UNIVERSITY OF TORONTO

3 1761 00849018 7

Presented to the
UNIVERSITY OF TORONTO
LIBRARY

by the
ONTARIO LEGISLATIVE
LIBRARY

1980

320-3

C-22

Q. 95

Digitized by the Internet Archive
in 2008 with funding from
Microsoft Corporation

A DICTIONARY
OF
BOTANICAL TERMS

BY
A. A. CROZIER

NEW YORK
HENRY HOLT AND COMPANY
1892

8306

COPYRIGHT, 1892,

BY

HENRY HOLT & CO.

QK
9
C9

PREFACE.

It is now nearly twenty years since an English dictionary of botanical terms was published, and the development of botany during that time has brought into use many new terms and led to the abandonment of some of those which were formerly employed. The present work, though larger than any of its predecessors, is therefore wanting in certain terms which are found in the earlier botanical dictionaries. A few obsolete terms, however, which occur in standard botanical literature are retained and marked as such. The scope of this dictionary is nearly the same as that of its predecessors, except that it is broader on the side of agriculture and horticulture, as it aims to include all technical terms applied to plants both by botanists and others. Very many of the newer terms are from the German botanists, to whom we owe by far the greater part of modern structural and physiological botany. These terms, particularly, include an unfortunately large number of synonyms, which seem to be a necessary result of active research by independent workers in the same fields. With few exceptions, no definition is repeated, all approved synonyms being brought together under one term. Where a choice existed this has permitted the preferable term alone to be defined. No obsolete or wholly undesirable synonyms, however, accompany the definitions, and such of these as occur in alphabetical order have usually been admitted only to refer

PREFACE.

the reader to the proper term. The cross-references freely given to terms of similar and opposite meanings will be found useful in broadening the scope of the definitions.

I desire here to express my gratitude to various botanical friends for their contributions to this work, particularly to Dr. W. J. Beal, of the Michigan Agricultural College, who has revised the entire manuscript and improved many of the definitions; to Professor V. M. Spalding, of the University of Michigan, who has revised and corrected the terms relating to fungi; to Mr. F. C. Newcombe for aid upon the terms applied in karyokinesis; and to Professor L. H. Bailey, of Cornell University, for advance proof-sheets of his glossary of horticultural terms.

The marking of the pronunciation was begun by Mr. B. Pickman Mann, of Washington, D. C., and completed by Mr. F. P. Jordan, of the University of Michigan. In their work Webster's dictionary was mainly followed as authority.

ANN ARBOR, MICH., January, 1892.

SIGNS AND ABBREVIATIONS.

- ①...annual.
 ②...biennial.
 2f...perennial.
 ♂...staminate.
 ♀...pistillate.
 ♂...perfect.
 ∞...numerous; more than
 twenty when applied to
 stamens.
 ?....doubt.
 !....certainty. Indicates that
 the author has seen the
 specimen in question.
 n. sp. new species. Used only
 with the first printed
 description.
 Eu...the Greek word "well,"
 sometimes written after a
 species to indicate that it
 is certainly a well-defined
 species, not a variety.

MEASUREMENT.

- °....foot.
 '....inch.
 "....line ($\frac{1}{8}$ inch).
 c.m...centimeter.
 c.c...cubic centimeter.
 m.m. millimeter.
 μ*mu* (the Greek letter *m*),
 micromillimeter, $\frac{1}{1000}$ of
 a millimeter, the unit
 of microscopic measure-
 ment. It is about .000039
 of an inch.
 ×....used to express magnifica-
 tion. Thus, × 150 indi-
 cates a magnification of
 150 diameters. The im-
 proper fraction $\frac{150}{1}$ indi-
 cates the same, but this
 form is little used.

A DICTIONARY OF BOTANICAL TERMS.

A, prefixed to words of Greek origin often signifies absence, as *apèt'aloüs*, without petals. Before a vowel it is changed to AN, as *ánän'theroüs*, without anthers.

ĀBĀX ĪĀL, out of the axis. See EXCENTRIC.

ĀBBRĒ VIĀTED, shorter than an adjoining organ, or one with which it is compared.

ĀBĒR RANT, differing widely from the usual form or structure; as: the *Fumariaceæ* have been regarded as an *aberrant* group of *Papaveraceæ*.

ĀBĪŌGĒN'ESĪS, see SPONTANEOUS GENERATION.

ĀBJĒC'TION, throwing off with force, as spores or seeds.

ĀBJŌINT', to separate at a joint.

ĀBJŪNCTION, the separation of one part from another; delimitation. Compare ABSTRIC-TION.

ĀBNŌR MAL, differing from the usual structure or condition.

ĀBŌRĪG ĪNAL, see INDIGENOUS.

ĀBŌR TION, the non-formation or imperfect formation of an organ, so that it does not per-

form its usual function. Compare SUPPRESSION, DEGENERATION, ATROPHY.

ĀBŌR TĪVE, imperfect, or wanting. See OBSOLETE.

ĀBRŪPT', terminating suddenly, as a leaf which ends without a tapering extremity, a compound leaf without a terminal leaflet, or a stem which is sharply bent.

ĀBRŪPT LŶ ĀCŪ MĪNĀTE, having a broad extremity from which a point arises.

ĀBRŪPT LŶ PĪN NĀTE, pinnate without a terminal leaflet, and usually with an even number of leaflets. There may be a terminal point or tendril; even pinnate; equally pinnate. Compare IMPARIPINNATE.

ĀBSĀIS SION, cutting off sharply, as the separation of the frustules of diatoms. Compare ABSTRIC-TION.

ĀB SCĪSS LĀY ER, a layer of cells formed by renewed cell-division in the base of the leaf-stalk in autumn, the formation of which permits the fall of the leaf.

ĀBSŌRP'TION, the method by which fluids enter the plant. See OSMOSE and IMBIBITION.

ĀBSTRĪC'TION, the separation of one part from another by constriction and the formation of a septum. Applied especially to the separation of spores from their hyphæ. Compare AB-
SCISSIION and ABJUNCTION.

ĀCĀL'YČINE, without calyx; acalycinous.

ĀCĀLYČ'INOŪS, see ACALYCINE.

ĀCĀN'THĀ (pl. *Ācān'thā*), a thorn, spine, or prickle.

ĀCĀNTHĀ'CEOŪS, having thorns, spines, or prickles.

ĀCĀNTHŌCĀR'POŪS, having the fruit furnished with spines or prickles.

ĀCĀNTHŌC'LĀDOŪS, having spiny branches.

ĀCĀNTHŌPH'OROŪS, bearing prickles, spines, or thorns.

ĀCĀNTHŌP'ODOŪS, having the petiole or pedicel furnished with spines or prickles.

ĀCĀR'POŪS, not producing fruit.

ĀCAULĒ'ČENCE, an abnormal suppression of the stem.

ĀCAULĒ'ČENT, having only a very short aerial leaf-bearing stem, apparently none, as in the dandelion; acauline; acaulose; acaulous.

ĀCAU'LĪNE, see ACAULESCENT.

ĀCAU'LĪS, see ACAULESCENT.

ĀCAU'LŌSE, see ACAULESCENT.

ĀCAU'LOŪS, see ACAULESCENT.

ĀČES'SŌRŪ, additional to the usual number, or accompanying something else; supernumerary. Said of the additional buds when more than one occur in an axil; applied to the border of the apothecium in lichens when of a different

substance or color from the disk.

ĀČES'SŌRŪ BUDS, also called secondary buds and supernumerary buds; the additional buds when more than one occur in or near the axil, as in the butternut.

ĀČES'SŌRŪ CELL, the sister-cell of a guard-cell; subsidiary cell.

ĀČES'SŌRŪ FRUIT, one in which some additional part or parts is associated with the matured ovary, as in the wintergreen, *Gaultheria procumbens*; anthocarpous fruit. The term is not applied to fruits with an adherent calyx-tube, as the apple and currant. Compare AGGREGATE FRUIT and COLLECTIVE FRUIT.

ĀČES'SŌRŪ GŌNĪD'ĪĀ, gonidial formations in some species of Mucorini in addition to the typical kind.

ĀČĪDĒN'TĀL, see ADVENTITIOUS.

ĀCCŌMMODĀ'TION, see ADAPTATION.

ĀCCRĒS'ČENT, increasing in size after flowering;—applied to parts accessory to the fruit, as the calyx of *Physalis*.

ĀCCRĒTE', grown together in any manner.

ĀCCRĒ'TION, the growing of one thing to another; growth by addition of particles to the outside.

ĀCCŪM'BENT, lying upon or against another body, as the edge of the cotyledons against the caulicle in some Crucifere. Compare INCUMBENT.

ĀČĒPH'ĀLOŪS, headless; said of an ovary when the style is attached to some other part than the summit.

ĀČERŌSE', narrow, stiff, and

pointed, like the leaves of the fir. Intermediate in form between Acicular and Subulate.

ĂȚĚR'VĂTE, growing in heaps or clusters; coacervate.

ĀÇĒR'VŪLŪS (pl. Āçēr'vūlī), a small heap, as of spores.

ACETABŪ'LIFORM, deep saucer-shaped, with a broad concave bottom and nearly upright sides. Compare COTYLIFORM.

ĀĀETĀ'RĪOŪS, used for salads.

ĂC'ETŌSE, sour; acid.

ĀCHĒ'NĪŪM, see ACHENIUM.

ÄCHÆ'NÖCÄRP, any simple dry indehiscent fruit. (Masters.)

ĀCHEĪ'LĀRŸ, destitute of a label-
lum, as some orchids.

ÄCHĒNE', see ACHENIUM.

ACHĒ'NĪŪM (pl. Āchē'nīā), a small, dry, indehiscent, one-seeded seed-like fruit or carpel in which the covering does not adhere to the seed, as in the sunflower or buttercup; achænium; achene; akene. Compare **CARYOPSIS**, **UTRICLE**, **CYPSELA**.

ÄCHĒNŌ'DĪŪM, see CREMOCARP.

ĀCHLĀMŸ'DEOŪS, destitute of
calyx and corolla.

ACHROMAT'IC, not readily colored by the usual staining agents.

ÄHRŌ'MÄTĪN, the basic substance of the nucleus, less highly colored by staining agents than the rest.

ĀÇIC'ŪLĀ (pl. Āçic'ūlā), a needle-shaped spine, prickle, or other body.

ĀÇĪ'ŪLAR, slender needle- or bristle-shaped, as the leaves of most pines; aciculate; aciculiform; aciform. Compare **ACEROSE**.

ĀCĪC'ŪLĀTE, see ACICULAR.

ÄÇİC'ŪLĀTED, marked by fine

grooves, as if scratched with a needle. Finer than striate, and not necessarily parallel.

ĂÇİC'ŪLİFÔRM, see ACICULAR.

Ā'ČĪĒS, an edge.

ĂC'ÎFÔRM, see ACICULAR.

ĀCĪNĀ'CEOŪS, full of kernels.
(Rare.)

AÇIN AÇI FÔRM, scymitar-shaped;—having one edge thin and convex, and the other thick and straight or concave, like many bean-pods.

ACÍNE, one of the succulent carpels of a fruit like the raspberry; acinus. (Originally **Acinus** meant a bunch of grapes or similar fruit, as the currant, and later the term was applied to one of the berries of such a bunch and to the seeds of the grape.)

ACINÔSE', consisting of granular bodies somewhat resembling grape-seed. More rarely, resembling a grape-berry or bunch of grapes.

ĂÇ'ĬNŬS (pl. Ăç'inī), see ACINE.

ACOTYLED'ONOŮS, destitute of cotyledons, as Cuscuta.

ACRAMPHIB'RYOÜS, said of plants whose growth is not confined to the apex, i.e., which produce lateral as well as terminal buds. (Rare.) Compare. **ACROGENOUS**.

ĂCRŎB'RŎŮS, see ACROGENOUS.

ACROCAR'POUS, having terminal fructification. Used chiefly in mosses. Compare CLADO-CARPOUS.

ACROGENOUS, growing chiefly at the apex, as the stem of ferns; produced at the apex of a filament, as the spores of some fungi.

ĀCRŌG'YNOŪS, having the stem terminated by archegonia or

other female organs. Compare ANACROGYNOUS.

ĀCRŌP'ĒTĀL, produced in succession toward the apex; in the direction of the summit; basifugal; centripetal (when applied to the order of inflorescence only). Compare BASIP-ETAL.

ĀCRŌSCŌP'IC, facing the apex. Compare BASISCOPIC.

ĀC'RŌSPĪRE, an old name for the plumule of a grain in germination.

ĀC'RŌSPŌRE, a spore borne at the summit of a filament.

ĀCTĪNŌMŌR'PHIC, regular and polysymmetrical, as the flowers of radish, i.e., capable of bisection in two or more planes into similar halves. Compare ZYGOMORPHIC.

ĀCTĪNŌMŌR'PHŌUS, see ACTINOMORPHIC.

ĀC'TĪVE, in a growing condition; opposed to Dormant.

ĀCŪ'LEĀTE, having prickles; prickly-pointed; aculeated.

ĀCŪ'LEŌLĀTE, having small or few prickles.

ĀCŪ'LEŪS (pl. Ācū'lei), see PRICKLE.

ĀCŪ'MĪNĀTE, ending in a prolonged tapering point.

ĀCŪ'MĪNŌSE, having a sharp or tapering point; somewhat acuminate. (Rare.)

ĀCŪMĪN'ŪLĀTE, having a small acuminate point.

ĀCŪTE, ending in a distinct angle, but not prolonged.

ĀCYC'LIC, having all the organs of a flower in a continuous spiral. Compare HEMICYCLIC and CYCLIC.

ĀDĀPTĀ'TION, the modification of a plant to better fit it for surrounding conditions, or of

an organ for a particular function; accommodation. Compare METAMORPHOSIS.

ĀDEL'PHĪĀ, (pl. Ādel'phīæ), a collection of stamens united by their filaments. Compare PHALANX.

ĀDEL'PHŌUS, having the stamens united by their filaments in an adelphia or bundle.

ĀDĒN'IFŌRM, gland-shaped; adenoid.

ĀDĒN'ŌPHŌRE, a stalk supporting a gland.

ĀDENŌPH'ŌROUS, gland-bearing.

ĀDENŌPHYL'LOUS, having on the leaves glands, or gland-like spots or tubercles.

ĀDENŌP'ŌDOUS, having glands or gland-like tubercles on the petioles.

ĀDENŌSE, gland-like, or bearing glands; adenoid; adenous.

ĀD'ENOUS, see ADENOSE.

ĀD'ESMŸ, the separation of parts usually joined. Compare CHORISIS, DIALYSIS, FISSION.

ĀDGLŪ'TĪNĀTE, see AGGLUTINATE.

ĀDHĒ'RENT, attached or growing to an organ or body of a different nature, as the calyx to the ovary. The parts may or may not have grown together from the first. Compare COH-RENT and ADNATE.

ĀDHĒ'SION, the sticking or growing together of organs of a different nature, as a leaf to the stem. It implies a union of parts which in most other plants or in a younger state of the same plant are separate.

ĀDNĀS'CENT, growing to or upon something else; as, "moss is an *adnascent* plant."

ĀD'NĀTE, said of parts of a dif-

ferent nature which are grown together from the first, or over their whole surface or length. (Compare **CONNATE**.) Applied to an anther, it indicates that it is attached throughout its length to the upper or lower surface of the filament. Compare **INNATE**. See **ADHERENT**.

ADNĀ'TION, the same as adhesion, but implying an earlier or more complete union.

ADPRĒSS'ED, see **APPRESSED**.

ADSCĒN'DĒNT, see **ASCENDING**.

ADSŪR'GĒNT, see **ASCENDING**.

ADŪN'COŪS, crooked, twisted, or hooked. (Rare.)

ADVENTĪ'TIOUS, out of the usual place, as buds on a leaf or at a distance from a node; growing spontaneously out of its native locality, but not fully established; adventive.

ADVEN'TIVE, see **ADVENTITIOUS**.

AD'VĒRSE, (1) opposite (rare); (2) directed toward or facing the main axis or other object. Compare **ĀVERSE**.

ADVĒRSIFŌ'LIĀTE, see **ADVERSIFOLIOUS**.

ADVĒRSIFŌ'LIŌŪS, having opposite leaves; *adversifoliate*.

ÆCID'ĪOSPŌRE, a spore produced in an *æcidium*.

ÆCID'IŪM (pl. *Æcid'ia*), the cup-shaped spore-case with its contents in certain *Uredinæ*, in which the spores are produced serially from below; *æcidium* fruit.

ÆERĒN'CHŪMĀ, tissue homologous with cork, with thin cell-walls and large intercellular spaces, found in the stems of some marsh-plants, as *Lythrum salicaria*. It is supposed by Schenk, the author of the term, to serve for aeration, but by

others it is regarded as floating tissue.

ÆĒ'RĪĀL, growing in the air, not attached to the soil, as a parasite or epiphyte upon the top of some other plant.

ÆĒ'RĪĀL ROOTS, those appearing above ground, whether they afterwards enter the ground or not, as the clinging roots of the ivy and the brace-roots of Indian corn.

ÆERŌ'BĪĀ (sing. *Æerō'bium*), organisms which thrive only in the presence of air or free oxygen. Applied in bacteria. Compare **ANAEROBIA**.

ÆERĪŌBIŌT'IC, thriving only in the presence of air.

Ā'ERŌCŪST, an old name for air-bladder.

Ā'ERŌPHŪTE, see **AIR-PLANT**.

Ā'ERŌTRŌP'IC, seeking the air, as certain roots.

ÆRŪ'GINŌSE, clear light bluish green; *verdigris-green*.

ÆRŪ'GINŌŪS, see **ÆRUGINOSE**.

ÆSTĪ'VĀL, see **ESTIVAL**.

ÆSTĪVĀ'TION, the arrangement of the floral organs in the bud; *præfloration*.

ÆTHĀ'LĪŪM, a compound sporiferous body in *Myxomycetes*, formed from a large combination of plasmodia.

ĀFFĪN'ITŪ, true or near relationship. Compare **ANĀLOGY** and **HOMŌLOGY**.

ĀGĀM'IC, destitute of sex. Formerly applied to all cryptogams.

ĀG'ĀMŌGĒN'ESĪS, asexual reproduction of any kind. See **PARTHENOGENESIS** and **APOGAMY**.

ĀGĀM'ŌSPŌRE, a spore formed without fertilization;—a go-

- nidium or asexually produced spore of any kind. (Rare.)
- ĀG'ĀMOŪS**, see AGAMIC.
- ĀGGLŌM'ERĀTE**, see AGGLOMERATED.
- ĀGGLŌM'ERĀTED**, clustered or crowded together but not cohering, as the staminate flowers of pines.
- ĀGGLŪ'TINĀTED**, glued together. Compare ACCRETE.
- ĀG'GREGĀTĒD**, collected together but not cohering. About the same as Agglomerated.
- ĀG'GREGĀTE FLOWERS**, those with several in the same head, as in clover. The term excludes Composite.
- ĀG'GREGĀTE FRUIT**, one in which distinct carpels of a single flower are crowded on the receptacle into one mass, as in the raspberry and magnolia; syncarp. Compare COLLECTIVE FRUIT.
- ĀGGREGĀ'TION**, the condensation of the protoplasm of a living cell, or of some of the contained proteids under stimulation: first observed in the tentacle cells of *Drosera* and subsequently produced in the cells of other plants by means of various basic substances.
- ĀGRICŪLT'URAL BOTANY**, that branch of economic botany which treats of weeds and cultivated plants. It includes the systematic study of such plants and their methods of reproduction, the laws of improvement and degeneration in plants, etc., also vegetable pathology in its application to cultivated plants.
- ĀGRŌSTŌG'RĀPHŸ**, see AGROTOLOGY.
- ĀGRŌSTŌL'ŌGŸ**, the part of botany relating to grasses.
- ĀG'YNOŪS**, without pistils.
- ĀI'GRET**, any feathery crown or tuft attached to the seed, as the coma of the milkweed or pappus of the thistle; aigrette; egret.
- ĀIGRETTE'**, see AIGRET.
- AIR-BLADDER**, an organ filled with air for the purpose of floating the plant in water, as in the sea-weed *Fucus*; air-sac; air-cell.
- AIR-CHAMBER**, see STOMATIC CHAMBER and AIR-PASSAGE.
- AIR-PASSAGE**, an extended opening between the cells containing air, as in the stems of many water-plants; lacuna; air-chamber.
- AIR-PLANT**, a plant growing in the air detached from the soil, as certain orchids; ærophyte. Generally applied only to epiphytic flowering plants.
- AIR-PORE**, see STOMA.
- ĀKENE'** see ACHENIUM.
- ĀLĀ** (pl. *Ālā*), see WING.
- ĀLĀBĀS'TRŪM**, an old term for flower-bud.
- Ā'LAR**, (1) borne in the forks of a stem; (2) relating to or having wings. See ALATE.
- Ā'LĀTE**, see WINGED.
- Ā'LĀTE-PĪN'NĀTE**, pinnate with a winged petiole.
- ĀLBĒS'CENT**, whitish; candicant.
- ĀL'BICĀNT**, see ALBESCENT.
- ĀL'BĪNĪSM**, see CHLOROSIS.
- ĀLBĪ'NO**, a plant or variety nearly destitute of chlorophyll, or of which the fruit is abnormally white or colorless.
- ĀLBŪ'MEN**, nutritive material in many seeds surrounding or

adjoining the embryo, endosperm or perisperm.

ĀLBŪ'MEN CRŪSTĀLS, see CRYSTALLOIDS.

ĀLBŪ'MĪNOID, an organic substance containing nitrogen in its composition, as protoplasm; proteid.

ĀLBŪ'MĪNOŪS, furnished with albumen.

ĀLBŪR'NOŪS, having, consisting of, or pertaining to, alburnum.

ĀLBŪR'NŪM, sap-wood; a somewhat distinct, usually lighter colored, outer zone of wood in many exogenous trees and shrubs.

ĀLĒCTŌ'RĪOID, filiform, like the thallus of the genus *Alectoria* in lichens.

ĀLEŪ'RŌNE, proteine-grains which replace starch in the cotyledons or albumen of certain oily seeds.

ĀLGŌL'ŌGŸ, the part of botany relating to algæ.

ĀLĪ'EROŪS, having wings.

ĀLĪ'FŌRM, wing-shaped.

ĀLĪG'EROŪS, see **ALIFEROUS**.

ĀLLĀN'TŌID, sausage-shaped; botuliform; narrowly oblong; cylindrical with somewhat hemispherical terminations.

ĀLLĀSSŌTŌN'IC MOVEMENTS, a term applied by Vries to the movements of mature organs, as the sleep of plants; movements of variation. Compare **AUXOTONIC MOVEMENTS**.

ĀLLĪĀ'CEOŪS, having the odor or other qualities of the genus *Allium*, which includes the onion and garlic.

ĀLLĪ'ANĈE, see **COHORT**.

ĀLLŌG'ĀMOŪS, habitually cross-fertilized.

ĀLLŌG'ĀMŸ, cross-fertilization. Compare **AUTOGAMY**.

ĀLLŌT'RŌPIŠM, appearance under an unusual form.

ĀLPĒS'TRĪNE, growing on high mountains below the timber-line, or on the tops of inferior mountains; mountainous.

ĀLPĪTŌMŌR'PHOŪS, resembling barley meal: said of certain fungi (Rare.)

ĀL PĪNE, growing on mountains above the timber-line.

ĀLTĒR'NĀTE, applied to leaves, indicates one at a node; applied to parts of the flower, indicates that the members of one whorl are placed opposite the intervals between the members of the next whorl.

ĀLTĒR'NĀTELŸ-PĪN'NĀTE, pinnate with the pinnæ or leaflets alternating on opposite sides of the rachis.

ĀLTĒRNĀTION OF GENERATIONS, the growth of reproductive bodies into structures differing from that on which they were produced, to return after one or more generations to the original stage or form. Thus, the spore of ferns produces a small prothallus, and upon this sexual bodies are borne which after fertilization reproduce the original fern-plant. See **METAGENESIS**.

ĀLŪTĀ'CEOŪS, of a pale brown color; resembling soft tanned skin in color or texture. (Rare.)

ĀL'VEŌLĀTE, deeply pitted so as to resemble honey-comb, like the receptacle of many Compositæ; faveolate; favose.

ĀMBIG'ENŪS, having the outer surface of the perianth resembling a calyx and the inner surface a corolla.

ĀMBĪĠ'ŪŌŪS, indistinct or doubtful, so that it cannot well be referred to any definite condition or place in a system of classification, as a bract which has nearly the appearance of an ordinary leaf, or a species which is doubtfully of higher rank than a variety, or one which it is difficult to determine into which of two genera it should be placed.

ĀMBĪP'ĀROŪS, producing two kinds, as a bud which produces directly both flowers and leaves.

ĀM'ENT, a slender spike of naked and usually separated flowers with imbricated scales or bracts; amentum; julus; catkin. Staminate aments are usually deciduous.

ĀMĒN'TĀ, pl. see **AMENTUM**.

ĀMENTĀ'CEŌŪS, resembling, consisting of, pertaining to, or bearing aments; as an *amentaceous* inflorescence or plant.

ĀMĒN'TĪFŌRM, amentaceous; juliform

ĀMĒN'TŪM (pl. *Āmĕn'tā*), see **AMENT**.

ĀM'IDŌPLĀST, see **LEUCOPLAST**.

ĀMMŌPH'ĪLOŪS, growing in sandy places.

ĀM'NĪŌS, the contents of the embryo-sac before the formation of the embryo. Seldom used.

ĀMŌ'BOID, assuming various shapes, like the *Amœba*

ĀMŌR'PHŌŪS, without definite form, structure, or position.

ĀMPHĀN'THĪŪM, see **CLINANTHIUM**.

ĀMPHIASTER, a term for the combined nuclear spindle and cytasters in karyokinesis when the latter are present, which is rare in plants. The term is

also applied to the combined cytasters only.

ĀMPHĪB'ĪŌŪS, growing readily either in water or upon dry land.

ĀMPHĪB'RĪŌŪS, growing by additions over the whole surface.

ĀMPHĪCĀR'PĪC, producing two kinds of fruit, either as regards form or period of ripening; amphicarpous. Compare **HETEROCARPOUS**.

ĀMPHĪCĀR'POŪS, see **AMPHICARPIC**.

ĀMPHĪĠ'ĀMOŪS, see **AGAMIC**.

ĀMPHĪGĀS'TER, used by Bennett and Murray for *Amphigastrium*.

ĀMPHĪGĀS'TRIĀ (sing. *Amphigastrium*), peculiar scale-like leaves accompanying those of ordinary form as a third row upon the under side of the stem in certain *Hepaticæ*.

ĀMPHĪĠ'ĒNOŪS, growing on either surface of a leaf. Said chiefly of certain parasitic fungi.

ĀMPHĪSĀR'CĀ, any indehiscent fruit, hard and dry externally and pulpy within, as a gourd. (Rare.)

ĀMPHĪSPĒR'MŌŪS, closely investing the seed so as to have the same form, as the ovary in *Graminææ*.

ĀMPHĪT'RŌPAL, see **AMPHITROPOUS**.

ĀMPHĪT'ROPOŪS, having the funiculus attached to the ovule or seed for half the distance between the chalaza and micropyle; semianatropous; half-anatropous; half-inverted; hemitropous; heterotropous; transverse; amphitropal. Applied to the embryo it means curved so that both ends are brought close together.

ĀM'PHŌRĀ, the lower division of a pyxis.

ĀMPLEĀTĀNT, embracing or clasping, as tendrils, or the sheath of grasses.

ĀMPLEĀX'ICAUL, partially surrounding or clasping the stem, as the base of many leaves. Compare SHEATHING and PER-FOLIATE.

ĀM'PLIATED, enlarged, or moderately dilated.

ĀMPŪL'Ā, see BLADDER.

ĀMPŪLLĀ'CEOŪS, inflated, and swelling out toward the base like a bladder or short flask. Compare LAGENIFORM.

ĀMYĠDĀLINE, pertaining to or resembling the almond.

ĀMYLĀ'CEOŪS, pertaining to, composed of, or resembling starch.

ĀMYLŌĠĒN'ESĪS, starch-formation.

ĀMYLŌĠĒN'ĪC, starch-forming. Applied to chlorophyll-granules and similar bodies which originate starch.

ĀM'YLOID, a colloid substance having nearly the properties of boiled starch which is found in many sea-weeds and in the seeds of the bean, the almond, etc.

ĀMYLŌLYT'ĪC, pertaining to the transformation of starch into other substances, as *amylolytic* diastase.

ĀM'YLŪM, starch.

AMYLUM BODIES, see PYRENOIDS.

AMYLUM STAR, see STARCH-STAR.

ĀN'ĀBĪX (pl. *Ānāb'iqēs*), a stem like that of many ferns, etc., which continually dies below and grows above. (Rare.)

ĀNĀBŌL'ĪC, applied by Geddes

to the series of ascending metabolic changes in protoplasm by which food is assimilated. Compare KATABOLIC. See ASSIMILATION.

ĀNĀCĀN'THOŪS, without spines.

ĀNĀCRŌĠ'YNOŪS, applied in Jungermannia by Leitgeb to forms in which the archegonia do not arise upon or near the apex of the shoot, which therefore usually continues to grow after their formation. Compare ACROGYNOUS.

ĀNĀĒRŌ'BIĀ (sing. *Anaërobium*), organisms unable to live or thrive in the presence of free oxygen. Applied to certain bacteria. Compare AEROBIA.

ĀNĀĒRŌB'ĪC, see ANAEROBIOTIC.

ĀNĀĒRŌBIŌT'ĪC, being unable to live in contact with air or free oxygen, as some bacteria, or capable of living in an atmosphere destitute of oxygen; anaërobious; anaërobic.

ĀNĀĒRŌB'IOŪS, see ANAEROBIOTIC.

ĀNĀĒRŌPHŪTE, a plant which does not need a direct supply of air.

ĀN'ĀLŌGUE, an organ or body resembling or having the function of another with which it is compared.

ĀNĀL'ŌĠŸ, resemblance in certain respects, as in general appearance or function. Applied to organs or to classes of plants. Compare AFFINITY, HOMOLOGY, and MORPHOLOGY.

ĀNĀL'YSĪS, the systematic examination of a plant preliminary to determining its position in the classification. Compare DETERMINATION.

ĀNĀMŌRPH'ĪSM, see ANAMORPHOSIS.

ĀNĀMŌR'PHŌSĪS, (1) a gradual change of form (generally ascending) traced in a group of plants the members of which have succeeded each other in point of geological time; (2) a similar gradation of form between the members of a group now existing; (3) a remarkable or profound alteration of form resulting immediately from a change in the conditions of growth.

ĀNĀN'DROŪS, without stamens.

ĀNĀN'THĒROŪS, without anthers.

ĀNĀN'THERŪM (obs.), see **STAMINODIUM**.

ĀNĀN'THOŪS, without flowers.

ĀN'ĀPHASES, Strasburger's term for the phenomena of karyokinesis following the metaphases (which see) up to the formation of the resting daughter nuclei.

ĀN'ĀPLĀST, see **LEUCOPLAST**.

ĀNĀS'TŌMŌSE, to communicate or unite with one another, as the veins of leaves.

ĀNĀSTŌMŌSĪS (pl. *Ānāstomōsēs*), the inosculation or junction of similar parts, often forming a network, as in the veins of leaves.

ĀNĀT'ŌMŸ, **VEGETABLE**, see **VEGETABLE ANATOMY**.

ĀNĀT'RŌPOŪS, applied to an ovule or seed which grows so that the funiculus coheres to and forms a raphe along its whole length, bringing the hilum near the foramen and the chalaza at the apparent apex, as in *Liliacæ*; anatropal.

ĀNĀP'ĪTĀL, flattened and two-edged, as the stem of *Panicum anceps*; ancipitous.

ĀNĀP'ITOŪS, see **ANCIPITAL**.

ĀNDROCLIN'IUM, see **CLINANDRIUM**.

ĀNDRŌDIĒ'ĊIOŪS, having perfect flowers on one set of plants and staminate flowers on another set, but no individuals with pistillate flowers. Compare **ANDROMŌŒCIOUS** and **GYNODIĒCIOUS**. See **POLYGAMOUS**.

ĀNDRĒ'ĊĪŪM, the stamens of a flower taken together.

ĀNDRŌGŌNĪD'IŪM, see **ANDROSPORE**.

ĀNDRŌG'YNAL, see **ANDROGYNOUS**.

ĀNDRŌG'YNIŚM, the change from a diceious to a monœcious condition.

ĀNDRŌG'YNOŪS, monœcious with the staminate and pistillate flowers in the same inflorescence. Said mainly of the heads of certain *Compositæ*. Compare **POLYGAMOUS**.

ĀNDRŌMŌŒ'CIOŪS, having staminate and perfect flowers on the same plant, but no pistillate flowers. Compare **ANDRŌDIĒCIOUS**. See **POLYGAMOUS**.

ĀNDRŌPĒT'ĀLOŪS, said of flowers which have become double by the conversion of petals into stamens. (Rare.)

ĀN'DRŌPHŌRE, a column of united filaments, supporting the anthers; stamineal column.

ĀNDRŌPH'ŌRŪM, see **ANDROPHORE**.

ĀNDRŌSPŌRĀN'GĪŪM, a sporangium containing androspores.

ĀN'DRŌSPŌRE, a kind of asexually produced zoogonidium or swarm-pore in *Ecdogoniæ* which develops into small male plants called "dwarf males;" androgonidium.

ĀN'DROŪS, pertaining to stamens; male.

ĀNEMŌPH'ĪLOŪS, having the pollen or seeds conveyed by the wind.

ĀNFRĀCT'ŪŌSE, bent hither and thither, as the stamens of the melon.

ĀNGĪŌCĀR'POŪS, having the fruit invested with a calyx, receptacle, or other covering; having spores enclosed by a receptacle of some kind; angiosporous. Especially, having a closed instead of open apothecium in lichens. Compare **GYMNOCARPOUS**.

ĀNGĪŌSPĒRM'OŪS, having seeds produced in a closed ovary.

ĀNGĪŌS'PŌROŪS, having spores or asci produced in a closed receptacle, angiocarpous.

ĀNGLĒ OF DEVĪĀ'TION, the angle which a leaf, branch, or root makes with the axis on which it is borne—on the upper side in branches and leaves, on the lower side in root.

ĀNGLĒ OF DĪVĒR'GENĀCE, the angle measured by the part of a cycle between succeeding organs in the same spiral or whorl; divergence.

ĀN'GŪLAR, having angles or ridges prismatic. In Pomology, having one side developed more than the other, as in the Newtown Pippin apple. Compare **OBLIQUE**.

ĀN'GŪLAR DĪVĒR'GENĀCE, see **ANGLE OF DIVERGENCE**.

ĀN'GŪLĀTE, see **ANGULAR**.

ĀNGŪLŌDĒN'TĀTE, having angular teeth.

ĀNGŪS'TĀTE, narrow.

ĀNGŪS'TĪFŌ'LĪĀTE, having narrow leaves; angustifolious.

ĀNGŪS'TĪFŌ'LĪŌŪS, see **ANGUSTIFOLIATE**.

ĀNGŪS'TĪSĒP'TĀTE, having a

narrow septum or partition, as the pod of shepherd's-purse.

ĀNISŌG'YNOŪS, having fewer carpels than sepals.

ĀNISŌM'EROŪS, not having the same number of floral organs in the different whorls. Compare **ISOMEROUS** and **UNSYMMETRICAL**.

ĀNISŌPĒT'ĀLOŪS, having petals of unequal size. (Rare.)

ĀNISŌPHŪY'L'LOŪS, unequal-leaved, as when the two leaves of a pair are of unequal size.

ĀNISŌP'TEROŪS, having wings of unequal size.

ĀNISŌSTĀM'ĒNOŪS, see **ANISOSTEMONOUS**.

ĀNISŌSTĒM'ŌNOŪS, having the stamens differing in number from the petals (or parts of the perianth when the sepals are petaloid). Compare **ISOSTEMONOUS**.

ĀNISŌTRŌP'IC, having the different parts or organs endowed with different kinds of irritability, or in different degrees, as stems which seek the light and roots which shun it.

ĀNNŌT'ĪNŪS, the ring upon a stem which marks the close of a season's growth. It consists of the scars left by the fallen scales of the bud from which the next year's growth proceeded.

ĀNNŌT'ĪNOŪS, having distinct yearly growths.

ĀN'NŪAL, a plant which usually lives but one year or season.

ANNUAL RING, the ring or cylinder of wood produced by exogenous plants during the year. In some cases the annual ring consists of more than one ring of growth, hence the term "growth-ring" is now often used.

ĀN'NŪLAR, in the form of a circle or zone.

ANNULAR DUCTS, see **VESSELS**.

ANNULAR VĒS'SELS, vessels marked with thickenings in the form of a ring.

ĀN'NŪLĀTE, marked with rings or circular transverse lines; annulated.

ĀN'NŪLĀTED, see **ANNULATE**.

ĀNNŪLĀTION, a ring or belt.

ĀN'NŪLŌSE, furnished with or composed of rings.

ĀN'NŪLŪS (pl. **Ān'nūlī**), any body in the form of a ring; the ring or band of thick-walled cells in the sporangium of most ferns which by contraction bursts the sporangium and liberates the spores; the ring of cells upon the inner side of the base of the peristome at the orifice of the theca in many species of mosses which is thrown off to detach the operculum; the ring on the stem of mushrooms; the abortive foliar sheath at the base of the spike in *Equisetum*.

ĀN'ŌDĀL, see **ANODIC**.

ĀNŌD'IC, applied to the edge of a leaf which a leaf-spiral leaves in its upward course. In a right-handed spiral it would be the right edge of the leaf, and *vice versa*. Compare **CATHODIC**.

ĀNŌM'ĀLOŪS, unusual in appearance; contrary to rule; abnormal; irregular.

ĀNŌM'ĀLŸ, any deviation from the essential or usual character.

ĀN'SŪLĀTE, coiled at the apex and the whole coil bent over so as to make a loop projecting above the coil, as the growing extremity of the vine of the musk-melon.

ĀN'TECHĀMBER, the upper

(outer) angle or space between the guard-cells of a stoma. Compare **VESTIBULE**.

ĀNTĒN'NĒ (sing. **Āntēn'nā**), two slender horn-like prolongations of the rostellum in the genus *Catasetum* in orchids which, upon being touched by an insect or other object, cause the liberation of the retinaculum at their base and the ejection of the pollinium.

ĀNTEPŌS'ITION, see **SUPERPOSITION**.

ĀNTĒRĪO-POSTĒRĪOR PLANE, see **MEDIAN PLANE**.

ĀNTĒRĪŌR, the side of a flower, leaf, or other organ away from the main stem or axis; inferior; exterior; in front. Compare **DORSAL**.

ĀNTHĒLA, a paniculate cyme with the lateral axes overtopping the central, as in many species of *Juncus* and *Luzula*.

