 579.  
 Mericarp, 537, 538.  
 Merispore, 241.  
 Meristem, 79.  
 Mesembryanthemae, 585.  
 Mesocarp, 518, 537.  
 Mesocarpeae, 220.  
 Mesophyll, 192, 356.  
 Metamorphosis, 631, 835.  
 Metamorphosis of organs, 128, 183, 194.  
 Metaplast, 37, 41.  
 Metastasis, 626.  
 Metzgeria, 120, 160, 297.  
 Micranthae, 554.  
 Microcyst, 277.  
 Microgonidia, 219.  
 Micropyle, 427, 501.  
 Microsporangium, 393, 396, 401, 432.  
 Mid-rib, 192.  
 Mimosa, 694, 793.  
 Mimoseae, 584.  
 Mineral substances in food of plants, 622.  
 Mistletoe, 557.  
 Mniium, 151, 313.  
 Moist surfaces, Growth of roots in, 764.  
 Molecular forces, 587.  
 Molecular structure, destruction of, 591.  
 Molecules, 588.  
 Monoblepharidae, 243.  
 Monocarpellary, 491.  
 Monocarpic, 519.  
 Monochlamydeae, 578.  
 Monocleae, 304.  
 Monocotyledons, 433, 541.  
 Monocious, 426, 804.  
 Monœcism, 807.  
 Monopodial inflorescence, 520.  
 Monopodium, 156.  
 Monosymmetrical, 183, 533.  
 Monotropa, 194, 557, 620, 643.  
 Monotropaeae, 581.  
 Moreae, 578.  
 Mosses, 295, 311.  
 Mother-cells of pollen, 32, 484.  
 Motility, 788.  
 Movement of food-materials, 623.  
 Movement of protoplasm, 39, 276, 651, 670.  
 Movement of water, 598, 652.  
 Movements of gases, 614.  
 Mucilage, conversion of the cell-wall into, 20, 36.  
 Mucor, 245, 246.  
 Mucorini, 245.  
 Muberry, 518, 537.  
 Multilateral structure, 184.  
 Musaceae, 548, 556.  
 Muscari, 154.  
 Muscineae, 292.  
 Mushroom, 249.  
 Mycelium, 239, 249.  
 Myricaceae, 585.  
 Myristica, 512.  
 Myristicaceae, 579.  
 Myrsinaceae, 581.  
 Myrtaceae, 585.  
 Myrtiflorae, 585.  
 Myxoamœbæ, 10, 39.  
 Myxomycetes, 10, 274.



- Naiadæ, 504, 553.  
 Naias, 473, 495, 504.  
 Nardus, 525.  
 Natural Selection, 831.  
 Natural System, 844.  
 Nectar, 500.  
 Nectary, 430, 500.  
 Negative heliotropism, 677,  
     756.  
 Nelumbiaceæ, 579.  
 Nematidæ, 237.  
 Neottia, 194, 620, 693.  
 Nepenthes, 578.  
 Nepenthes, 601.  
 Nidulariæ, 251.  
 Nitella, 16, 285, 287, 288,  
     289.  
 Nitrogen, 621.  
 Node, 135.  
 Nostoc, 215.  
 Nostocaceæ, 215, 273.  
 Nostochineæ, 214.  
 Nucleoli, 38, 44.  
 Nucleus, 2, 18, 37, 44, 252,  
     422.  
 Nucule, 284, 289.  
 Nuphar, 539.  
 Nut, 538.  
 Nutation, 766.  
 Nutmeg, 512.  
 Nyctagineæ, 583.  
 Nymphæaceæ, 576, 579.  
  
 Ochnaceæ, 583.  
 Œdogoniæ, 229.  
 Œdogonium, 9, 22, 230.  
 Œnothereæ, 585.  
 Oil, 55, 115.  
 Oleaceæ, 566, 580.  
 Onygenaceæ, 256.  
 Oogonium, 3, 203, 212, 802.  
 Oosphere, 203, 212, 802.  
 Oospore, 213, 803.  
 Opening and closing of  
     flowers, 798.  
 Operculum, 330.  