ĀN'THEMŸ, a flower-cluster of any kind. (Obs.)

ĀN'THER, the pollen-bearing part of a stamen.

ĀN'THERĪD'IŪM (pl. **Āntherīd'īā**), the male organ in the higher cryptogams within which antherozoids are produced.

ĀN'THERĪFEROŪS, anther-bearing.

ĀN'THER-LOBES, the cells or sacs of an anther, usually two in number, containing the pollen.

ĀN'THERŌID, anther-like.

ĀN'THERŌSPŌRĀN'GIŪM (pl. **Āntherōspōrān'giā**), see **MICROSPORANGIUM**.

ĀN'THERŌZOID, one of the motile fertilizing bodies produced in an antheridium; spermatozoid.

ĀNTHĒ'SIS, the time or act of flowering; florescence.

ĀNTHŌCĀR'POŪS FRUIT, generally used for Collective fruit, but more properly for Accessory fruit.

ĀNTHŌCLĪN'ĪŪM, see CLINANTHIUM.

ĀNTHŌ'DĪŪM, the capitulum or head of flowers in Compositæ (popularly called a flower). Compare CLINANTHIUM.

ĀN'THOID, resembling a flower.

ĀN THŌLĪTE, a fossil flower.

ĀNTHŌL'YSIS, a retrograde metamorphosis of a flower by which normally united or contiguous parts are separated; solution of a flower. The parts of the altered flower may or may not be changed in character.

ĀNTHŌPHŌRE, a stalk or internode sometimes developed between the calyx and corolla, as in Silene.

ĀNTHŌTĀX'IS, the arrangement of flowers in an inflorescence; anthotaxy.

ĀNTHŌTĀX'Y, see ANTHOTAXIS.

ĀNTICLĪNĀL, said of cell-walls or any lines when perpendicular to the outer surface. Compare PERICLINAL.

ĀNTĪCOŪS, facing anteriorly.

ĀNTĪD'RŌMĀL, twisted or coiled in an opposite direction to that with which it is compared, as when the leaf-spiral of a branch turns in the opposite direction from that of the stem; antidromous. Compare HOMODROMOUS and HETERODROMOUS.

ĀNTĪD'RŌMOŪS, see ANTIDROMAL.

ĀNTĪD'RŌM'Y, having the course

of a spiral reversed from the usual direction.

ĀNTĪMYCŌT'IC, see FUNGICIDAL.

ĀNTĪPATHĒT'IC, said of plants which do not unite readily when grafted.

ĀNTĪPEDUN'CŪLAR, situated opposite to a peduncle.

ĀNTĪPĒT'ĀLOŪS, situated opposite to a petal, i.e., directly between the petal and the axis; antepetalous.

ĀNTĪP'ŌDĀL CELLS, a group of four cells at the lower end of the embryo-sac, one of which, destitute of a wall, is the lower polar nucleus. Compare EGG-APPARATUS.

ĀNTISĒP'TIC, preventing putrefaction.

ĀNTĪT'RŌPAL, see ANTITROPOUS.

ĀNTĪT'RŌPOŪS, having the radicle of the embryo directed away from the hilum, as in orthotropous seeds.

ĀNTĪZYMŌT'IC, preventing or checking fermentation.

ĀNTRŌRSE', directed upward or forward. Compare ANTICOUS.

ĀPĒRĪSPĒR'MIC, see EXALBUMINOUS.

ĀPĒT'ĀLOŪS, destitute of corolla.

Ā'PEX (pl. Ā'pēxes or Ā'p'icēs), the extremity opposite the point of attachment.

ĀPHĒLIOTRŌP'IC, turning from the sun; negatively heliotropic.

ĀPHŶL'LOŪS, without leaves.

ĀPHŶL'LŶ, the abnormal suppression of leaves.

ĀP'ICAL CELL, the generating cell of a growing point.

ĀPĪCAL CONE, see PUNCTUM VEGETATIONIS.

ĀPĪC'ŪLĀTE, terminated by an abrupt short acute point.

ĀPĪC'ŪLĀTED, see APICULATE.

ĀPĪC'ŪLŪS (pl. Āpīc'ālī), a small acute point.

ĀPLĀN OSPORE, applied by Wille to non-motile reproductive cells formed by rejuvenescence in Conjugatæ and some other green algæ.

ĀPLĀS'TĪC, not capable of being organized, or converted into animal or vegetable tissue.

ĀPŌCĀR'POŪS, having the carpels separate or easily separable, as in Ranunculus; dialycarpous.

ĀPŌG'ĀMŸ, habitual non-sexual reproduction, especially vegetative reproduction where sexual reproduction usually occurs, as in the budding of a prothallus in ferns. Compare PARTHENOGENESIS and VEGETIVE APOGAMY.

ĀPŌGĒŌTRŌP'ĪC, growing away from the earth, as ordinary stems.

ĀPŌPĒT'ĀLOŪS, having the petals of the corolla unattached to each other; eleutheropetalous; polypetalous.

ĀPŌPHŸL'LOŪS, sometimes used for aposepalous, especially in flowers having but one perianth whorl.

ĀPŌPH'ŸSĀTE, having an apophysis.

ĀPŌPH'ŸSĪS, an enlargement of the seta below the theca in certain mosses; a thickening on the scales of the cones of certain pines; any irregular swelling.

ĀPŌSĒP'ĀLOŪS, having the leaves of the calyx unattached to each other.

ĀPŌS'TĀSĪS, a term applied by Engelmann to the separation of organs by an unusual extension of the internodes; solution. Compare DIALYSIS.

ĀPŌS'TRŌPĒ, the collection of the protoplasm and chlorophyll grains along the side walls of a cell instead of the outer surface—often caused by cold or excess or deficiency of light. When caused by deficiency of light, as at night, it is called "negative apostrophe"; when caused by too bright a light, "positive apostrophe." Compare EPISTROPHE and SYSTROPHE.

ĀPŌTHĒ'ČĪŪM (pl. Apothecia), the ascōcarp in lichens. See DISCOCARP, SHIELD, and PERITHECIUM.

ĀPPĒND'AGE, any superadded or subordinate part; as hairs, prickles, leaves, etc., upon a stem.

ĀPPĒNDĪC'ŪLĀTE, having an unusual appendage or appendages, as a winged petiole, or spurred corolla.

ĀP'PLĀNĀTE, flattened out or horizontally expanded. Compare EXPLANATE and COMPLANATE.

ĀP'PLICĀTĪVE, see CONDUPLICATE.

ĀP'PŌSITE, close together; side by side.

ĀPPRĒSSED', lying close, as leaves to a stem; adpressed.

ĀPPRŌXĪMĀTE, close together but not united. Compare REMOTE.

ĀP'TEROŪS, having no dilated appendage or wing. Compare ALATE.

ĀQUĀT'ĪC, growing in water or wet soil. See PALUSTRINE.

Ā'QUEOŪS, nearly colorless. See **HYALINE**.

ĀRĀCH'NOID, covered with long and loosely entangled hairs, the hairs fewer and longer than in **Tomentose**; cobwebby.

ĀRĀ'NĒŪS, see **ARACHNOID**.

ĀR'BŌR, see **TREE**.

ĀRBŌ'REAL, pertaining to trees or forests.

ĀRBŌ'REOŪS, having the nature of a tree; pertaining to trees.

ĀRBŌRĒS'CENT, tree-like in size or form.

ĀRBŌRĒ'TŪM, a botanical tree garden.

ĀR'BŪSCLĒ, a low shrub having the form of a tree.

ĀRĀS'THIDĀ (obs.), see **GALBULUS**.

ĀRĀHĒBĪŌ'SĪS, the origin of life. See **SPONTANEOUS GENERATION**.

ĀRĀHĒGŌ'NĪŪM (pl. **ĀrĀhĒgŌ'niā**), the female organ in the higher cryptogams. Compare **Oogonium**. See **ANTHERIDIUM**.

ĀRĀHĒSPŌ'RĪŪM, the cell, group, or layer of cells from which the spore-mother-cells, and tapetum if any, are derived in the higher cryptogams and flowering plants.

ĀRĀH'ETŪPE, the original type or condition.

ĀRĀH'ĪCĀRP, the beginning of a fructification; a cell or group of cells fertilized by a sexual act, as an **ascogonium** or **carpogonium**.

ĀR'CŪĀTE, curved like a bow.

ĀRĒĀ, a rather large space bounded by cracks, lines, veins, or part differing in color or texture. Compare **AREOLA**.

ĀRĒNĀ'CEOŪS, growing in sandy

places; **arenareous**; **arenose**; **sabuline**; **sabulose**.

ĀRĒNĀ'RĪOŪS, see **ARENACEOUS**.

ĀR'ENŌSE, see **ARENACEOUS**.

ĀRĒ'ŌLĀ (pl. **ĀrĒ'ŏlā**), diminutive of **area**, any small space surrounded by a part differing in structure or color, as the spaces bounded by the veins in reticulate leaves, by the cracks in the surface of the thallus of certain lichens, or by the cell-walls in the leaves of mosses; **areolation**; **areole**.

ĀRĒ'ŌLĀTE, divided into **areolæ**.

ĀRĒŌLĀ'TION, (1) see **AREOLA**; (2) the form and arrangement of the **areolæ** in mosses, etc.

ĀRĒŌLE, see **AREOLA**.

ĀRĒŌ'NTEŪS, white with a tinge of gray; **silvery**.

ĀRĒLLĀ'CEOŪS, growing in a clayey soil; **argillose**.

ĀRĒLLŌSE, see **ARGILLACEOUS**.

ĀRH'ZAL, without roots.

ĀR'IL, a false coat which sometimes surrounds the seed, growing from the **funiculus**, **hilum**, or **placenta**, as the mace of **nutmeg**. Compare **STROPHIOLE**.

ĀRĪL'LĀ, see **ARIL**.

ĀR'ILLĀTE, having an **aril**.

ĀR'ILLĀTED, see **ARILLATE**.

ĀR'ILLŌDE, a false covering to a seed resembling an **aril**.

ĀRĪL'LŪS, see **ARIL**.

ĀRĪS'TĀ, see **AWN**.

ĀRĪS'TĀTE, having an **awn**.

ĀRĪS'TŪLĀTE, having a small **awn**.

ĀRM, in horticulture, a large branch of a vine trained horizontally.

ĀRMED, having thorns, spines, or prickles.

ARMĪL'ĹĀ, an annulus in the form of a plaited frill suspended from the top of the stipe below the cap in certain mushrooms.

ĀRŌ'MĀ, a pleasant characteristic odor.

ĀRŌMĀT'ĪC, possessing aroma, especially if spicy.

ĀRRĒCT', directed upward from an inclined base, as the pods of milkweed. (*Asclepias*.)

ĀR'RŌW-HĒAD'ED, see **SAGIT-TATE**.

ĀR'RŌW-SHĀPED, see **SAGIT-TATE**.

ĀR'THŌNŌID, resembling the apothecium of the genus *Arthonia* in lichens.

ĀR'THRŌSPŌRE, used mainly in bacteria for a spore formed by segmentation, as opposed to Endospore.

ĀR'THRŌSTĒRIG'MĀ (pl. *Ārthrōsterig'mātā*), a jointed sterigma in many lichens, composed of a row of cells from each of which spores are abstricted.

ARTĪC'ŪLĀTE, jointed; articulated.

ARTĪC'ŪLĀTED, see **ARTICU-LATE**.

ARTĪCŪLĀ'TION, (1) a node, joint, septum, or separable place; (2) one of the segments so marked off or separated.

ĀRTĪC'ŪĻŪS, formerly used both for node and internode.

ARTĪFĪCĪĀL SYSTEM, a system of classification based on one or a few features only, and not intended to show true relationship, as that of Linnæus.

ĀRŪNDĪNĀ'CEŌŪS, reed-like.

ĀSCĒND'ENT, see **ASCENDING**.

ĀSCĒND'ING, rising obliquely, or curving upwards from near the base, as the stems of

Stellaria or the branches of Norway spruce; adscendent; ascendent; assurgent; adsurgent. Said of ovules which are attached to the middle portion of the placenta or sides of the ovary and are directed upward. Also, directed upward in any manner in contrast to descending, as the *ascending axis*.

ĀSCĒND'ING ĀXIS, the stem.

ĀSCĒND'ING MĒTĀMŌR'PHŌSIS, see **PROGRESSIVE METAMORPHOSIS**.

ĀS'ĀI, pl., see **ASCUS**.

ĀSCĪD'ĪĀ, pl., see **ASCIDIUM**.

ĀSCĪD'ĪFŌRM, ascidium-shaped.

ĀSCĪD'IŪM (pl. *Āscid'īā*), a hollow pitcher-shaped leaf, like that of *Sarracenia*.

ĀSCĪF'EROŪS, see **ASCOPHOROUS**.

ĀSCĪG'EROŪS, see **ASCOGENOUS**.

ĀS'CŌCĀRP, the sporocarp of Ascomycetes. See **APOTHECIUM**, **PERITHECIUM**, and **CLEISTOCARP**.

ĀSCŌG'ENOŪS, producing asci; ascigerous.

ĀS'CŌGŌNE, see **ASCOGONIUM**.

ĀSCŌGŌ'NĪŪM, the carpogonium, or female organ in Ascomycetes before fertilization.

ĀS'CŌPHŌRE, the ascus-bearing layer of hyphæ lining an ascocarp.

ĀSCŌPH'ŌROŪS, ascus-bearing; asciferous. Compare **ASCOGENOUS**.

ĀS'CŌSPŌRE, a spore produced in an ascus. Often inappropriately called sporidium or sporule.

ĀS'CŪS (pl. *Ās'āi*), one of the characteristic spore-cases of Ascomycetes borne in an ascocarp. It consists of an enlarged terminal cell containing free

- spores, most frequently eight in number.
- ASCUS-APPARĀTŪS**, the asci, together with the ascogenous cells. See ENVELOPE-APPARATUS.
- ASCYPHOŪS**, without scyphi.
- ASEPTIC**, not liable to putrefaction.
- ASEXUAL**, without sex; destitute of stamens and pistils in flowering plants, or other sexual organs in cryptogams.
- ASEXUAL GENERATION**, the second stage or generation in plants having an alternation of generations. It produces spores asexually, but is itself the result of fertilization. In ferns the prothallus is the sexual, and the leaf-bearing plant the asexual, generation. See SPOROGENIUM.
- ASPERATE**, see SCABROUS.
- ASPERGILLIFORM**, resembling an aspergillus (a round brush used to sprinkle holy water in Roman Catholic churches), as the stigmas of some grasses. Compare MUSCARIFORM.
- ASPERIFOLIATE**, having leaves rough to the touch.
- ASPERIFOLIŪS**, see ASPERFOLIATE.
- ASPERMOŪS**, without seeds.
- ASPEROŪS**, see SCABROUS.
- ASSIMILATION**, the conversion of foreign material into the substance of the plant; constructive metabolism.
- ASSURGENT**, see ASCENDING.
- ASTER**, see MOTHER-STAR, DYASTER, AMPHIASTER, and CYTASTER.
- ASTEROID**, having flowers like the Aster. Compare ACTINIFORM.
- ASTICHOŪS**, not in rows.
- ASTOMOŪS**, without aperture, as mosses which have not a deciduous operculum.
- ASYMMETRICAL**, not symmetrical, which see.
- ATAVIŖM**, resemblance to a distant ancestor; remote heredity.
- ATER** (in composition, *atro-*), pure black, as distinguished from Niger.
- ATHALLINE**, without thallus.
- ATROPAL**, see ORTHOTROPOUS.
- ATROPHY**, a dwarfed or stunted condition of an organ as compared with others, or with the usual state. Especially applied to parts which seem wasted away from lack of nourishment or other cause. Compare ABORTION and DEGENERATION.
- ATROPOŪS**, see ORTHOTROPOUS.
- ATROPURPUREŪS**, dark purple.
- ATTENUATE**, tapering gradually to a point or narrow extremity.
- ATTENUATED**, see ATTENUATE.
- AUGMENTATION**, increase beyond the normal number, especially the production of additional floral whorls.
- AULOPHYTE**, a plant which lives within another for shelter only, not as a parasite, as some Protococcaceæ.
- AURANTIACEOŪS**, orange-colored. Darker than Aureus.
- AUREŪS**, yellow, with a slight admixture of red; golden.
- AURICLE**, any ear-like appendage, as the lobes at the base of the leaves in sorrel.
- AURICLED**, see AURICULATE.
- AURICULĀ** (pl. *Auriculæ*), see AURICLE.
- AURICULATE**, having auricles, or ear-like lobes or appendages.

AURIC'ŪLĀTED, see **AURICU-LATE**.

AURIFŌRM, having the form of the human ear.

AUSTÈRE', astringent or harsh to the taste.

AUTŌCĀR'POŪS, said of ovaries which are not adherent to the calyx; superior.

AUTŌ'CIŌŪS, said of a parasitic fungus which inhabits the same host-plant through all its stages of growth. Compare **HETERŌCIOUS**. Applied in mosses when the male and female "flowers" are in separate involucre upon the same plant.

AUTŌG'AMOŪS, self-fertilizing.

AUTŌG'ĀMY, close-fertilization; the fertilization of a flower by its own pollen. Compare **ALLOGAMY**.

AUTŌGĒN'ĒSIS, see **SPONTANEOUS GENERATION**.

AUTŌG'ENOŪS, self-originating. Applied to diseases which have their origin or cause within the effected organism. Compare **INFECTION**, **ESOTERIC**, and **EXOTERIC**.

AUTŌG'ENŪS or **MONŌG'ENŪS**, terms proposed in place of **Monotypic**, to indicate that a genus contains but a single species.

AUTŌN'ŌMOŪS, complete in itself. Applied to forms which continually and directly reproduce themselves, and are not mere stages in the life of a plant.

AUTŌPHŪLLŌG'ENŪ, the growth of one leaf upon another.

AUTŌPLĀST, see **CHLOROPHYLL-BODY**.

AUTŌTĒM'NOŪS, capable of spontaneous division, as ordinary growing cells.

AUXŌSPŌRE, a large renewal-cell in *Diatomaceae*, formed either by rejuvenescence, or developed from a zygospore produced by conjugation.

AUXŌTŌNIC MOVEMENTS, those made by growing organs, as the twining of stems. Compare **ALLASSOTONIC MOVEMENTS**.

ĀVĒRSE', turned or facing away from the central axis or other object. Compare **ADVERSE**.

ĀWL'-SHĀPED, see **SUBULATE**.

ĀWN, a bristle-shaped appendage, like those on the glumes of many grasses; arista; beard.

ĀWNED, having an awn or beard; aristate.

ĀX'-FŌRM, see **DOLABRIFORM**.

ĀX'ĪAL, pertaining to an axis; extending in the direction of an axis; forming an axis. Compare **AXILE**.

ĀXĪFEROŪS, having an axis; producing stems but no leaves.

ĀX'ĪL, the upper angle between leaf and stem; any angle.

ĀX'ĪLE, occupying or belonging to the axis, as an *axile placenta*.

ĀXĪL/LĀ (pl. *Āxīl/lā*), see **AXIL**.

ĀX'ĪLLAR, see **AXILLARY**.

ĀX'ĪLLĀRŪ, pertaining to or occupying an axil.

ĀX'IS, the central line of any body; an organ around which others are attached, especially a main stem or root.

AXIS, ASCENDING, see **ASCENDING AXIS**.

AXIS, DESCENDING, see **DESCENDING AXIS**.

AXIS OF INFLORES'CEŒ, the part of the stem or branch along which flowers are borne. See **RECEPTACLE** and **RACHIS**.

ĀX'-SHĀPED, see **DOLABRIFORM**.

ĀZYĠ'ŌSPŌRE, a spore in certain algae and fungi resembling a zygospore, but produced asexually.

ĀZ'YGOŪS, without a fellow or corresponding part, as a leaflet which does not have another leaflet on the opposite side of the rachis.

BĀC'CĀ, see BERRY.

BĀC'CĀTE, berry-like; pulpy.

BĀC'CATED, covered with berries, or bodies resembling berries.

BĀC'ĠFEROŪS, producing berries.

BĀC'ĠFŌRM, see BACCATE.

BĀ'ĠILLĀR, rod- or club-shaped, like a bacillus; bacilliform.

BĀCK, see DORSUM.

BĀCTĒ'RIŌIDS, protoplasmic bodies endowed with Brownian movement, and resembling bacteria.

BĀLD, destitute of the usual covering, as of hair, foliage, etc.; destitute of beards or awns.

BĀLŪSTRĀ, sometimes applied to fruits like the pomegranate.

BĀND, (1) a space between two ridges on the fruit of Umbelliferae; (2) a broad stripe, especially if transverse.

BĀN'NER, see VEXILLUM.

BĀRB, a sharp reflexed point on an awn or other process; a hair or other process having such reflexed points, or with a reflexed tip.

BĀR'BĀTE, see BEARDED.

BĀR'BĀTED, see BEARDED.

BĀRBE, see BARB.

BĀR'BELLĀTE (diminutive of Barbate), having minute barbs; barbellulate.

BĀRBĒL'LŪLĀTE, see BARBEL-LATE.

BĀR'BŪLE, a small barb.

BĀRK, the covering of the stem and roots of exogens, separated from the wood by the cambium.

BĀRRED, crossed by parallel horizontal bands or lines.

BĀR'REN, unproductive; unfruitful; sterile,—said of a plant or organ. The term "barren" is seldom applied except to a plant as a whole, and even then the term "sterile" is more often used.

BĀ'SAL, pertaining to the base.

BĀSE, the part of an organ by which it is attached to its support.

BĀSĠDĠŌGENĒT'IC, borne on a basidium.

BĀSĠD'ĠŌPHŌRE, a sporophore bearing a basidium.

BĀSĠD'ĠŌSPŌRE, a spore borne on a basidium, as those of mushrooms.

BĀSĠD'IŪM (pl. *Bāsīd'īā*), one of the branched cells on the spore-bearing surface of mushrooms, etc., which bear the spores. Compare STERIGMA.

BĀS'ĠFIXED, attached by its base, as an innate anther.

BĀSĠF'ŪGĀL, (1) proceeding away from the base; upward; acropetal; centrifugal (centripetal when applied to the order of inflorescence); (2) derived from the base or situated at the base, as *basifugal* growth in the leaves of certain grasses.

BĀSĠGYN'IŪM, see GYNOPHORE.

BĀS'ĠLAR, relating to or situated at the base.

BĀSIN, the depression at the

apex of an apple. Compare CAVITY and EYE.

BĀSĪP'ETĀL, proceeding or produced in succession toward the base; downward; centrifugal (when applied to the order of inflorescence only). Compare ACROPETAL.

BĀSĪSCŌP'ĪC, on the side toward the base; facing the base.

BĀSS, see BAST.

BĀST, the liber or inner bark; particularly the long, tapering, thick-walled phloem-cells characteristic of such bark.

BĀS'TĀRD, spurious; resembling something else. Used improperly for Hybrid.

BĀST-ĈĒLLS, thick-walled elongated spindle-shaped cells in the phloem portion of fibro-vascular bundles. They give strength and flexibility to the tissues; bast-fibres.

BĀST-FĪBRES, see BAST-CELLS.

BAST-SHĒATH, see PHLOEM-SHEATH.

BAST, SOFT, see SOFT BAST.

BAST-TISSUE, see PHLOEM

BAST-VĒS'SEL, see SIEVE-TUBE.

BĒAK, a process like the beak of a bird terminating the fruit of many leguminous and other plants; rostrum.

BĒAKED, ending in a prolonged narrow rigid tip like a beak; rostrate.

BĒARD, the awns of grasses, singly or collectively; a tuft of hairs, especially if stiff and long; sometimes applied improperly to the lower lip of labiate corollas.

BĒARD'ED, having a beard; beset with hairs, especially if stiff and long.

BĒARD'LETED, having minute beards or awns.

BĒLL'-SHĀPED, see CAMPANULATE.

BĒL'LÝING, swelling out on one side, as the tube of the corolla in many Labiateæ.

BĒR'RĪED, see BACCATED.

BĒR'RÝ, an indehiscent fruit pulpy or fleshy throughout, as the grape, currant, and tomato.

BĪĀCŪ'MĪNĀTE, two-pointed.

BĪĀN'GŪLĀTE, having two angles or corners.

BĪARTĪC'ŪLĀTED, having two joints.

BĪAURĪC'ŪLĀTE, two-eared.

BĪBRĀC'TEĀTE, with two bracts.

BĪBRĀC'TEŌLĀTE, having two bractlets.

BĪĀL'CĀRĀTE, having two spurs.

BĪĀL'LŌSE, having two small hard spots or protuberances.

BĪĀP'SŪLAR, having two capsules. Sometimes applied to capsules which are divided before dehiscence into two parts.

BĪĀR'PELLĀRÝ, see DICARPEL-LARY.

BĪĀR'ĪNĀTE, two-keeled, as the palet of grasses.

BĪĈĒPH'ĀLOŪS, having two heads.

BĪĈĪP'ĪTĀL, divided into two parts.

BĪĈĪP'ĪTOŪS, see BICIPITAL.

BĪCOLLĀT'ERAL BUNDLE, a fibro-vascular bundle in which a strand of xylem lies between two strands of phloem.

BÝ'COLŌR, of two colors.

BÝ'COLŌRED, see BICOLOR.

BĪCŌN'JŪGĀTE, see BIGEMINATE.

BĪCŌR'NŪTE, with two horn-like processes.

BĪCRĒ'NĀTE, with two crena-

tures or rounded teeth. Compare DOUBLY-CRENATE.

BICRUR'AL, having two legs or narrow elongations, as the lip of the "man-orchis."

BICŪS'PID, having two sharp stiff points or cusps; bicuspidate.

BICŪS'PIDATE, see BICUSPID.

BIDĒN'TATE, having two teeth. Compare DOUBLY-DENTATE.

BIDIG'ITATE, having two finger-like divisions.

BIDŪOUS, lasting two days only.

BIĒN'NIAL (adj.), living two years, or requiring two seasons to come to maturity.

BIĒN'NIAL, (n.), a plant which usually matures its fruit the second year and then dies.

BIFAC'IAL, applied to leaves which have a distinct upper and lower surface differing in texture. Compare CENTRIC.

BIFAR'IOUS, pointing in two directions; two-ranked; distichous.

BIFĒR, a plant which ripens fruit twice a year.

BIFEROUS, fruiting twice a year.

BIFID, divided about to the middle in two parts; two-cleft.

BIFIDATE, see BIFID.

BIFISTŪLAR, containing two tubular openings.

BIFLORATE, see BIFLOROUS.

BIFLOROUS, two-flowered.

BIFOLIATE, having two leaves or leaflets.

BIFOLIOLATE, having two leaflets.

BIFOLLICŪLAR, with a double follicle.

BIFORATE, having two perforations, as the anthers of Rhododendron.

BIFORINE, a peculiar cell con-

taining raphides found in arums and certain other plants—so called because when placed in water they become turgid and discharge their contents, often from both ends.

BIFOROUS, see BIFORATE.

BIFRONS, having two faces or aspects; growing on both surfaces of a leaf (amphigenous).

BIFURCATE, forked; divided into two branches.

BIFURCATED, see BIFURCATE.

BIFURCATION, division into two branches.

BIFURCOUS, see BIFURCATE.

BIGEMINATE, twice paired, as a decompound leaf with two pairs of leaflets, i.e., having a forked petiole with a pair of leaflets at the end of each division; biconjugate.

BIGENER, see GENUS-HYBRID.

BIGLANDŪLAR, having two glands or gland-like bodies.

BIJUGATE, having two pairs, as a leaf with two pairs of leaflets.

BIJUGOUS, see BIJUGATE.

BILABIATE, see LABIATE.

BILAM'ELLAR, see BILAMEL-LATE.

BILAM'ELLATE, of two plates or lamellæ.

BILAM'ELLATED, see BILAMEL-LATE.

BILAT'ERAL, two-sided.

BILOBATE, two-lobed.

BILOBATED, see BILOBATE.

BILOBED, see BILOBATE.

BILOCŪLAR, two-celled—applied to ovaries, anthers, etc.

BIMAC'ULATE, having two spots.

BIMAC'ULATED, see BIMACU-LATE.

BINÄRY, in twos; double.

BINATE, in twos or pairs; conjugate—said of two bodies of

- the same nature springing from the same point. In speaking of pinnate leaves the term *conjugate* is generally used.
- BĪNE**, a twining or climbing stem. Rare except in composition, as *wood-bine*.
- BĪNĒRV'ĀTE**, having two nerves or veins, or two which are especially prominent.
- BĪNŌ'DĀL**, containing two nodes only.
- BĪNŌ'MĪAL**, of two names, as the generic and specific names which compose a "botanical name."
- BĪ'NOŪS**, see **BINATE**.
- BĪNŪ'CLĒĀR**, see **BINUCLEATE**.
- BĪNŪ'CLĒĀTE**, have two nuclei or central points; binuclear.
- BĪNŪ'CLĒŌLĀTE**, with two nucleoli.
- BĪŌĠ'ELLĀTE**, with two eye-like spots.
- BĪŌĠĒN'ESĪS**, (1) the origin of life; (2) the production of living beings from other living beings in any manner—the converse of spontaneous generation (abiogenesis).
- BĪŌĠ'ENOŪS**, growing on living plants, either parasitic or not.
- BĪŌĠ'ENŸ**, the genesis or evolution of living forms, or the science which treats of it, including Ontogeny and Phyllogeny.
- BĪŌL'ŌĠŸ**, zoology and botany.
- BĪŌLŸT'IC**, injurious or destructive to life.
- BĪ'ŌN**, an individual morphologically independent.
- BĪŌPH'ĀGOŪS**, feeding on living organisms. Applied chiefly to insectivorous plants.
- BĪ'ŌPLĀŠM**, any living fluid; the same as protoplasm.
- BĪPĀL'ĒŌLĀTE**, with two lodicules; bilodiculate.
- BĪPĀL'MĀTE**, said of leaves which are palmate upon secondary palmate petioles.
- BĪP'AROŪS**, bearing two objects, as a leaf with two leaflets.
- BĪPĀR'TED**, see **BIPARTITE**.
- BĪPĀR'TĪBLE**, divisible into two parts.
- BĪPĀR'TĪLE**, see **BIPARTIBLE**.
- BĪPĀR'TĪTE**, two-parted; divided into two parts to the base or nearly so.
- BĪPĀRTĪ'TION**, the act of dividing into two equal parts. Compare **BISECTION**.
- BĪPĒC'TĪNĀTE**, toothed like a comb on two sides.
- BĪPĒL'TĀTE**, having two shield-shaped parts.
- BĪPĒRĒN'NĪAL**, said of a part which lives two years, but reproduces itself indefinitely, as the tubers of the potato. (Rare.)
- BĪPĒT'ĀLOŪS**, having two petals.
- BĪPĪN'NĀTE**, said of a pinnate leaf with secondary petioles, each bearing more than one leaflet, as the honey-locust; doubly pinnate; twice pinnate.
- BĪPĪN'NĀTED**, see **BIPINNATE**.
- BĪPĪNNĀT'ĪFĪD**, having the divisions of a pinnatifid leaf pinnatifid; twice pinnately cleft.
- BĪPĪNNĀTĪPĀR'TĪTE**, having the divisions of a pinnatipartite leaf pinnatipartite; twice pinnately parted. It differs from **Bipinnatifid** in having the divisions extend to near the midrib.
- BĪPĪNNĀT'ĪSECT**, having the divisions of a pinnatisect leaf

- pinnatisect; twice pinnately divided. The divisions extend to the midrib, but the segments are sessile.
- BIPLI'CÂTE**, twice or doubly folded.
- BIPŌ'RŌSE**, having two small openings or pores.
- BIPŪNC'TÂTE**, having two small spots.
- BIRĀ'DIÂTE**, having two rays.
- BIRĪ'MŌSE**, opening by two slits, as most anthers; having two clefts, slits, or narrow openings.
- BISĀC'CÂTE**, having two sacs or pouches.
- BISCŪ'TÂTE**, resembling two round bucklers placed side by side.
- BISĒCT'**, to divide into two equal parts.
- BISĒCT'ION**, the act of cutting or dividing into two equal parts; bipartition.
- BISĒP'TÂTE**, having two partitions or septa.
- BISĒ'RĪĀL**, in two rows or series.
- BISĒR'RÂTE**, having the teeth or serratures serrate; doubly serrate. The latter term is preferable, and *Biserrate*, though in more common use in this sense, should be applied in analogy with *Bidentate* to leaves or margins bearing two serratures.
- BISĒ'TŌSE**, having two bristles; bisetous.
- BISĒ'TOŪS**, see *Bisetose*.
- BISĒX'ŪAL**, containing both sexes, as a flower with both stamens and pistils; hermaphrodite; monoclínous; synœcious.
- BISPI'NŌSE**, having two spines.
- BĪ'SPŌRE**, a two-spored tetraspore.
- BĪSTĪP'ŪLED**, having two stipules.
- BĪSŪL'CÂTE**, having two longitudinal grooves or furrows.
- BĪTĒR'NÂTE**, divided into three parts, each of which is divided into three.
- BĪT'TEN**, see *Erose*.
- BĪ'VÂLVE** (adj.), having two valves, as some capsules; bivalvular.
- BĪ'VÂLVE** (n.), a capsule of two valves.
- BĪVÂLV'ŪLĀR**, see *Bivalve*.
- BĪVĀS'CŪLĀR**, having two vesicles.
- BĪVĪT'TÂTE**, having two vittæ.
- BLĀD'DER**, (1) an inflated membranous pericarp; (2) a membranous air-sac in some water-plants which enables them to float. See *AIR-BLADDER*.
- BLĀD'DERY**, thin and inflated like a bladder, as the calyx of *Silene inflata*.
- BLĀDE**, the expanded portion of a leaf; lamina. The term *blade* is more commonly applied in grasses and *lamina* in other plants.
- BLĀNCHED**, whitened by absence of light; etiolated. Compare *CHLOROSIS* and *ALBINISM*.
- BLĀND**, fair; beautiful.
- BLĀSTĒ'MĀ**, the embryo aside from the cotyledons; also used for any point of growth or budding part. (Rare.)
- BLĀSTĒ'MĀL**, rudimentary; nascent. (Rare.)
- BLĀSTŌCĀR'POŪS**, applied to a fruit when the seed germinates within the pericarp, as sometimes occurs in the mangrove. (Rare.)
- BLĀSTŌCŌL'LĀ**, the gummy substance on many buds, as on the horse-chestnut.

BLĀSTŌGĒN'ESĪS, reproduction by buds; gemmation. (Obs.)

BLĀS'TŪS (obs.), see BUD and PLUMULE.

BLĪND, applied to a malformation, chiefly in certain cultivated plants, as cabbage and cauliflower, in which the stem terminates without producing a head or inflorescence. A "blind bud" is one which fails to develop. To "go blind" is to fail to produce flower-buds where expected.

BLĪS'TERED, see BULLATE.

BLOOM, a coating on the surface of fruits, leaves, etc., often grayish or bluish in color, consisting of minute, waxy particles in the form of filaments, granules, or layers. See GLAUCOUS.

BLŌSSOM-BUD, see FLOWER-BUD.

BLŌTCHED, having distinct irregular spots of color. Compare CLOUDED.

BLŪNT, obtuse.

BŌAT'-SHĀPED, see NAVICULAR.

BŌB, a popular name for the inflorescence (thyrses) of sumach.

BŌLE, the body of a tree.

BŌLL, a globular pericarp, as that of cotton.

BŌLT (Hort.), to run prematurely to seed, as carrots when they seed the first year.

BŌN'Ŷ, hard, brittle, and close in texture, as the stone of the peach.

BOOT, a popular name for the sheath of grains and other grasses.

BŌR'DĒR, the expanded portion of a gamopetalous corolla, consisting of the united limbs. See also BORDERED PIT.

BŌR'DĒRED, having the margin

different from the remainder in form, color, or texture.

BŌR'DĒRED PIT, a thin spot or opening in a cell-wall covered on each side by a thickened convex body having a central perforation; areolated dot; discoid marking. Bordered pore of Gregory. These markings are characteristic of the wood-cells of Coniferæ. The *border* is the more or less dilated central portion of the pit or passage between the cells.

BŌR'DĒRED PŌRE, see BORDERED PIT.

BŌSS, a rounded protuberance.

BŌSSED, having a boss. Compare UMBONATE.

BŌS'TRŶCHŌID, ÇYME see HELICOID CYME.

BŌS'TRŶCHŌID DĪCHŌT'ŌMŶ, see HELICHOID DICHOTOMY.

BŌS'TRŶX, see HELICOID CYME.

BŌTĀN'ĪCĀL ĠĒOG'RĀPHŶ, see GEOGRAPHICAL BOTANY.

BŌTĀN'ĪCĀL NAME, the generic name followed by the specific name.

BŌTĀN'ĪCĀL NŌMENCLĀT'ŪRE, an account of the names of plants, and of the laws for their application.

BŌTĀN'ĪCĀL TĒRMĪNŌL'ŌĠŶ, an account of the special words used in describing plants.

BŌTĀN'ĪC ĠĀR'DEN, a collection of growing plants systematically arranged for the purpose of study.

BŌT'ĀNIZE, to seek for growing plants for the purpose of botanical investigation.

BŌT'ĀNŶ, the science of plants; phytology. See STRUCTURAL, PHYSIOLOGICAL, and SYSTEMATIC BOTANY, BOTANICAL NO-

MENCLATURE, and BOTANICAL TERMINOLOGY.

BÖTHRĒN'CHYMĀ (obs.), see PITTED TISSUE.

BÖT'RŪS, an old term for a cluster like that of the grape.

BÖT'RŸOID, having the form of a bunch of grapes; botryoidal; botryose.

BÖT'RŸOSE, see BOTRYOID.

BÖTRYOI'DĀL, see BOTRYOID.

BÖT'TLE-SHĀPED, see LAGENIFORM.

BÖTŪ'LI-FŌRM, see ALLANTOID.

BRĀCH'ĪĀTE, applied to branches which are decussate and spreading, as in the ash, and sometimes improperly to those which are long and widely spreading, but not decussate.

BRĀCHYP'ODOŪS, short-stalked.

BRĀCT, a leaf of an inflorescence, generally subtending a flower or flower-branch. Bracts are intermediate in position between foliage leaves and floral leaves, and are usually much smaller than the ordinary leaves, and in other respects more or less modified.

BRĀC'TĒĀ (pl. *Brāc'tēā*), see BRACT.

BRĀC'TĒĀL, of the nature of a bract.

BRĀC'TĒĀTE, furnished with bracts; subtended by a bract or bracts; bracted.

BRĀCTĒ'OLĀ (pl. *Bracteolæ*), see BRACTLET.

BRĀC'TĒOLĀTE, furnished with bractlets.

BRĀC'TĒOLE, see BRACTLET.

BRĀC'TĒOSE, having many or conspicuous bracts.

BRĀCT'LĒT, a small bract, or bract upon a pedicel or secondary branch of an inflorescence.

BRĀCT'LĒSS, without bracts.

BRĀIRD, to germinate. (Scotch.)

BRĀNCH (n.), a division of a stem or other elongated organ; secondary axis.

BRĀNCH (v. i.), to produce branches; to ramify.

BRĀNCH'LĒT, a little branch or subdivision of a branch; twig.

BREĀK (v. i.) (Hort.): (1) to depart widely from the type and suddenly produce a new variety (nearly the same as *sport*); (2) to "bolt" or run prematurely to seed, as a biennial the first year; (3) to put forth new buds or leaves.

BREAST-WOOD (Hort.), branches which project outward from a wall or espalier.

BRĒATH'ING-PŌRE, see STOMA.

BREED, see RACE.

BRĪ'DLES, strings of protoplasm which often connect the nucleus with the layer of protoplasm next the cell wall.

BRĪST'LE, a stiff, short hair or hair-like body.

BRĪST'LE-PŌINT'ED, ending in a bristle; terminating gradually in a fine sharp point, as the leaves of many mosses.

BRĪST'LŶ, beset with bristles.

BRŌOD'-BUD, a deciduous leaf-bud capable of growing into a new plant, such as the bulbils of the tiger-lily and the deciduous buds of certain lycopodiums; also applied to the soredium of lichens.

BRŌOD'-CELL, any reproductive unicellular body produced asexually which separates from the parent plant, as the gonidia of fungi.

BRŌOD'-GĒM'MĀ, see GEMMA.

BROWN'ĪĀN MOVEMENT, a trembling movement common to all minute particles sus-

pended in a liquid. Called also Brunonian movement, Pedesis, Non-vital motion, and (improperly) Molecular movement. The cause is not known.

BRŮN'NEŮS, deep brown, a mixture of dark gray and red.

BRŮSH'-SHĀPED, see **ASPERGILLIFORM**.

BRŮL'ŮŮŮ, the division of botany relating to mosses; muscology.

BŮCK'LER-SHĀPED, see **SCUTATE**.

BŮD, an undeveloped stem or branch, or its extremity, bearing rudimentary leaves which are specially modified for its protection. See **LEAF-BUD**, **FLOWER-BUD**, and **GEMMA**.

BŮD'DING, putting forth buds or gemmæ. Also applied to Pululation, which see.

BŮD'LĚT, a little bud attached to a larger one.

BŮD-RŮ'DIMĚNT, the special cells which originate the leaf-bearing axis in the pro-embryo of Characæ.

BŮD-SCĀLE, one of the modified leaves of a bud; perule.

BŮD-SPŮRT, see **BUD-VARIATION**.

BŮD-VĀRĪĀ'TION, the development of a bud in a manner unusual to the species or variety, and different from the other buds upon the plant. It may be the production of a new variety or a reversion to an earlier form. Bud-variations, or "bud-sports" as they are often called, may usually be propagated by division, but their characters are seldom retained when grown from seed. Compare **SEED-VARIATION**.

BŮD-VĀRĪ'ETŮŮ, a variety which originated by bud-variation.

BŮGLE-SHĀPED, having the shape of a bugle bead;—a form varying from oblong to obovoid. Used in describing the fruit of certain cranberries.

BŮLB, a bud with thickened scales containing nutriment for its development, thus differing from ordinary buds, the scales of which are for protection only. Bulbs are usually subterranean.

BŮLBĀ'ČEOŮS, having bulbs; bulbous.

BŮLBED, in the form of a bulb; bulbaceous.

BŮL'BĚL, see **BULBLET**.

BŮLBĪ'FEROŮS, bulb-bearing; bulbous.

BŮL'BĪL, see **BULBLET**.

BŮLB'LĚT, a little or secondary bulb, especially one above ground, as in some lilies and ferns; bulbel; bulbil; bulbule. See **CLOVE**.

BŮLB'BOSE, bulb-like in shape or structure.

BŮL'BŮ-TŮBER, see **GORM**.

BŮL'BOŮS, producing bulbs, growing from bulbs, or bulbouse.

BŮLB-SCĀLE, one of the thickened scale-like leaves of a bulb.

BŮLB, **TŮNĪCĀTĚD**, see **TUNICATED BULB**.

BŮL'BŮLE, see **BULBLET**.

BŮL'BŮS, the swollen base of the stipe in mushrooms.

BŮL'LĀTE, having the surface blistered or puckered, as the leaves of the Savoy cabbage, the spaces between the veins of which are concave on one side and convex on the other.

BŮL'LĪFŮRM CĒLLS, see **HYGROSCOPIC CĒLLS**.

BŪNCH, an indefinite cluster or tuft.

BŪN'DLE-SHĒATH, a layer of closely united thin-walled parenchyma partly or wholly surrounding each fibro-vascular bundle or continuous around the fibro-vascular cylinder; phloem-sheath.

BŪR, a seed or head bearing hooked or barbed appendages which serve for its attachment to various animals, thus securing its dissemination.

BŪRSIC'ŪLĀTE, pouch-like or furnished with pouch-like appendages.

BŪRSIC'ŪLĀ (pl. *Bursic'ulæ*), an old term for the stigmatic chamber in orchids.

BŪRSIC'ŪLĀTE, having a bursicula or small pouch.

BUSH, a shrub, especially if dense and low. *Shrub* implies the habitual form or limit of growth, but a *bush* may grow into a tree.

BŪT'TERFLY-SHĀPED, see PAPI-LIONACEOUS.

BUTTERY, applied to fruits, especially pears, the flesh of which is soft and yields readily to the pressure of the teeth, as in the White Doyenné and Seckel pears. The texture is in some respects intermediate between Breaking and Melting, which see.

BŪT'TON (v. i.) (Hort.), to form small heads prematurely, as cauliflower.

BĪCŶC'LĪC, having two cycles or whorls.

BŶSSĀ'CEOŪS, resembling or consisting of fine filaments like cobweb, as the mycelium of mushrooms.

BŶS'SOID, resembling bissus.

BŶS'SŪS, an old name for the

filamentous mycelium of certain fungi.

CĀDŪ'COŪS, falling early, as the calyx of the poppy.

CĒRŪLĒS'CENT, see CĒRULESCENT.

CĒRŪ'LEŪS, see CĒRULEUS.

CĒ'SIOŪS, pale bluish-gray; lavender-colored.

CĒSPĪT'ĒLLŌSE, diminutive of Cæspitose.

CĒS'PĪTŌSE, see CESPITOSE.

CĀLĀTHĪD'IŪM (obs.), see CAPITULUM. Formerly applied to the head of flowers in Compositæ, or sometimes to the involucre only.

CĀLĀTH'ĪFŌRM, bowl-shaped, with the margin more or less flaring, like a fruit-dish or flower-basket.

CĀL'CĀR, see SPUR.

CĀL'CĀRĀTE, having a spur, as the flower of larkspur; spur-shaped.

CĀLCĀ'REOŪS, of a dull chalk-white color; growing in chalky or limestone soils.

CĀL'CEĪFŌRM, see CALCEOLATE.

CĀL'CEŌLĀTE, slipper-shaped, as the lip of Cypripedium; calceiform; soleæform.

CĀL'ÇĪFŌRM, powdery, like chalk or lime.

CĀLÇĪV'ŌROŪS, eating into lime rock, as certain lichens.

CĀLĪC'ŪLĀR, cup-shaped. (Rare.)

CĀLĪC'ŪLĀTE, see CALYCLATE.

CĀ'LĪX, see CALYX.

CĀL'LĪ (pl.), see CALLUS.

CĀL'LŌSE, having hardened spots or protuberances; callused.

CĀLLŌS'ĪTŶ, a hard or thickened spot or protuberance; callus; wart.

CĀL'LŪS (pl. **Calluses** or **Calli**),

(1) a hard or thickened spot or protuberance; callosity: (2) the new formation upon an injured surface, as seen at the end of a cutting: (3) a thickened deposit of formative material in the pores of the sieve-plates in certain trees in autumn: (4) a term applied to an extension of the flowering glume in grasses below its point of insertion, and which is grown to the axis or rachilla of the spikelet and separated from the free portion by a more or less distinct furrow. It is frequently covered with hairs or bristles (as in *Stipa*) which serve for attachment to other objects to secure the distribution of the seed. The **Callus** is sometimes present in the empty glumes also.—(Scribner.)

CĀL'VOŪS, bald; having a surface on which hairs are usually present destitute of them, as in an achenium without a pappus.

CĀLŸCĀN'THĒMOŪS, having petaloid sepals.

CĀLŸCĀN'THĒMŸ, a partial or entire conversion of sepals into petals.

CĀLŸCĪFLŌ'RĀL, having the calyx free from the ovary, and the stamens (and therefore the petals also) inserted on the calyx. Compare **THALAMI-FLORAL** and **COROLIFLORAL**.

CĀLŸCĪFŌRM, having the form or position of a calyx.

CĀLŸCĪNAL, see **CALYCINE**.

CĀL'ŸCĪNE, pertaining to or situated on a calyx; calycinal.

CĀL'ŸCLE, a whorl of bracts forming a secondary or accessory calyx outside the true calyx.

CĀL'ŸCLED, having a calycle.

CĀL'ŸCŌID, resembling a calyx.

CĀLŸC'ŪLĀTE, having a calyculus.

CĀLŸC'ŪLĀTED, see **CALYCU-LATE**.

CĀLŸC'ŪLŪS, a set of involucrel bracts resembling a calyx, as in *Dianthus*.

CĀLŸP'TRĀ, the membranous hood or veil covering the capsule in mosses. It consists of the ruptured archegonium carried up by the growing sporophore. The term is also applied to the root-cap, which see.

CĀLŸP'TRĀTE, having a calyptra or similar covering.

CĀLŸP'TRĪFŌRM, shaped like a calyptra or candle-extinguisher, as the calyx of *Eschscholtzia*.

CĀLŸP'TRŌGEN, a special layer of cells in certain plants from which the root-cap is developed. (Jancewski.)

CĀ'LŸX, the outer set of floral leaves between the bracts, if any, and the corolla. When there is but one set external to the stamens, it is usually called calyx or perianth.

CĀ'LŸX TŪBE, a tube of united sepals adherent to the ovary or enclosing the other parts of the flower. As the elevated margin of the receptacle sometimes forms a portion of this tube, the term "receptacular tube" is also applied to it.

CĀM'ĀRĀ (pl. *Cām'ārē*), an indefinite term formerly applied to various fruits having more or less membranous carpels, as the *Ranunculus* and apple. Also applied to a single carpel of such a fruit.

CĂM'BIAL, pertaining to cambium.

CĂM'BIFŌRM, said of narrow prismatic thin-walled cells, like those characteristic of cambium.

CĂM'BĪŪM, a layer of meristem belonging to the fibrovascular system, between the xylem and phloem. In exogens it is permanent, and forms the continuous ring or layer of soft growing tissue between the wood and inner bark, from which the new growth of each is derived. It was formerly considered merely a viscid secretion, often called "descending sap," but it is now known to be composed wholly of young, easily broken cells filled with protoplasm or formative matter.

CĂM'BĪŪM LĀY'ER, see CAMBIUM.

CĂM'BĪŪM RĪŔG, see CAMBIUM.

CĂMPĂN'IFŌRM, see CAMPANULATE.

CĂMPĂNĪL'IFŌRM, see CAMPANULATE.

CĂMPĂN'ŪLĀTE, bell-shaped, as the corolla of the harebell.

CĂMPES'TRAL, growing mainly in uncultivated fields.

CĂMPŪLĪT'RŌPOŪS (obs.), see CAMPYLOTROPOUS.

CĂMPŪLŌSPĒR'MŌŪS, having the edges of the seed rolled inward to form a longitudinal groove or furrow, as in sweetcicely and some other Umbelliferae.

CĂMPŪLŌT'RŌPAL, see CAMPYLOTROPOUS.

CĂMPŪLŌT'RŌPOŪS, applied to ovules or seeds which are curved upon themselves so that the micropyle is near the

chalaza, as in Cruciferae; campylotropal.

CĂNĀL'ĈELLS, an axial row of cells in the neck of the archegonium the connecting septa of which disappear, forming a canal filled with mucilage for the passage of the antherozoids.

CĂNĀLĪC'ŪLĀTE, channelled.

CĂNĀLĪC'ŪLŪS (pl. Cănalic'ŭli), a channel.

CĂN'ĈELLĀTE, having open network; lattice-like.

CĂN'DĪCĀNT, see ALBESCENT.

CĂN'DĪDŪS, Latin for pure white.

CĀNE, the stem of reeds and other large grasses. Applied in horticulture to the stems of raspberries and blackberries, and one-year-old stems of grape-vines.

CĀNĒS'CENT, hoary (gray or whitish) from a coating of fine hairs; canus; incanus; incanous; incanescens.

CĀ'NŪS, see CANESCENT.

CĀP, see PILEUS.

CĀPĪLLĀ'ĈEOŪS, see CAPILLARY.

CĀPĪL'-LĀMENT (rare), see FILAMENT.

CĀP'ĪLLĀRŔ, long and narrow like a hair; said of a filament or channel.

CĀPĪL'LĪFŌRM, see CAPILLARY.

CĀPĪLLĪT'ĪŪM, sterile filaments, often in the form of network, among the spores of puff-balls and some other fungi.

CĀPĪTĀTE, furnished with a globose head; growing in a head.

CĀPĪTĒL'LĀTE, diminutive of capitate; capitular.

CĀPĪT'ŪLAR, see CAPITELLATE.

CĂPÎT'ŪLIFŌRM, in the form of a small head.

CĂPÎT'ŪLŪM (pl. Căpî't'ulă), a dense flower-cluster, as in the clover or sunflower; a head of any kind.

CĂP'RĒŌLĀTE, having tendrils; cirrhose.

CĂPRE'ŌLŪS (pl. Căprē'olī), see TENDRIL.

CĂPRIFĪCĀ'TION, (1) the fertilization of the fig, by hand or by means of insects. Sometimes extended to the artificial fertilization of other fruits. (2) The process of accelerating the ripening of figs by placing on the cultivated plant branches of the wild fig (caprificus). A hymenopterous insect found on the wild plant enters the fruit to lay its eggs, causing it to ripen earlier. The same result is obtained by the practice of pricking the green figs with a needle dipped in olive-oil; also by the application of a drop of the oil to the eye of the fig. There seems to be some doubt as to whether the result from caprification by means of the wild fig is due to fertilization, or the punctures of the insect, or to both.

CĂPSŌMĀ'NĪĀ, an unnatural development of pistils. It may consist of excessive multiplication or of any alteration in form which impairs their function.

CĂP'SŪLAR, pertaining to a capsule.

CĂP'SŪLĀTE, enclosed in a capsule.

CĂP'SŪLE, any dry dehiscent fruit, especially one which is superior and polycarpellary. The sporangium of mosses is usually called a capsule.

CĂPSŪLĪF'EROŪS, bearing capsules.

CĂRBŌNĀ'ŖEOŪS, appearing as if burnt.

CĂR'ŖERŪLE, a dry fruit formed from a polycarpellary ovary, the carpels of which separate when ripe into indehiscent few-seeded cocci, as mallow; carcerulus. Compare SCHIZOCARP.

CARŖĒR'ŪLŪS, see CARCERULE.

CARŖĪTH'ĪUM, an old term for Mycelium.

CĂRICŌL'ŌGŸ, the study of the genus Carex.

CĂ'RĪĒS, an old term for decay.

CĂRĪ'NĀ, see KEEL.

CĂRĪ'NĀL, pertaining to a keel.

CĂRĪ'NĀL ĀSTĪVĀ'TION, when the carina embraces the other parts of the flower.

CĂRĪ'NĀL CĀNĀL', a lacuna in the xylem of a fibrovascular bundle, as in Equisetum. Compare VALLECULAR CANALS.

CĂR'ĪNĀTE, keel-shaped, or having a longitudinal ridge like a keel; keeled.

CĂR'ĪNĀTED, see CARINATE.

CĂRĪŌP'SĪS, see CARYOPSIS.

CĂ'RĪŌŪS, decayed. (Rare.) Compare CRIES.

CĂR'NĒŌŪS, flesh-colored; pale red. Compare CARNOSE.

CĂR'NĒŪS, see CARNEOUS.

CĂRNĪV'ŌROŪS, see INSECTIVOROUS.

CĂR'NŌSE, fleshy in texture. More firm than succulent or pulpy.

CĂR'NOŪS, pertaining to flesh; fleshy.

CĂRPĀDĒ'LIŪM, see CREMOCARP.

CĀR'PEL, a simple pistil or one of the elements (modified leaves) of a compound pistil.

CĀR'PELLĀRŸ, pertaining to a carpel.

CĀR'PEĻ'LŪM (pl. *Cārpēl'la*), see CARPEL.

CĀR'PID, a ripe carpel, especially if separable.

CĀRPID'IŪM, a carpelid or carpel.

CĀRPŌGĒN'IC, fruit-producing. In Floridæ applied to the special cell (or cells) of the procarpium which develops into the carpogonium.

CĀR'PŌGŌN, see CARPOGONIUM.

CĀRPŌGŌN'IŪM, the female organ, usually multicellular, of Carposporeæ before fertilization. Compare OOGONIUM.

CĀR'PŌLĪTE, a petrified fruit; lithocarp; carpolith.

CĀRPŌL'ŌGŸ, the part of botany which relates to the structure of fruits. Compare POMOLOGŸ.

CĀR'PŌPHŌRE, the stalk of a sporocarp; a stalk elevating the gynecium above the rest of the flower (gynophore); a prolongation of the axis between the carpels, as in Umbelliferæ.

CĀR'PŌPHŸLL, see CARPEL.

CĀRPŌPHŸL'LŪM (pl. *CārpōphŸl'la*), see CARPEL.

CĀR'PŌSPŌRE, a spore produced in a sporocarp. De Bary extends the term to all those produced on a sporophyte, thus including the spores of ferns. This makes it equivalent to the term "spore" as used by Sachs.

CĀR'PŌSTŌME, the opening in a sporocarp through which the spores are discharged.

CĀRTĪLĀG'INOŪS, firm and tough like cartilage.

CĀR'ŪNCLE, a partial aril growing from the hilum, as in *Polygala*; strophiole.

CĀRŪN'CULĀ, see CARUNCLE.

CĀRŪN'CULĀR, see CARUNCULATE.

CĀRŪN'CULĀTE, having a caruncle or the form of a caruncle; caruncular; carunculous; carunculated.

CĀRŪN'CULĀTED, see CARUNCULATE.

CĀRŪN'CULOŪS (rare), see CARUNCULATE.

CĀRŸŌÇINĒ'SIS, see KARYOKINESIS.

CĀRŸŌPHŸLLĀ'ÇEOŪS, pink-like; especially having five petals with long claws, as in the pink family (*Caryophyllaceæ*).

CĀRŸŌPH'YLLŌŪS, see CARYOPHYLLACEOUS.

CĀRŸŌP'SIS, a dry one-seeded indehiscent fruit, with the pericarp thin and adherent to the seed, as in wheat and most other Gramineæ; cariopsis.

CĀSQUE, see GALEA.

CĀSSĪD'EOŪS, a term applied to an irregular corolla having the upper petal broad and helmet-shaped as in *Aconitum*.

CĀSTĀ'NĒOŪS, chestnut-colored.

CĀS'TRĀTE (adj.), said of a stamen which contains no anther, or no good pollen.

CĀS'TRĀTE (v.), to remove the anthers.

CĀTĀBŌL'IC, see KATABOLIC.

CĀTĀCLE'SIŪM, a term sometimes applied to an achenium like *Mirabilis*, being a one-celled, one-seeded fruit within a hardened calyx.

CĀTĀCŌRŌL'LĀ, a secondary corolla sometimes found inside or outside the true corolla.

CĀTĀPĒT'ĀLOŪS, having the bases of the petals in a polypetalous corolla adherent to the bases of the stamens, as in *Malva*.

CĀT'ĀPHŪL, a scale-like leaf, as on buds, rhizomes, etc. Compare **EUPHYLL**.

CĀTĀPHŪL'LĀRŪ, scale-like, as the perules of a bud or the rudimentary leaves on a root-stock.

CĀT'ĒNĀTE, see **CONCATENATE**.

CĀTĒN'ŪLĀTE, see **CONCATE-NATE**.

CĀTH'ŌDĀL, see **CATHODIC**.

CĀTHŌD'IC, applied to the edge of a leaf which is entered by an ascending spiral. In a right-handed spiral it would be the left edge and *vice versa*. Also spelled **Kathodic**. Compare **ANODIC**.

CĀT'KĪN, see **AMENT**.

CAU'DĀTE, having a long termination like a tail.

CAU'DĀTED, see **CAUDATE**.

CAU'DEX (pl. **CAU'dexes** or **CAU'dices**), the trunk of a palm, a tree-fern, or other arborescent endogen or acrogen; an upright root-stock; the persistent base of various herbaceous perennials (in this sense obsolete). Formerly applied to the trunk of any tree.

CAU'DICLE, a little stalk, as that to which each pollen-mass in orchids is attached.

CAUDIC'ŪLĀ, see **CAUDICLE**.

CAULĒS'CENT, having a distinct leaf-bearing stem.

CAU'LICLE, the first internode, or portion of the stem below the cotyledons and above the radicle or beginning of the true root; tigellum; cauliculus, usually called radicle. Seldom

applied to the part after the plant has developed.

CAU'LICŪLE, see **CAULICLE**.

CAULIC'ŪLŪS (pl. **CAulic'ŭlī**), see **CAULICLE**.

CAULIF'ĒROŪS, having a stem; caulescent.

CAU'LIFORM, stem-like.

CAULIG'ĒROŪS, borne upon the stem.

CAU'LĪNE, pertaining to the stem; belonging to the stem, or main stem, as *cauline leaves*.

CAULĪNE BŪN'DLES, fibrovascular bundles confined exclusively to the stem and not connected with those in the leaves. Compare **COMMON BUNDLES**.

CAU'LIS, the stem; especially the main stem in herbaceous plants.

CAULŌCAR'POŪS, producing fruit upon a permanent stem, as ordinary trees and shrubs.

CAU'LŌME, a general term for stems of all kinds, whether having the ordinary form and functions of stems or not. Compare **PHYLLOME**.

CAULŌ'MER, a name proposed for one of the secondary axes which form a sympodium.

CAULŌTĀX'IS, the arrangement of the branches upon a stem.

CĀV'ĪTŪ (Hort.), the depression in the stem end of an apple. Compare **BASIN**.

CELL, (1) one of the structural elements of living bodies, by the multiplication of which growth is effected. In plants the cell usually appears as a closed sac surrounded by a firm wall of cellulose and containing the essential element, protoplasm, and usually a nucleus, the active agent in cell-

division. See CELLULOSE, CELL-WALL, CELL-SAP, PROTOPLASM, NUCLEUS. (2) Any cavity, as that of an anther or ovary.

CELL-FAMILY, a group of cells of common origin: used mainly among the lower algæ; colony. See CŒNOBIUM.

CELL-FIBRE, see NUCLEAR FIBRIL.

CELLIFEROUS, bearing or producing cells.

CELLNŪCLEUS, see NUCLEUS.

CELL-PLATE, the early condition of a cell-wall at the equator of a dividing nucleus, formed by the fusion of a series of thickenings of the spindle-fibres called by Strasburger Dermatosomes.

CELL, PRIMORDIAL, see PRIMORDIAL CELL.

CELL SAP, fluid in living cells which separates from the protoplasm as one or more vacuoles; cytenchyma. Compare VASCULAR SAP and DEUTOPLASM.

CELL-TISSUE, tissue composed of cells as distinguished from vessels. See CELLULAR TISSUE.

CELLŪLAR, composed of cells; pertaining to cells as distinguished from vessels; having the cells large and soft; containing cavities of any kind; porous.

CELLŪLAR BARK, see MESOPHLEUM.

CELLŪLAR ENVELOPE, see MESOPHLEUM.

CELLŪLAR PLANTS, those which contain no fibrovascular tissue, as fungi and algæ; thallophytes.

CELLŪLAR SPORE, see COMPOUND SPORE.

CELLŪLAR SYSTĒM, the cellular portion of a plant as distinguished from the fibrovascular.

CELLŪLAR TISSUE, tissue in which none of the cells are modified into ducts or vessels. Especially, tissue composed of cells which are large and loose, like the pulp of fruits; parenchyma. Compare VASCULAR TISSUE.

CELLŪLE, a small cell.

CELLŪLIFEROUS, bearing or producing little cells.

CELLŪLOSE, primary cell-wall substance; the material forming most of the dry matter of plants. It is seen nearly pure in cotton-fibre and in the cell-walls of most plants while young. There are many modifications of cellulose, among them Lignin in older wood and Suberin in bark.

CELL-WALL, a sac enclosing the living contents of a cell.

CEMENTATION OF HYPHÆ, their inseparable union by a cementing substance; conrescence. (DeBary.)

CEMENT-DISK, Müller's term for the glandular disk or retinaculum of orchids.

CENANTHY, the suppression of stamens and pistils.

CENŌBIUM, see CŒNOBIUM.

CENŌGENETIC, secondary.

CENTRAL CELL, the cell of an archegonium, from which the oosphere originates. Compare EMBRYO-SAC.

CENTRAL CORD, a cord or bundle of elongated thin-walled cells at the centre of the stems, leaves, and fruit-stalks of many mosses which serves for the transfer of water; tissue-cord.

- ÇĖN'TRĀL ÇYL'İNDĖR**, the portion of the tissue of roots and stems within the cortex. It includes the medullary and fibrovascular systems, — used mainly in roots. Compare FIBROVASCULAR CYLINDER.
- ÇĖN'TRİC**, a term applied to such leaves as show no considerable difference between the internal structure of their upper and under sides. Compare BIFACIAL.
- ÇĖNTRİF'ÜGĀL**, said of an inflorescence in which the terminal flower blossoms first; definite; determinate. Applied to a radicle which is turned toward the side of the fruit, or to anything else which points outward.
- ÇĖNTRİP'ĖTĀL**, said of an inflorescence in which the lower or outer flowers blossom first; indefinite; indeterminate. Applied to radicles or seeds which point toward the axis of the fruit. Now little used in the latter sense.
- ÇĖN'TURŸ**, a hundred things, as a package of plants containing a hundred specimens.
- ÇĖPHĀLĀN'THİŸM**, see ANTHODIUM.
- ÇĖPHĀLŌ'DİĀ** (sing. Çēphālo'diūm), outgrowths of a lichen thallus in which algal cells are situated.
- ÇĖPH'ĀLŌİD**, capitate or head-shaped.
- ÇĖRĀ'ÇEOŸS**, wax-like.
- ÇĖRĀMİD'İŸM** (pl. Çērāmīd'īā), the ovate or urn-shaped capsule containing the spores in the red algæ (Floridææ).
- ÇĖRİF'EROŸS**, producing wax.
- ÇĖR'NOŸS**, nodding, curved over near the top, as the flower of narcissus upon its stem; nutant. Compare DROOPING.
- ÇĖR'NŪOŸS**, see CERNOUS.
- ÇĖR'NŪŸS**, see CERNOUS.
- ÇĖ'SİOŸS**, see CÆSIOUS.
- ÇĖS'PİTŌSE**, in tufts or dense bunches; cæspitose; tufted.
- ÇĖS'PİTOŸS**, see CESPITOSE.
- ÇĖSPİT'ŪLŌSE**, in small tufts or bunches.
- CHĖ'TĀ**, Greek for bristle.
- CHĀFF**, the glumes and palets of grains and other grasses; the bracts which subtend each flower in the head of Compositæ, etc.
- CHĀİN-GĖM'MĀ**, a kind of gemma found in Mucorini having the form of a septate confervoid filament, the segments of which are capable of germination; sprouting gemma. (DeBary.)
- CHĀLĀ'ZĀ**, the base of the ovule or place where its coats unite with each other and with the nucleus. In orthotropous seeds it corresponds with the hilum.
- CHĀP'LĖT**, a series of objects arranged like beads on a string, as the spores of Cystopus.
- CHĀR'ACTĖR**, whatever distinguishes a plant or group of plants from others; a description composed of the distinctive features of a species or other group. See SPECIFIC CHARACTER, GENERIC CHARACTER, etc.
- CHĀRTĀ'ÇEOŸS**, of the texture of parchment or writing-paper.
- CHĀŞMŌG'ĀMŸ**, the opening of the perianth at flowering time. (Rare.)
- CHİNK'Ÿ** (Tuckerman), see RIMOSE.

CHLĀMÝ'DŌSPŌRE, a kind of thick-walled spore formed asexually in Mucorini by free-cell formation within the hyphae. The term is also applied to certain thick-walled spores in protophytes, and occasionally elsewhere.

CHLŌ'RĀNTHÝ, the conversion of the parts of a flower into green leaves.

CHLŌRŌLEŮ'ČĪTE, see CHLOROPLAST.

CHLŌ'RŌPHÝL, see CHLOROPHYLL.

CHLŌ'RŌPHÝLL, the green coloring matter of plants.

CHLŌ'RŌPHÝLL-BŌD'Ý, a proteid body (plastid) in the cells of plants containing the chlorophyll; chlorophyll-granule; chlorophyll-corpuscle; chloroplast; autoplast; chloroleucite. See PLASTID and CHROMATOPHORE.

CHLŌ'RŌPHÝLL - CŌR'PŮSCLE, see CHLOROPHYLL-BODY.

CHLŌ'RŌPHÝLL-GRĀIN, see CHLOROPHYLL-BODY.

CHLŌ'RŌPHÝLL-GRĀN'ŮLE, see CHLOROPHYLL-BODY.

CHLŌ'RŌPHÝLL-VĚS'ICLES, see PYRENOIDS.

CHLŌ'RŌPLĀST, see CHLOROPHYLL-BODY.

CHLŌRŌ'SÍS, an abnormal absence or diminution of the green coloring matter of plants; albinism. Compare ETIOLATION.

CHŌR'DĀ PĪSTĪLLĀ'RÍS, a fibrovascular bundle in the style. (Obs.)

CHŌRĪPĚT'ĀLOŮS, see POLYPETALOUS.

CHŌRĪSĚP'ĀLOŮS, see POLYSEPALOUS.

CHŌ'RĪSÍS, the production of two

or more organs in the position of one. It is considered in most cases to be a branching of very early origin. The condition may be normal or abnormal. See COLLATERAL and TRANSVERSE CHORISIS. Compare UNLINING.

CHŌRĪSTŌPH'ÝLLOŮS, separate-leaved. (Rare.)

CHRŌMĀT'IC, capable of being colored by staining agents; pertaining to color.

CHRŌ'MĀTĪN, that part of the protoplasm of the cell, mainly in the nucleus, which is readily and deeply colored by staining agents. It forms the chief portion of the granular fibrils called "nuclein" or "nucleoplasm."

CHRŌMĀT'ŌPHŌRE, the protoplasmic body (plastid) in which chlorophyll or other coloring matter is produced; color-granule; chromoplast; chromoleucite. The term is also extended by some to all plastids. See CHLOROPHYLL-BODY.

CHRŌMĪD'IŮM, a term sometimes applied to the gonidium or algal host of lichens.

CHRŌMŌLEŮ'ČĪTE, see CHROMATOPHORE.

CHRŌ'MŌPLĀST, see CHROMATOPHORE.

CHRŌMŌPLĀS'TĪD, see CHROMATOPHORE.

CHRŌ'MŌSŌME, one of the segments of the nuclear filament in karyokinesis.

CHRŌM'ŮLE, a term applied to all coloring pigments found in living plants.

CHŌN'ÍZŌŌSPŌRE, one of the microzoogonidia produced in vast numbers in Hydrodictyon—so called, because they rest for several weeks or more be-

fore germinating; chronisporé; chronizoosporé.

ÇIC'ÂTRÎÇE, see **CICATRIX**.

ÇICÁ'TRÎX (pl. **Çicá'trí'çês**), a scar left by a falling leaf or other organ.

ÇIÊN'CHÏMÁ, a system of inter-cellular spaces. (Kœhler.)

ÇIL'IA (sing. **Çil'iüm**), hairs or bristles forming a row or fringe; the tail-like appendages of zoospores; single, fine, soft, hair-like terminal appendages of any kind. Compare **FLAGELLA**.

ÇIL'IÂTE, having cilia.

ÇIL'IÂTE-DÊN'TÂTE, having teeth fringed with hairs.

ÇIL'IÎFÔRM, resembling cilia.

ÇIL'IÔGRÂDE, moving by means of cilia, as zoospores.

ÇIL'ÔLÁ (sing. **Çil'ôlüm**), secondary or minute cilia.

ÇIL'IÜM (sing.), see **CILIA**.

ÇIN'ÇINNÁL ÇÏME, see **SCORPIOID CYME**.

ÇIN'ÇINNÁL DÎCHÔT'ÔMÏ, see **SCORPIOID DICHOTOMY**.

ÇIN'ÇINNÜS, see **SCORPIOID CYME**.

ÇINÉRÁ'ÇEOÜS, a little paler than Cinereous.

ÇINÊ'REÖÜS, ash-gray.

ÇINÊRÊS'ÇENT, becoming ash-gray; cineraceous.

ÇINÊRÎ'TIOÜS, see **CINEREOUS**.

ÇI'ÖN, see **SCION**.

ÇÎR'ÇINAL, see **CIRCINATE**.

ÇÎR'ÇINÂTE, rolled forward from the end, as the young leaves of many ferns.

ÇÎR'CÜMÇÎSED', divided in a transverse circular manner.

ÇÎRCÜMNÜTÂ'TIÖN, the act of bending around successively through different points of the compass, as is done by the ends of twining vines, and in

a less degree by other growing points; revolving nutation. See **NUTATION**.

ÇÎRCÜMÇÎS'SILE, dehiscing or dividing by a transverse circular line, as the fruit of purslane.

ÇÎRCÜMSCRÎP'TION, an outline or boundary.

ÇÎRRHÎF'EROÜS, having tendrils. See **CIRRHOSE**.

ÇÎR'RHÎFÔRM, tendril-shaped; cirriform.

ÇÎR'RHÔSE, having tendrils; cirrhiferous; cirrhous; cirrous; cirrose; capreolate. Also, resembling a tendril or coiling like a tendril; tipped with a wavy filiform appendage; slenderly flagellate.

ÇÎR'RHÔSELÏ PÎN'NÂTE, pinnate with a terminal leaflet replaced by a tendril, as in the pea.

ÇÎR'RHÖÜS, see **CIRRHOSE**.

ÇÎR'RHÜS (pl. **Çir'rhi**), a tendril; capreolus.

ÇÎRRÎF'EROÜS, see **CIRRHIFEROUS**.

ÇÎR'RÎFÔRM, see **CIRRIFORM**.

ÇÎRRÎÇ'EROÜS, producing tendrils. See **CIRRHOSE**.

ÇÎR'RÔSE, see **CIRRHOSE**.

ÇÎR'ROÜS, see **CIRRHOSE**.

ÇÎR'RÜS (pl. **Çir'rî**), see **CIRRHUS**.

ÇÎSTÔ'MÁ, see **CISTOME**.

ÇÎS'TÔME', a term sometimes given to a stomatic chamber when it exists as a kind of sac lined by a special layer of cells.

CLÁDOCÂR'POÜS, having the fruit in mosses on short lateral branches; pleurocarpous. Compare **ACROCARPOUS**.

CLÁD'ÔDE, see **PHYLLOCLADIUM**.

CLÁDÔ'DIÜM (pl. **Cládôd'ia**), see **PHYLLOCLADIUM**.

CLÁD'ÔPHÏLL, see **PHYLLOCLADIUM**.

CLAMP-CELL, see CLAMP-CONNECTION.

CLAMP-CONNECTION, a semi-circular process connecting two adjoining cells of a hypha. In some cases it may communicate with but one of the cells, that from which it originated, in others its extremity becomes applied to the wall of the adjoining cell, at which point both walls are absorbed, leaving a passage around the septum between the cells of the filament. The process may become cut off from the originating cell by a septum when it is called a "clamp-cell." It is found mainly in Basidiomycetes.

CLASS, a group of related orders.

CLASSIFICATION, the systematic distribution of individuals into groups.

CLATHRATE, latticed; furnished with openings like lattice-work; cancellate.

CLATHRATE CELL, see SIEVE-TUBE.

CLAVATE, club-shaped; gradually thickened upward or away from the extremity of attachment.

CLAVIFORM, see CLAVATE.

CLAVELLATE, diminutive of Clavate.

CLAVICLE, see TENDRIL.

CLAVICULA (pl. *Claviculæ*), a term formerly used for tendril, especially a tendril formed by a petiole.

CLAVICULATE, having a tendril. (Rare.)

CLAVIFORM, see CLAVATE.

CLAVULE, the club-shaped conjugating process in Mucorini. (DeBary.)

CLAW, the stem or narrow base

of a petal, as those of the pink; unguis.

CLEFT, having narrow sinuses reaching about half way to the base. Compare PARTED and DIVIDED.

CLEISTOCARP, an ascocarp which is entirely closed, and from which the spores escape by its final rupture, as that of the Erysipheæ.

CLEISTOGAMOÛS, having closed fertilization: a term applied to certain more or less depauperate flowers, sometimes underground, which never open, but are self-fertilized, as in some violets; clandestine. Cleistogamous flowers sometimes accompany flowers of the usual form on the same plant.

CLEISTOGAMY, self-fertilization without the flowers opening; closed-fertilization.

CLEISTOGENE, a plant which bears cleistogamous flowers. See above. It may bear flowers of the ordinary form also.

CLESTINE, see RAPHEIDIAN CELL.

CLIMBING, rising by laying hold of other objects in any way except by twining; scandent.

CLINANTRIUM, the part of the column of orchids containing the anther.

CLINANTHIUM, the receptacle of the flowers in Compositæ; phoranthium; clinium; anthoclinium. Compare ANTHODIUM.

CLINGSTONE, applied to varieties of the peach and other drupaceous fruits, in which the flesh when ripe is not readily separable from the pit. Compare FREESTONE.

CLINIDIUM, the stalk or filament

supporting a stylospore. (Tuckerman.)

CLIN'IUM, see CLINANTHIUM.

CLINŌSPŌRĀN'GIUM, see PYNIDIUM.

CLINŌSPŌRE, see STYLOSPORE.

CLISTŌ-, see CLEISTO-.

CLOSED, applied to fibro-vascular bundles in which all the cambium cells become permanent tissue, as in monocotyledons. Compare OPEN.

CLOSED - FĒRTILĪZĀ'TION, see CLEISTOGAMY.

CLOSE-FĒRTILĪZĀ'TION, the fertilization of pistils by pollen from the same flower; self-fertilization.

CLOS'ING-MĒMBRĀNE, the original unthickened cell-wall at the centre of a bordered pit.

CLOU'DĒD, having a pale ground with ill-defined patches of a darker tint gradually shading into it.

CLŌVE, one of the small bulbs developed in the axils of the scales of a larger bulb, as in garlic.