 Ophioglossaceæ, 378.  
 Ophioglossum, 379, 381.  
 Ophrydeæ, 488.  
 Orchideæ, 488, 505, 506,  
     526, 556, 814.  
 Orchis, 502, 536.  
 Order of development of  
     roots, 143.  
 Order of succession of the  
     parts of the flower, 530.  
 Organic centre, 182.  
 Organic processes, 693.  
 Organs of plants, 128.  
 Origin of species, 822.  
 Original forms of plants, 128.  
 Orobranche, 194, 241, 557.  
 Orobrancheæ, 580.  
 Orthostichy, 167.  
 Orthotropous, 427, 501.  
 Oscillatoria, 215.  
 Oscillatorieæ, 215.  
 Osmunda, 341.  
 Osmundaceæ, 360.  
 Ovary, 429, 466, 488.  
 Ovule, 203, 427, 501, 504.  
 Oxalidæ, 583.  
 Oxalis, 787, 796.  
 Oxygen, 621.  
  
 Paleæ, 129, 347, 356, 554.  
 Pallisade-tissue, 465, 657.  
 Palmaceæ, 552, 554.  
 Palmellaceæ, 263.  
 Pandanaceæ, 554.  
 Pandorina, 219.  
 Panicle, 520.  
 Papaver, 571.  
 Papaveraceæ, 111, 571, 579.  
 Papayaceæ, 110, 582.  
 Papilionaceæ, 584.  
 Pappus, 471, 540, 841.  
 Paraphyses, 251, 293, 356.  
 Parasites, 194, 241, 557, 572,  
     620, 643, 844.  
 Parasitism of Lichens, 263,  
     273.  
 Parastichy, 173.  
 Paratonic condition, 677.  
 Parenchyma, 78, 100.  
 Parietales, 582.  
 Paris, 167.  
 Parnassia, 566, 766.  
 Paronychiæ, 569, 583.  
 Parthenogenesis, 805.  
 Passiflora, 776, 780.  
 Passifloraceæ, 582.  
 Pastinaca, 162.  
 Pediastrum, 68, 217.  
 Peduncle, 426.  
 Peltigera, 264.  
 Perianth, 293, 309, 426,  
     469.  
 Periblem, 126.  
 Pericambium, 144, 353.  
 Pericarp, 236, 518, 537.  
 Perichætium, 293, 309, 320.  
 Periderm, 81, 90.  
 Peridium, 239, 251, 253.  
 Perigonium, 320.  
 Perigynæ, 584.  
 Perigynous, 489.  
 Periodic movements of or-  
     gans, 782.  
 Periodicity of growth in  
     length, 743.  
 Perisperm, 428, 512.  
 Peristome, 331.  
 Perithecium, 256, 258.  
 Permanent tissue, 79.  
 Peronosporæ, 244.  
 Pertusaria, 264, 271.  
 Petal, 470.  
 Petiole, 191, 564.  
 Peziza, 11, 261.  
 Phæosporeæ, 229.  
 Phalloideæ, 253.  
 Phallus, 254.  
 Phascaceæ, 329.  
 Phaseolus, 24, 126, 146, 492,  
     559.  
 Pheloderm, 91.  
 Phellogen, 90.  
 Philadelphææ, 584.  
 Phloëm, 94, 100.  
 Phloëm-layers of fibrovas-  
     cular bundles, 100.  
 Phloëm-sheath, 419.  
 Phloemis, 494.  
 Phœnix, 542.  
 Phosphorescence, 646.  
 Phosphorus, 622.  
 Phototonus, 790.  
 Phycocyanine, 216, 686.  
 Phycocerythrine, 234, 237,  
     686.  
 Phycomycetes, 240, 242.  
 Phycophæine, 226.  
 Phycoxanthine, 223, 226,  
     686.  
 Phyllanthaceæ, 583.  
 Phyllanthææ, 583.  
 Phyllocladus, 450.  
 Phyllode, 202, 408.  
 Phylloglossum, 407.  
 Phylloid, 211.  
 Phyllome, 130, 136.  
 Phyllopode, 420.  