CLŪB, one of the elements composing the pulp in the seed-cavities of the lemon and orange. It consists of a more or less oval body about one fourth of an inch long filled with juice and attached by a stalk to the inner side of the cavity or cell. Morphologically, it is a pluricellular hair.

CLUBBED (Hort.), applied to the stem of an apple when its base is enlarged and fleshy. Compare CLAVATE.

CLUB-SHAPED, see CLAVATE.

CLŪSTĒR, an indefinite popular term, applied mainly to small-fruits in which several fruits grow together in an inflorescence, as in the raceme of the

currant. About the same as Bunch, but applied more often perhaps to loose collections.

CLŪS'TĒR-CŪP, see ÆCIDIUM.

CLŪSTĒRED, collected into or growing in a bunch, as the conglomerate flowers of dodder.

CLŪP'ĒATE, see SCUTATE.

CLŪPĒIFŌRM, see SCUTATE.

CŌĀĈĒR'VĀTE, see ACERVATE.

CŌĀD'ŪNĀTE, united at the base or farther; connate.

CŌĀĒTĀ'NĒOŪS, existing or appearing at the same time; contemporaneous.

CŌĀLĒS'CENCE, the complete union of similar things. The same as Cohesion when applied to organs. Compare CONJUGATION.

CŌĀLĒS'CENCE OF CĒLLS, the partial or entire absorption of the partition-walls of adjoining cells, as when the cavities of long rows of cells in a tissue become connected in the formation of ducts or vessels.

CŌĀRC'TĀTE, crowded together; compact. Opposed to effuse.

CŌAT'ĒD, composed of layers, or having a rind.

CŌATĒD BŪLB, see TUNICATED BULB.

CŌB'WĒBBŸ, having fine slender filaments or hairs like cobweb; arachnoid.

CŌCĈID'IUM (pl. CŌcĈid'Īā), a sporocarp like that of Delesseria (one of the algæ), being a closed case with the spores borne on a central placenta.

CŌCĈIF'ĒROŪS, producing berries; bacciferous.

CŌCĈIN'EŪS, scarlet.

CŌC'CŪS (pl. CŌc'ċī). (1) One of the separable one-seeded carpels of certain dry fruits, as Euphor-

- bia. Compare REGMA. (2) A spherical or spheroidal cell among bacteria, especially of the genus *Micrococcus*.
- CŎCH'LEĀ**, see STROMBUS.
- CŎCH'LEĀR**, a form of æstivation in which one piece being larger covers all the others, as in *Aconitum*. Compare VEXILLARY.
- CŎCHLEĀR'ĪFŎRM**, shaped like the bowl of a spoon.
- CŎCH'LEĀTE**, shaped like a snail-shell; spirally turbinate. Practically the same as Strombuliform.
- CŎCKS'CŎMBED**, fasciated. Applied mainly in horticulture to strawberries which are irregular in shape from being flattened at the sides or fasciated.
- ÇĒL'ŎSPĒRM**, a cœlospermous seed.
- ÇĒLŎSPĒR'MŎŪS**, applied to the seeds (cremocarpis) of coriander and some other Umbelliferæ, which have the inner surface hollowed by the curving in of the top and bottom.
- ÇĒNĀN'THĪŪM**, see CLINANTHIUM. Also sometimes applied to receptacles like the fig, or to any fleshy receptacle in which the flowers are more or less embedded.
- ÇĒNŎ'BĪŪM** (1) a community of a definite number of unicellular individuals united in one body of definite form, as in *Volvox*; cenobium. Compare CELL-FAMILY. (2) A name of the fruit peculiar to the Boraginaceæ and Labiateæ, consisting of four distinct nutlets around a common style.
- ÇĒRŪLĒS'CĒNT**, bluish, lighter than cœruleus.
- ÇĒRŪ'LEŪS**, light blue; sky-blue.
- CŎĒTĀ'NĒŎŪS**, appearing or existing at the same time; of the same age.
- CŎHĒ'RENT**, having similar parts more or less united, as the petals in a gamopetalous corolla. Compare ADHERENT.
- CŎHĒ'SION**, the union of members of the same whorl or kind. Compare ADHESION.
- CŎ'HŎRT**, a natural group of orders within a class; alliance.
- CŎLĒŎPHŪL'LŪM**, a membranous or fleshy sheath investing the plumule in Monocotyledons.
- CŎLĒŎP'TĪLE**, see COLEOPHYLLUM.
- CŎLĒŎRH'ZĀ**, the covering through which the radicle of most Monocotyledons bursts in germination; root-sheath. The term has also been applied to the vascular-bundle sheath in roots.
- CŎL'LAR**, the line of junction between the stem and root; collum; neck. Also applied to the annulus of a mushroom.
- CŎLLĀTĒRAL**, side by side.
- CŎLLĀTĒRAL BŪN'DLE**, a fibrovascular bundle having a single strand of phloem in continuous contact with a single strand of xylem. Compare BICOLLATERAL BUNDLE, RADIAL BUNDLE, and CONCENTRIC BUNDLE.
- CŎLLĀTĒRAL ÇHŎ'RĪSĪS**, when the parts originating by chorisis stand side by side; parallel chorisis. Compare TRANSVERSE CHORISIS.
- CŎLLĒCT'ING HĀIRS**, hairs upon the style in certain Compositæ which serve to collect the pollen as it is discharged from the anther.
- CŎLLĒCT'IVE FRUIT**, a fruit-

like body originating from more than one flower, as the mulberry; multiple fruit; pseudo-syncarp. Compare ANTHOCARPOUS FRUIT, ACCESSORY FRUIT, and AGGREGATE FRUIT.

CÖLLËCT'ORS, see COLLECTING HAIRS.

CÖLLËN'CHÏMÄ, tissue composed of cells having cartilaginous thickenings at the angles. Common beneath the epidermis of stems, and in other places where strength is required.

CÖL'LËT, an old term for collar.

CÖLLËTËRS, glandular hairs which secrete a gummy matter (blastocolla) upon buds.

CÖL'LOID, n., any substance in the colloid state.

CÖL'LOID, adj., resembling jelly; the molecular condition of a class of substances, such as gums, usually produced by the disorganization of organized matter, which mix with water in all proportions and pass from the solid to the fluid state through all stages of softening, thus differing from Crystalloids, which see.

CÖLLOID'AL, see COLLOID.

CÖL'LÛM, the neck or tapering base of the capsule in mosses; the line of junction between root and stem; collar.

CÖL'MAR SHÄPED, pear-shaped with a rather slender neck and large body. (J. J. Thomas.)

CÖL'ÖNÏ, see CELL-FAMILY.

COL'ÖRED, of any other color than green.

CÖLPËN'CHÏMÄ, epidermal tissue composed of cells with sinuous margins. Not in general use.

CÖLÛMËL'LÄ, the axis or central

column of a pod or spore-case. Usually a placenta.

CÖLÛMËL'LIFÖRM, shaped like a little column or columella.

CÖL'ÛMN, the united filaments and styles in a gynandrous flower, as an orchid.

CÖLÛM'NAR, shaped like a column or pillar: round or nearly so, tapering slightly or none, and not so long as to be called slender. Often applied to styles. Compare TERETE.

CÖ'MÄ, a tuft of hairs on a seed; a terminal cluster of empty bracts; any tuft.

CÖ'MÄTE, see COMOSE.

CÖMBINED' HÏ'BRID, a derivative hybrid in which three or more species or varieties are united, as when a hybrid unites with a new parent form or another hybrid.

CÖMB-SHÄPED, see PECTINATE.

CÖMMËN'SALÏSM, see SYMBIOSIS.

CÖM'MÏSSÛRE, a line of junction of two parts. In the Marattiacæ a longitudinal partition connecting the two stipules and forming an anterior and a posterior chamber. Compare SUTURE.

CÖM'MÖN, general, primary, or universal, as opposed to partial or secondary.

CÖM'MÖN BÛD, one containing both leaves and flowers, or one from which more than one flower is produced.

CÖM'MÖN BÛN'DLE, a fibrovascular bundle a part or the whole of which passes from the stem into a leaf.

CÖM'MÖN ÏN'VÖLÛCRE, one subtending an inflorescence; general or universal involucre.

CÖM'MÖN NÄME, any name, except the "botanical name," by which a plant is known.

Common Peduncle OF BOTANICAL TERMS. Compound Sporophore

CŎM'MŎN PĒDŬN'CLE, one supporting several pedicels.

CŎM'MŎN PĒR'ĪANTH, applied to certain common involucre, as that surrounding the head of flowers in Compositæ.

CŎM'MŎN RĚĈĒP'TACLE, one supporting more than one flower or other organ.

CŎM'MŎN ŬM'BĒL, see COMPOUND UMBEL and UNIVERSAL UMBEL.

CŎ'MŎSE, bearing a coma or tuft, or growing in tufts; comate.

CŎMPACT', solid; close.

CŎM'PLĀNĀTE, flattened vertically to a level surface above and below. Applied also to several organs which are flattened or arranged so as to lie in one plane, and to such as lie flat upon or against each other, as when leaves lie flat upon the stem. Compare EXPLANATE and COMPRESSED.

CŎMPLĒTE', having calyx, corolla, stamens, and pistils. Compare PERFECT.

CŎM'PLĒX, an assemblage of interwoven fibres, or any group of complicated parts.

CŎM'PLICĀTE, folded together forward. Compare REPLICATE and CONDUPLICATE.

CŎM'POUND, consisting of a number of similar subordinate parts forming a complete whole, as the leaf of the walnut.

CŎM'POUND CŎR'YMB, one with more than one flower on each ray or branch.

CŎM'POUND DĪCHĀ'SĪŬM, one in which the primary axis terminates in a flower, beneath which arise several secondary axes, each of which terminates in like manner, as in valerian.

CŎM'POUND FLOW'ĒR, an old term for the flower-head in Compositæ.

CŎM'POUND FRUIT, see AGGREGATE FRUIT.

CŎM'POUND ĪN'FLŎRĒS'CENĈE, one in which the ultimate branches each bear more than one flower, thus forming a compound spike, corymb, etc.

CŎM'POUND LĒAF, one having two or more distinct blades, or leaflets, as in the ash.

CŎM'POUND ŐVĀR'Y, one having more than one carpel.

CŎM'POUND PĪS'TĪL, one composed of more than one carpel.

CŎM'POUND RĀĈĒME', see PANICLE.

CŎM'POUND SPIKE, one having more than one flower or spikelet on each short branch, as wheat. Applied especially when the secondary spikes are well developed, or when, as in *Panicum sanguinale*, the inflorescence consists of several spikes of nearly equal size arising from the apex of the peduncle.

CŎM'POUND SPŎRE, a spore consisting of more than one cell, each of which is frequently capable of germination. It differs from Gemma by its more definite form and specialized method of production. The synonyms are spore-group, semen-multiplex, compound spore, cellular spore, multicellular spore, pluricellular spore, septate spore, polyspore, sporidesm, etc. See MERISPORE.

CŎM'POUND SPŎRŎPHŎRE, one formed by the cohesion of separate hyphal branches. Compare SIMPLE SPOROPHORE.

CÔM'POUND STĒM, a branched stem.

CÔM'POUND ÛM'BĒL, one in which each primary ray bears a smaller umbel instead of a single flower. Formerly known as Common, General, or Universal Umbel.

CÔMPRĒSSĒD', flattened, especially lengthwise laterally, the horizontal diameter much less than the vertical. Compare DEPRESSED, OBCOMPRESSED, and COMPLANATE.

CÔNCĀT'ĒNĀTE, joined in a continuous series like a chain; catenate; catenulate.

CÔNCĀT'ĒNĀTĒD, see CONCATENATE.

CÔNCAULĒS'CENCE, the coalescence of the pedicel of a flower with the stem for some distance above the subtending bract.

CÔNÇĒN'TRĪC, having a common centre.

CÔNÇĒN'TRĪC BÛN'DLE, a fibrovascular bundle in which a strand of one element is wholly surrounded by the other, as in some ferns in which the xylem is wholly surrounded by phloem.

CÔNÇĒPTĀCLE, a name applied to sac-like receptacles of various kinds, as perithecium, cystocarp, follicle.

CÔNÇĒPTĀC'ÛLÛM, see CONCEPTACLE.

CÔNCH'IFÔRM, like half a clam-shell.

CÔN'COLÔR, of the same color as another part or plant. Also applied to several objects which are all of the same color. Compare UNICOLOR.

CÔN'COLÔRED, see CONCOLOR.

CÔN'COLÔROÛS, see CONCOLOR.

CÔNCÔM'ITANT, applied by De Bary to fibrovascular bundles which run continuously side by side without becoming separated by other bundles.

CÔNCRĒS'CENCE, see CEMENTATION.

CÔN'CRĒTE, grown together.

CÔNDÛCT'ING ÇĒLLS, narrow elongated cells associated with sieve tubes, and similar to them, but without perforated walls.

CÔNDÛCT'ING TĪS'SÛE, tissue composed of conducting cells. Compare CONDUCTIVE TISSUE.

CÔNDÛCT'IVE TĪS'SÛE, that through which the pollen tube passes on its way to the ovary. It is often loose in texture and moist with nutritive fluid for the growth of the pollen tube.

CÔNDÛ'PLICĀTE, folded together forward and lengthwise in any manner; complicate. Compare REPLICATE and INFLEXED.

CÔNE, the fruit of Coniferæ; strobile; also applied in other plants to a fruit or inflorescence resembling the cone of the fir or pine. See GALBULUS.

CÔNFĒRRÛ'MINĀTE, closely united, as the cotyledons of the horse-chestnut.

CÔNFĒR'TĒD, crowded or clustered; opposed to distinct. Compare CONGESTED.

CÔNFĒR'VOID, loose and filamentose, like conferva among algae.

CÔN'FLÛENT, running together or blended into one; coherent.

CÔN'FLÛENT FRUIT, an old term for collective fruit.

CÔNFÔRMĒD', (1) closely resembling; (2) closely fitted to, as the skin to a seed.

CÖN'GĒNĒR, a plant of the same genus as another.

CÖNGĒNĒR'IC, said of two species or individuals which belong to the same genus.

CÖNGĒ'RĪĒS, a collection of parts or organs. (Rare.)

CÖNGĒST'ĒD, packed closely together.

CÖNGLÖ'BĀTE, clustered into a ball.

CÖNGLÖM'ĒRĀTE, clustered together; opposed to Diffuse.

CÖNGLŪ'TĪNĀTE, glued together in a mass.

CÖN'ICAL, in the form of a geometric cone. Said of a root when it tapers downward, or of any other part when it tapers upward or outward. Compare OBCONICAL.

CÖNID'ĪĀ, pl., see CONIDIUM.

CÖNIDĪIF'ĒROŪS, bearing conidia.

CÖNID'ĪOPHÖRE, a branch of mycelium bearing one or more conidia.

CÖNID'ĪOSPÖRE, see CONIDIUM.

CÖNID'ĪŪM (pl. Cōnid'īā), an asexual spore (gonidium) abstricted singly or otherwise from the apex of a filament, as in Peronospora. Applied chiefly where the spores form a dusty or powdery coat, but not used in Hymenomycetes, and in less use elsewhere than formerly, the general term Gonidium being now usually employed instead.

CÖNĪF'ĒROŪS, cone-bearing.

CÖN'ĪFÖRM, see CONICAL.

CÖNĪOÇYST, a term applied by Harvey to the oogonium of Vaucheriae.

CÖN'JŪGĀTE, joined or arranged in pairs, as the leaflets of many

compound leaves; paired. See BINATE.

CÖNJŪGĀ'TION, the simplest method of fertilization, in which the male and female cells are alike or nearly so, as in the order Conjugatae; zygosis. The uniting cells are called gametes and the product a zygote. The conjugation of naked protoplasmic bodies, as zoospores, is sometimes called Coalescence.

CÖNJŪGĀ'TION-ÇĒLL, see GAMETE.

CÖNJŪNC'TĪVE THRĒADS, Fol's term for spindle-fibres, which see.

CÖNNĀS'ÇENT, produced at the same time.

CÖN'NĀTE, said of organs of the same nature which are grown together from the first or united at the base. Compare ADNATE.

CÖN'NĀTE-PĒRFÖ'LĪĀTE, said of a pair of opposite leaves when their bases are united around the stem.

CÖNNĒCT'ING ÇĒLL, Harvey's term for Heterocyst, which see.

CÖNNĒCT'IVE, the part of the anther (being a continuation of the filament) which connects its two lobes.

CÖNNĒCTĪVŪM, see CONNECTIVE.

CÖNNĪ'VENT, converging.

CÖNNŪ'BĪŪM, a term applied by Pringsheim to that stage in the conjugation of Conjugatae in which the protoplasm of the conjugating cells has coalesced.

CÖ'NOĪD, cone-like; conical.

CÖNÖID'AL, somewhat conoid.

CÖNSÖL'IDĀTĒD, (1) grown to-

gether, said either of like or unlike parts; (2) having a small surface in proportion to bulk, as many cacti.

CŌN'SŌRTĪSM, see SYMBIOSIS.

CŌN'STANT, always present, or always in the same condition; uniform.

CŌNSTRĪCT'ĒD, narrowed in certain places.

CŌNSTRŪCTĪVE MĒTĀB'ŌLĪSM, see ASSIMILATION.

CŌNTĀBĒS'CEŅCE, the condition of being wasted away or aborted; said of anthers which contain little or no fertile pollen.

CŌNTĀ'GIOŪS, said of diseases which are communicable from one plant or animal to another by contact only, or by the direct transfer of the disease-producing organism. Strict contagion implies parasitism, the organism being unable to grow outside the supporting body. Compare INFECTIOUS.

CŌNTĒR'MĪNOŪS, of equal extent.

CŌNTĪG'ŪŌŪS, near, or in contact.

CŌNTĪN'ŪŌŪS, uniform in structure or outline; uninterrupted. Said of hyphæ which are without septa, or of objects which are in all parts of the same size, or whose diameter increases or diminishes regularly.

CŌNTŌRT'ĒD, in æstivation, when the margins of the floral leaves successively overlap each other (obliquely or otherwise) in one direction; twisted. Compare CONVOLUTE.

CŌNTŌRT'ĒD ÆSTĪVĀ'TION, see above.

CŌNTŌRT'ION, an abnormal twisting of branches or other organs.

CŌNTŌRTŪ'PLĪCĀTE, twisted and folded.

CŌNTRĀCT'ĒD, narrowed, or the successive parts shortened. Compare CONSTRICTED.

CŌNTRĀCT'ĪLE VĀC'ŪŌLES, small cavities containing a watery fluid which make their appearance in the protoplasm of many zoospores and other motile organisms and then suddenly disappear; pulsating vacuoles. Their function is not known.

CŌNTRĀCTĪL'ITY, a property of protoplasm by which it is enabled to change its form spontaneously, or by virtue of forces within itself. Compare IRRITABILITY.

CŌNTRĀRĪ, extending in an opposite direction to something with which it is compared; as, the pod of shepherd's purse is flattened *contrary* to the partition.

CŌNŪS, see CONE.

CŌN'VŌLŪTE, rolled together lengthwise from one edge, as the leaves of the plum in the bud. The term Contorted (used mainly in æstivation) refers more especially to the relation of the organs to each other and to the axis, while Convolute (used mainly in vernalion) refers more to the manner of folding of the organ itself. A *contorted* corolla may or may not have its parts *convolute*.

CŌN'VŌLŪTĒD, see CONVOLUTE.

CŌP'RŌPHŪTE, see SAPROPHYTE.

CŌR'ĀCŌID, shaped like a crow's beak.

CŌR'ĀLLĪNE, resembling coral; coralliform; coralloid.

CŌR'CLE, see CORCULUM.

CŌR'CŪLŪM, an old term for

plumule, or plumule and radicle together.

CÔR'DÂTE, heart-shaped, as usually pictured, with the point of attachment at the broad end. Applied mainly to leaves.

CÔR'DÂTÈD, see **CORDATE**.

CÔR'DÂTE-HÂS TÂTE, intermediate in form between cordate and hastate, approaching more nearly to hastate.

CÔR'DÂTE-Ô'VÂTE, between cordate and ovate, approaching more nearly to ovate.

CÔR'DÂTE - SÂG'ÎTTÂTE, between cordate and sagittate, approaching more nearly to sagittate.

CÔR'DÎFÔRM, sometimes applied to solid bodies shaped like the human heart. Compare **CORDATE**.

CÔRE, the bony endocarp of a pome containing the seeds.

CÔRIÂ'ÇEOÛS, leathery in texture.

CÔRK, tissue composed of firm elastic cells, generally soon filled with air, which are produced in the bark and upon injured surfaces. It is composed of a modification of cellulose called Suberin, and is designed for protection.

CÔRK-CÂM'BÎÛM, see **PHELLOGEN**.

CÔRK-MËR'ÎSTËM, see **PHELLOGEN**.

CÔRK'ÿ ÊN'VÊLÔPE, see **CORKY LAYER**.

CÔRKY LÂÿ'ËR, the layer of bark immediately below the epidermis which produces the cork; epiphloeum. Compare **MESOPHLOEUM**.

CÔRM, the enlarged base of an herbaceous stem, consisting of one or a few short internodes, and serving for the storage of

starch or other reserve food-materials; pseudo-bulb; solid bulb; bulbo-tuber. It differs from a Tuber mainly in being upright, or more nearly so, and in seldom being produced upon an elongated subterranean stem. The Indian turnip and crocus are examples. Compare **PLATEAU**.

CÔR'MÛS, see **CORM**.

CÔR'MÔPHÛTE, a plant having a true stem. Compare **THALLOPHYTE**.

CÔR'NEOÛS, having the texture of horn.

CÔRNÎC'ÛLÂTE, having a process or appendage like a little spur or horn. Compare **CORNUTE**.

CÔR'NÎFÔRM, horn-shaped.

CÔR'NÛ (pl. *Côr'nûâ*), see **HORN**.

CÔR'NÛTE, horn-shaped, as the nectary of columbine, or bearing a horn-shaped process; corniform. Compare **CORNICULATE**.

CÔR'ÔL (obs.), see **COROLLA**.

CÔRÔL'LA, the conspicuous part of most flowers, being the inner set of floral envelopes when there is more than one, commonly distinguished by its fine texture and by having some other color than green. See **PETAL**, **CALYX**, and **PERIANTH**.

CÔRÔLLÂ'ÇEOÛS, like a corolla in appearance or texture; petaloid. Petaloid is the term usually employed, especially when referring to individual organs.

CÔR'ÔLLÂTE, having a corolla.

CÔR'ÔLLÂTÈD, see **COROLLATE**.

CÔR'ÔLLËT, see **FLORET**.

CÔRÔLLÎFLÔ'RAL, having calyx, petals, and ovary inserted separately on the receptacle and

- the stamens inserted upon the corolla. Compare CALYCIFLORAL and THALAMIFLORAL.
- CÔR'OLLĪNE**, see COROLLACEOUS.
- CÔR'OLLŪLE**, see FLORET.
- CÔRÔNĀ** (pl. *Côrō'næ*), see CROWN.
- CÔR'ONĀTE**, having a corona or crown.
- CÔRÔN'IFÔRM**, having the form of a corona or crown.
- CÔRÔNŪLĀ** (pl. *Côrō'nulæ*), see CORONULE.
- CÔR'ONŪLE**, a diminutive corona or crown.
- CÔR'PŪSCLE**, (1) any very small body; (2) see CORPUSCULUM (in the first sense).
- CÔR'PŪS'CULĀ**, pl., see CORPUSCULUM.
- CÔR'PŪS'CULE**, see CORPUSCULUM.
- CÔR'PŪS'CULAR**, pertaining to or composed of corpuscles or small particles.
- CÔR'PŪS'CULŪM** (pl. *Côrpus'eulā*), (1) an old term for the central cell in the archegonium of Gymnosperms: sometimes applied to the whole archegonium; (2) the connecting body between the arms (retinacula) which bear the pollinia of milkweeds (*Asclepias*).
- CÔR'RUGĀTĒD**, in folds or wrinkles.
- CÔR'TĒX**, that portion of the fundamental tissue lying outside the fibrovascular bundles. In trees it is the "outer bark."
- CÔR'TĪCAL**, pertaining to the bark or cortex.
- CÔR'TĪCAL SHEATH**, the ring of primary bast (phloem) bundles. Compare MEDULLARY SHEATH.
- CÔR'TĪCĀTE**, having a rind or cortex.
- CÔRTĪCĪF'ĒROŪS**, producing bark or cortex.
- CÔRTĪC'ĪFÔRM**, like bark.
- CÔRTĪC'ÔLOŪS**, growing upon the bark of trees, as many mosses and lichens.
- CÔR'TĪCÔSE**, having or resembling bark; corticous.
- CÔR'TĪCÔŪS**, see CORTICOSE.
- CÔRTĪ'NĀ**, the remnant of the veil sometimes found at the border of the pileus or cap in mushrooms.
- CÔR'YMB**, a convex or flat-topped indefinite or centripetal inflorescence, like a raceme with the lower pedicels elongated. Compare CYME.
- CÔR'YMBĀTE**, having corymb, or growing in corymb.
- CÔR'YMBĪF'ĒROŪS**, producing corymb.
- CÔR'YMB'BOSE**, growing in or resembling corymb; corymbous.
- CÔR'YMB'BOŪS**, see CORYMBOSE.
- CÔR'YMB'BŪLOSE**, arranged in small corymb.
- CÔR'YMB'BŪS**, see CORYMB.
- CÔSMÔP'OLĪTE**, a plant widely extended in the world, as *Pteris aquilina*.
- CÔS'TĀ** (pl. *Côs'tæ*), see RIB.
- CÔS'TAL**, pertaining to a rib.
- CÔS'TAL-NĒRVED**, a term sometimes applied to parallel-veined leaves when the veins arise from a midrib and run toward the margins, as in the banana.
- CÔS'TĀTE**, having one or more prominent veins or ribs.
- CÔSTĒL'LĀTE**, having small ribs.
- CÔTŪLĒ'DŌN**, the first leaf or leaves of a plant; seminal-leaf; seed-lobe; seed-leaf. In exogens they are usually different in form from the leaves produced afterward, and are stored with nutritive matter for the young plant.

CÖTYLĚDŌNOŮS, having cotyledons.

CÖTYL'ÍFŌRM, like a cotyle, the articulating cavity of a bone; a little shallower than acetabuliform.

COWLED, see CUCULATE.

CRĀM'PŌN, see HOLD-FAST.

CRĀTĚR'ÍFŌRM, goblet-shaped; narrower than Calathiform and less flaring than Cyathiform.

CREEP'ING, running upon or under ground and rooting; repent.

CRĚM'ŌCĀRP, the fruit of Umbelliferae. Also applied to other fruits of somewhat similar structure, as that of maple. See MERICARP and SCHIZOCARP.

CRĚNĀ, see CRENATURE.

CRĚNĀTE, having the margin furnished with rounded teeth, which usually point toward the apex of the object bearing them; crenated; crenelated; crenelled. See DOUBLY, ACUTELY, and OBTUSELY CRENATE.

CRĚNĀTĚD, see CRENATE.

CRĚNĀTURE, a tooth of a crenate margin; crenel; crena.

CRĚNĚL', see CRENATURE.

CRĚNĚLĀTĚD, see CRENATE.

CRĚNĚLED', see CRENATE.

CRĚNELLED', see CRENATE.

CRĚNĚLĀTE, diminutive of crenate; having the margin furnished with fine rounded teeth.

CRĚNĚLĀTĚD, see CRENULATE.

CRĚST, (1) a partial aril in the form of a ridge along the raphe of some seeds, as Sanguinaria and Dicentra. Compare ARIL, STROPHOLE, and CARUNCLE. (2) An elevated ridge or appendage terminating

any organ: a stamen is crested when the filament (connective) projects beyond the anther.

CRĚST'ĚD, having a ridge or terminal appendage; cristate.

CRĚTĀ'ČEOŮS, (1) of the color of chalk; (2) growing on chalky land.

CRĚB'RĀTE, see CRIBROSE.

CRĚB'RĚFŌRM, see CRIBROSE.

CRĚB'RĚFŌRM ČĚLLS, see SIEVE-TUBES.

CRĚB'RŌSE, pierced with small holes like a sieve; cribriform; cribrate.

CRĚB'RŌSE ČĚLLS, see SIEVE-TUBES.

CRĚNĚTE, having a tuft or fringe of long weak hairs.

CRĚNŌID, resembling a lily.

CRĚSP, having the surface, especially near the margin, strongly and finely undulate, as the leaves of Savoy cabbage or the cultivated endive; curled; crispate; crisped.

CRĚSPĀTE, see CRISP.

CRĚSPĚD, see CRISP.

CRĚS'TĀTE, see CRESTED.

CRĚS'TĀTĚD, see CRESTED.

CRĚT'ICAL, difficult to characterize or classify.

CRŌSS, a union of two varieties of the same species. Applied in a narrower sense to the offspring of any two flowers which have been cross-fertilized. Compare HYBRID.

CRŌSS-ĀRMED, see BRACHIATE.

CRŌSS-BREED, see CROSS.

CRŌSS-FĚRTĚLĚZĀ'TION, the fertilization of a flower by pollen from another flower, especially from one of another variety of the same species; allogamy. Compare CLOSE-FERTILIZATION.

CROSS-POLLINĀTION, the conveyance of pollen to the stigma of another flower.

CROWN, (1) an appendage in the throat of the corolla in some flowers, as *Silene* and *Narcissus*; corona; paracorolla. In some cases it represents a circle of metamorphosed stamens. (2) A ring of cells at the apex of the nucule in *Characeae*. (3) Any circle of organs in the form of a crown, as the scales at the apex of an achene.

CROWN'ING, borne at the apex.

CRŌ'ZIĚR, anything with a coiled end, as the young leaves of most ferns.

CRU'ČIĀTE, in the form of a Maltese cross, as the petals of *Cruciferae*; cruciform; cross-shaped.

CRUČIF'ĚROŮS, (1) belonging to the *Cruciferae* or mustard family; (2) resembling plants of the mustard family, especially in the form of the flower.

CRU'ČIFŌRM, see *CRUCIATE*.

CRŮMPLĚD ĀSTĪVĀ'TION, when the petals are irregularly folded in the bud, as in the poppy.

CRŮ'RAL, somewhat leg-shaped. Used mainly in composition.

CRŮSTĀ'ČEOŮS, said of the thallus of a lichen when it forms an adherent crust which cannot be removed from the substratum without injury.

CRŮP'TŌGĀM, a plant belonging to the lowest of the two chief divisions of the vegetable kingdom, including ferns, mosses, fungi, etc. Cryptogams produce no true seeds or flowers, but in most groups there is a process of fertilization essentially the same as in the higher plants.

CRŮPTŌG'ĀMOŮS, pertaining to cryptogams, or plants having no true flowers or seeds.

CRŮP'TŌPHŮYTE, see *CRYPTOGAM*.

CRŮS'TALLOIDS, protein bodies in the form of crystals; albumen crystals. Applied also in opposition to Colloids to indicate all substances susceptible of crystallization and of diffusion through a membrane. (Graham.)

CŮ'ČŮLLĀTE, conical, with the side cleft, and often inrolled like a cornet of paper, as the spathe of *arum* and the calyptra of some mosses; cuculiform; hooded; hood-shaped; cowed.

CŮČŮL'LĪFŌRM, see *CUCULLATE*.

CŮČŮL'LŮS (pl. *CūčŮl'lī*), a term sometimes given to various hood-shaped organs, especially a concave and arched sepal or petal, as the large upper sepal (galea) of *Aconitum*.

CŮČŮ'MĪFŌRM, having the form of a cucumber.

CŮČŮRBĪTĀ'ČEOŮS, belonging to or resembling plants of the *Cucurbitaceae* or melon family.

CŮL-DĚ'SĀC, a tubular or bag-shaped cavity closed at one end.

CŮLM, the stem of grasses; sometimes applied to that of sedges also.

CŮLMĪC'ŌLOŮS, growing upon the stems of grasses, as certain fungi.

CŮLMĪF'ĚROŮS, producing culms.

CŮL'TRĀTE, shaped like a pruning-knife; broad, thin, pointed, with the end curved edgewise; cultriform.

CŮL'TRĀTĚD, see *CULTRATE*.

CŮL'TRĪFŌRM, see **CULTRATE**.

CŮ'NĒAL, see **CUNEATE**.

CŮ'NĒATE, wedge-shaped in outline. Said of leaves which are broad above and narrowed to the base in straight lines. The same as **Obdeltoid** but usually narrower; cuneiform.

CŮNĒ'ĪFŌRM, see **CUNEATE**.

CŮNĪC'ŪLĀTE, pierced with a long narrow passage or passages.

CŮP, (1) a concave involucre enclosing a nut, as in the acorn; cupule; (2) a discocarp (apothecium) in *Ascomycetes*.

CŮP-SHĀPED, a rather indefinite term, usually applied to cavities from one half to twice as deep as broad, with concave bottom and nearly vertical sides.

CŮ'PŪLĀ, see **CUP**.

CŮ'PŪLĀTE, furnished with a cup or cupule.

CŮ'PŪLE, see **CUP**.

CŮPŪLĪF'ĒROŪS, bearing or furnished with a cupule or cupules.

CŮ'PŪLĪFŌRM, see **CUP-SHAPED**.

CŮRD, applied in horticulture to the material composing the head in cauliflower. Sometimes the heads individually are called "curds."

CŮRLED, see **CRISP**.

CŮRVĪCAU'DĀTE, having a curved tail.

CŮRVĪCŌS'TĀTE, having curved ribs or large veins.

CŮRVĪDĒN'TĀTE, having curved teeth.

CŮR'VĪFŌRM, curved.

CŮR'VĪNĒRVED, having curved nerves. Applied to the veins (so-called nerves) of endogens.

CŮRVĪSĒ'RĪAL, in curved ranks. Compare **RECTISERIAL**.

CUSH'ION, a thickened medial portion of the prothallus in ferns; any pulvinus.

CŮSP, a sharp rigid point.

CŮSPED, see **CUSPIDATE**.

CŮS'PĪDĀTE, furnished with a cusp.

CŮS'PĪS, see **CUSP**.

CŮT, acutely cleft or parted; having acute incisions deeper than **Dentate**. Compare **CLEFT**, **INCISED**, and **LACINIATE**.

CŮ'TICLE, the outer cell-wall of the epidermis when thickened or otherwise modified.

CŮTĪCŪLĀRĪZĀ'TION, the formation of cuticle.

CŮ'TĪN, see **SUBERIN**.

CŮ'TĪS, see **CUTICLE**.

CŮTĪNĪZĀ'TION, the formation of cuticle. Compare **SUBERIZATION**.

CŮT-TŌOTHED, deeply and sharply toothed.

ÇŸĀ'NĒŪS, pure blue. Compare **CÆRULEUS**.

ÇŸĀN'ĪC FLOWĒRS, those whose color contains more or less blue. Compare **XANTHIC FLOWERS**.

ÇŸĀN'ŌPHŸLL, see **PHYLLOCYANIN**.

ÇŸĀTH'ĪFŌRM, wine-glass shaped. Compare **COTYLIFORM** and **ACETABULIFORM**.

ÇŸĀTH'ĪŪM, a corolla-like involucre, as in *Euphorbia*.

ÇŸĀTHŌID, see **CYATHIFORM**.

ÇŸ'CLE, a complete turn in a spire or circle.

ÇŸC'LĪC, having the floral organs in distinct whorls. Compare **HEMICYCLIC** and **ACYCLIC**.

ÇŸC'LĪCAL, coiled into a full circle.

ÇŸCŁŌ'SĪS, see **ROTATION**.

ČYCLŌSPĚR/MOŮS, having the embryo coiled around the central albumen, as in the Caryophyllaceæ.

ČYLĪNDRĀČEOŮS, nearly cylindrical.

ČYLĪN'DRĪCAL, circular in transverse outline and tapering but little if at all, as most stems.

ČY'MĀ, see CYME.

ČY'M'BĚFŌRM, see NAVICULAR.

ČY'M'BĪFŌRM, see NAVICULAR.

ČYME, a somewhat flat-topped determinate inflorescence resembling a corymb.

ČYME LĚT, see CYMULE.

ČYMIĚ'ĚROŮS, producing cymes.

ČYMO-BŌT'RYS, a mixed inflorescence in which the primary inflorescence is botryose while the secondary is cymose, as in the horse-chestnut.

ČY'MOID, having the form of a cyme.

ČY'MŌSE, growing in cymes; cymous; or cymoid.

ČY'MŌSE INFLŌRĚS'ČENCE, a cyme or other determinate inflorescence.

ČY'MŌSE ŪM'BĚL, one having the inflorescence centrifugal; a cyme resembling an umbel. Umbels are usually botryose (centripetal) in inflorescence.

ČY'MOŮS, see CYMOSE.

ČY'MŪLA, see CYMULE.

ČY'MŪLE, a little cyme, or division of a compound cyme. Sometimes applied to the verticillasters of Labiatæ.

ČYNĀRRHŌ'DĪUM, a fruit-like body, like the hip of roses, consisting of several achenia enclosed in a fleshy receptacle.

ČYNĀR'RHŌDŌN, see CYNARRHODIUM.

ČYPĚRĀČEOŮS, resembling or

pertaining to plants of the family Cyperaceæ.

ČYPHĚL'LĀ (pl. *Cyphēl'lā*), a kind of pit in the under-surface of the thallus of some lichens. *Cyphellæ* sometimes appear as spots or as elevations. Their nature is unknown.

ČYPHĚL'LĀTE, having *Cyphellæ*.

ČYP'SĚLĀ, an achenium with an adherent calyx-tube, as in Composite. (Obs.)

ČYST, a closed sac, especially one abnormally produced, or whose nature is not understood.

ČYS'TĪD (pl. *Čystīds* or *Čys'tīdēs*), a large sterile club-shaped cell common among the basidia in some agarics.

ČYSTĪD'ĪŪM (pl. *Čystīd'īā*), see CYSTID.

ČYS'TŌBLĀST (obs.), see NUCLEUS.

ČYS'TŌCĀRP, an old term for the Sporocarp of Floridææ.

ČYS'TŌLĪTH, a cluster of crystals of calcium carbonate in a cell upon a stalk of cellulose. Common in the leaves of the nettle family (Urticaceæ).

ČYTĀS'TĚR, a series of achromatic rays extending from each pole of the nucleus in karyokinesis into the cytoplasm. Rarely seen as yet in plants.

ČYTĚN'CHYMA, see CELL-SAP.

ČYT'ĪŌDĚRM, the cell-wall in Diatomaceæ.

ČYTŌBLĀST (Schleiden), see NUCLEUS.

ČYTŌDIĚR'ĚSĪS, cell-division, involving division of the nucleus with the formation of a nu-

clear-spindle and asters. (Carnoy.) Compare STENOSIS.

CYTŌGĚN'ĚSIS, cell-formation.

CYTŌL'ŌGŮ, the science of cells.

CYTŌPLĀSM, the protoplasm in a cell outside the nucleus. It excludes granules of protein, starch, etc. Compare NUCLEOPLASM.

DĀRWĪN'IAN CŮR'VĀTURE, the curvature of the growing apex of a root away from any source of irritation placed upon one side near the tip. It is the irritability which causes this curvature that enables growing roots to pass around obstacles in the soil.

DAUGH'TĚR-CELL, any cell when mentioned in relation to the one from which it was derived. Compare MOTHER-CELL.

DAUGH'TĚR-SPŌRE, a spore produced directly from another, or upon a promycelium.

DAUGH'TĚR-STĀR, one of the groups of chromatic filaments at the poles of a dividing nucleus. The two polar figures together with the connecting spindle-fibres are called a Dyaster.

DĚĀL'BĀTE, appearing as if whitewashed; covered with a very white bloom or powder.

DĚCĀGŮN'IAN, see DECAGYNOUS.

DĚCĀG'YNOŮS, having ten pistils or styles; decagynian.

DĚCĀM'ĚROŮS, having the parts in tens, as ten floral organs in a whorl. Also written 10-merous.

DĚCĀN'DRIAN, see DECAN-DROUS.

DĚCĀN'DROŮS, having ten stamens; decandrian.

DĚCĀPĚT'ALOŮS, having ten petals.

DĚCĀPHŮL'LOŮS, having ten leaves, as a *decaphyllous* perianth.

DĚĚMDĚN'TĀTE, having ten teeth or tooth-like processes.

DĚĚM'FID, ten-cleft.

DĚĚMLŌC'ŮLAR, having ten loculi or cells in an ovary.

DĚĚD'ŮOŮS, falling at the usual time, or at the close of the season. Applied to leaves which fall in autumn after one season's growth, and to plants which bear such leaves. Also applied to petals which fall immediately after blossoming. Compare CADUCOUS, MARCESCENT, PERSISTENT, and EVERGREEN.

DĚC'LĪNĀTE, bent or curved downward; declining; declined. Applied to stamens it means curved to one side, neither outward nor inward nor erect. Compare RECURVED, REFLEXED, RECLINATE.

DĚCLĪNĚD', see DECLINATE.

DĚCLĪ'NOŮS, see DECLINATE.

DĚCŌMPOUND', twice compound, as a compound leaf whose parts are compound. See SUPRADECOMPOUND.

DĚCRĚĀS'INGLŮ - PĪN'NĀTE, having the leaflets of a pinnate leaf gradually smaller in size from base to apex.

DĚCŮMBENT, erect at the base, then prostrate, with the end rising.

DĚCŮR'RENT, prolonged and attached below the main point of insertion, as the leaves of thistles; decursive. The stems in such cases are often called Winged. Compare SURCURENT.

DĚCŮR'SĪVE, see DECURRENT.

DĒCŪRSĪVELŸ-PĪN'NĀTE, apparently pinnate, but having the segments decurrent along the rachis.

DĒCŪS'SĀTE, said of leaves which grow in pairs successively at right angles to each other. Compare BRACHIATE.

DĒCŪS'SĀTĒD, see DECUSSATE.

DEDOUBLEMENT [Day-doo-bl-i-mān], see CHORISIS.

DĒDŪPLICĀ'TION, see CHORISIS.

DĒF'ĒRENT, carrying anything downwards.

DĒF'ĪNĪTE, (1) having a constant, fixed, or limited, number; in stamens not exceeding twenty; (2) the same as DETERMINATE, which see.

DĒF'ĪNĪTE GRŌWTH, see DETERMINATE GROWTH.

DĒF'ĪNĪTE ĪNFLŌRĒS'ÇENCE, see DETERMINATE INFLORESCENCE.

DĒFLĒCT'ĒD, see DEFLEXED.

DĒFLĒXED', bent abruptly to one side or outward at an angle of forty-five degrees or less; deflected. Compare REFRACTED and RECURVED.

DĒFLŌ'RĀTE, past the flowering state, as an anther after it has shed its pollen, or a plant or flower after the petals have fallen.

DĒFŌ'LIĀTE, having cast its leaves.

DĒFŌ'LIĀ'TION, the fall of leaves.

DĒF'ŌRMĀ'TION, an alteration in the usual form of an organ, by accident or otherwise; malformation.

DĒGĒNĒRĀ'TION, deficiency in size or quality, or appearing in a less developed or lower state, as when scales take the place of leaves, or petals the place of stamens; degradation.

DĒGRĀDĀ'TION, see DEGENERATION.

DĒHĪSÇE', to open for the escape of seeds, spores, etc.

DĒHĪS'ÇENCE, the opening in a regular manner of certain fruits to discharge their seeds, and of anthers and spore cases to discharge their contents.

DĒHĪS'ÇENT, opening in a regular manner to discharge the contents, as most pods to liberate the seeds. Compare INDEHISCENT.

DĒLĪMĪTĀ'TION, see ABJUNCTION.

DĒLĪQUĒS'ÇENT, dissolving. Said of a tree which branches repeatedly, so that the main stem is lost. Compare EXCURRENT. Also applied to fungi which dissolve at maturity by the absorption of moisture from the air, as some mushrooms.

DĒL'TŌID, nearly in the shape of an equilateral triangle, or the Greek letter delta. When applied to leaves it implies that the attachment is at the broad end, otherwise the term Obdeltoid is used.

DĒMĒRSED', growing constantly or naturally under water; immersed; submersed.

DĒN'DRĪFŌRM, tree-shaped.

DĒNDRĪT'IC, branched like a tree; dendriform.

DĒN'DRŌID, tree-shaped; dendriform; dendritic; arborescent; applied to small plants, such as mosses, which branch like a tree or shrub.

DĒNDRŌL'ŌGŸ, the natural history of trees.

DĒN'ĪGRĀTE, dark dusky brown.

DĒNSE, crowded together.

DĒN'TĀTE, having broad acute

marginal teeth which are usually directed outward. Compare **SERRATE** and **CRENATE**.

DĚN'TĀTĚD, see **DENTATE**.

DĚN'TĀTE-ČĪL'ĪĀTE, having the margin dentate and fringed.

DĚN'TĀTE-CRĚ'NĀTE, (1) having part of the margin dentate and the remainder crenate; (2) intermediate between dentate and crenate, i.e., having somewhat rounded teeth.

DĚN'TĀTE-LĂČĪN'ĪĀTE, having the teeth extended into long lax points.

DĚN'TĀTE-SĚR'RĀTE, (1) intermediate between dentate and serrate; having the teeth directed but slightly forward; (2) having part of the margin dentate and the remainder serrate.

DĚN'TĀTE-SĪN'ŪĀTE, having broad shallow sinuses between the teeth of a dentate margin.

DĚNTĀTŌ-SĚR'RĀTE, see **DENTATE-SERRATE**.

DĚNTĀTŌ-SĪN'ŪĀTE, see **DENTATE-SINUATE**.

DĚN'TĪCLE, a small tooth or projecting point.

DĚNTĪCŪĀTE, having small teeth or notches; finely dentate.

DĚNTĪCŪĀ'TION, (1) the state of being denticulate; toothed; (2) one of the teeth of a denticulate leaf.

DĚN'TĪFŌRM, see **DENTOID**.

DĚN'TŌID, tooth-shaped.

DĚNŪDĀTE, deprived of the usual covering, especially of a coating of down or hair. The term has been applied with little reason to plants whose flowers appear before their leaves.

DĚŌPĚR'CŪĀTE, applied to

moss capsules in which the lid does not separate spontaneously to liberate the spores. Compare **DISOPERCULATE**.

DĚPAU'PĚRĀTE, said of a plant or part of a plant which is reduced in size from lack of nutriment, or apparently so; starved; stunted; undeveloped.

DĚPĚND', to hang directly downward.

DĚPLĀNĀTE, flattened vertically and expanded. Both sides may be flattened (**Complanate**) or only the upper. (Rare.) See **EXPLANATE**, **DEPRESSED**, and **COMPLANATE**.

DĚPRĚSSED', more or less flattened vertically or endwise; oblate. Also applied to any part having a lower position than usual, as a leaf whose disk is lower than the margin, as in some water lilies.

DĚPRĚSSED'-GLŌ'BŌSE, globular with the poles slightly flattened; oblately spheroidal.

DĚRĪV'ĀTĪVE-HYBRĪD, a hybrid of which one or both the parents is a hybrid; secondary hybrid.

DĚRMĀT'ŌGEN, the primordial epidermis, i.e., the epidermis in an organ when first formed and still capable of cell-division.

DĚRMĀT'ŌPHŪTE, any fungus parasitic upon the skin of man or other animals, as *Trichophyton tonsurans*, the fungus which causes ringworm.

DĚSCĚND'ING, directed downward in any degree.

DĚSCĚND'ING ĀX'IS, root.

DĚSCĚND'ING MĚTĀMŌR'PHŌSĪS, see **RETROGRESSIVE METAMORPHOSIS**.

DĚSCĚND'ING SĀP, a term formerly applied to cambium

when in a soft mucilaginous condition, from the supposition that the sap passed in a current upward in the wood to the leaves, then downward between the wood and bark. See PROPER JUICE.

DĚSČRĪP'TĪVE BŌT'ĀNÝ, see PHYTOGRAPHY.

DĚSTRŮC'TĪVE MĚTĀB'ŌLIŠM, the chemical changes which take place during the waste of tissues. Compare ASSIMILATION.

DĚSTRŮC'TĪVE PĀR'ĀSITE, one which causes the death of the tissues of the host upon which it feeds.

DĚTĚR'MĪNĀTE GRŌWTH, when the season's growth ends in a well-formed bud.

DĚTĚR'MĪNĀTE ĪNFLŌRĚS-ČENČE, one in which the flowering begins with a terminal bud so that it puts a limit to the elongation of the stem; centrifugal or definite inflorescence.

DĚTĚR'MĪNĀTION, the discovery of the botanical name of a plant, or of its position in a system if unnamed; identification. It implies some knowledge of its characters acquired by a more or less complete analysis, and is frequently completed by the aid of a systematic key.

DĚŮ'TŌPLĀŠM, the portion of the cell contents aside from the protoplasm proper, consisting of cell-sap in which may be granules or other substances; paraplasm. Compare METAPLASM.

DĚX'TRŌRSE, twining upward from left to right, with the sun or hands of a watch, as the hop. Used in the opposite sense, however, by most Eng-

lish and American botanists. Compare SINISTROSE.

DĪĀCHĚ'NĪŮM, see MERICARP.

DĪĀCH'YMA (obs.), see MESOPHYLLUM.

DĪĀDEL'PHĪAN, see DIADELPHOUS.

DĪĀDEL'PHŌŮS, having filaments united by their edges in two sets (one of which may be only a single stamen), as in the pea.

DĪĀGEŌT'RŌPĪŠM, a kind of geotropic irritability in certain organs, as rootstocks, which causes them to assume a horizontal position; transverse geotropism.

DĪĀGNŌ'SĪS (pl. *Diagnō'sēs*), a brief characteristic description of a plant or species.

DĪĀGNŌST'IC CHĀR'ĀCTĚR, see ESSENTIAL CHARACTER.

DĪĀG'ŌNAL PLĀNES, the two planes which bisect the right angles between the median and lateral planes. See MEDIAN PLANE and LATERAL PLANE.

DĪĀG'ŌNAL PŌŠ'TION, a position intermediate between the median and the lateral plane and bisected by the diagonal plane.

DĪ'ĀGRĀM, FLŌ'RAL, see FLO-
RAL DIAGRAM.

DĪĀHĒLIŌT'RŌPĪŠM, the tendency of organs to place their surfaces at right angles to the sun's rays, as most leaves; transverse heliotropism.

DĪĀLYCĀR'POŮS, see APOCARPOUS.

DĪĀLYPĚT'ALOŮS, see POLYPETALOUS.

DĪĀLYPHYL'LOŮS, see POLYSEPALOUS.

DĪĀLYSĚP'ALOŮS, see POLYSEPALOUS.

DĪĀL'YSĪS, the separation of organs usually joined; adesmy.

When applied to parts of a flower it refers to the separation of organs of the same whorl from each other, as when a normally gamopetalous corolla has its petals distinct. Compare SOLUTION.

DĪAMESŌG'AMOŪS, fertilized by the aid of some external agent, as wind, water, or insects.

DĪĀN'DRĪAN, see DIANDROUS.

DĪĀN'DROŪS, having two stamens.

DĪĀPH'ANOŪS, transparent, or nearly so.

DĪĀPHRĀGM, any dividing membrane or partition; septum. The term is usually applied to the septum at the node of a hollow-stemmed grass.

DĪĀP'HŪSĪS, an old term for the proliferation of a flower.

DĪĀSTĀSE, a ferment generated in germinating seeds, etc., which assists in the transformation of starch into sugar.

DĪĀS'TĒR, see DYASTER.

DĪĀT'ŌMĪNE, see PHYCOXANTHINE.

DĪCĀE'PELLĀRŪ, of two carpels; digynous.

DĪCHĀ'SĪŪM (pl. *Dichā'siā*), a false dichotomy in which two lateral shoots of nearly equal strength arise beneath the apex which bears a flower; biparous, dichotomous, or forked cyme. Compare COMPOUND DICHASTUM.

DĪCHĀS'TĪC, spontaneously dividing.

DĪCHLĀMŪD'ĒOŪS, having both calyx and corolla.

DĪCHŌG'AMOŪS, having flowers in which the stamens and pistils mature at different times; either protandrous or protogynous. Compare SYNACMIC.

DĪCHŌT'ŌMAL FLOWER, one seated in the fork of a dichasium.

DĪCHŌT'ŌMĪZE, to fork.

DĪCHŌT'ŌMOŪS, forked; furcate; bifurcate.

DĪCHŌT'ŌMŪ, forking into two branches of the same nature and usually of about the same size. True dichotomy is caused by the cessation of the previous increase in length of a member at the apex, and its continuance in two diverging directions from two newly constituted apices. Compare HELICOID and SCORPIOID DICHOTOMY.

DĪCLĒ'SĪŪM, a name formerly applied to an achenium having an adherent calyx, as in *Mirabilis*.

DĪC'LĪNOŪS, having the stamens and pistils in separate blossoms—either monœcious or dicecious; separated; digamous; unisexual.

DĪCŌC'COŪS, having an ovary consisting of two closed carpels or cocci with one seed in each, as in the *Umbelliferae*.

DĪÇE'LOŪS, having two cavities.

DĪCŌTŪLĒD'ŌNOŪS, having two cotyledons.

DĪD'ŪMOŪS, in pairs.

DĪDŪNĀ'MĪAN, see DIDYNAMOUS.

DĪDŪN'AMOŪS, having two long and two short stamens. Compare TETRADYNAMOUS.

DĪĒ'ÇIOŪS, see DICECIOUS.

DĪF'FLŪENT, readily dissolving. Compare DELIQUESCENT.

DĪFFŌRME'D', of unusual shape.

DĪFFRĀCT', said of a lichen thallus which is broken into areolæ separated by clefts or chinks.

DĪFFŪSĒ', spreading widely, loosely, and irregularly. Compare **EFFUSE**.

DĪFFŪ'SĪON, the spontaneous mixture of one liquid with another, or of any dissolved or finely divided substance or any liquid through a liquid or solid. Compare **OSMOSE**.

DĪĠ'ĀMOŪS, see **DICLINOUS**.

DĪĠ'ĒNOŪS, containing both sexes or produced sexually. (Rare.)

DĪĠ'ĪTĀTE, having several parts radiating from one point, or nearly so, somewhat like the fingers on one's hand. Applied in grasses where several spikes radiate from nearly the same point, as in crab-grass (*Sanguinaria*). In leaves it is the same as **Palately-compound**. Compare **PEDATE**.

DĪĠ'ĪTĀTE-PĪN'NĀTE, having a digitate leaf with pinnate leaflets.

DĪĠ'ĪTĀTE-VEINED, see **PAL-MATELY-VEINED**.

DĪĠ'ĪTĪFŌRM, see **DIGITATE**.

DĪĠ'ĪTĪNĒRVED, see **PAL-MATELY-VEINED**.

DĪĠ'ONŪS, two-angled, as the stems of some cacti.

DĪĠ'YN'ĪAN, see **DIGYNOUS**.

DĪĠ'YNOŪS, having two pistils, styles, or stigmas in a flower. Generally the same as **Dicarpelary**.

DĪLĀMĪNĀ'TION, see **CHORISIS**.

DĪLĀT'ĒD, expanded or widened.

DĪM'ĒROŪS, having the parts in twos, as two sepals, two petals, two stamens, and two pistils in a flower.

DĪMĪD'ĪTE, halved, or appearing as if one side or one half were wanting, as a leaf which

is developed on one side of the midrib only. Compare **OB-LIQUE**. Applied also to the calyptra of mosses when divided along one side. The term is also applied to bodies which are actually halved or divided into two parts, and to those in which one side differs from the other in function.

DĪMŌR'PHŪS, existing under two forms, as two forms of leaves, sterile and fertile, on one plant in ferns. Applied especially to heterogonous plants having two forms of flowers on separate individuals, one with long stamens and short styles and another with short stamens and long styles. Compare **TRIMORPHOUS**.

DĪĒ'ĠIAN, see **DICĒIOUS**.

DĪĒ'ĠIOŪS, having stamens and pistils in separate flowers upon different individuals.

DĪĒ'ĠIOŪSLŸ PŌLYĠ'ĀMOŪS, when some of the flowers in diœcious plants are perfect. Each set of plants may have perfect as well as unisexual flowers, or one set may have all perfect flowers and the other all staminate or all pistillate; polygamo-diœcious.

DĪ'ŌSMŌSE, see **OSMOSE**.

DĪPĒT'ALOŪS, having two petals in a flower.

DĪPHŸL'LOŪS, two-leaved. Having two leaves, leaflets, or leaf-like parts. Sometimes used for **Disepalous**.

DĪPLĀN'ĒTĪSM, the property of being twice active with an intervening period of rest. It occurs in the zoöspores of certain genera of *Saprolegniæ* in which the zoöspores escape without cilia from the sporangium and come to rest in a

cluster each forming a cell-wall. After some hours of rest the protoplasm of each spore escapes from its cell-wall, acquires cilia, and enters upon a period of active movement.

DĪP'LŌĒ, see **MESOPHYLL**.

DĪPLŌGĒN'ĒSĪS, the duplication of parts normally single.

DĪPLŌPĒRĪS'TŌMOŪS, said of the capsule in mosses when the peristome consists of a double row of teeth. Compare **APLOPERISTOMOUS**.

DĪPLŌSTĒM'ŌNOŪS, having the stamens in two whorls, those of each whorl equal in number to the petals, which are in one whorl. Compare **ISOSTEMOUS**.

DĪPLŌTĒ'GIŪM (pl. **DĪplōtē'giā**), an inferior capsule, as in *Campanula*.

DĪP'TĒROŪS, two-winged.

DĪRĒC'TION-ĈĒLLS, see **POLAR CELLS**.

DĪRĒC'TION-CŌR'PŪSĈLES, see **POLAR CELLS**.

DĪRĒC'T' MĒTĀMŌR'PHŌSĪS, see **PROGRESSIVE METAMORPHOSIS**.

DĪRĒC'T' SŪPĒRPOŠĪ'TION, the situation of accessory buds in an axil above the leading bud or one first formed, as is usually the case in superposition. Compare **INVERTED SUPERPOSITION**.

DĪRĒMPTION, see **DISPLACEMENT**.

DĪSĀRTĪC'ŪLĀTE, to separate at an articulation or joint, as most leaves in autumn.

DĪSC, see **DISK**.

DĪSĈĪFŌRM, disk-shaped; flat and circular.

DĪSĈĪG'ĒROŪS, disk-bearing, as the woody tissue of conifers.

DĪS'CŌCĀRP, an ascocarp in which the hymenium lies exposed while the asci are maturing, as in *Peziza*. The term has also been applied to fruits like the rose and fig, in which the receptacle is expanded and forms the main part of the fruit, enclosing the seeds or achenia.

DĪSCŌID, disk-shaped; flat and circular; belonging to the disk, as the central florets in a head of *Compositæ*.

DĪS'CŌID FLOWĒR, a head of flowers in *Compositæ* in which each flower is tubular.

DĪS'CŌID MĀRK'ING, see **BORDERED PIT**.

DĪSCŌL'ŌR, of more than one color; variegated; especially having the two surfaces of a leaf differing in color, as in the *begonias*. Compare **UNICOLOR** and **CONCOLOR**.

DĪSCOŪS, disk-shaped.

DĪSCRĒTE', distinct; separate. Compare **CONCRETE**.

DĪS'CŪS, see **DISK**.

DĪSĒP'ALOŪS, of two sepals.

DĪSK, any flat, circular area: the central part of such an area or of any flat body as opposed to the border; disc. Especially (1) the central part of a head of flowers in *Compositæ*, generally bearing tubular florets only; (2) the portion of the receptacle of a flower between the stamens and pistil, often more or less dilated and serving as a nectary; (3) a circular bordered pit, as in *Coniferæ*; (4) the circular adhesive base (*retinaculum*) of a *pollinium*.

DĪSK FLŌ'RĒT, see **TUBULAR FLORET**.

DĪSK' FLOWĒR, see **TUBULAR FLORET**.

DĪSK'-SHĀPED, flat and more or less circular; discoid.

DĪSLŌCĀ'TION, see **DISPLACE-MENT**.

DĪSŌPĒR'CŪLĀTE, having lost the operculum or lid. Compare **DEOPERCULATE**.

DĪSPLĀCE'MENT, the situation of an organ out of its normal position; dislocation; diremp-tion.

DĪSSĒCT'ĒD, cut deeply into many lobes or divisions. Compare **LACINATE** and **DIVIDED**.

DĪSSĒMĪNĀ'TION, the natural dispersion of seeds.

DĪSSĒP'IMENT, one of the double walls separating the cells of a syncarpous ovary; septum. Compare **FALSE DISSEPIMENT**.

DĪSSĪL'IENT, dehiscing with elastic violence, as the pod of *Impatiens*.

DĪSSŌCĪĀ'TION, separation.

DĪS'TAL, pertaining to the apex or outer extremity. Compare **PROXIMAL**.

DĪS'TANT, having larger intervening spaces than usual. Opposed to **Dense** or **Approximate**.

DĪS'TĪCHOŪS, two-ranked, as the leaves of grasses. Applied also to leaves arranged like those of the fir, which are turned in two directions, though not inserted oppositely in the same plane. In this latter sense **Bifarious** is somewhat the better term.

DĪSTĪNCT', when parts of the same kind are unconnected; opposed to **Coherent**. Compare **FREE**.

DĪSTRĀC'TILE, widely separated. Applied mainly to anthers in which the connective is developed so as to keep the lobes wide apart, as in *Salvia*.

DĪTRĪCHŌT'ŌMOŪS, dividing into two or three branches.

DĪŪR'NAL, said of flowers which open in the day and close at night.

DĪŪR'NAL SLEEP, see **PARAHELIOTROPISM**.

DĪVĀR'ICĀTE, diverging at a wide angle.

DĪVĒR'GENCE, see **ANGLE OF DIVERGENCE**.

DĪVĒRSĪFLŌ'ROŪS, having flowers of two or more forms.

DĪVĪD'ĒD, having incisions extending to the midrib. Compare **CLEFT** and **PARTED**.

DŌDĒCĀG'YNOŪS, having twelve pistils.

DŌDĒCĀM'ĒROŪS, having the floral organs in twelves; 12-merous.

DŌDĒCĀN'DROŪS, having twelve stamens.

DŌDĒCĀPĒT'ĀLOŪS, having twelve petals.

DŌLĀB'RĪFŌRM, having the form of an axe or hatchet, as the leaves of *Mesembryanthemum dolabriforme*.

DŌMĒS'TICĀTĒD, introduced and found to thrive and reproduce itself under cultivation. It does not necessarily imply any change of character.

DŌR'MANT BŪD, one which is poorly developed and which under ordinary circumstances will not grow into a branch. Often the first-formed buds on a season's growth are of this character; latent bud.

DŌR'MANT STĀTE, the condition of a living plant during winter, or other definite period of cessation from active growth; latent period.

DŌR'SAL, pertaining to the back, or situated upon the back. The dorsal surface of a leaf or other foliar organ is the anterior,

outer, or normally lower surface. Some botanists, however, apply the term dorsal to the upper surface. Compare VENTRAL.

DÔR'SAL SŪ'TŪRE, one situated at the midrib of the carpellary leaf.

DÔRSĪCŪM'BENT, see SUPINE.

DÔRSĪF'ĒROŪS, bearing the fruit upon the back, as the spores of many ferns; dorsiparous.

DÔRSĪP'ĀROŪS, see DORSIFEROUS.

DÔRSĪVĒN'TRAL, having a distinct front and back, as leaves.

DÔR'SŪM, the back of any organ: the outer or lower surface of leaves or parts of a flower. See also DORSAL.

DÔR'TŶ, (Hort.), delicate; difficult to cultivate. (Rare.)

DÔT'TĒD, see PUNCTATE.

DÔT'TĒD DŪCT, see PITTED VESSEL.

DOÛB'LE, having more than one whorl of petals. A flower is completely double when all the essential organs are replaced by petals.

DOÛB'LY-CÔM'POUND, twice compound, as bipinnate or bipalmate.

DOÛB'LY-CRĒ'NĀTE, having the crenatures or teeth of a crenate leaf again crenate.

DOÛB'LY-DĒN'TĀTE, having the teeth of a dentate leaf dentate. Compare BIDENTATE.

DOÛB'LY-PĪN'NĀTE, see BIPINNATE.

DOÛB'LY-SĒR'RĀTE, having small serratures upon the large ones, as in the elm. Compare BISERRATE.

DOÛB'LY-TĒR'NĀTE, see BITERNATE.

DOÛB'LY-TOŌTHED, having the teeth themselves toothed, as in Doubly-dentate.

DOWN, soft short pubescence.

DOWN'Ŷ, having a dense covering of short weak hairs.

DRAWN, elongated by absence of light, as plants which are crowded together.

DRĒP'ĀNĪFŌRM, see FALCATE.

DRŌOP'ING, inclining downward more than cernous and less than pendent or pendulous.

DRŪPĀ'CEOŪS, like, or pertaining to, a drupe; producing drupes, as *drupaceous* trees.

DRŪPE, a stone-fruit, as the peach, almond, and cherry. It consists of one carpel, with usually a single seed surrounded by a thickened bony endocarp called the pit or stone.

DRŪ'PEL, a very small drupe, as the so-called seeds of the blackberry.

DRŪPE'LĒT, see DRUPEL.

DŪ'BĪŪS, doubtful.

DŪCT, see VESSEL.

DŪL'CĪS, devoid of acidity; sweet.

DŪMŌSE', having the form of a bush or low compact shrub.

DŪ'MŪS, see BUSH.

DŪ'PLĪCĀTE, doubled or folded.

DŪ'PLĪCĀTE-CRĒ'NĀTE, see DOUBLY-CRENATE.

DŪ'PLĪCĀTE-DĒN'TĀTE, see DOUBLY-DENTATE.

DŪ'PLĪCĀTE-SĒR'RĀTE, see DOUBLY-SERRATE.

DŪRĀ'MĒN, heart-wood; the central portion of the trunk of most exogens, consisting of wood of darker color and denser texture than the outer newer layers, and possessing

the characteristic color of the species.

DWARF, habitually attaining much less than the ordinary size of related species or varieties; nanus. Compare **HUMILIS** and **DEPAUPERATE**.

DWARF MALES, very small individuals in *Edogoniæ*, originating from special swarm-spores called androspores, and producing only antherozoids.

DYÁS'TÉR, a stage of karyokinesis succeeding the monaster or mother-star stage and ending with the formation of the daughter-skeins. During this stage the chromatic filaments are grouped about the poles, the two groups (asters) being more or less united by the spindle-fibres or conjunctive threads. See **DAUGHTER-STAR**.

Ė- or **ĖX**-, a prefix meaning destitute of, outside of, or away from.

ĖAR, a prominent lobe, as those at the base of the leaf in sorrel (*Rumex acetocella*).

ĖARED, see **AURICULATE**.

ĖBĖ'NĖOŮS, black like ebony.

ĖBRÁC'TĖĀTE, without bracts.

ĖBŮR'NĖOŮS, ivory-white.

ĖCĀL'CĀRĀTE, without a spur.

ĖCAU'DĀTE, without a tail or tail-like appendage.

ĖCBLĀSTĖ'SĪS, the production of buds within a flower in consequence of lateral proliferation.

ĖCCĖN'TRĪC, out of the centre or axis; not having the same centre; when the centre or axis of growth does not coincide with that of the mass, as in most starch-grains, or in trees which develop more rapidly on one side than on the other.

ĖCH'INĀTE, spiny or prickly.

ĖCHĪN'ŪLĀTE, diminutive of *Echinatē*; having small prickles.

ĖĖĪD'IŪM, see **ÆCIDIUM**.

ĖĖŌNŌM'ĪC BŌT'ĀNŲ, the classification of useful and injurious plants, and the study of all botanical questions having a practical bearing. See **AGRICULTURAL BOTANY**.

ĖĖŌS'TĀTE, without a rib.

ĖĖTŌGĖ'NĪC, capable of living outside of an animal body. Said of certain disease-producing organisms, as the bacillus of anthrax.

ĖĖTŌPLĀSM, a hyaline layer of protoplasm free from granules next to the cell-wall; hyaloplasm.

ĖĖTŌSPŌRE, see **BASIDIOSPORE**.

ĖĖTŌSPŌ'ROŮS, see **EXOSPOROUS**.

ĖĖTŌTHĖ'CAL, gymnocarpous, as applied to *Ascomycetes*. (Rare.)

ĖĖĖN'TĀTE, without teeth, as an entire leaf.

ĖĖGED, see **MARGINATE**.

ĖĖFĖTE', exhausted; no longer productive or fruitful; past the bearing age.

ĖĖFLŌRĖS'ĖENCE, the time or act of flowering.

ĖĖFŪSE', spreading loosely, especially on one side, as the panicle of *Juncus effusus*. Compare **DIFFUSE** and **SECUND**.

ĖĖG-ĀPPĀRĀ'TŪS, a group of three nucleated bodies at the upper end of the embryo-sac, which together with the upper polar nucleus correspond with the antipodal cells. The central deeper cell of the egg-apparatus becomes the oosphere, the others form the elongated

synergidæ; germinal apparatus.

ĚGG-ĈĚLL, see OÖSPHERE.

ĚFUL'CRĀTE, said of buds from below which the leaf has fallen. (Rare.)

ĚGLĀN'DŪLŌSE, without glands.

Ě'GRĚT, see AIGRET.

ĚIS'ŌDAL, anterior. Applied to the outer or anterior part of the opening of a stoma. Compare OPISTHODAL.

ĚJĚC'TION, throwing out with force, as spores from a sporangium or seeds from a pod. Compare ABJECTION.

ĚLĀBŌRĀ'TION, a term applied to the changes which take place in plant-food after it is absorbed, to prepare it for the use of the plant. Compare ASSIMILATION and METASTASIS.

ĚL'ĀTĚR, a term for various elastic, usually spiral, bodies which serve for the dispersion of spores, as those in the capsules of mosses and liverworts and those attached to the spores of Equisetum.

ĚLĀTĚRĪŪM, a term sometimes applied to fruits which discharge their seeds by means of elastic carpels, as in certain Euphorbias; regma.

ĚLEŪTHĚRŌPĚT'ĀLOŪS, see APOPETALOUS.

ĚLEŪTHĚRŌPHŪL'LOŪS, see APOPHYLOUS.

ĚLEŪTHĚRŌSĚP'ĀLOŪS, see APOSEPALOUS.

ĚLLĪPSŌID'ĀL, nearly elliptical in outline.

ĚLLĪP'TĪCAL, oblong, and rounded at the ends; longer than oval.

ĚLLĪP'TĪC-LĀN'ĈĚŌLĀTE, intermediate between elliptical and

lanceolate, but approaching the latter.

ĚLŌC'ŪLAR, see UNILOCULAR.

ĚLŌN'GĀTĚD, exceeding the usual or average length.

ĚLŪT'RĪFŌRM, resembling the wing-cover of a beetle; ely-troid.

ĚMĀR'ĈĪD, flaccid; wilted. (Obs.)

ĚMĀR'ĜĪNĀTE, notched at the end. Sometimes applied to organs which are notched at other places, as to the gills of mushrooms when notched or cut out before reaching the stem.

ĚMBŌSSED, see UMBONATE.

ĚMBRĀĈ'ING, clasping by a broad surface. Compare AMPLECTANT and SHEATHING.

ĚM'BRŪŌ, the rudimentary plant within the seed.

ĚM'BRŪŌ-BŪD, a rudimentary bud, especially if adventitious.

ĚM'BRŪŌ-ĈĚLL, see OÖSPHERE.

ĚMBRŪŌĜĚN'ĪC, pertaining to the development of an embryo.

ĚMBRŪŌĜ'ENŸ, embryo-formation.

ĚMBRŪŌL'ŌĜŸ, the study of the embryo and its development.

ĚM'BRŪŌNAL ĈĚLL, see OÖSPHERE.

ĚM'BRŪŌNAL VĚS'ICLE, see OÖSPHERE.

ĚM'BRŪŌNĀTE, having an embryo.

ĚMBRŪŌN'ĪC, in an early undeveloped condition; rudimentary.

ĚM'BRŪŌ NŌD'ŪLE, a term applied to small knots, frequently about the size of a pea, found beneath the bark in certain trees, and sometimes containing one or more rudimentary buds.

ĚMBRYŌN'IC SÁC, see EMBRYO-SAC.

ĚMBRYŌN'IC VĚS'ICLE, see OÖSPHERE.

ĚM'BRYŌ-SÁC, a large cell in the nucleus of the ovule within which the germinal vesicles or oöospheres (one or more) are produced, and which finally contains the embryo. Compare CENTRAL CELL.

ĚMBRYŌTĚ'GÍÁ (pl.), see EMBRYOTEGIUM.

ĚMBRYŌTĚ'GÍUM (pl. Ěmbryŏ-tě'gíá), a small cap covering the micropyle in certain seeds, as asparagus, and detached by the radicle in germination.

ĚMĚR'GENČIES, a term applied to outgrowths of various kinds derived from the fundamental tissue below the epidermis, and covered by the latter, as the prickles of the rose.

ĚMĚR'GENT, protruding through or elevated above surrounding parts.

ĚMĚRSED', raised out of water.

ĚMPÁLE'MENT, an old term for calyx.

ĚMPTÝ GLŮMEŠ, one, two, or more bracts or scales subtending a spikelet in grasses, and enclosing one or more flowers; outer glumes. Formerly called merely glumes. Compare FLOWERING GLUME.

ĚNĀNTIÖBLĀS'TÍC, a term sometimes applied to the embryo of orthotropous seeds. Compare HOMOBlastic.

ĚNĀ'TION, having outgrowths or excrescences the result of excessive development, as scales upon petals. Compare CHORISIS.

ĚNCHÝLE'MĀ, the unorganized proteids in living cells, as aleurone grains. (Hanstein.)

ĚNČYS'TĚD, enclosed in a cyst or sac. Applied, for example, to a stage of growth in Proto-coccaceæ in which the individual exists as a free cell with a cell-wall, but destitute of cilia.

ĚNĚCĀG'ÝNOÜŠ, having eleven pistils or styles.

ĚNĚCĀN'DROÜŠ, having eleven stamens.

ĚNĚCĀPHÝL'LOÜŠ, said of a leaf containing eleven leaflets.

ĚNDĚM'IC, occurring in the one limited locality or region only. Compare SPORADIC.

ĚNDÖBĀSID'ÏUM, an enclosed basidium, as in Gasteromycetes.

ĚN'DÖCĀRP, the inner layer of a pericarp, particularly if developed in a special manner, as the pit of a peach or core of an apple.

ĚN'DÖCHRÖME, coloring matter in cells, or colored cell-contents aside from chlorophyll—used mainly in algæ. Often applied to the entire cell-contents of algæ, and sometimes to colored cell-contents in other plants, but less used now than formerly.

ĚNDÖDĚR'MIS, a layer, of one or more cells in thickness, which forms the inner boundary of the cortex and surrounds the fibrovascular cylinder.

ĚNDÖG'ĚNOÜŠ, produced within another body. Applied also to the stems of monocotyledons and their manner of growth, which was formerly supposed to take place chiefly at or near the centre.

ĚNDÖG'ĚNOÜŠ ČĚLL-FÖRMA'TION, see FREE CELL-FORMATION.

ĚNDŌGŌNĪD'ĪŮM, a gonidium formed within a receptacle, as in the sporangium of *Mucorini*.

ĚNDŌPĚRĪD'ĪŮM, the inner peridium when there are more than one, as in *Geaster*.

ĚNDŌPHLĚ'ŮM, inner bark; liber. See **BAST**.

ĚNDŌPHŮL'LOŮS, enclosed in a leaf or sheath, as the young leaves of monocotyledons.

ĚN'DŌPHŮTAL, growing within other plants; entophytal.

ĚN'DŌPHŮYTE, a plant which grows within another, either parasitic upon it or not; entophyte.

ĚN'DŌPLĀSM, the internal granular portion of the protoplasm; when distinguished from an outer layer free from granules called *Ectoplasm*.

ĚNDŌPLEŮ'RA, see **TEGMEN**.

ĚNDŌP'TĪLE, an old term applied to the plumule of endogens.

ĚNDŌRHĪ'ZĀ (pl. *Ěndŏrhĭ'zæ*), an old term for endogen.

ĚNDŌRHĪ'ZAL, said of an embryo in which the radicle is sheathed by the cotyledons wrapped around it. Applied also to the method of germination in endogens.

ĚNDŌRHĪ'ZOŮS, see **ENDORHIZAL**.

ĚN'DŌSMŌSE, an inward current established between fluids of different densities when separated by an animal or vegetable membrane; endosmosis. The absorption of moisture by roots is due to endosmose. See **OSMOSE**.

ĚNDŌSMŌ'SIS, see **ENDOSMOSE**.

ĚN'DŌSPĚRM, the albumen of the seed, especially when

formed in the embryo-sac. Compare **PERISPERM**.

ĚN'DŌSPŌRE, the inner coat of a spore.

ĚN'DŌSTŌME, the orifice of the inner coat of the ovule, i.e., the inner portion of the foramen. Compare **EXOSTOME**.

ĚNDŌTHĚ'ČĪŮM, the lining (tappetum) of an anther cell, consisting of one or more layers within the exothecium.

ĚNDŌZŌ'ĪC, living inside an animal; entozoic.

ĚNNĚĀG'YNOŮS, having nine pistils or styles.

ĚNNĚĀN DRĪAN, see **ENNEANDROUS**.

ĚNNĚĀN'DROŮS, having nine stamens.

ĚNNĚĀPĚT'ALOŮS, having nine petals.