 Phyllophyte, 130.  
 Phyllotaxis, 167, 173, 348.  
 Physarum, 275.  
 Physcia, 272.  
 Phytelephas, 512.  
 Phytolacca, 569, 576.  
 Phytolaccaceæ, 569, 583.  
 Pileus, 249, 254.  
 Pilularia, 32, 392, 395, 396,  
     397.  
 Pine-apple, 537.  
 Pineæ, 460.  
 Pinus, 25, 31, 70, 72, 89, 105,  
     442, 449, 465.  
 Piperaceæ, 495, 504, 578.  
 Piperinæ, 578.  
 Pisum, 52.  
 Pitcher-like organs, 601.  
 Pith, 108, 717.  
 Pitted vessels, 26.  
 Pittosporeæ, 582.  
 Placenta, 427, 488.  
 Plane of insertion, 167.  
 Plane of symmetry, 183.  
 Plantagineæ, 566, 580.  
 Plasmodium, 10, 39, 275,  
     760.  
 Platanaceæ, 578.  
 Platycerium, 347.

- Plerome, 127.  
 Pleurocarpous Mosses, 319.  
 Plumbaginæ, 581.  
 Plumule, 518.  
 Podocarpeæ, 460.  
 Podocarpus, 450.  
 Podophyllum, 570.  
 Podostemoneæ, 585.  
 Point of insertion, 167.  
 Polarized light, 588.  
 Polemoniaceæ, 580.  
 Pollen, Formation of, 14, 15, 34, 440, 481.  
 Pollen-grain, 23, 203, 423, 426, 432, 449, 485.  
 Pollen-sac, 426, 440, 448, 482.  
 Pollen-tube, 33, 450, 485, 509.  
 Pollination, 429.  
 Pollinium, 488.  
 Pollinodium, 258.  
 Polycarpæ, 554, 579.  
 Polycarpellary, 492.  
 Polycarpic, 519.  
 Polyembryony, 459.  
 Polygala, 535.  
 Polygalaceæ, 582.  
 Polygamous, 467, 807.  
 Polygonatum, 165, 542.  
 Polygonaceæ, 495, 585.  
 Polypodiaceæ, 341, 360.  
 Polypodieæ, 361.  
 Polysymmetrical, 183, 533.  
 Polytrichum, 333.  
 Pomæ, 584.  
 Pontaderiaceæ, 555.  
 Pore-capsule, 539.  
 Porphyreæ, 237.  
 Portulacaceæ, 583.  
 Posterior, 523.  
 Potamogeton, 548.  
 Potamogetoneæ, 554.  
 Potassium, 622.  
 Potato, 59.  
 Pressure, Effect of, on growth, 729.  
 Prickle, 85.  
 Primary cortex, 574.  
 Primary meristem, 79, 117.  
 Primary root, 142, 144.  
 Primary tissue, 78.  
 Primary wood, 574.  
 Primine, 501.  
 Primordial cell, 5.  
 Primordial epidermis, 126.  
 Primordial utricle, 42.  
 Primulaceæ, 495, 531, 568, 581.  
 Primulineæ, 581.  
 Procambium, 93.  
 Products of degradation, 48, 628.  
 Pro-embryo, 205, 279, 311, 432, 434, 458, 513.  
 Pro-embryonic branch, 282.  
 Proliferation, 426, 439.  
 Promycelium, 239.  
 Prosenchyma, 78.  
 Protandrous, 812.  
 Proteaceæ, 584.  
 Proteine-grains, 51.  
 Proten, 103.  
 Protenchyma, 103.  
 Prothallium, 205, 335, 432.  
 Protogynous, 812.  
 Protomyces, 255.  
 Protonema, 205, 311, 341.  
 Protoplasm, 2, 37.  
 Prototaxites, 226.  
 Pseudaxis, 157, 159.  
 Pseudocarp, 201, 518.  
 Pseudopodia, 318, 329.  
 Psilotum, 406, 411.  
 Psoralea, 113.  
 Pteris, 24, 27, 28, 30, 35, 92, 96, 105, 123, 196, 343, 345, 347, 348, 350, 354.  