ĚNNĚĀSĚP'ALOŮS, having nine sepals.

ĚNNĚĀSPĚR'MOŮS, nine-seeded.

ĚNŌ'DAL, without nodes.

ĚN'SĀTE, see **ENSIFORM**.

ĚN'SĪFŌRM, sword-shaped; straight, or nearly so, two-edged, and tapering very gradually from base to apex, as the leaves of iris; gladiate.

ĚNTĪRE', having margins destitute of teeth or notches.

ĚNTŌMŌG'ENOŮS, growing upon insects, as certain fungi; entomophytous.

ĚNTŌMŌPH'ĪLOŮS, adapted to pollination by insects.

ĚNTŌMŌPH'YTOŮS, see **ENTOMOGENOUS**.

ĚNTŌPĀR'ĀSITE, a parasite living entirely within its host.

ĚN'TŌPHŮTAL, see **ENDOPHYTAL**.

ĚN'TŌPHŮYTE, see **ENDOPHYTE**.

ĚNTŌZŌ'ĪC, see **ENDOZOIC**.

ĒN'VĒLOPE-APPĀRĀ'TŪS, all of the ascocarp except the ascus-apparatus.

ĒPĀN'ŌDŸ, a general term for reversion from an irregular to a regular condition. In flowers it is termed "regular perioria."

ĒPĀN'THOŪS, growing upon flowers, as certain fungi.

ĒP'ĒN, see **EPENCHYMA**.

ĒPĒN'CHŸMĀ, cambium, and all tissue arising from it. (Nägeli.) Compare **PROTENCHYMA**.

ĒPHĒM'ĒRAL, lasting but a day or a very short time, as the corolla of purslane.

ĒP'IBLĀST, a term applied to a small scale-like appendage in front of the embryo and opposite the scutellum in the seeds of rice and many other grasses. (F. L. Scribner.)

ĒPIBLĒ'MĀ, a collective name for the epidermal cells of a young organ, especially a root, including the root-hairs. (Obs.) See **EPIDERMIS** and **DERMATOGEN**.

ĒPICĀ'LŸX, an involucre resembling an exterior calyx, as in mallow.

ĒP'ICĀRP, the outer layer of a pericarp.

ĒP'ICHĪL, see **EPICHILIUM**.

ĒP'ICHĪLE, see **EPICHILIUM**.

ĒP'ICHĪL'IŪM, the upper or distal portion of the labellum of an orchid, when especially different from the lower or basal portion. Compare **HYPOCHILIUM**.

ĒPICLĪ'NAL, seated upon the receptacle.

ĒPICŌR'MIC, applied to side branches which develop on the body of a forest tree from

which surrounding trees have been removed.

ĒPICŌRŌL'LĪNE, upon the corolla.

ĒPICŌT'ŸL, the portion of a young stem between the cotyledons and the lowest true leaves. Compare **CAULICLE**.

ĒP'IDĒRM, see **EPIDERMIS**.

ĒPIDĒR'MAL, pertaining to the epidermis.

ĒPIDĒR'MIS, the external layer of cells in a plant. Compare **CUTICLE** and **DERMATOGEN**.

ĒPIDĒRMOŪ'DAL LĀY'ĒR, a term sometimes applied to an outer layer of cortical cells bordering on the epidermis.

ĒPIGĒ'AN, upon or above ground; growing on land in distinction from water; growing close to the earth, as some leaves; rising above ground instead of remaining beneath, as the cotyledons of beans; epigeous.

ĒPIGĒ'AL, see **EPIGÆAN**.

ĒPIGĒN'ĒSIS, (1) originating upon another body; (2) the theory that the embryo is the joint product of both sexes, as distinguished either from the doctrine that the male parent furnishes the germ and the female simply the *nidus* or resting-place in which it is nourished, or from the theory that the female furnishes the germ which is merely quickened by the influence of the male. Seldom used in botany.

ĒPIGĒNOŪS, growing upon the surface or on the upper surface, as a fungus on its host. Compare **HYPOGENOUS** and **EDOGENOUS**.

ĒPIGĒ'OŪS, see **EPIGÆAN**.

ĒPIGŌNE, see **EPIGONIUM**.

ĖPĖGŌ'NĪŪM, the archegonium in mosses after the capsule has developed. It is frequently ruptured, a part being carried up to form the calyptra, and a part remaining at the base of the sporangium or its stalk, as the vaginule. Also an homologous sac enclosing the young sporangium in Hepaticæ.

ĖPĖG'YNOŪS, growing upon the ovary.

ĖPĖNAS'TĪC, denoting curvature resulting from growth on the upper side of an organ making it curve downward. Compare **HYPONASTIC**.

ĖPĖNĀSTŲ, that state of a growing dorsi-ventral organ in which the upper surface grows more rapidly than the lower.

ĖPĖPĖT'ALOŪS, upon the corolla.

ĖPĖPHLĖ'ŌDAL, upon the epidermis or outer surface. Compare **HYPOPHLĖODAL**.

ĖPĖPHLĖ'ŪM, see **CORKY LAYER**.

ĖPĖPHRĀGM, a membrane closing the mouth of the capsule in mosses; also a delicate membrane closing the cup-like sporophore in *Nidularia*.

ĖPĖPHŲL'LOŪS, growing or inserted upon a leaf, or upon the upper side. Compare **HYPOPHYLLOUS**.

ĖPĖPHŲTĀL, see **EPIPHYTIC**.

ĖPĖPHŲTE, a plant growing upon another but not nourished by it; air-plant. Compare **PARASITE**.

ĖPĖPHŲT'ĪC, growing upon another plant but not nourished by it; epiphytal; pseudo-parasitic.

ĖPĖPHŲTŌT'ĪC, a term applied by Erwin F. Smith to any wide-spreading disease among plants, corresponding to an

epidemic among men or an epizootic among animals.

ĖPĖ'ĪPLĀŠM, protoplasm which remains in an ascus or other unicellular sporangium after the formation of the spores.

ĖPĖP'TĖROŲS, winged at the apex.

ĖPĖRRHĖŌL'ŌGŲ, the portion of physiological botany which treats of the effects of external agents on living plants. (Rare.)

ĖPĖRRHĲZOŲS, growing upon roots.

ĖPĖ'ĪSPĖRM, the seed-coat, especially the outer coat or testa.

ĖPĖSPŌRĀNGĪŪM, an old term for indusium.

ĖPĖ'ĪSPŌRE, the outer coat of a spore; exospore.

ĖPĖSTRŌPHĖ, said of chlorophyll-bodies when they take their position along the outer wall of the cell, usually when the light is of medium intensity. Compare **APOSTROPHE** and **SYSTROPHE**.

ĖPĖTHĀL'LĪNE, growing upon the thallus.

ĖPĖTHĖ'LĪŪM, any distinct layer of one or more cells in thickness bounding an internal cavity. Formerly applied also to delicate epidermis of rootlets and other external parts.

ĖPĖX'ŲLOŲS, growing upon wood, as many fungi.

ĖPĖZŌ'ĪC, growing upon living animals, either parasitic or not.

ĖQUAL, symmetrical; regular; of the same number; like another in all respects, or in length.

ĖQUALLY - PĖN'NĀTE, see **ABRUPTLY-PINNATE**.

ĖQUĀTŌ'RĪĀL PLĀNE, the plane which passes through the equa-

torial plate (mother-star) of the cell-nucleus, or between the parts when the plate has divided, and which occupies the position of the future cell-wall. It is the plane of cell-division.

ĒQUÁTŌRĪAL PLĀTE, see MOTHER-STAR.

ĒQUĪLĀTĒRAL, equal-sided; opposed to Oblique.

ĒQUĪNŌC'TIAL, said of flowers which open and close at particular hours of the day.

ĒQ'ŪITANT, having the leaves so arranged that the base of each is enclosed within the opposite base of that which is next below it, as in the iris. Compare HALF-EQUITANT.

ĒQUĪVĀLVŪLAR, having the valves of a capsule all of the same size.

ĒQUĪVŌCAL ĠĒNĒRĀ'TION, see SPONTANEOUS GENERATION.

ĒRĀDĪC'ŪLOSE, without rootlets or rhizoids.

ĒRĒCT', perpendicular, or nearly so, to the surface to which it is attached; standing without support, not weak or lax. Compare STRICT. Applied to ovules or seeds it means growing vertically from the base of the ovary. Compare ASCENDING and INVERTED.

ĒRĒCTŌPĀT'ENT, intermediate between erect and spreading.

ĒRĒMŌBLĀST, a unicellular plant. (Sachs.)

ĒRĪĀN'THOŪS, woolly-flowered.

ĒRĪCĀ'CEŌŪS, heath-like.

ĒR'ICŌID, ericaceous. Said of a subulate form of leaves often found upon the juniper.

ĒRĪŌPHŪL'LOŪS, woolly-leaved.

ĒRŌ'DĒD, see EROSE.

ĒRŌSE', having irregular sinuses as if bitten out; eroded.

ĒRŌS'TRĀTE, without a beak.

ĒRŪM'PENT, breaking out, as the spore-clusters of some fungi through the epidermis of their host.

ĒRŪTH'RŌPHŪL, red coloring matter in plants.

ĒS'CŪLENT, used for food by man.

ĒSĒP'TĀTE, without septa.

ĒSŌTĒR'IC, originating within the organism. Compare EXOTERIC.

ĒSSĒN'TIAL CHĀR'ĀCTĒR, a feature which distinguishes a plant or group of plants from all others; diagnostic character.

ĒSSĒN'TIAL ŌR'GANŪS, stamens and pistils.

ĒSTĪ'VAL, pertaining to summer; æstival.

ĒS'TĪVĀTE, to pass the summer in a dormant condition. Compare HIBERNATE.

ĒSTĪVĀ'TION, (1) the arrangement of the floral organs in the bud—usually written Æstivation; (2) passing the summer in a dormant condition.

ĒTĒ'RĪŌ, a term sometimes applied to such fruits as the raspberry and blackberry.

Ē'TĪŌLĀTĒD, blanched by exclusion of light. Compare CHLOROSIS.

EŪCŪC'LIC, applied by Braun to flowers having the members in each whorl equal in number and alternating with those in an adjoining whorl.

EŪ'PHŪLL, an ordinary foliage-leaf. See PHYLLOME.

EŪTRŌP'IC, twining or turning with the sun; dextrorse.

ĒVĀLV'ŪLAR, without valves.

ĖVĀNĖS'CENT, (1) soon passing away; (2) applied to veins which disappear before reaching the margin of the leaf.

ĖVEN-PIN'NĀTE, see **ABRUPTLY-PINNATE**.

ĖV'ĖRGREEN, having green leaves throughout the year, as most *Coniferæ*.

ĖVĖRLĀST'ING FLOWĖRS, see **IMMORTELLĖS**.

ĖVĖR'NĪĖFĖRM, resembling the thallus of the lichen *Evernia*.

ĖVĖR'SION, the protrusion of a part which is generally produced in a cavity.

ĖVĖRT'ĖD, turned inside out.

ĖV'ĖDĖNT, distinctly visible.

ĖVĪT'TĀTE, without vittæ, which see.

ĖVĖLŪ'TION, the act of unfolding or unrolling; hence growth or development, especially the supposed development through successive generations of the higher from lower or simpler forms of life, both in animals and plants.

ĖXĀLBŪ'MĪNOŪS, having the nutriment in the seed all stored in the cotyledons.

ĖXĀN'NŪLĀTE, without an annulus.

ĖXĀR'ĪLLĀTE, without an aril.

ĖXĀS'PĖRĀTE, covered with short hard points; muricate.

ĖXCĖN'TRIC, out of the centre; abaxial. An embryo is *excentric* when it lies within the albumen, but not in the centre of it, as in asparagus; the trunk of a tree is *excentric* when developed more on one side of the heart than on the other.

ĖX'ĖIPLE, see **EXCIPULUM**.

ĖX'ĖĪPŪLE, see **EXCIPULUM**.

ĖXCĪP'ŪLŪM, the portion of the thallus supporting or surround-

ing the apothecium in lichens. In some cases the excipulum is an outer rim of the perithecium itself, and is then termed a "proper" excipulum.

ĖXCĪTĀBĪL'ĪTŪ, the general faculty, characteristic of living bodies, of being influenced by external stimuli. Compare **IRRITABILITY**.

ĖXCRĖS'CENT, growing out in a morbid or unnatural manner, as a wart or tumor; superfluous.

ĖXCRĖ'TION, the separation of unassimilable matter from an organism. Compare **SECRETION**.

ĖXCŪR'RENT, projecting beyond the usual limit, or to the extreme summit or apex.

ĖXFŖLIĀTE, to cast off layers or plates, as the bark of sycamore.

ĖXHĀLĀ'TION, see **TRANSPIRATION**.

ĖXĪG'ŪŖS, small or slender. See **GRACILE**.

ĖX'ĪNE, see **EXTINE**.

ĖXĪN'TĪNE, a term applied by Fritsche to a third coat observed by him in the covering of certain pollen-grains between the intine and a second coat called by him the intexine. The terms Intexine and Exintine are not in ordinary use and do not represent any constant recognized structures.

ĖX'ŖCĀRP, the outer layer of a pericarp.

ĖXŖG'ĖNOŪS, growing by addition to the outside, or springing from the exterior tissues. Applied also to the manner of growth of the stem in ordinary trees (dicotyledons and gymnosperms).

ĖXŖG'ŪNOŪS, having the style exerted beyond the corolla.

ĖXĖPĖRĖD'ĖŪM, the outer peridium when there are more than one, as in Geaster.

ĖXĖRHĖ'ZĀ (pl. ĖxĖrhĖ'zæ), an old term for exogen. Compare **ĖNDORHIZA**.

ĖXĖRHĖ'ZAL, the manner in which the radicle of dicotyledons is developed in germination. (Rare.)

ĖX'ĖSMĖSE, the passage of gases or liquids through a closed membrane from within outward, or from the denser to the rarer fluid in the process of osmose.

ĖX'ĖSPĖRE, see **EPISPORE**.

ĖXĖSPĖRĖŪM, see **EPISPORE**.

ĖX'ĖSTĖME, the orifice in the outer coat of an ovule or seed, which with the endostome forms the foramen.

ĖXĖSTĖ'SIS, any indurated protuberance.

ĖXĖTĖR'ĖC, having its cause or origin outside the organism. Compare **ESOTERIC**.

ĖXĖTHĖ'ĖĖM, the outer coat or epidermis of an anther. Compare **ENDOTHECIUM**.

ĖXĖT'ĖC, introduced from a foreign country.

ĖX'PLĀNĀTE, spread or flattened out. Applied to a part usually rolled or folded. Compare **COMPLANATE**.

ĖXSĖRT'ĖD, protruding beyond the margin of a receptacle, as stamens beyond the corolla, or a panicle of a grass above the leaf-sheath.

ĖXSĖCCĀ'TĀ (pl. Ėxsiccā'tæ), a dried herbarium specimen; exsiccate.

ĖX'SĖCCĀTE, see **EXSICCATA**.

ĖX'SĖCCĀTĖD, dried; especially, collected and dried for preservation as a botanical specimen.

ĖXSTĖP'ŪLĀTE, without stipules.

ĖXSŪC'COŪS, destitute of juice.

ĖXTĖ'RĖOR, when applied to the parts of a flower, means the same as Anterior, i.e., the side away from the axis; lower; outer.

ĖX'TĖNE, the outer coat of a pollen-grain. (Exine of Schacht.) Compare **INTINE**.

ĖX'TRĀ-ĀX'ĖLLĀRĖ, situated out of the axil.

ĖX'TRĀ-ĖĖL'LŪLAR, outside of a cell.

ĖX'TRĀ-FĖLĖĀ'ĖEOŪS, not situated upon or near the leaves, as *extra-foliaceous* prickles.

ĖXTRĀVĀG'ĖNAL, applied to branches in grasses which in growth burst through the base of the subtending sheath. Compare **INTRAVAGINAL**.

ĖXTRĖRSE', applied to anthers the lobes of which are situated on the outside of the filament or connective, i.e., on the side farthest removed from the pistil. Such anthers generally dehisce on the outside also.

ĖXŪNGŪIC'ŪLĀTE, without an unguis or claw, as most petals.

ĖXŪ'VĖĖ, anything excreted or cast off. (Rare.)

EYE (Hort.), a bud on a tuber; the cavity enclosed by the calyx in the apple; the ostiolum or opening in the apex of a fig; any conspicuous central spot in a flower or petal, including the disk in Compositæ.

FĀĖE, the upper, inner, or free surface of an organ as opposed to the back.

FĀ'ĖĖS, the general aspect of a plant. (Obs.) Compare **HABIT**.

FĀC'ULTĀTĪVE, occasional; incidental. Compare OBLIGATE.

FĀC'ULTĀTĪVE PĀR'ĀSITE, a plant (usually a saprophytic fungus) capable of passing through at least certain stages of its development as a parasite, but which does not always or necessarily do so.

FĀC'ULTĀTĪVE SĀP'RŌPHĪTE, a plant (usually applied to parasitic fungi) which is capable of living as a saprophyte during the whole or a part of its life.

FĒC'ŪLĀ, see FECULA.

FĀL'CĀTE, scythe-shaped, or sickle-shaped. Compare UNCINATE.

FĀL'ĊIFŌRM, see FALCATE.

FALSE, similar in appearance, but different in structure or origin; spurious. The same as the Greek pseudo-.

FALSE DĪCHŌT'ŌMŸ, any dichotomous appearance which does not arise from a terminal division of the main axis, as a dichasium.

FALSE DISSĒP'IMENT, one of the additional partitions in certain fruits which is not formed by the edges of carpels. False dissepiments frequently proceed from the dorsal suture.

FALSE ĪNDŪSĪŪM, a recurved margin of the frond in ferns covering the sporangia, as in the genus *Pteris*.

FALSE RĀCĒME', see HELICOID CYME.

FALSE PĀRĒN'CHŪMĀ, see PSEUDOPARENCHYMA.

FĀM'ĪLŸ, the same as ORDER, which see, and in more familiar use. The term is also employed, especially among cryptogams, to indicate groups lower than the order. In hor-

ticulture it is sometimes used to indicate groups of related varieties, as the Duchess family among apples.

FĀN'-SHĀPED, like a fan in outline, especially if also plaited; flabelliform; flabellate.

FĀN'-VEINED, see PALMATELY-VEINED.

FĀR'CĀTE, without vacuities; stuffed; obstructed; infarctate; infarcted; opposed especially to fistulose. Seldom used, the word solid or turgid being nearly always preferable. See STUFFED.

FĀRĪNĀ, starch. Formerly applied also to pollen.

FĀRĪNĀ'CEŌŪS, containing starch, or of the texture of meal or flour.

FĀR'ĪNŌSE, covered with a white mealy powder.

FĀR'ĪNŌSE, n., a supposititious cellulose substance in starch-grains, which is not colored blue by iodine. Compare GRANULOSE.

FĀS'ĊĪĀ [*fāsh-ī-ā*] (pl. *Fās'Ċīā*), a cross-band, especially of color. (Rare.)

FĀS'ĊĪĀTĒD, (1) having broad parallel bands or stripes; (2) exhibiting fasciation, which see.

FĀSĊĪĀ'TION, a monstrous flattened expansion of the stem, as in the garden cockscomb (*Celosia*).

FĀS'ĊICLE, a bundle, as the clustered leaves on the dormant branches or spurs of the larch; a bundle of tuberous roots, as in the dahlia; a fibrovascular bundle, especially if rudimentary; a close cyme, as in sweet-william; a bundle of herbarium specimens.

FĀS'ÇĪCLED, growing in tufts or clusters; fascicular; fasciculated.

FĀS'ÇĪC'ŪLAR, see FASCICLED.

FĀS'ÇĪC'ŪLAR SŪS'TĒM, see FIBROVASCULAR SYSTEM.

FĀS'ÇĪC'ŪLAR TĪS'SŪE, see FIBROVASCULAR TISSUE.

FĀS'ÇĪC'ŪLĀTE, see FASCICLED.

FĀS'ÇĪC'ŪLĀTĒD, see FASCICLED.

FĀS'ÇĪC'ŪLŪS (pl. *Fāscic'ūlī*), a dense cymose inflorescence, as in sweet-william; fascicle.

FĀSTĪG'ĪATE, having the branches close, parallel, and upright, as in Lombardy poplar. Sometimes erroneously used for flat-topped.

FĀUX (pl. *Fau'çēs*), the throat or orifice of a gamopetalous or gamosepalous flower.

FĀVĒL'LĀ (pl. *Fāvēl'lā*), a form of sporocarp in Floridæ, consisting of an irregular mass of spores embedded in more or less gelatinous material and without a distinct conceptacle. It may be seated upon the frond or more or less embedded in it, and is derived from one or from several contiguous cells. In the latter case, and also when embedded in the frond, it was formerly called a favellidium.

FĀVĒ'ŌLĀTE, see ALVEOLATE.

FĀVŌSE', see ALVEOLATE.

FĒATH'ĒR-VEINED, see PINNATELY-VEINED.

FĒATH'ĒRŪ, see PLUMOSE.

FĒC'ŪLĀ, any powdery farinaceous matter.

FĒC'ŪLENT, muddy; thick with sediment.

FĒCŪNDĀ'TION, see FERTILIZATION.

FĒCŪN'DĪTŪ, fertility; fruitfulness.

FĒED'ĒR, an outgrowth of the hypocotyl in the embryo of some genera of Gnetaceæ which serves for the absorption of the endosperm.

FĒLT'ĒD-TĪS'SŪE, hyphal tissue in which the filamentous cells are not regularly united, as in phenogams, but cross one another irregularly, and are often more or less grown together; tela contexta; spurious tissue. In its more consolidated forms it is known as pseudo-parenchyma.

FĒ'MĀLE FLOWĒR, one having pistils only; pistillate flower.

FĒNĒS'TRĀTE, having rather large openings like windows.

FĒ'RAL, see WILD.

FĒRRŪ'GĪNOŪS, resembling iron-rust; brownish-red. For synonyms see RUBIGINOSE.

FĒR'TĪLE, producing fruit, or reproductive bodies of any kind; having pistillate or perfect flowers.

FĒRTĪLĪZĀ'TION, the process by which the pollen causes the ovule to develop as a seed. It is the essential feature of sexual reproduction of every kind, being the union of the male and female reproductive bodies. In some cases, and perhaps always, it consists in the coalescence of the nuclei of two cells of different nature and origin; fecundation; impregnation. See CONJUGATION.

FĒU'ILLEMŌRT, of the color of a faded leaf; filemot. (Rare.)

FĒ'BER, see FIBRE.

FĒBRĒ, any slender thread-like body of considerable strength; especially: (1) the slender fusiform cells of the inner bark, known as bast; (2) small slen-

der roots like those of grasses. Also applied to bodies of similar form which have no special strength, as the threads or filaments in a nucleus during cell-division.

FĪBRĪL, diminutive of Fibre; a small or secondary fibre.

FĪBRĪL'LĀ (pl. Fibril'læ), see FIBRIL.

FĪBRĪLLŌSE, diminutive of Fibrous; bearing fibrils or composed of small fibres.

FĪBRĪLLŌSE MYCĒ'LĪŪM, see FIBROUS MYCELIUM.

FĪBROŪS, composed wholly, or in large part, of fibres; separable into fibres.

FĪBROŪS MYCĒ'LĪŪM, mycelium in which the hyphæ form by their union elongated branching strands; fibrillose mycelium; mycelial strand.

FĪBRŌ-VĀ'SAL BŪN'DLE, see FIBROVASCULAR BUNDLE.

FĪBRŌ-VĀ'SAL STRĪNG, see FIBROVASCULAR BUNDLE.

FĪBRŌVĀS'CŪLAR BŪN'DLE, one of the characteristic elements in the stem of all flowering plants and the higher cryptogams. Isolated fibrovascular bundles form the "fibres" in the so-called pith of a corn-stalk, and the veins in leaves. Each bundle usually consists of two parts, xylem and phloem (which see), the whole often surrounded by a special layer of cells called the bundle-sheath.

FĪBRŌVĀS'CŪLAR CŌRD, a term applied by Strasburger to a fibrovascular bundle in monocotyledons, but not generally adopted.

FĪBRŌVĀS'CŪLAR ČYL'INDĚR, a name given to the peculiar

fibrovascular system in the stem of Lycopodiaceæ. Sometimes used in exogens, especially in roots, where it is generally called "central cylinder."

FĪBRŌVĀS'CŪLAR SŪS'TĚM, the fibrovascular tissues of a plant taken together. In exogenous trees it includes the veins of the leaves, and all the material of the stem and branches, except the pith, medullary rays, and outer bark.

FĪD'DLE-SHAPED, see PANDURIFORM.

FĪL'AMENT, the stalk of a stamen supporting the anther.

FĪLĀMĚN'TOŪS, slender and thread-like, or composed of filaments.

FĪLĀMĚN'TOŪS MYCĒ'LĪŪM, one composed of free hyphæ, which are at most loosely interwoven with one another, but without forming bodies of definite shape and outline; floccose mycelium.

FĪLĀMĚN'TOŪS SPŌR'ŌPHŌRE, see SIMPLE SPOROPHORE.

FĪLĀ'RĪOŪS, see FILAMENTOUS.

FĪL'ĚMŌT, see FEUILLEMORT.

FĪL'ĪCŌID, fern-like.

FĪL'ĪFŌRM, thread-shaped; slender, round, and of equal thickness throughout. Compare CAPILLARY.

FĪL'ĪFŌRM ĀPPĀRĀ'TŪS, a homogeneous, strongly refractive, cellulose cap often found at the apex of each synergida, especially in monocotyledons.

FĪLĪPĚN'DŪLOŪS, hanging by a thread.

FĪL'ŌSE, terminating in a thread-like process.

FĪM'BRĪĀ, a fringe.

FĪM'BRIĀTE, fringed; bordered by lax, slender processes, generally larger than hairs.

FĪM'BRĪCĀTE, see FIMBRIATE.

FĪMBRĪL'LĀTE, diminutive of Fimbriate; having a very small or fine fringe; fimbriilliferous.

FĪMBRĪLLĪF'ĒROŪS, see FIMBRILLATE.

FĪN'GĒRED, see DIGITATE.

FĪS'SĪLE, capable of being split or divided.

FĪS'SION, the division of an organ which is usually entire; that mode of cell-division in which the cell separates into two nearly equal portions.

FĪSSĪP'ĀROŪS, reproducing by spontaneous division into two parts.

FĪS'TŪLAR, see FISTULOSE.

FĪS'TŪLĪFŌRM, tubular.

FĪS'TŪLOSE, hollow and cylindrical, or nearly so, as the stems of many grasses; fistular; fistulous. Used especially when the hollow is of considerable size, as in reeds.

FĪS'TŪLOŪS, see FISTULOSE.

FLĀBĒL'LĀTE, see FAN-SHAPED.

FLĀBĒL'LĪFŌRM, see FAN-SHAPED.

FLĀC'ĪD, unable to support its own weight. Compare LAX.

FLĀĠĒL'LĀ, pl., see FLAGELLUM.

FLĀĠ'ELLĀRŸ, pertaining to or caused by flagella, as the *flagellary* movements of certain zoöspores.

FLĀĠ'ELLĀTE, (1) bearing flagella; (2) flagelliform.

FLĀĠĒL'LĪFŌRM, long and supple like a whip-lash; flagellate.

FLĀĠĒL'LŪM (pl. *Flāġēl'lā*), any slender flexible process or

organ, as (1) a solitary long swinging process of protoplasm on certain zoöspores (a large cilium); (2) a similar appendage to the cells of many bacteria; (3) a young flexible shoot, especially a long trailing branch of a vine (sarment).

FLĀT (Hort.), in describing fruits, means flattened endwise (depressed).

FLĀVĒS'CENT, yellowish.

FLĀ'VOŪS, see FLAVUS.

FLĀ'VŪS, pure pale yellow; lemon-yellow. Compare LUTEUS.

FLĒSH'Ÿ, enlarged and somewhat soft, as a tuber. Compare SUCULENT.

FLĒX'ŪOSE, zigzag; wavy; winding; flexuous.

FLĒX'ŪOŪS, see FLEXUOSE.

FLŌAT'ING, see NATANT.

FLŌC'ĀI, pl., see FLOCCUS.

FLŌCCŌSE', covered with matted woolly hairs, especially if they fall away in tufts. Said of the perithecia of Erysiphe when the appendages are of equal diameter throughout, more or less tortuous, and end abruptly, or in a straight point (thus distinguished from "hooked" and "dichotomous").

FLŌCCŌSE' MYĀE'LĪŪM, see FILAMENTOUS MYCELIUM.

FLŌC'CULENT, see FLOCCOSE.

FLŌC'CŪS (pl. *FlŌc'cī*), any woolly hair or thread, or a tuft of such filaments.

FLŌ'RĀ, the aggregate of the species of plants of a country or region, or a book which describes them.

FLŌ'RAL, pertaining to a flower.

FLŌ'RAL DĪ'AGRĀM, a drawing showing the relative position of the parts of a flower.

FLŌ'RAL ĒN'VĒLŌPES, in ordinary plants the calyx and corolla, sometimes including bracts when developed in a special manner so as to surround a flower; in grasses the flowering glume and palet.

FLŌ'RAL GLŪME, used by Dr. W. J. Beal instead of flowering glume or lower palet.

FLŌ'RAL LĒAF, see BRAC'T.

FLŌRĒS'CEŅCE, the opening of flowers; blossoming; anthesis.

FLŌ'RĒT, an individual flower of a head or cluster, especially in Compositæ; floscule; flosculus; floweret.

FLŌRĪF'ĒROŪS, flower-bearing.

FLŌRĪP'ĀROŪS, floriferous; sometimes used when a proliferous branch or flower bears additional flowers instead of stems and leaves.

FLŌS'CŪLAR, see FLOSCULOUS.

FLŌS'CŪLE, see FLORET.

FLŌS'CŪLŌSE, see FLOSCULOUS.

FLŌS'CŪLOŪS, composed of or bearing florets; applied mainly to heads of flowers in Compositæ when composed of tubular florets only. Compare SEMIFLOSCULOUS.

FLOW'ĒR, the part of a plant immediately concerned in the production of seed. A complete flower in ordinary plants consists of pistils, stamens, corolla, and calyx, of which the two former are essential to the production of seed. The parts of a flower are modified leaves.

FLOW'ĒR-BŪD, an unopened flower or cluster of flowers.

FLOW'ĒRĒT, see FLORET.

FLOW'ĒR-HĒAD, see HEAD.

FLOW'ĒRĪŅ GLŪME, the organ in grasses formerly called the lower palet. It may subtend one flower or more. Dr. W. J. Beal proposes the more appropriate term Floral Glume.

FLŪ'ITANT, floating in or upon water. Compare NATANT.

FLŪ'VĪAL, see FLUVIATIC.

FLŪVIĀT'IC, belonging to flowing water; fluvial; fluviatile.

FLŪ'VIĀTĪLE, see FLUVIATIC.

FŌLD'ĒD, (1) said of leaves in veneration when the two halves are simply brought together forward; (2) (Hort.) when a narrow projection of the flesh of an apple extends into the cavity. (Warder.) Compare LIPPED.

FŌLĪĀ'CEOŪS, leaf-like; having leaves intermixed with the flowers, as a *foliaceous* spike; consisting of thin laminæ or layers; foliose.

FŌLĪĀ'CEOŪS THĀL'LŪS, the thallus in lichens when flat and leaf-like and attached by one or few points; frondose thallus. Compare CRUSTACEOUS THALLUS.

FŌ'LĪĀGE LĒAVES, ordinary green leaves, in distinction from those which are transformed into petals, scales, etc.

FŌ'LĪAR-TRĀCE, see LEAF-TRACE.

FŌLĪĀ'TION, the act of leafing out; frondescence. Sometimes used erroneously for ptefoliation.

FŌLĪF'ĒROŪS, bearing or producing leaves; foliiferous; foliiparous.

FŌLĪIF'ĒROŪS, see FOLIFEROUS.

FŌ'LĪIFŌRM, leaf-shaped.

FŎLIIP'ARŎUS, producing leaves or leaves only.

FŎLIŎLĀTE, pertaining to leaflets, as *trifoliolate*—having three leaflets.

FŎLIŎLE, a little leaf or leaflet. (Rare.)

FŎLIŎLŬM (pl. *Fŏli'ŏlā*), see **FŎLIŎLE**.

FŎLIŎSE, (1) abounding in leaves; foliaceous; leafy; (2) having the nature or appearance of a leaf.

FŎLIŎUS, see **FOLIOSE**.

FŎLIŬM (pl. *Fŏli'ā*), a leaf.

FŎL'LICLE, a simple pod opening by the ventral suture only, as in the milkweed (*Asclepias*).

FŎLLIC'ULĀTE, having follicles.

FŎLLIC'ULŬS, see **FOLLICLE**.

FOOT, a basal protrusion of the fern-plant which maintains its connection with the prothallus. Also a similar base to the seta in mosses.

FOOT-STALK, the stem of a leaf, flower, or other organ. See **PETIOLE**, **PEDUNCLE**, **PEDICEL**, **STIPE**.

FŎRĀ'MĒN (pl. *Fŏrām'inā*), any small aperture, especially that in the integuments of the ovule, at which fertilization is effected. Compare **MICROPYLE**.

FŎRĀM'INĀTĒD, having small holes or perforations. Compare **LACUNOSE**.

FŎRĀMĪN'ULŎSE, pierced with very small holes; diminutive of *Foraminated*.

FŎR'ÇIPĀTE, like a pair of pincers.

FŎRKED, having two or more main branches arising from nearly the same point; furcate. Compare **BIFURCATED**.

FŎRM, (1) nearly the same as *Variation*, which see; (2) one

of the conditions or states when several regularly appear among plants of the same parentage, as the short-styled *form* in heterostyled species.

FŎRM'ĀTĪVE, concerned with or serving for growth, as *formative material* (starch, albuminoids, etc.), *formative tissue* (meristem).

FŎRM-GĒ'NŬS, a so-called genus constituted by similar form-species, as *Botrytis* in fungi; pseudo-genus.

FŎRM-SPE'ÇIĒS, a particular phase in the development of a protean organism, as the rusts; so called because the different stages have often been mistaken for distinct species. Used also by E. L. Sturtevant synonymously with *Race*.

FŎRM-SPŎRE, a body which is morphologically or physiologically a spore, but which either does not become detached as an ordinary spore for dispersion, or which has not the power of germination.

FŎR'NICĀTE, see **VAULTED**.

FŎR'NĪX (pl. *Fŏr'nicēs*), arched scales in the throat of a corolla, as in comfrey.

FŎS'SIL BŎT'ĀNŸ, the science of fossil plants, including their order of succession on the earth; paleobotany; paleophytology; geological botany; phytolithology.

FŎSTĒR-PLĀNT, see **HOST**.

FOUR-FŎLD PŎL'LĒN-GRĀIN, see **POLLEN-TETRAD**.

FŎ'VEĀ (pl. *Fŏ'veæ*), a pit or depression, as that in the leaf of *Isoetes*, containing the sporangium.

FŎ'VEĀTE, marked with deep or rather large pits or depressions. Compare **ALVEOLATE**.

FÖVĖ'ÖLÄ (pl. *Fövë'ölæ*), a little pit or depression; diminutive of Fovea.

FÖ'VĖÖLÄTE, marked with little pits or depressions.

FÖVİL'LÄ (pl. *Fövil'læ*), the contents of a pollen-grain; generally used in the singular for the entire contents, but sometimes applied to the individual granules in the fluid protoplasm.

FREE, not united with any dissimilar part; opposed to Adherent. Compare **DISTINCT**.

FREE CELL-FÖRMÄ'TION, the production of new cells within another, generally free from the cell-wall of the original or mother cell. Usually applied to cases in which several nuclei appear within the cell, each of which becomes surrounded by an independent cell-wall, as in the production of pollen; internal or endogenous cell-formation.

FREE GRÖW'ING, thrifty or vigorous, as opposed to dwarf or feeble.

FREE-STÖCK, a seedling tree of the same species used for grafting, as opposed to a stock of a different species, the latter being generally used for dwarfing.

FREE-STÖNE, applied to drupes in which the flesh separates readily from the pit when ripe. Compare **CLINGSTONE**.

FRİLL, see **ARMILLA**.

FRİNGED, see **FIMBRIATE**.

FRÖND, the leaf in ferns, especially the foliage portion of it; the expanded leaf-like portion of the thallus of liverworts; the stem and leaves taken together in plants where the distinction between leaf and stem

is not obvious, or where, as in *Equisetum*, the leaves are unimportant; the whole expanded leaf-like or branching thallus of many marine algæ.

FRÖNDĖS'ÇENÇE, see **FOLIATION** and **PHYLLODY**.

FRÖN'DIFÖRM, frond-like or frond-shaped, especially like the leaves of ordinary ferns.

FRÖN'DÖSE, frond-like, or producing fronds instead of ordinary foliage; leafy or leaf-like. (Rare.) Compare **THALLOID**.

FRÖN'DÖSE THÄLL'US, see **FOLIACEOUS THALLUS**.

FRÖTH'Y, see **WARTY**.

FRÜCTĖS'ÇENÇE, the time at which a fruit arrives at maturity.

FRÜCTIFİCÄ'TION, the fruit and attendant parts; an inflorescence at any stage of growth; the process of development of a fruit and its attendant parts.

FRÜCTIFİCÄ'TION, ÖR'GANŞ OF, stamens and pistils.

FRUIT, the mature ovary and its contents, together with any closely adhering part; specialized reproductive bodies of any kind, as the spores of cryptogams, including any modified portion of the plant in which they are produced. The term is also extended to many consolidated forms of inflorescence, as the cone of the pine.

FRUIT-BÜD, generally the same as Flower-bud, which see.

FRUIT-DÖT, see **SORUS**.

FRUIT-SPÖR, a short stout branch, bearing one or more flower-buds, as in the apple.

FRÜMĖNTÄ'ÇEOÜŞ, producing or pertaining to edible grain.

FRÜS'TÜLE, the individual in *Diatomaceæ* (often joined together in colonies).

FRŪS'TŪLŌSE, consisting of similar separable parts, like the frustules of diatoms.

FRŪTĒS'CENT, somewhat shrubby,—woody at the base and herbaceous above, like the garden sage; subfrutescent; suffrutescent.

FRŪ'TĒX, a shrub, which see.

FRŪ'TICŌSE, shrubby; pertaining to shrubs; shrub-like. Compare **FRUTESCENT**.

FRŪ'TICŌSE THĀL'LŪS, a thallus in lichens which is attached to the substratum by one point only, or by a narrow base, and grows upward as a simple, or more usually branched, shrub-like body.

FRŪTIC'ŪLŌSE, like a small shrub; diminutive of **Fruticose**.

FRŪTIC'ŪLŪS, a little shrub.

FŪ'COID, pertaining to, or resembling, *Fucus*, a genus of marine algae.