 Puccinia, 246.  
 Pulvinus, 783, 786.  
 Punctum vegetationis, 117.  
 Pycnidium, 256, 271.  
 Pyrenomyces, 256.  
 Pyrola, 493, 557.  
 Pyrolaceæ, 581.  
 Pyxidium, 538.  
 Quercus, 559.  
 Raceme, 520.  
 Racemose branching, 158.  
 Racemose inflorescence, 520.  
 Radicle, 518, 558.  
 Radula, 309.  
 Rafflesiaceæ, 557, 579.  
 Ramondieæ, 580.  
 Ranunculaceæ, 567, 579.  
 Raphe, 427, 501.  
 Raphides, 65, 112.  
 Reaumuriaceæ, 582.  
 Receptacle, 239, 249, 426, 489.  
 Receptive spot, 344.  
 Reciprocal hybrids, 818.  
 Refrangibility, Action of rays of different, 666.  
 Regular flowers, 533.  
 Rejuvenescence of the cell, 8.  
 Reproductive cells, 202, 426, 802.  
 Reseda, 166.  
 Resedaceæ, 582.  
 Reserve-materials, 627.  
 Resin-passages, 77, 115, 465.  
 Respiration, 644.  
 Restiaceæ, 555.  
 Retardation of growth by light, 675, 754.  
 Revolving nutation, 766.  
 Rhamnaceæ, 582.  
 Rheum, 496, 507.  
 Rhizanthææ, 579.  
 Rhizine, 264.  
 Rhizocarpeæ, 383.  
 Rhizoid, 211, 282, 317.  
 Rhizome, 196.  
 Rhizophore, 147, 411.  
 Rhizopus, 245.  
 Rhodoraceæ, 581.  
 Rhus, 567.  
 Rhodospermine, 51.  
 Ribes, 91.  
 Riccia, 304.  
 Ricciææ, 304.  
 Ricinus, 95, 97, 108, 161, 476, 558, 638.  
 Rivularia, 215.  
 Rivulariææ, 215.  
 Roccella, 272.  
 Root, 129, 140.  
 Root-cap, 123, 127, 140.  
 Root-hairs, 139.  
 Root-pressure, 600, 609.  
 Root-sheath, 143.  
 Root-system, 142.  
 Roots, Branching of, 160.  
 Roots, Growth of, 124, 740.  
 Rosa, 200.  
 Rosaceæ, 584.  
 Rose-hip, 201, 537.  
 Rosifloræ, 584.  
 Rotation of protoplasm, 39, 43.  
 Rubiaceæ, 566, 581.  
 Rutaceæ, 583.  
 Ruteæ, 583.  
 Sabal, 169.  
 Sabina, 451.  
 Saccharomyces, 254.  
 Sagittaria, 72.  
 Salicineæ, 582.  
 Salisburia, 446.  
 Salvia, 814.  
 Salvinia, 170, 384, 386, 387, 390, 391, 394.  
 Samara, 538.  
 Sambucus, 573.  
 Sanydaceæ, 582.  
 Sanguisorbeæ, 585.  
 Santalaceæ, 505, 585.  
 Santalum, 507.  
 Sap, 62.  
 Sap-conducting intercellular passages, 76, 115, 464.  
 Sap-vesicles, 42.  
 Sapindaceæ, 575, 582.  
 Sapotaceæ, 581.  
 Saprolegniææ, 242, 805.  
 Saprophytes, 194, 542, 557, 572, 620, 643, 844.  
 Sarcocarp, 537.  
 Saurureæ, 578.  
 Saxifraga, 492.



## INDEX.

857

- Saxifragaceæ, 566, 584.  
 Saxifragineæ, 584.  
 Scalariform vessels, 27, 98, 355.  
 Scale-leaves, 193.  
 Schizæaceæ, 341, 360.  
 Schizandreæ, 579.  
 Schizocarp, 537, 538.  
 Schizomycetes, 214.  
 Schizosporeæ, 214.  
 Schultz's solution, 67.  
 Schwendener's Lichen-theory, 262.  