FŪGĀ'CIŌŪS, disappearing in a very short time; ephemeral. Compare **CADUCOUS**.

FŪ'GITIVE, quickly disappearing; easily blown away or absorbed; volatile; evanescent; fugacious.

FŪL'CRĀTE, furnished with *fulcra*, which see.

FŪL'CRŪM (pl. *Fŭl'crā*), a general term for various appendages to the plant which serve for support or defence, as tendrils, spines, prickles, hairs, etc. Now little used.

FŪLĪG'INŌSE, see **FULIGINOUS**.

FŪLĪG'INOŪS, dark brown; sooty or smoky.

FULL, applied to double flowers in which all the stamens and pistils are transformed into petals; completely double.

FŪL'VID, see **FULVOUS**.

FŪL'VOŪS, yellow, mixed with gray and brown; tawny.

FŪL'VŪS, see **FULVOUS**.

FŪ'MŌSE, smoke-colored; brownish gray.

FŪ'MOŪS, see **FUMOSE**.

FŪNDĀMĒN'TAL ŌR'GANS, root, stem, and leaf.

FŪNDĀMĒN'TAL SŪS'TĒM, all that portion of the substance of the higher plants which is not included in the fibrovascular and epidermal systems. Compare **CELLULAR SYSTEM**.

FŪNDĀMĒN'TAL TĪS'SŪE, pith, cortex, and medullary rays; ground-tissue.

FŪNGICĪDAL, destructive to fungi; antimycotic.

FŪNGICĪDE, anything destructive to the life of a fungus.

FŪNGĪFŌRM, mushroom-shaped.

FŪNGĪL'LĪFŌRM, diminutive of *Fungiform*.

FŪN'GOID, fungus-like.

FŪNGŌL'ŌGŸ, see **MYCOLOGY**.

FŪN'GŌSE, spongy in texture, like many fungi.

FŪN'GOŪS, produced by a fungus; pertaining to a fungus or to fungi, as a *fungous* disease. The substantive form "*Fungus*" is also used as an adjective.

FŪN'GŪSED, injured by a fungus. (Rare.)

FŪN'ICLE, see **FUNICULUS**.

FŪNĪC'ULAR CŌRD, see **FUNICULARUS**.

FŪNĪC'ŪLŪS, the stalk of an ovule or seed by which it is attached to the placenta; funicular cord; umbilical cord; podosperm. In *Nidulariæ* a hyphal cord attaching the peridiole to the inner surface of the wall of the peridium.

FŪNĪL'ĪFŌRM, like a rope or cord, as the roots of many endogens.

FŪN'NĒL-FŌRM, tubular, and gradually enlarging upward to a spreading border; infundibuliform. Compare **ROTATE** and **CYATHIFORM**.

FŪR'CĀTE, see **FORKED**.

FŪR'CĀTĒD, see **FORKED**.

FŪRCĀ'TION, division into two (rarely said of more) main branches. See **BIFURCATION**.

FŪRFŪRĀ'CEOŪS, covered with soft scales easily displaced; scurfy.

FŪR'RŌWED, see **SULCATE**.

FŪSCĒS'CENT, slightly fuscous.

FŪS'COŪS, grayish brown.

FŪSĪFŌRM, spindle-shaped; enlarged, terete, and tapering toward each end, as the roots of some radishes.

FŪ'SŌID, somewhat fusiform.

GĀL'BŪLŪS, a closed fleshy cone, resembling a berry, as that of juniper.

GĀ'LEĀ, an arched sepal or petal resembling a helmet; helmet; hood; cucullus. Also applied to the upper lip of some Scrophulariaceæ, though not so arched.

GĀ'LEĀTE, helmet-shaped, as the flower of *Aconitum*.

GĀLVĀNŌT'RŌPĪSM, the curvature of growing organs under the influence of a current of electricity.

GĀM'ĒTE, any sexual protoplasmic body, naked or invested with a membrane, motile or non-motile, as an oosphere or antherozoid; conjugation-cell; generative cell. Used mainly in *Conjugatæ*.

GĀMĒTŌGĒN'ĒSĪS, the production of gametes (male or female).

GĀM'ĒTŌPHŪTE, the prothallus or sexual generation in ferns, etc. Compare **SPOROPHYTE**.

GĀMŌGĒN'ĒSĪS, sexual reproduction.

GĀMŌPĒT'ALOŪS, having the petals more or less united; sympetalous. Also called erroneously *Monopetalous*. Compare **POLYPETALOUS** and **UNIPETALOUS**.

GĀMŌPHŪL'LOŪS, a term including *Gamopetalous* and *Gamossepalous*, but applied mainly to sepals.

GĀMŌSĒP'ALOŪS, having sepals more or less united; monosepalous.

GĀN'GLĪŌN (pl. *Gān'gliā*), a term applied to various enlargements on the mycelium of certain fungi, some of which at least are rudimentary fructifications.

ĠĒITŌNŌG'ĀMŪ, the fertilization of a pistil by pollen from another flower of the same plant—the closest kind of cross-fertilization.

ĠĒM, see **GEMMA**.

ĠĒM'ĪNĀTE, in pairs or twins; binate.

ĠĒM'MĀ (pl. *ĠĒm'mā*), an old term for leaf-bud, now usually confined to various asexual reproductive bud-like processes in cryptogams. They may be distinguished from gonidia by not having as uniform methods of production, by greater variation in size, and by usually containing many cells. See **GONIDIUM**.

ĠĒMMĀ'CEOŪS, having the nature of *gemmæ*; bearing *gemmæ*; *gemmiferous*.

GEMMATION, reproduction by means of gemmæ.

GEMMIFEROUS, bearing gemmæ.

GEMMIPAROUS, producing gemmæ.

GEMMULE, diminutive of Gemma—an old term for leaf-bud and plumule. Now applied to certain primary formative granules in the protoplasm. (Nägeli.)

GEMMAGENESIS, see PARTHENOGENESIS.

GEMMERA, pl., see GENUS.

GEMMERAL, see COMMON.

GEMMERAL INVOLUCRE, see COMMON INVOLUCRE.

GEMMERATING TISSUE, see MERISTEM.

GEMMERATIVE CELL, a sexual reproductive cell of any kind. See GAMETE. Also applied to the cell in a pollen-grain which develops into the pollen-tube. Compare VEGETATIVE CELL.

GEMMERATIVE NUCLEUS, the nucleus in the pollen-tube which is directly concerned in fertilization.

GEMMERIC, pertaining to a genus.

GEMMETIC, pertaining to generation or origin; e.g., things are *genetically* related which have the same origin.

GEMMETIC SPIRAL, a spiral line passing through the point of insertion of all equivalent lateral members on an axis from older to younger; generating spiral; fundamental spiral.

GEMMETULATE, bent abruptly at an angle, like the knee, as the stems of decumbent grasses.

GEMMETULUM, a term occasionally applied to a node, especially when the stem is bent at that point, as is frequent in grasses.

GEMMIFLECTION, the formation of a knee-like bend in a conjugating filament, as in Sirogonium.

GEMMUS (pl. *Gemmæ*), a group of species within a family or order.

GEMMUS-HYBRID, a hybrid between plants of distinct genera; bigener.

GEMMOLAST, a plumule which in germination leaves the cotyledons under ground, as in the pea.

GEMMOGRAPHICAL BOTANY, the study of plants in respect to their geographical distribution; botanical geography.

GEMMOLOGICAL BOTANY, see FOS SIL BOTANY.

GEMMOTROPISM, the tendency to grow downward or toward the centre of the earth. Compare APOGEOTROPISM.

GEMM, a bud or growing point; the embryo in a seed; a rudimentary ovary or young fruit; a female reproductive cell—germ-cell, oosphere; a spore or seed; especially a spore or reproductive individual in bacteria.

GEMM-CELL, any female reproductive cell. Compare SPERM-CELL. See OOSPHERE. Applied also by Brefeld to spores of the simplest character (Sporidia) borne on a promycelium.

GEMMEN, an old name for ovary.

GEMMINAL APPARATUS, see EGG-APPARATUS.

GEMMINAL CORPUSCLE, see OOSPHERE.

GEMMINAL VESICLE, see OOSPHERE.

GEMMINATION, the early stage of growth of a seed or spore into a new plant; sprouting.

GĒR'MĪNĀTĪVE NŪ'CLĒŪS, see GENERATIVE NUCLEUS.

GĒRM-NŪ'CLĒŪS, the nucleus resulting from the union of the pronuclei of two gametes in conjugation or fertilization.

GĒRM-PŌRE, a pit in the coat of a spore through which the germ-tube issues in germination.

GĒRM-TŪBE, the first growth from a spore or sclerotium upon germination.

GĪB'BOŪS, convex, as though swollen; protuberant, especially upon one side, or some distinct part of the surface.

GĪLLS, the spore-bearing plates upon the lower side of the cap in mushrooms; lamellæ.

GIR'DLE, the overlapping edge of one of the two valves in diatoms.

GLĀ'BRĀTE, nearly glabrous.

GLĀBRĪS'CENT, slightly glabrous.

GLĀBRĪŪS'CŪLŪS, almost but not quite glabrous.

GLĀ'BROŪS, smooth; free from roughness or hairs—the surface may be uneven. Compare SCABROUS and LÆVIS.

GLĀD'IĀTE, see ENSIFORM.

GLĀND, any secreting apparatus.

A gland is generally a group of cells having a peculiar form and character to adapt them to their special function. They sometimes form wart-like projections upon the surface, or depressions within it. The hairs of many plants also serve as glands (see GLANDULAR HAIR). In deeply-seated glands of certain kinds, as those of the pine, the internal cell-walls of the gland are more or less absorbed to form reservoirs for the secreted sub-

stance. The term gland is also applied to certain wart-like swellings which are not secretory, as the abortive teeth at the base of the leaf in the peach and cherry.

GLĀN'DĪFŌRM, gland-shaped or gland-like; adenoid.

GLAND OF THE TORUS, see LEPAL.

GLĀN'DŪLAR, gland-like or bearing glands; glanduliferous.

GLĀN'DŪLAR DĪSK, see RETINACULUM.

GLĀN'DŪLAR HĀIR, an epidermal appendage of one or more cells, the apex of which is usually enlarged and contains the peculiar secretion.

GLĀN'DŪLAR WOOD'Y TĪS'SŪE, a term formerly applied to the woody tissue of Coniferæ from the appearance of its circular bordered pits.

GLĀN'DŪLĀ'TION, the position and arrangement of the glands upon a plant.

GLĀNDŪLĪF'ĒROŪS, bearing glands.

GLĀN'DŪLŌSE, see GLANDULAR.

GLĀN'DŪLŌSE-SĒR'RĀTE, having serratures tipped by so-called glands, as the leaves of *Prunus glandulosa*.

GLĀNS, a nut like that of the oak and chestnut, and sometimes extended to all large nuts. A term of little use.

GLĀR'ĒŌSE, growing in gravelly places.

GLAU'CES'CENT, slightly glaucous.

GLAU'COŪS, covered with a whitish bloom, as the leaves of cabbage; more accurately, light bluish green; sea-green. Compare PRUINOSE, HOARY, and CANESCENT.

GLĚ'BĀ (pl. *Glě'bā̃*), chambered sporogenous tissue within a sporophore, as in puff-balls.

GLŌ'BĀTE, globular.

GLŌ'BOIDS, granules of calcium-magnesium phosphate found in grains of aleurone.

GLŌ'BŌSE, see **GLOBULAR**.

GLŌB'ŪLAR, spherical or nearly so; globose.

GLŌB'ŪLE, the antheridium or male organ of Characeæ.

GLŌCHĪD'ĪATE, barbed like an arrow or fish-hook.

GLŌ'CHIS, a barbed hair or bristle.

GLŌM'ĒRĀTE, collected into a close round head.

GLŌM'ĒRŪLE, a capitate cyme.

GLŪ'MĀ, see **GLUME**.

GLŪMĀ'CEOŪS, bearing or resembling glumes.

GLŪME, one of the outer floral envelopes in grasses. The term as now used includes the bracts which subtend a spikelet (empty glumes) and the lower of the two bracts subtending the individual flower (flowering glume).

GLŪMĚL'LĀ, an obsolete term which has been applied both to the palet and lodicule in grasses.

GLŪMĚL'LŪLĀ, see **LODICULE**.

GNAUR, a knot. (Obs.)

GNŌMŌN'ICAL, bent at right angles. (Obs.) See **GENICULATE**.

GŌB'LĒT-SHĀPED, see **CRATERIFORM**.

GŌNĪD'ĪŌPHŌRE, a stalk bearing a gonidium.

GŌNĪD'ĪŪM (pl. *Gŏnĭd'ĭā̃*), a general term for nearly all asexual reproductive bodies in cryptogams. Also applied to the

algal host of lichens. Compare **SPORE** and **CARPOSPORE**.

GŌNĪM'ĪĀ (sing. *Gŏnĭm'ĭūm*), a term of little importance originated by Nylander and used by Tuckerman and others for pale bluish green gonidia in lichens.

GŌNĪM'IC LĀYĒR, the gonidial layer in certain lichens. "Gonidial layer" is preferable.

GŌN'IMOŪS, gonidial as applied to the algal host of lichens; gonimic. (Rare.)

GŌN'ŌPHŌRE, a stalk elevating the stamens and pistils only.

GŌNŌPH'ŌRŪM, see **GONOPHORE**.

GŌN'ŌPLĀŠM, in Peronosporæ, the portion of the protoplasm of the antheridium which passes through the fertilizing tube and coalesces with the oosphere. (De Bary.)

GŌRGE, see **THROAT**.

GŌS'SYPINE, cottony.

GRĀČ'ILE, slender.

GRĀFT-HY'BRĪD, a plant, or portion of a plant, which is supposed to have been essentially modified through the influence of a graft.

GRĀIN, the seed or fruit of Gramineæ; any small seed.

GRĀINED, having grain-like tubercles or processes, as those on the flowers of dock (*Rumex*).

GRĀMĪNĀ'CEOŪS, pertaining to grasses; gramineous.

GRĀMĪN'ĒAL, see **GRAMINACEOUS**.

GRĀMĪN'ĒOŪS, see **GRAMINACEOUS**.

GRĀMĪNŌL'ŌGŸ, see **AGROSTOLOGY**.

GRĀN'ŪLĀ - GŌNĪM'ĪĀ, an old term for the gonidia of lichens.

GRĀN'ŪLAR, composed of grains or granules; covered with small tubercles.

GRĀN'ŪLĀTE, see GRANULAR.

GRĀN'ŪLE, any small grain-like body.

GRĀNŪLĪFĒROŪS, see GRANULAR.

GRĀVĒ'OLENT, having a strong unpleasant odor.

GRĒEN-LĀYĒR, see MESOPHLEUM.

GRĒGĀ'RĪOŪS, the same as Social; also applied to the fruiting spots or sori of a parasitic fungus when they appear in groups upon the host. Compare CESPITOSE.

GRŌSSĪFĪCĀ'TION, the swelling of the ovary after fertilization.

GROUND-TĪS'SŪE, see FUNDAMENTAL TISSUE.

GRŌW'ING POINT, see PUNCTUM VEGETATIONIS.

GRŌWTH-FŌRM, a vegetable structure marked by some easily recognized feature of growth, characterizing stages in the lives of plants which are not necessarily closely related, as a filamentous fungus.

GRŌWTH'-RING, see ANNUAL RING.

GRŪMŌSE', see GRUMOUS.

GRŪ'MOŪS, consisting of clustered grains or tubercles; grumose.

GUĀRD-ĈĒLLS, special epidermal cells, usually two in number, enclosing the opening of a stoma, and which have the power of altering their shape so as to increase or diminish the size of the opening.

GUĀRD'IAN-ĈĒLLS, see GUARD-CELLS.

GŪ'LAR, pertaining to the throat.

GŪM, a name applied to various viscid (not oily) secretions of amorphous character which either dissolve in water or merely swell in it, as cerasin, the characteristic element of cherry gum.

GŪM-PĀS'SĀGE, a glandular intercellular passage containing gum.

GŪS'SĒT, an intercellular space, either filled or hollow, at an angle where more than two cells meet.

GŪT'TĀTE, covered with small dots, as though sprinkled with some colored fluid.

GŪT'TĪFĒR, a plant which produces gum or resin.

GŪTTĪFĒROŪS, yielding gum or resin.

GŪT'TŪLĀTE, resembling small drops of oil or resin.

GŪMNĀX'ŌNŸ, a monstrous condition in which the placenta protrudes from the ovary.

GŪMNŌBLĀS'TŪS, having the ovary superior. (Obs.)

GŪMNŌCĀR'POŪS, naked-fruited; having the fruit destitute of hairs (rare), or free from the perianth or other covering; in fungi, having the hymenium exposed when the spores are maturing. Compare ANGIOCARPOUS.

GŪMNŌSPĒR'MOŪS, having the seeds naked (not enclosed in a pericarp), as in Coniferæ.

GŪMNŌS'TŌMOŪS, said of the mouth of the sporangium in mosses, when destitute of a peristome.

GŪM'NŌSPŌRE, a naked spore—one not produced in a receptacle.

GŪNĒĈĪŪM, see GYNÆCIUM.

GYNĀN'DĒR, a plant having the stamens inserted on the pistil. (Rare.)

GYNĀND'RIAN, see GYNANDROUS.

GYNĀND'RŌPHŌRE, a stalk supporting the stamens and pistils above the insertion of the corolla; gonophore.

GYNĀNDRŌS'PŌROŪS, bearing both male and female spores; applied in *Edogoniae* to certain female plants which produce androspores.

GYNĀN'DROŪS, having stamens and pistils united.

GYNĀN'THĒROŪS, having stamens converted into pistils.

GYNĒCIŪM, see GYNÆCIUM.

GYN'ŌBASE, an elevated portion of the receptacle supporting the ovary, as in geranium. Compare GYNOPHORE.

GYNŌBĀ'SIC, having a gynobase. Also applied to styles which are attached to the base instead of the summit of the ovary.

GYNŌDIĒ'CIŌŪS, having only pistillate flowers on one set of plants and perfect flowers upon another set. Compare GYNOMŌŒCIŌUS and ANDRODIĒCIŌUS.

GYNĒ'CIŪM (pl. *Gynē'ciā*), the pistils of a flower taken together.

GYNŌMŌŒ'CIŌŪS, having perfect and pistillate flowers on the same plant but no staminate flowers. Compare GYNODIĒCIŌUS and ANDROMŌŒCIŌUS.

GYN'ŌPHŌRE, the stalk of a pistil elevating it above the receptacle; carpophore; basigynium; podogynium; thecaphore. (Obs.) Compare GYNŌBASE.

GYNŌSTĒ'GIŪM (pl. *Gynōstē'giā*), a sheath or covering of the gynœcium, as the monadelphous filaments of *Asclepias*.

GYNŌSTĒ'MIŪM, a term formerly used for the united stamens and style (column) in orchids.

GŸ'RĀTE, coiled, circinate, or taking a circular course. Compare GYROSE.

GŸRŌ'MĀ, an old term for the annulus of ferns.

GŸRŌSE', curved alternately backward and forward; nearly the same as *Anfractuose*. Sometimes used in the sense of *Gyrate*.

HĀB'ĪT, the general appearance or manner of growth, as loose or compact, dwarf or otherwise, climbing, creeping, or upright. Also the character with regard to fruitfulness, hardness, etc.

HĀB'ĪTĀT, the kind of situation in which a plant is naturally found, as marsh, woods, mountains, etc. Compare HABITATION.

HĀBĪTĀ'TION, the entire locality or geographical range within which a species is found. Compare HABITAT and STATION.

HĀD'RŌME, see XYLEM. Applied by Ptonie to the phloëm-like portion of the fibrovascular bundle in vascular cryptogams.

HĀIR, any feeble outgrowth from the epidermis; trichome. Hairs may be of any shape, and may consist of one cell or more. They are usually derived from a single epidermal cell.

HĀIR-POINTED, terminating in a very fine weak point.

HĀIR'Ÿ, covered with longer and

coarser hairs than "pubescent."

HAL'BĚRD-SHĀPED, see **HAS-TATE**.

HAL'BĚRT-SHĀPED, see **HAS-TATE**.

HĀLF-ĀNĀT'RŌPOŮS, see **AM-PHITROPOUS**.

HĀLF-BRĚĚD, applied in stock-breeding to a cross between a well-established breed and common or "scrub" stock, but seldom used in botany. (Used by Burbidge in the sense of Cross.)

HĀLF-ĚQ'ŮITANT, said of opposite leaves whose margins are folded forward and enclose the stem and one edge of the opposite leaf, leaving one margin of each leaf outside. Compare **EQUITANT**.

HĀLF-ĪNFĚ'RĪOR, said of an ovary when the stamens are perigynous.

HĀLF STĚM-CLĀSP'ING, see **SEMIAMPLEXICAUL**.

HĀLF-SŮPĚ'RĪOR, see **PERIGYNOUS**.

HĀLŌPH'ĪLOŮS, salt-loving.

HĀL'ŌPHŮYTE, a plant containing a large quantity of common salt in its composition, and which thrives best in salty places, as *Salsola Kali*.

HĀLVĚD, see **DIMIDIATE**.

HĀ'MĀTE, hooked.

HĀMŌSE', see **HAMATE**.

HĀ'MŌŮS, see **HAMATE**.

HĀM'ŮLĀTE, diminutive of **Hamate**.

HĀM'ŮLŌSE, diminutive of **Hamose**; bearing small hooks.

HĀM'ŮLŮS, a small hook.

HĀPLŌGŌNĪD'IŮM, an algal gonidium in lichens resembling *Protococcus*. (Rare.)

HĀPLŌPĚRĪS'TŌMOŮS, having a peristome in mosses with but a single row of teeth.

HĀPLŌSTĚM'ŌNOŮS, having the stamens in one whorl.

HĀRD, said of fruits, chiefly pears, which require cooking to soften them for eating.

HĀRD'Ů, said of plants capable of passing the winter uninjured by cold. Hardiness also implies the ability to withstand any injurious climatic influence, but its limited use referring to cold is most common.

HĀS'TĀTE, like the head of a halberd—applied to leaves which have a spreading lobe on each side of the base. Compare **SAGITTATE**.

HĀS'TĪFŌRM, see **HASTATE**.

HĀS'TĪLE, see **HASTATE**.

HĀTCH'ĚT-SHĀPED, see **DOLABRIFORM**.

HĀULM, the dead stems of any herbaceous plant.

HAUSTŌRĪŮM (pl. *Haustōriā*), the special organ of certain parasites by means of which they obtain food from their host.

HĚAD, any compact somewhat rounded body upon a stem. The term is also applied to a cluster of nearly sessile flowers, as in the clovers and *Compositæ*, also to other more or less compact inflorescences, as the spike, corymb, and panicle. See **CAPITULUM**.

HEĀRT, the organic centre of anything, as the central portion of a tree-trunk, or a growing point surrounded by leaves.

HEĀRT-SHĀPED, see **CORDATE**.

HEĀRT-WŌOD, see **DURAMEN**.

HĚBĚCĀR'POŮS, having pubescent fruit. (Obs.)

HĚB'ĚTĀTE, having an obtuse point; blunted.

HĚDĚRĀ'ČEOŮS, pertaining to or resembling ivy.

HĚD'ĚRAL, see **HERDERACEOUS**.

HĚLIČ'IFŮRM, see **HELICOID**.

HĚL'ICOID, (1) coiled into the form of a helix or snail-shell; spiral; (2) in inflorescence contrasted with Scorpioid, which see. See **HELICOID CYME** and **HELICOID DICHO TOMY**.

HĚL'ICOID CYME, one in which each successive flower is situated upon the same side of a pseudaxis, which may or may not be coiled, as the primary branches of the inflorescence of *Hemerocallis fulva*; bostrychoid cyme; bostryx; false raceme. Compare **SCORPIOID CYME**.

HĚL'ICOID DICHŮT'ŌMÝ, a dichotomy in which a branch on the same side in each successive bifurcation continues to develop while the other does not; bostrychoid dichotomy. Compare **SCORPIOID DICHOTOMY**.

HĚLIŮGÝ'RĀTE, having a circular line carried obliquely around an object, as the annulus on the spore-case of Trichomanes.

HĚLIŮT'RŮPIŠM, having the power of movement under the influence of light.

HĚL'MĚT, see **GALEA**.

HĚL'MĚT-SHĀPED, see **GALEATE**.

HĚLŮ'BIŮS, see **PALUSTRINE**.

HĚMÍ-ĀNĀT'RŮPOŮS, see **AMPHITROPOUS**.

HĚM'ICĀRP, one of the ripened separable carpels of a dicarpellary fruit, as in Umbelliferæ; diachænum. See **MERICARP**.

HĚM'ICYCLE, half of a coil or circle.

HĚMICYC'LIC, having part of the floral organs arranged in whorls and the remainder in a spiral. Compare **CYCLIC** and **ACYCLIC**.

HĚMÍT'RŮPAL, see **AMPHITROPOUS**.

HĚMÍT'RŮPOŮS, see **AMPHITROPOUS**.

HĚPTĀG'YNOŮS, having seven pistils or styles.

HĚPTĀM'ĚROŮS, having seven parts.

HĚPTĀN'DROŮS, having seven stamens.

HĚPTĀPĚT'ALOŮS, having seven petals.

HĚRB, a plant of which the stem contains but little wood and dies to the ground at the close of the season. It may be an annual, a biennial, or a perennial.

HĚRBĀ'ČEOŮS, like an herb; succulent. Also green, as opposed to colored like an ordinary corolla, as a petal with an *herbaceous* (green) tip.

HĚRBĀ'ČEOŮS PĚRĚN'NĪAL, see **PERENNIAL HERB**.

HĚRB'AL, see **HERBARIUM**.

HĚRBĀ'RĪŮM (pl. *HĚrbā'riŭm* or *HĚrbā'riā*), a classified collection of dried specimens of plants; herbal; hortus-siccus.

HĚRBĚS'CENT, herbaceous or somewhat so.

HĚRBŮRĪZĀ'TION, see **BOTANIZING**.

HĚRCŮG'AMOŮS, said of an hermaphrodite flower when some structural obstacle prevents self-fertilization, as in many orchids.

HĚRMĀPH'RŮDĪTE, see **PERFECT**.

HĚSPĚRĪDĪŮM, a fruit like the orange, being succulent within and covered with an indehiscent leathery rind.

HĚTĚRĪŮ, a collection of distinct indehiscent carpels belonging to a single flower. They may be either dry upon a fleshy receptacle, as in the strawberry, or dry upon a dry receptacle, as in *Ranunculus*, or fleshy upon a dry receptacle, as in the raspberry. Usually but improperly spelled *Eterio*.

HĚTĚRAUXĚSĪS, any irregular or unsymmetrical growth, either normal or abnormal.

HĚTĚRŌCĀRPOŮS, bearing fruit of two or more kinds or forms, as in the genus *Amphicarpea*. Compare *HOMOCARPOUS*.

HĚTĚRŌCĚPHĀLOŮS, bearing heads of more than one kind. For example, having flower-heads some of which contain only staminate flowers and some only pistillate.

HĚTĚRŌCHRŌMOŮS, having different members unlike in color; also applied to a flower-head in *Compositæ* when the florets of the centre or disk differ in color from those of the circumference or ray.

HĚTĚRŌCLĪNOŮS, having male and female flowers in separate heads or receptacles.

HĚTĚRŌCŮYST, one of the intercalated cells of special character in the filaments of *Nostocinæ*; limiting-cell. They are usually large, rounded, brownish, and glassy in appearance.

HĚTĚRŌDRŌMOŮS, turning or coiling in opposite directions, as a tendril which coils first one way and then the other, or a plant on which the leaf-spiral of a branch runs in the oppo-

site direction from that of the main axis. Compare *HOMODROMOUS* and *ANTIDROMOUS*.

HĚTĚRĚCĪOŮS, parasitic on different plants at different stages of growth; metœcious; metoxenous; heteroxenous.

HĚTĚRĚCĪSMAL, see *HETERECIOUS*.

HĚTĚRĚCŮYST, see *HETEROCYST*.

HĚTĚRŌGĀMOŮS, said of the heads of flowers in *Compositæ* when the florets are not all alike in sex.

HĚTĚRŌGĚNEŮS, not of uniform substance or character.

HĚTĚRŌGĚNĚSĪS, see *SPONTANEOUS GENERATION*.

HĚTĚRŌGŌNOŮS, having two or more kinds of flowers differing in the relative lengths of the stamens and styles; heterostyled. See *DIMORPHOUS* and *TRIMORPHOUS*.

HĚTĚRŌMĀLOŮS, spreading in all directions. Compare *HOMOMALOUS*.

HĚTĚRŌMĚROŮS, having a different number of parts in the different whorls of a flower. Compare *ISOMEROUS*. Applied also to a lichen thallus when a layer of the algal cells divides it into an outer cortical and an inner medullary portion. Compare *HOMOIOMEROUS*.

HĚTĚRŌMŌRPHOŮS, of two or more forms, as the flowers of *Buchloë dactyloides*.

HĚTĚRŌPHŮYLLOŮS, having two or more distinct sorts of foliage-leaves on the same plant, as in junipers; also applied to species whose leaves differ widely from those of related species. The term is not usually applied to plants in which the leaves merely assume different forms at

successive elevations on the stem.

HĚTĚRŌRHĪ'ZAL, having roots which seem to proceed from no fixed point, as those of acrogens; said also of spores which germinate indifferently from any portion of the surface. Little used.

HĚTĚRŌS'PŌROŮS, bearing asexually produced spores of more than one kind, as in the Uredineæ; having macrospores and microspores, as in Selaginella. Compare HOMOSPOROUS and ISOSPOROUS.

HĚTĚRŌSTĚLED, see HETEROGONOUS.

HĚTĚRŌTĀXŸ, the deviation of organs from their normal position.

HĚTĚRŌT'RŌPAL, see AMPHITROPOUS.

HĚTĚRŌT'RŌPOŮS, see AMPHITROPOUS. Also applied to any part which is turned in an unusual direction.

HĚTĚRŌX'ĚNOŮS, see HETERECIOUS.

HĚX-, a prefix derived from the Greek, meaning six. See SEX.

HĚXĀG'ŸNOŮS, having six pistils or styles.

HĚXĀM'ĚROŮS, having the parts in sixes. Applied mainly to the parts of a flower, and meaning six organs in each whorl. Also written 6-merous.

HĚXĀN'DROŮS, having six stamens; hexastemonous.

HĚXĀPĚT'ALOŮS, having six petals.

HĚXĀPHŸL'LOŮS, having six leaves or leaflets.

HĚXĀSTĚM'ŌNOŮS, see HEXANDROUS.

HĪBĚR'NĀCLE, see HIBERNACULUM.

HĪBĚRNĀC'ŪLŮM, a protection for a growing part through the winter, as a bud or bulb.

HĪBĚR'NAL, pertaining to winter; blooming or vegetating in winter; hiemal; hyemal.

HĪBĚRNĀ'TION, passing the winter in a dormant condition.

HIDDEN-VEINED, having the veins of a leaf buried in the tissue so as not to be easily visible.

HIDE-BOUND, see BARK-BOUND.

HĪĚMAL, see HIBERNAL.

HĪ'LAR, pertaining to the hilum.

HĪLE, see HILUM.

HĪ'LŮM (pl. HĪ'lā, or preferably HĪ'lūm), the scar, or point of attachment of a seed. The term is also applied to the nucleus of a starch-grain.

HIP, the fruit of the rose; a cynarrhodium.

HĪPPŌCRĚP'IFŌRM, horseshoe-shaped.

HĪRSŪTE', clothed with rather numerous long coarse hairs, harsher than pubescent and less harsh than hispid.

HĪR'TŪS, indefinite in meaning, but nearly the same as Hirsute, which see.

HĪRTĚL'LOŮS, slightly hirsute; stiffly pubescent.

HĪS'PID, clothed with erect stiff hairs, as Borage.

HĪSPĪD'ŪLOŮS, minutely hispid.

HĪSTĪŌL'ŌGŸ, see HISTOLOGY.

HĪSTŌDĪĀL'ŸSĪS, the separation of the cells of a tissue from each other.

HĪSTŌGENĚT'IC, tissue-forming; pertaining to histogeny.

HĪSTŌGEN'IC, see HISTOGENETIC.

HĪSTŌG'ĚNŸ, the origin or formation of tissue.

HĪSTŌL'ŌGŸ, the science of the structure of tissues. Compare MORPHOLOGY.

HŌARY, grayish white; canescent.

HŌLD'-FAST, any root or root-like organ whose chief function is to retain the plant in place, as the aerial roots of ivy, or the suckers or rhizoids of many sea-weeds; crampon.

HŌLĒRĀ'ĈEOŪS, see OLERACEOUS.

HŌLŌCĀR'POŪS, having the pericarp entire. (Rare.)

HŌLŌSĀP'RŌPHŸTE, a complete saprophyte: one which lives entirely on dead organic matter.

HŌLŌSĒRĪĈ'EOŪS, covered with very short silky hairs hardly visible to the eye. Compare VELUTINOUS.

HŌMŌBLĀS'TĪC, said of the embryo when in its usual position with the radicle directed toward the micropyle and the cotyledons in the opposite direction. Compare ENANTIOBLASTIC.

HŌMŌCĀR'POŪS, bearing fruit all of one kind. Compare HETEROCARPOUS.

HŌMŌĈĒN'TRĪC, see CONCENTRIC.

HŌMŌĈHRŌ'MOŪS, of uniform color.

HŌMŌD'RŌMAL, see HOMODROMOUS.

HŌMŌD'RŌMOŪS, turning continuously in the same direction. Compare HETERODROMOUS.

HŌMŌDŸ'NĀMOŪS, of equal strength, size, or vigor.

HŌMŌG'ĀMOŪS, having all the florets of a head in Compositæ alike in sex. Compare HETE-

ROGAMOUS. Also used for Synacmic, which see.

HŌMŌĜĒ'NEOŪS, having the same nature or structure throughout.

HŌMŌG'ŌNOŪS, having the stamens and pistils alike in character in all flowers of the species; homostyled. Compare HETEROGONOUS.

HŌMOIŌM'ĒROŪS, applied to a lichen thallus in which the gonidia and hyphæ are mingled together and not distinctly stratified. Compare HETEROMEROUS.

HŌMŌL'ŌGOŪS, of the same morphological nature, as leaves, bracts, sepals, petals, stamens, and pistils are all *homologous*, or forms of the same fundamental organ.

HŌM'ŌLŌGUE, a part homologous with another, as a stamen with a leaf; homotype. Compare ANALOGUE. A nectary, for example, is in some cases the homologue of a stamen and in others of a petal, but it is always the analogue of any other nectary.

HŌMŌL'ŌGŸ, correspondence in structure or morphological nature. Compare ANALOGY. See HOMOLOGOUS and HOMOLOGUE.

HŌMŌM'ĀLOŪS, applied to leaves or other organs which originate on the different sides of a stem, but are all turned toward one side. Compare SECUND.

HŌMŌMŌR'PHOŪS, of the same shape or character, as when the disk-flowers as well as the ray-flowers of a head in Compositæ are ligulate.

HŌMŌPĒT'ĀLOŪS (obs.), see REGULAR.

HŌMŌS'PŌROŪS, having asexually produced spores of only

one kind; isosporous. Compare HETEROSPOROUS.

HŌ'MŌSTĪLED, see HOMOGONOUS.

HŌMŌT'RŌPAL, see HOMOTROPOUS.

HŌMŌT'RŌPOŪS, said of an embryo in a curved seed when it is curved in the same manner as the seed.

HŌM'ŌTĪPE, see HOMOLOGUE.

HŌN'EY, see NECTAR.

HŌN'EY-CŌMBED, see ALVEOLATE.

HŌN'EY-DEW, a sweet substance found on the leaves of plants, usually a secretion from plant-lice.

HŌN'EY-GŪIDE, see NECTAR-GUIDE.

HŌN'EY-PŌRE, the supposed pore in flowers which secretes honey. (Obs.)

HŌN'EY-SPŌT, see NECTAR-GUIDE.

HŌŌD, see CUCULLUS.

HŌŌD'ED, see CUCULLATE.

HŌŌD'-SHĀPED, see CUCULLATE.

HOOP, the connecting band between the valves in Diatomaceæ.

HŌRĪZŌN'TAL SŸSTĒM, the cellular as distinguished from the fibrovascular system. Little used.

HŌR'MŌGŌN, see HORMOGONIUM.

HŌRMŌGŌNĪ'ŪM (pl. HŌrmŏgŏnĭ'ā), a reproductive body in certain algæ, as the Oscillatorieæ, consisting of a short chain of cells, one of the natural fragments of a filament.

HŌRN, any horn-shaped appendage, as the spur of a flower.

HŌRN'LĒT, a little horn.

HŌRNY, of the texture of a horn,

as the pericarp of witch-hazel, *Hamamelis Virginica*.

HŌRŌLŌG'ICAL, said of flowers which open and close at definite hours of the day.

HŌRTĒN'SIS, pertaining to a garden.

HŌR'TŪS-SĪC'CŪS, see HERBARIUM.

HŌSE-IN-HŌSE, when the calyx in a gamopetalous flower takes the form of the corolla, or when the corolla itself in such a flower is in two parts or whorls.

HŌST, a plant which supports a parasite.

HŌST'-PLĀNT, see Host.

HŪ'MĪFŪSE, spreading upon the ground.

HŪ'MĪLĪS, low, or less in stature than related species, but not necessarily dwarf; pumilus.

HŪ'MŪS PLANT, see SAPROPHYTE.

HŪSK, any large, dry, thin envelope covering the fruit or inflorescence, as one of the bracts surrounding an ear of corn.

HŪALĒS'CENT, somewhat hyaline.

HŪ'ĀLINE, clear and colorless like glass or water; translucent or transparent.

HŪ'ĀLŌPLĀSM, the clear portion of the protoplasm free from granules. Often restricted to such a layer next to the cell-wall, then called by some Ectoplasm.

HŪBĒR'NĀCLE, see HIBERNACULUM.

HŪBĒRNĀTING, see HIBERNATING.

HŪBRĪD, the offspring of two species of the same genus. Compare Cross. The term

Hybrid is often erroneously used to designate the result of cross-fertilization between any different species or varieties. As true hybrids are often sterile, the term "mule" has been applied to them. Burbidge proposes to retain the term "mule" for sterile hybrids only. See GENUS-HYBRID.

HÝBRÍDÍZÁTION, the fertilization of a flower by pollen from a plant of another species. Often erroneously used for cross-fertilization in general.

HÝDRŌID, see TRACHEID.

HÝDRŌPHÍLOŮS, having the pollen conveyed to the stigma by means of water.

HÝDRŌPHÝTE, an aquatic plant of any kind.

HÝDRŌT'RŌPÍSM, power in a growing organ of turning in a definite manner or direction through the influence of moisture, i.e. of taking a definite position with respect to the source of moisture. See POSITIVE and NEGATIVE HYDROTROPISM. Compare HYGROSCOPIC.