 Scirpus, 548.  
 Scitamineæ, 555.  
 Scleranthus, 583.  
 Sclerenchyma, 35, 104, 106.  
 Sclerotium, 239, 259, 277.  
 Scolecite, 262.  
 Scorpioid cyme, 160, 522.  
 Scorpioid dichotomy, 157.  
 Scorzonera, 111.  
 Scrophularia, 99.  
 Scrophulariaceæ, 580.  
 Scutellum, 144, 541.  
 Scutiform leaf, 389.  
 Secondary cortex, 573.  
 Secondary products of metastasis, 628.  
 Secondary roots, 142.  
 Secondary wood, 574.  
 Secundine, 501.  
 Seed, 423, 432, 518, 540.  
 Segmentation of the apical cell, 118.  
 Selagineæ, 580.  
 Selaginella, 47, 78, 104, 403, 405, 409, 410, 414, 415, 416, 417, 419.  
 Selaginellæ, 416.  
 Sensitiveness, 651, 776, 781.  
 Sepal, 470.  
 Septicidal dehiscence, 538.  
 Septifragal dehiscence, 538.  
 Serpentariæ, 578.  
 Seta, 294, 324, 330, 471.  
 Sexual affinity, 818.  
 Sexual generation, 203, 335, 400, 432, 805.  
 Sexual reproduction, Phenomena of, 801.  
 Sexual reproductive cells, 203, 426, 802.  
 Sheath-teeth, 370.  
 Shells, Formation of, in the cell-wall, 33.  
 Shield, 284.  
 Shoot, 136, 194.  
 Sieve-cells, 23.  
 Sieve-discs, 25, 101.  
 Sieve-tubes, 101, 418.  
 Sigillaria, 420.  
 Sileneæ, 583.  
 Silicon, 623.  
 Siliqua, 538.  
 Simarubeæ, 583.  
 Simultaneous whorls, 166.  
 Siphonæ, 223.  
 Skeleton of cell-wall, 37.  
 Skeleton of starch-grain, 60, 589.  
 Skin of protoplasm, 38, 41.  
 Sleep of plants, 799.  
 Sodium, 622.  
 Soft bast, 101.  
 Solanaceæ, 198, 522, 580.  
 Solitary arrangement, 167.  
 Solorina, 271.  
 Solubility of starch-grains, 61.  
 Sorby's researches on chlorophyll, 684.  
 Soredial branch, 266.  
 Soredium, 271.  
 Sorus, 356.  
 Spadicifloræ, 554.  
 Spadix, 520.  
 Spathæ, 473.  
 Special mother-cells, 32, 88, 485.  
 Species, 829, 844.  
 Species, Origin of, 822.  
 Species-hybrid, 817.  
 Spectrum of chlorophyll, 678.  
 Sperm-cell, 203, 802.  
 Spermogonium, 246, 256, 271.  
 Spermatia, 240, 246, 256.  
 Spermatozoid, 10, 203, 212, 803.  
 Sphacelia, 259.  
 Sphæroplea, 231.  
 Sphagnaceæ, 326.  
 Sphagnum, 326, 327, 328, 329.  
 Sphere-crystals, 63, 65.  
 Spicular cells, 66.  
 Spike, 520.  
 Spine, 197.  
 Spirææ, 585.  
 Spiral arrangement, 169.  
 Spiral flowers, 523, 531.  
 Spiral theory of phyllotaxis, 180.  
 Spiral vessels, 23, 97.  
 Spirogyra, 9, 10, 17, 220.  
 Splitting of the cell-wall, 71.  
 Spontaneous periodic movements, 784, 801.  
 Sporangium, 129, 252, 356.  
 Spore, 203, 240.  
 Spores, Mode of formation of, 14.  
 Sporidia, 248.  
 Sporocarp, 392.  
 Sporogonium, 292, 324, 338.  
 Spur, 500.  
 Stamen, 426, 473.  
 Staminode, 479.  
 Staphyleaceæ, 582.  
 Starch, 6, 57, 635, 669.  
 Starch-cellulose, 57.  
 Stem, 130, 136, 575.  
 Stem-tendrils, 196, 775.  
 Stephanosphæra, 218.  
 Sterculia, 478.  
 Sterculiaceæ, 583.  
 Sterigma, 257, 271.  
 Sticta, 264.  
 Stigeoclonium, 4, 8.  
 Stigma, 429, 488, 499.  
 Stigmaria, 421.  
 Stigmatic cells, 293, 323.  
 Stipule, 192, 281, 564.  
 Stolon, 196.  
 Stomata, 75, 86, 603.  
 Stone-fruit, 104, 106, 539.  
 Stratification of the cell-wall, 20, 29.  
 Stratioteæ, 554.  
 Strawberry, 518, 536.  
 Streaming of protoplasm, 38, 42.  
 Striation of the cell-wall, 20, 29.  
 Stroma, 256.  
 Strophiole, 540.  
 Struggle for existence, 831.  
 Strychnaceæ, 580.  
 Style, 488, 498.  
 Styliidiæ, 581.  
 Stylospore, 254, 256.  
 Stypocaulon, 118.  
 Styracaceæ, 581.  
 Subepidermal tissue, 80, 105.  
 Subhyemial layer, 269.  
 Successive whorls, 166, 170.  
 Sulphur, 622.  
 Superficial glands, 114.  
 Superior ovary, 491.  
 Surface-growth of the cell wall, 21.  
 Superposed members, 168, 524, 568.  
 Survival of the Fittest, 843.  
 Suspensor, 405, 424, 513.  
 Swarmspore, 5, 39, 211.  
 Swartzieæ, 584.  
 Swelling, 36, 698.  
 Swelling of starch-grains, 61, 592.  
 Swimming of swarmspores and spermatozoids, 39.  
 Symmetrical, 183, 469, 533.  
 Sympetalæ, 580.  
 Sympetalous, 201, 471.  
 Symphoricarpus, 566.  
 Symphyllous, 471.  
 Sympodial inflorescence, 521.  
 Sympodium, 157, 159.  
 Synandrxæ, 581.  
 Syncarp, 537.  
 Synsepalous, 201, 471.  
 System, Natural, 844.

- Taccaceæ, 555.  
 Tamariscineæ, 582.  
 Tap-root, 561.  
 Targioneæ, 306.  
 Taxineæ, 460.  
 Taxodineæ, 460.  
 Taxodium, 446.  
 Taxus, 447, 450, 455.  
 Teeth, 331, 334.  
 Teleutospore, 248.  
 Temperature, Action of, 591, 651, 748, 784, 789.  
 Temperature, Dependence of vegetation on, 647.  
 Temperature, Limits of, 651.  
 Tendril, 194, 196, 766, 775.  
 Tension of tissues, 708, 713.  
 Terebinthaceæ, 116, 582.  
 Terebinthineæ, 582.  
 Terminal branching, 155.  
 Ternströmiaceæ, 582.  
 Testa, 421, 427, 512.  
 Tetracyclæ, 580.  
 Tetragoniæ, 585.  
 Tetraphis, 319.  
 Tetraspore, 234.  
 Thalloid Hepaticæ, 296.  
 Thallome, 130, 137.  
 Thallophytes, 130, 207.  
 Thallus, 130.  
 Theca, 294, 324.  
 Theory of descent, 842.  
 Thickening-ring, 107, 109, 575.  
 Thread-indicator, 747.  
 Thuja, 449.  
 Thujopsidæ, 460.  
 Thunbergia, 34.  
 Thymelæaceæ, 584.  
 Thymelæineæ, 584.  
 Tiliaceæ, 569, 583.  
 Tissues, Forms and Systems of, 77, 431.  
 Tissues, Morphology of, 68.  
 Torsion, 770.  
 Torus, 426, 489.  
 Trabeculæ, 413.  
 Tracheïdes, 73, 98.  
 Traction, Action of, on growth, 729.  
 Trama, 250.  
 Transfusion-tissue, 466.  
 Transpiration, 602.  
 Transport of assimilated substances, 634.  
 Trapa, 517, 557.  
 Traube's artificial cells, 594.  
 Tree-ferns, 355.  
 Tremellini, 249.  
 Trichia, 275.  
 Trichogyne, 212, 235.  
 Trichomanes, 341.  
 Trichome, 129, 138, 356.  
 Trichophore, 213, 236.  
 Tricocceæ, 583.  
 Triglochin, 549.  
 Tropæolaceæ, 582.  
 Tropæolum, 14, 776.  
 Tube connecteur, 237.  
 Tuber, 196, 255.  
 Tuberaceæ, 255.  
 Tubifloræ, 580.  
 Tulipa, 637.  
 Tüllen, 27.  
 Turgidity, 700, 708.  
 Turneraceæ, 582.  
 Twining of climbing plants, 772.  
 Twining of tendrils, 775.  
 Twining stems, 197, 772.  
 Type, 842.  
 Typha, 473, 495.  
 Typhaceæ, 504, 555.  
 Udotea, 226.  
 Ulmaceæ, 578.  
 Ulvaceæ, 231.  
 Umbel, 520.  
 Umbel, Cymose, 158.  
 Umbelliferæ, 584.  
 Umbellifloræ, 584.  
 Unequal growth, 765.  
 Unguis, 471.  
 Unicellular plants, 77, 209, 615.  
 Unilateral cical cyme, 522.  
 Unilateral helicoid cyme, 521.  
 Uredineæ, 246.  
 Uredo, 248.  
 Urn, 294, 324.  
 Urticaceæ, 111, 578.  
 Urticeæ, 578.  
 Urticineæ, 578.  
 Usnea, 264, 266, 272.  
 Vacciniaceæ, 581.  
 Vacuoli, 38, 41.  
 Vaginula, 309, 324.  
 Valeriana, 566.  
 Valerianaceæ, 566, 581.  
 Vallisneria, 664, 689.  
 Vallisnerieæ, 554.  
 Variation, 696.  
 Variation of hybrids, 820.  
 Variety, 823.  
 Variety-hybrid, 817.  
 Vasa propria, 101.  
 Vascular bundle-sheath, 355.  
 Vascular Cryptogams, 335.  
 Vascular portion of fibrovascular bundle, 98.  
 Vaucheria, 41, 223, 224, 225.  
 Vegetable ivory, 512.  
 Vegetative cone, 117.  
 Velum, 249, 408.  
 Venation, 103, 192, 547, 564.  
 Verbenaceæ, 580.  
 Verticillate flowers, 523.  
 Vesicular vessels, 110.  
 Vessels, 98.  
 Vicia, 558.  
 Viola, 499, 511, 814.  
 Violaceæ, 582.  
 Virginian creeper, 781, 839.  
 Viscum, 506, 557.  
 Vitis, 562, 780.  
 Volvocineæ, 217.  
 Volvox, 219.  
 Waking and sleeping of plants, 786.  
 Water, Ascent of, from the root, 608.  
 Water, Currents of, in the wood, 603.  
 Water, Exudation of, 600.  
 Water of crystallisation, 32.  
 Water of organisation, 32, 62.  
 Water, Movements of, 598, 652.  
 Watsonia, 507.  
 Wax, 84.  
 Welwitschia, 461.  
 Wendungszellen, 286, 289.  
 Whorl, 149, 166.  
 Whorl, Spurious, 149.  
 Wood, 98, 574, 717.  
 Xanthophyll, 685.  
 Xanthoxylaceæ, 583.  
 Xylem, 94, 717.  
 Xylem-portion of fibrovascular bundle, 98.  
 Xyrideæ, 555.  
 Yeast-fungi, 254.  
 Yucca, 552.  
 Zamia, 437.  
 Zea, 42, 61, 71, 94, 133, 141, 143, 144, 147, 827.  
 Zingiberaceæ, 548, 556.  
 Zoosporangium, 13.  
 Zoospore, 13, 211.  
 Zygema, 46.  
 Zygemeæ, 220.  
 Zygomorphic, 183, 533.  
 Zygophyllaceæ, 583.  
 Zygospore, 10, 212, 220, 245, 802.