HÝEMAL, see HIBERNAL.

HÝGRŌMÉT'RÍC, moving in a definite manner as a result of a change in the degree of moisture; hygrosopic.

HÝGRŌPH'ÁNOŮS, having a watery appearance.

HÝGRŌPLÁSM, the fluid portion of the protoplasm. Compare STEREOPLASM.

HÝGRŌSCŌP'ÍC, (1) absorbing moisture with avidity; (2) showing an increase or diminution of moisture by motion; hygrometric. Compare HYDROTROPISM.

HÝGRŌSCŌP'ÍC ĆĚLLS, certain cells in the leaves of grasses

which have the power of altering their form under the influence of moisture and causing the leaves to "curl" in dry weather. From their bladder-like appearance they are also called Bulliform Cells.

HÝMĚ'NÍŮM (pl. *Hýmē'niā*), a spore-bearing surface in fungi, especially in mushrooms and their allies.

HÝMĚN'ŌPHŌRE, the portion of a sporophore immediately beneath a hymenium; hymenophorum.

HÝMĚNŌPH'ŌRŮM, see HYMENOPHORE.

HÝPÁN'THÍŮM, an expanded, usually fleshy, receptacle, more or less enclosing the flowers, as in the fig, rose, *Dorstenia* and *Ambora*; hypanthodium. See HIP and SYCONUS. Compare CLINAN-THIUM and RECEPTACULAR TUBE.

HÝPÁNTHŌ'DÍŮM, see HYPANTHIUM.

HÝPĚRBŌ'REAN, growing in the extreme north.

HÝPĚR'TRŌPHÝ, excessive development. Compare ATROPHY.

HÝ'PHÁ (pl. *Hy'phæ*), a filament of mycelium.

HÝPHÁS'MÁ, an old term for mycelium, still occasionally used when particularly delicate and web-like.

HÝP'NŌSPĚRM, an asexually produced resting-spore in algæ; hypnospore.

HÝP'NŌSPŌRÁN'ĜÍŮM, a sporangium containing resting-spores.

HÝP'NŌSPŌRE, any resting-spore, especially one produced asexually. Compare HYPNOSPERM. See RESTING-SPORE.

HYPO-, in Greek derivatives, under.

HYPŌCĀRPŌGĒ'AN, producing fruit beneath the surface of the ground, as the peanut.

HYP'ŌCHĪL, see **HYPOCHILIUM**.

HYPŌCHĪL'IŪM, the lower or basal part of the divided labelum in certain orchids; hypochil. Compare **EPICHILIUM**.

HYP'ŌCŌTŪL, the caulicle. Compare **EPICOTYL**.

HYPŌCŌTŪLE'DŌNĀRŸ, situated below the cotyledons.

HYPŌCRĀTĒR'ĪFŌRM, having a long tube with an abruptly spreading border, as in phlox; salver-form.

HYP'ŌDĒRM, see **HYPODERMA**.

HYPŌDĒR'MĀ, cells or layers of cells next beneath the epidermal system which are developed in a special manner, usually as collenchyma or other strengthening tissue.

HYPŌDĒR MAL, situated beneath the epidermis; hypodermous.

HYPŌDĒR'MOŪS, see **HYPODERMAL**.

HYPŌGĒ'AN, see **HYPOGEAN**.

HYPŌGĒ'OŪS, see **HYPOGEAN**.

HYPŌGĒ'AL, see **HYPOGEAN**.

HYPŌGĒ'AN, subterranean: applied to parts which grow beneath the surface of the ground, and to plants which ripen their fruit beneath the surface; hypogæan; hypogæous; hypogeal; hypogeous.

HYPŌGĒ'ENOŪS, growing upon the lower surface of anything.

HYPŌGĒ'OŪS, see **HYPOGEAN**.

HYPŌG'YNOŪS, growing beneath the pistil, and free.

HYPŌNĀS'TIC, denoting curvature from growth on the lower side of an organ, causing it to

bend upward. Compare **EPINASTIC**.

HYP'PŌNĀSTŸ, having more rapid growth upon the lower than upon the upper surface. Compare **EPINASTY**.

HYPŌPHLĒ'ŌDAL, beneath the bark.

HYPŌPH'ŸLLOŪS, situated upon the lower side of a leaf.

HYPŌPHŸL'LŪM, an abortive or scale-like leaf subtending anything. (Rare.)

HYPŌPH'ŸSIS, an appropriate but seldom used term for the Apophysis in mosses.

HYPŌTHĀL'LŪS, a lower or interior stratum in a thallus.

HYPŌTHĒ'ÇIŪM, a portion of the thallus beneath or around the apothecium in lichens.

HYP'SŌPHŸLL, see **BRACT**.

HŸSTĒRĀN'THOŪS, said of plants which have the flowers expand after the leaves have appeared. The leaves therefore in a hysteranthous plant are proteranthous.

HŸSTĒRŌGĒN'IC, formed late; applied to intercellular spaces formed in older tissues. Compare **PROTOGENIC**.

ICŌS, in Greek compounds, twenty.

ICŌSĀN'DROŪS, having twenty or more perigynous stamens. Compare **POLYANDROUS**.

IDĒNTĪFĪCĀTION, see **DETERMINATION**.

ID'IOBLĀST, a single cell in a tissue which differs greatly from its neighbors in form, size, nature of cell-wall, or cell-contents.

ID'IOPLĀSM, a term applied by Nägeli to the active organizing part of the protoplasm.

IG'NĒŪS, fiery-red, a lively scarlet.

ĪMBĒR'BĪS, without a beard or other hairs. See **GLABROUS**.

ĪMBĪB'ITION, the addition of moisture to organized bodies in a manner which causes them to swell up. Compare **ABSORPTION**.

ĪM'BRĪCĀTE, overlapping like tiles or shingles on a roof, as the scales of buds. In æstivation at least one piece is wholly external and one wholly internal.

ĪM'BRĪCĀTĒD, see **IMBRICATE**.

ĪM'BRĪCĀTĪVE, see **IMBRICATE**.

ĪMMĀR'GĪNĀTE, without a distinct rim or border.

ĪMMĒRSED', (1) growing wholly under water; demersed; submerged. (2) When one part or organ is completely embedded in another; innate. Compare **EMERSED**.

ĪMMŌRTĒLLES', a term applied to various plants, the flower-heads of which retain their original shape and an attractive appearance when dried, as *Gnaphalium* and some other *Compositæ*; everlasting flowers.

ĪMPĀRĪPĪN'NĀTE, pinnate with a terminal leaflet, thus usually making an odd number; oddly pinnate.

ĪMPĒR'FĒCT, said of a flower which lacks either stamens or pistils.

ĪMPĒR'FŌRĀTE, closed; without an opening.

ĪMPRĒGNĀ'TION, see **FERTILIZATION**.

IN-AND-IN, breeding for successive generations from closely related individuals. Growing a "stock" or "strain" of corn on the same farm for many

years would be called in-and-in breeding.

ĪNĀNE', empty.

ĪNĀN'THĒRĀTE, bearing no anther; said of certain sterile filaments or abortive stamens.

ĪNĀRCH'ING, the natural union of stems or roots which grow in contact; natural grafting. Also applied in horticulture to a form of grafting in which both stock and scion remain at first attached to their own roots.

ĪNĀRTĪC'ŪLĀTE, not jointed; continuous.

ĪNCĀNĒS'CENT, see **CANESCENT**. Strictly, somewhat or slightly canescent.

ĪNCĀ'NOŪS, see **CANESCENT**.

ĪNCĪSED', irregularly and deeply cut into rather large lobes.

ĪNCLĪNĒD', gradually bent out of a perpendicular at less than a right angle, as the branches of most deciduous trees.

ĪNCLŪD'ĒD, contained in a cavity and not projecting beyond it; enclosed. Compare **EXSERTED**.

ĪNCŌPLĒTE', destitute of some part which is usually present; said especially of flowers which lack one or more of the four sets of primary organs, sepals, stamens, and pistils.

ĪNCŌNSPĪC'ŪŌŪS, small in size; not readily observed.

ĪNCRĀS'SĀTE, thickened; especially, gradually thickened or enlarged upward from the base.

ĪNCRĒS'CENT, growing.

ĪNCŪBĀ'TION, the period from the time of infection or the sowing of the spores until a bacterium or fungus becomes externally or visibly manifest. Applied mainly to pathogenic bacteria affecting animals to indicate the period from the

time the organism enters the body until the disease appears.

INCUBOUS, having the tip of one leaf overlap the base of the one above it, as in the *Jungermaniaceæ*. Compare **SUCCUBOUS**.

INCUMBENT, leaning or lying upon; applied to cotyledons when the radicle is folded against the back of one of them (the radicle in such case being dorsal). Compare **ACCUMBENT**. An anther is *incumbent* when lying on the inside of the filament to which it is attached. Compare **VERSATILE**.

INCURVATE, see **INCURVED**.

INCURVED, bent or curved inward; incurvate.

INDECIDUOUS, either evergreen or persistent.

INDEFINITE, either uncertain or not uniform in number, or too many to be readily counted; numerous; over twenty when applied to stamens. Also applied to objects which have no well-defined boundary or outline.

INDEFINITE GROWTH, see **INDETERMINATE**.

INDEFINITE INFLORESCENCE, see **INDETERMINATE**.

INDEHISCENT, not opening in a definite manner at maturity to discharge the contents. The fruits of the pea and lily are dehiscent, those of the tomato and apple *indehiscent*.

INDETERMINATE, a mode of centripetal inflorescence in which the flowers all arise from axillary buds. Applied also to all stems which do not produce a well-developed terminal bud at the close of the season, as the grape. Compare **DETERMINATE**.

INDIFFERENT, undifferentiated; not specialized; as *indifferent* cells or tissues.

INDIGENOUS, strictly native; aboriginal. Compare **NATURALIZED**.

INDIVIDUAL FERTILIZATION, a term applied by L. H. Bailey to cross-fertilization between different flowers upon the same plant.

INDUMENTUM, any hairy covering upon plants.

INDUPLICATE, having the margins folded inward. Compare **INVOLUTE**.

INDURASCENT, becoming hard.

INDURATED, hardened.

INDUSIATED, furnished with an indusium.

INDUSIUM, an outgrowth of the epidermis covering the sorus in many kinds of ferns; shield. Also applied to a ring of "collecting hairs" below the stigma, as in *Lobeliaceæ*.

INDUSIUM, FALSE, see **FALSE INDUSIUM**.

INDUVIÆ, any parts of the flower which persist and cover the fruit at maturity; also dead and withered leaves which remain persistent on the stem. Compare **RELIQUÆ**.

INEQUALATERAL, unequal sided.

INERMUOUS, unarmed; destitute of spines, prickles, etc.

INFARCTATE, see **FARCTATE**.

INFECTIOUS. In ordinary use this term has the same sense as *Contagious*, being applied to all diseases which are communicable from one plant or animal to another by direct contact or otherwise. In a broad sense *infectious* includes *Contagious*, as defined under that

term, and applies also to diseases originating from germs which are able to vegetate for a time at least outside of the affected plant or animal. In a strict sense Infectious applies only to diseases produced by organisms which have their natural home outside of the infected body.

INFÉ'RIOR, lower, as an ovary to which the other floral organs are adnate so that they arise from its summit. If the other organs are free from the ovary *they* are inferior and the ovary superior, though the term is seldom applied to them. The *inferior* side of a leaf or flower is the lower or anterior side which faces away from the supporting axis or stem.

INFLÁ'TĒD, puffed up; bladdery.

INFLĒCT'ĒD, see INFLEXED.

INFLEXED', abruptly bent inward or downward; inflected.

INFLÔRĒS'CENCE, (1) the arrangement of the flowers or flower-clusters on a plant; anthotaxy. Compare PHYLLO-TAXY. (2) The portion of the plant which bears the flowers and fruit, i.e., a flower-cluster of any kind.

INFRA-AX'ILLĀRĪ, situated below the axil.

INFRÁCT'ĒD, see INFLEXED.

INFRŪCTĒS'CENCE, an inflorescence in fruit; the fruiting portion of a plant, together with its fruit. Little used, and applied mainly to collective fruits.

INFUNDIB'ULAR, see INFUNDIB-ULIFORM.

INFUNDIB'ULIFÔRM, funnel-shaped; having a tube which gradually enlarges upward and bears a moderately spreading

border, as *Datura*. Compare HYPOCRATERIFORM.

INÍ'TIAL CELLS, the first formed cells of a tissue.

INJEC'TION, filling of inter-cellular spaces by water, an occurrence which rarely happens.

INNÁTE', (1) said of anthers attached by their base to the apex of the filament; such anthers are sometimes called Vertical; (2) said of an organ or object which grows within the substratum, as "*mycelium* or *perithecia innata*," i.e., growing within the tissue of the host.

IN'NĒR LĀM'INĀ, the layer of a lignified cell-wall adjoining the inside of the cell. Compare MIDDLE LAMINA.

INNÔVÁ'TION, a new or additional growth or shoot, as the supplementary extensions of the stem in mosses. Applied also to an entire group of off-growths of the same morphological value if some of the forms are true innovations in their manner of growth; thus Dr. William Trelease applies this term in *Epilobium* to forms which vary in different species from sessile buds to dense rosettes, running leafy shoots, scaly rhizomes, and filiform bulbiferous stolons.

INÔS'CULĀTĪNG, opening into each other; anastomosing.

INSĒRT'ĒD, attached to or growing out of, as stamens *inserted* on the corolla.

INSĒRTION, the place or mode of attachment.

INSPÍS'SĀTĒD, thickened by drying.

INSTÍP'ULÁTE, see EXSTIPULATE.

ĪNĒGRĪFŌLĪŌŪS, having entire leaves.

ĪNĒĠUMENT, any covering layer or membrane.

ĪN'TĒR-, in composition, between. Compare **ĪNTRA-**.

ĪNĒRĀX'ĪLLĀRŲ, between the axils.

ĪNĒR'ĀLĀTĒD, inserted between or in the midst of.

ĪNĒRCĀR'PĒLLĀRŲ, between the carpels.

ĪNĒRĈĒL'LŪLAR PASS'AGE, a continuous opening between the cells.

ĪNĒRĈĒL'LŪLAR SPACE, any cavity within the plant. Usually applied to smaller openings than intercellular passages.

ĪNĒRĈĒL'LŪLAR SUBSTANCE, material extruded from the cells within the plant.

ĪNĒRĈĒL'LŪLAR SŲSTĒM, the intercellular spaces and material of a plant taken together.

ĪNĒRCŌS'TAL, situated between the ribs of a leaf.

ĪNĒRFĀSCĪC'ŪLAR, between the bundles: said of a layer of cambium which extends from one fibrovascular bundle to another.

ĪNĒRFĪLAR, between the filaments, as the resting-spore in the conjugation-tube of *Mesocarpus*, or the fluid portion of the protoplasm in the hypothetical fibrillar network. Compare **ĪNTRAFILAR**.

ĪNĒRFŌLĪĀ'ĠEOŪS, attached to the stem between the bases or petioles of opposite leaves; interpetiolar. Compare **ĪNTRAFOLIACEOUS**.

ĪNĒRMĒ'DĪĀTE TĪS'SŪE, all the fundamental tissue in exogens, except that which is immediately associated with the

epidermis and the fibrovascular bundles. It includes the pith, medullary rays, and most of the cortex. The term is of little use.

ĪNĒRMĒ'DĪĀTE ZŌNE, the zone in endogens between the pith and epidermis containing the fibrovascular bundles.

ĪNĒR'NAL GLAND, a secreting cell, or usually a cluster of secreting cells, within the plant, as those containing essential oil which form the translucent dots in the leaves of the orange.

ĪNĒRNŌDE, the portion of a stem between two nodes.

ĪNĒRPĒT'ĪŌLAR, see **ĪNTRAFOLIACEOUS**.

ĪNĒRRŪPTĒD, said of any surface or series the continuity of which is broken, as a pinnate leaf in which leaflets much larger or smaller than usual are interposed among the others, or a slender stem or root which is contracted at intervals.

ĪNĒRRŪP'TĒDLŲ - PĪN'NĀTE, pinnate with small (or sometimes large) leaflets interposed between those of the usual size.

ĪNĒRSTĪ'TIAL, applied to that method or theory of growth which consists in the interposition of new particles between the older ones instead of additions to the surface.

ĪNĒX'ĪNE, see **ĪNTEXTINE**.

ĪNĒX'TĪNE, a term applied by Fritzsche to the inner part of the extine when, as in *Oenothera*, it separates as a distinct membrane. Compare **EXINTINE**.

ĪN'TĪNE, the inner coat of a pollen-grain.

ÎNÔR'TION, turning to one side from the vertical or any straight line. (Rare.)

ÎN'TRĀ-, in composition, within. Compare **INTER-**.

ÎNTRĂCĂR'PĚLLĂRŸ, produced inside a carpel.

ÎNTRĂCĚL'LŪLAR, within a cell.

ÎNTRĂFĂSCĲ'ŪLAR, within the bundle, as an *intrafascicular* lacuna in Equisetum.

ÎNTRĂFĲLAR, within the filament. Compare **INTERFILAR**.

ÎNTRĂFŲLIĂ'CEŲS, within a leaf; between the leaf and stem, as the stipules of Polygonum; intrapetiolar. Compare **INTERFOLIACEOUS**.

ÎNTRĂLĂM'ĚLLAR, within special layers or lamellæ, as the trama of Hymenomycetes.

ÎNTRĂMĂR'GĲNAL, situated within but near the margin.

ÎNTRĂMĂT'RĲCAL, in a matrix or nidus.

ÎNTRĂPĚT'ĲLAR, (1) inside or beneath the petiole, as the buds of sumach and sycamore (subpetiolar); (2) between the petiole and the stem, as the stipules of sycamore and most buds; intrafoliaceous.

ÎNTRĂVĂG'ĲNAL, within the sheath: applied to branches in grasses which in their growth do not break through the base of the sheath of the subtending leaf, but push upward between the sheath and the stem. Compare **EXTRA-VAGINAL**.

ÎNTRŲDŲCED', applied to plants brought from another country, and growing spontaneously unless otherwise noted. Compare **NATURALIZED**.

ÎNTRŲFLĚXED', bent strongly inward. Between **Incurved** and **Infracted**.

ÎNTRŲRSE', facing or turning inward. Applied to anthers which open on the side next the pistil.

ÎNTRŲD'ĚD, appearing as if pushed inward or indented; intruse.

ÎNŲSSŲCĚP'TION, the intercalation or formation of other particles among those already present.

ÎNŲLĲN, a material isomeric with (resembling) starch which replaces that substance in many Compositæ.

ÎNVĂG'INĂTĚD, inclosed in a sheath.

ÎNVĚRSE', see **INVERTED**.

ÎNVĚRTĚD, having a position or mode of attachment the reverse of that which is usual; *inverse*. A seed or ovule is *inverted* when attached to the top of the ovary. It is then, however, more properly called "suspended." Compare **ERECT** and **ASCENDING**.

ÎNVĚRTĚD SŲPĚRPŲSĲTION, the situation of accessory buds below the principal bud or one first formed. Compare **DIRECT SUPERPOSITION**.

ÎNVŲL'ŲĚĲ, a partial or secondary involucre, as one subtending a partial umbel.

ÎNVŲLŲĚĲ'LŲM, see **INVOLUCEL**.

ÎNVŲLŲ'CRAL, pertaining to an involucre.

ÎNVŲLŲ'CRĂTE, having an involucre; involucred.

ÎN'VŲLŲCRE, a set of bracts immediately subtending a flower or inflorescence; involucreum.

ÎN'VŲLŲCRED, see **INVOLUCRATE**.

ÎNVŲLŲ'CRĚT, see **INVOLUCEL**.

ÎNVŲLŲ'CRŲM, see **INVOLUCRE**.

IN'VŌLŪTE, rolled inward from both sides. Compare CONVOLUTE.

INVŌLŪTION-FŌRM, a swollen bladder-like form in Schizomycetes, supposed to be a diseased condition of the form with which it is found associated. (De Bary.)

INVŌLŪTION-PĒ'RĪŌD, see RESTING-PERIOD.

INVŌLŪTION-STĀGE, see RESTING-STAGE.

ĪRRĒG'ŪLAR, denoting flowers in which one or more of the organs of a set are different in size or form from the others. Irregularity occurs most frequently in the petals. The pea is an example of an irregular flower, the tulip of a regular. Compare SYMMETRICAL.

ĪRRĒG'ŪLAR PĒLŌ'RĪĀ, a teratological condition in which an irregular flower becomes regular by the formation of the irregular parts in increased number. Compare REGULAR PELORIA.

ĪRRĪTĀBĪL'ĪTŪ, having the power of movement in a definite manner under the influence of external stimuli, as in the coiling of tendrils, twining of stems, or "sleep" of leaves; sensitiveness. Compare EXCITABILITY and CONTRACTILITY.

ĪSĀDĒL'PHŌŪS, having an equal number of stamens in each adelphia.

ĪSŌBĪLĀT'ĒRAL, having two sides alike in form and structure, as the leaves in the iris.

ĪSŌB'RĪŌŪS, applied to the embryo of dicotyledons because both are equally developed; isodynamous. Little used.

ĪSŌCHRŌ'ŪS, uniform in color throughout; unicolor. Compare CONCOLOR.

ĪSŌDŪ'NĀMOŪS, equally developed.

ĪSŌG'ĀMŪ, the conjugation of gametes of similar form. Compare OŌGAMY.

ĪSŌG'ŪNOŪS, having the pistils of a flower all alike. Compare HETEROGYNOUS.

ĪSŌMĒR'ĪC, see ISOMEROUS.

ĪSŌM'ĒROŪS, having the same number of organs in each floral whorl; isomeric. There may be more than one whorl of any of the kinds of organs. Compare HETEROMEROUS.

ĪSŌPH'ŌROŪS, transformable into something else, as "Actinia is an *isophorous* form of Dendrobium."

Ī'SŌSPŌRE, said of a spore when all are alike, as in ferns. (Rare.) Compare MACROSPORE and MICROSPORE.

ĪSŌS'PŌROŪS, not having macrospores and microspores; homosporous. Compare HETEROSPOROUS.

ĪSŌSTĒM'ŌNOŪS, having the stamens equal in number to the petals. More properly, having the stamens and petals each in one whorl and of equal number. Compare ANISOSTEMONOUS, MEIOSTEMONOUS, DIPLOSTEMONOUS, and OBDIPLOSTEMONOUS.

ĪSŌS'TŌMOŪS, having calyx and corolla of equal size. (Rare.)

ĪSTH'MŪS, the constricted portion between the two half-cells in most desmids.

JOINT, a node; the septum between two cells in a filament; articulation.

JŪ'BA, a loose panicle. (Obs.)

JŪ'GŪM (pl. Jū'gā), (1) one of the ridges on an umbelliferous fruit; (2) a pair of leaflets in a pinnate leaf.

JŪLĀ'CEOŪS, see **AMENTACEOUS**.

JŪ'LĪFŌRM, resembling an ament or catkin.

JŪ'LŪS, see **AMENT**.

JŪVĒNĒS'CEŅCE, see **REJUVENESCENCE**.

KĀRŸŌKĪNĒSĪS (also spelled Caryocinesis), Schleicher's term, which has been generally adopted, for the transformations of the nucleus during cell-division; indirect division of Fleming.

KĀRŸŌL'ŸSĪS, the dissolution of the nucleus or some part of it.

KĀRŸŌMĪTŌSĪS, see under **MITOSIS**.

KĀR'ŸŌPLĀŠM, see **NUCLEOPLASM**.

KĀRŸŌSŌ'MĀ (pl. KārŸōsōm'ātā), a consolidated mass of microsomata in a nucleus.

KĀTĀBŌL'ĪC, a term applied by Geddes to disruptive, destructive, or descending metabolism, accompanying the waste of tissues, resulting in the formation of chemical products of simpler composition; catabolic. Compare **ANABOLIC**.

KĀTHŌD'ĪC, see **CATHODIC**.

KEEL, a ridge somewhat resembling the keel of a boat; particularly the two inferior petals of a papilionaceous flower which are more or less united into a keel-shaped body; carina.

KEELED, having a keel or longitudinal ridge; carinated.

KĒRĀMĪD'ĪŪM, see **CERAMIDIUM**.

KEY, see **SAMARA**.

KEY-FRUIT, see **SAMARA**.

KID'NĒY-FŌRM, see **RENIFORM**.

KID'NEY-SHAPED, see **RENIFORM**.

KNEE, a kind of knot which projects upward into the air from the roots of the bald cypress (*Taxodium distichum*) and some other trees. Produced mainly in wet soil, and formerly supposed to serve for aëration, but now believed to be an organ of strength. See **PNEUMATODE**. The term *knee* is also applied to any abruptly bent or knee-shaped organ.

KNEE-JOINTED, see **GENICULATE**.

KNEEPAN-SHAPED, see **PATELIFORM**.

KNOT, a node or swollen joint; a protuberance on the surface of a tree, as where a branch has been removed and the cut or broken surface is more or less overgrown; a place in the wood where the tissues are displaced by an injury or by the passage of a branch.

KNOTTED, cylindrical, and swollen at intervals, somewhat like a knotted cord.

LĀBĒL'LŪM, the large lower petal of an orchid; lip.

LĀ'BIĀTE, gamopetalous, with two divisions, anterior and posterior; two-lipped; bilabiate. The two lips of a labiate flower are usually unequal and the flower irregular, as in snap-dragon.

LĀ'BĪŌSE, having the petals of a polypetalous corolla arranged so as to imitate the labiate form. (Rare.)

LĀ'BĪŪM, the lower lip of a labiate flower.

LĀČ'ĒRĀTE, having the margin deeply cut into irregular segments as if torn. Compare **EROSE**, **INCISED**, **LACINIATE**.

LĀČ'ĒRĀTED, see **LACERATE**.

LĀCH'RŪMĒFŌRM, see **TEAR-SHAPED**.

LĀCĪN'ĪĀ (pl. *Lācīn'īā*), a segment of a laciniate leaf.

LĀCĪN'ĪĀTE, deeply cut into narrow incisions, more irregular and larger than **Fimbriate**; slashed.

LĀCĪN'ĪFŌRM, fringe-like.

LĀCĪN'ŪLĀTE, finely laciniate. Compare **LACINULOSE**.

LĀCĪN'ŪLŌSE, lacinate or bearing little fringes.

LĀCTĒS'CĒNT, resembling or producing milk or latex.

LĀCTĪF'ĒROŪS, producing or conveying latex; laticiferous.

LĀCTĪF'ĒROŪS VĒS'SĒLĒ, see **LATICIFEROUS VESSELS**.

LĀCŪ'NĀ (pl. *Lācū'nā*), a large deep depression on the surface, or open space between the cells.

LĀCŪ'NĀR, having, resembling, or pertaining to lacunæ.

LĀC'ŪNŌSE, (1) perforated with rather large holes. Compare **FORAMINATED**. (2) Having depressions in the surface larger, more irregular, or more irregularly placed than in **Alveolate**.

LĀC'ŪNŌSE - RŪCŌSE', marked with deep broad irregular wrinkles, as the shell of the walnut or pit of the peach. Compare **RUMINATED**.

LĀCŪ'STRĪNE, growing in or on the margins of lakes.

LADDER-CELLS, see **SCALARI-FORM VESSELS**.

LĒV'ĪGĀTE, smoothed, as if polished; *lævis*.

LĒ'VĪS, smooth; having an even surface devoid of hair or roughness of any kind; opposed especially to **asperate**, **striate**, **sulcate**, or any unevenness. Compare **NITID** and **GLABROUS**.

LĀGĒ'NĪFŌRM, shaped like a Florence flask (the ordinary bulbous flask of chemists). The term bottle-shaped means the same, or nearly the same.

LĀM'EL, see **LAMELLA**.

LĀMĒL'ĪĀ (pl. *Lāmēl'īā*), diminutive of **Lamina**; a thin plate. as one of the "gills" beneath the cap of a mushroom.

LĀM'ĒLLĀTE, composed of thin plates or scales; **lamellose**.

LĀMĒL'ĪFŌRM, in the form of a plate or scale.

LĀM'ĒLLŌSE, see **LAMELLATE**.

LĀM'ĪNĀ (pl. *Lām'īnā*), the blade of a leaf or limb of a petal or sepal.

LĀM'ĪNĀTĒD, consisting of plates, scales, or layers; **plated**.

LĀM'ĪNĀTĒD BŪLB, see **TUNICATED BULB**.

LĀ'NĀTE, covered with long curled hairs like wool; **lanose**; **lanuginous**; **woolly**.

LĀN'ČĒŌLĀTE, tapering abruptly toward the base and gradually toward the apex, like the head of a lance.

LANCE-OVATE, between **lanceolate** and **ovate**, but approaching nearer the latter.

LĀ'NŌSE, see **LANATE**.

LĀNŪ'GĪNOŪS, see **LANATE**.

LĀP'ĪDŌSE, growing in stony places.

LĀPPA'ČEOŪS, bur-like.

LĀR'VAL STATE, resting state, as the **sphacelium** of ergot. (W. G. Smith.) Seldom used.

LĀSIŌCĀR/POŪS, having pubescent fruit.

LĀ'TENT, remaining dormant beyond the usual time, or until called into growth by some particular stimulus.

LĀ'TENT BŪD, see DORMANT BUD and ADVENTITIOUS BUD.

LĀ'TENT PĒRĪŌD, see DORMANT STATE and RESTING PERIOD.

LĀT'ĒRAL, attached to the side of an organ.

LĀT'ĒRAL, *n.*, a side branch or root.

LĀT'ĒRAL BŪD, one situated on the side of a branch, usually in the axil of a leaf. Compare TERMINAL BUD.

LĀT'ĒRAL DĒHĪS'CEŅCE, when the opening of an anther takes place upon one or both sides, instead of on the surface facing or opposite to the pistil.

LĀT'ĒRAL NŪCLĒŌLŪS, see PARANUCLEOLUS.

LĀT'ĒRAL NŪ'CLĒŪS, see PARANUCLEUS.

LĀT'ĒRAL PLĀNE, of a flower or other lateral structure, a plane passing from side to side at right angles to the median plane. The lateral plane of a leaf, for example, would pass between its upper and lower surfaces.

LĀ'TĒX, a viscid milky fluid found in certain plants, as the lettuce. See LATICIFEROUS VESSELS.

LĀ'TĒX TUBES, see LATICIFEROUS VESSELS.

LĀTĪCĪFĒROŪS VĒS'SĒLS, special anastomosing tubes containing the latex in such plants as have milky juice; latex tubes.

LĀTĪFŌLĪĀTĒ, having broad leaves. Compare STENOPHYLLOUS and ANGUSTIFOLIATE.

LĀTĪFŌLĪŌŪS, see LATIFOLIATE.

LĀTĪSĒP'TĀTE, having a broad septum or partition;—applied to pericarps. Compare ANGUSTISEPTATE.

LĀT'TĪCĒD, see CLATHRATE.

LĀT'TĪCĒD CELL, see SIEVE-TUBE.

LĀX, loose; the opposite of close or crowded. An inflorescence may be *lux* because its pedicels are flaccid or slender.

LĒAD'ĒR, the upper portion of the primary stem of a tree, or a central upright branch which extends beyond the rest of the head.

LĒAF, an appendage to the stem, definite in position, and usually expanded to receive air and light. Besides leaves of the usual forms which serve as foliage there are other forms for additional purposes, including those which form the various parts of a flower. See PHYLLOME.

LĒAF-ĀRRĀŅEMENT, see PHYLLOTAXIS.

LĒAF-BLĀDE, the expanded portion of ordinary leaves; lamina.

LĒAF-BŪD, a bud which immediately upon expansion produces leaves only. Compare FLOWER-BUD.

LĒAF-CŪ'CLE, the course of a spiral from the insertion of a leaf through that of intermediate ones to the insertion of the next leaf directly above or below the place of starting.

LĒAF-GREEN, see CHLOROPHYLL.

LĒAF'LĒT, one of the divisions or blades of a compound leaf. Leaflets are often articulated

to the common petiole, and in order to be distinguished from segments they must themselves have distinct petioles, however short.

LĚAF-SCĀR, the place on a stem from which a leaf has fallen.

LĚAF-SHĚATH, see **SHEATH**.

LĚAF-STALK, see **PETIOLE**.

LĚAF-TĚN'DRĪL, a tendril which is a transformed leaf or part of a leaf.

LĚAF-TRĀCE, a fibrovascular bundle, or collection of bundles, while on its passage from the fibrovascular system of the stem to the leaf.

LĚATH'ĚRĚY, see **CORIACEOUS**.

LĚFT. The left margin of a leaf, petal, or other foliar organ is the one upon the left hand as its stem is held downward or toward the observer and the organ is viewed upon the upper or inner surface. The left side of a lateral flower is the side upon the left hand as the observer stands in front with the stem erect and the flower between him and the main axis. See remarks under **Dextrorse**.

LĚGĪTĪMĀTE FĚRTĪLĪZĀTION, fertilization in the usual or natural manner, either close or cross fertilization, whichever in the particular case occurs in nature.

LĚGŪME, the fruit of the Leguminosæ. It is monocarpellary, with the seeds attached to the ventral side, and usually monolocular and dehiscent into two valves by ventral and dorsal sutures. The pea and bean are examples. Compare **LO-MENT**.

LĚGŪMĪNOŪS, bearing legumes, or relating to plants of the order Leguminosæ.

LEIO-, a prefix from the Greek, meaning smooth.

LĚN'TĪCĚLS, small developments of cork at particular points on the surface of many kinds of stems. They appear during the first season's growth, and in some cases, at least, originate beneath the stomata. They probably aid in the transfer of gases and aqueous vapor.

LĚNTĪCĚLLE', see **LENTICEL**.

LĚNTĪC'ŪLĀ (pl. **LĚntic'ulæ**), see **LENTICEL**.

LĚNTĪC'ŪLAR, in the form of a double convex lens; lentiform.

LĚN'TĪFŌRM, see **LENTICULAR**.

LĚNTĪG'ĪNŌSE, see **LENTIGINOUS**.

LĚNTĪG'ĪNOŪS, covered with small dots, like dust, scurf, or freckles; lentiginose.

LĚP'AL, a rudimentary sterile stamen, or organ supposed to be such, usually in the form of a nectar-gland or petaloid scale; gland of the torus. See **STAMINODIUM**.

LĚPĀN'THĪŪM, an old term for a petal which contains a nectary.

LĚP'IDĚS, epidermal scales of various kinds, especially when attached at the centre. Compare **RAMENTA**.

LĚP'IDŌTE, scaly; scurfy; leprous; leprose.

LĚP'RŌSE, see **LEPIDOTE**.

LĚP'ROŪS, see **LEPIDOTE**.

LĚP'TĀ, or **LĚP'TŌ**, a prefix from the Greek, meaning small, thin, or slender.

LĚP'TŌME, see **PHLOËM**. Applied by Potonié to the phloëm-like portion of the fibrovascular bundle in vas-

cular cryptogams. Compare HADROME.

LĚPTŌPHLŌ'ĚM, a term applied by Vaizey to a portion of the central fascicle or strand in the seta of Polytrichacæ (in mosses) which he considers to be rudimentary phloëm.

LĚPTŌPHŮL'LOŮS, having scale-like leaves.

LĚPTŌSPŌRĀN'GIŮM, a sporangium derived from a single epidermal cell, as in the true ferns, in distinction from one derived from a group of epidermal cells (eusporangium), as in the Ophioglossacæ and Marattiaceæ.

LĚPTŌXŮLĚM, so-called rudimentary xylem in the seta of Polytrichacæ. (Vaizey.)

LEU-, or **LEUCO-**, a prefix from the Greek, meaning white.

LEŮCĀN'THOŮS, white-flowered.

LEŮČĪTE, see LEUCOPLAST.

LEŮCŌPLĀST, a colorless protoplasmic granule (plastid) such as those in which starch originates; starch-builder; leucoplastid; amidoplast; anaplast; leucite proper. See PLASTID.

LĚVĪGĀTE, see LÆVIGATE.

LĚ'VĪS, see LÆVIS.

LĪ'ĀNE, a woody climbing or twining plant of considerable size; applied only to those which abound in some tropical forests.

LĪ'BĚR, the inner layer of bark, consisting chiefly of the phloëm of the fibrovascular system and therefore containing the bast-tissue; bast.

LĪ'BRĪFŌRM CELL, a narrow thick-walled cell of woody tissue resembling bast; wood-fibre.

LID, see OPERCULUM.

LID-CELLS, terminal cells of the neck in some archegonia which for a time close the canal; stigmatic cells.

LIFE-ČŮ'CLE, the course of development from any given stage, as the spore or seed, back to the same stage again.

LĪG'NĚŌŮS, woody, or pertaining to wood.

LĪGNĪFĪCĀ'TION, the process of becoming converted into wood; sclerosis.

LĪG'NĪNE, a secondary deposit, forming the greater part of the bulk of ordinary wood. It contains less oxygen than cellulose, and according to Payen has the formula $C_{25}H_{24}O_{20}$. It is also written Lignin, and is the same as Sclerogen.

LĪG'NŮM, see WOOD.

LĪG'ŮLĀ (pl. *Lig'ulæ*), see LIGULE.

LĪG'ŮLĀTE, (1) having a ligule; (2) strap-shaped, i.e., linear and about four to six times as long as broad.

LĪG'ŮLĀTE FLŌ'RĚT, one of the marginal flowers of a head in Compositæ, bearing a ligulate or strap-shaped corolla; ray-floret. Compare TUBULAR FLORET.

LĪG'ŮLE, (1) a strap-shaped corolla in Compositæ, such as those on the outer margin of the head in most sun-flowers; (2) a membranous appendage on the inner side of the leaf in many grasses and some other endogens at the top of the sheath.

LĪGŮLĪFLŌ'ROŮS, said of a head of flowers in Compositæ which contains ligulate flowers only, as in Chicory.

LĪMB, the expanded portion of a petal or sepal. Compare **BLADE** and **BORDER**.

LĪM'BĀTE, see **BORDERED**.

LĪM'BŪS, border, blade, or limb. (Obs.)

LĪM'ITING CELL, see **HETERO-CYST**.

LINE, one twelfth of an inch.

LĪN'ĒAR, very narrow, with the margins parallel or nearly so.

LĪN'ĒATE, marked with fine parallel lines, especially of color. Compare **STRIATE** and **ACICULATED**.

LĪN'ĒOLĀTE, diminutive of **Līn-eate**.

LĪN'GUĀĒFŌRM, see **TONGUE-SHAPED**.

LĪN'GUIFŌRM, see **TONGUE-SHAPED**.

LĪN'GŪLĀTE, see **TONGUE-SHAPED**.

LĪ'NINE, a term proposed by Schwarz and adopted by Strasburger (1888) for the substance of the hyaloplasmic filaments of the nucleus in a state of repose.

LĪNNĒ'AN SYS'TEM, the system of classification devised by Linnæus, founded upon the number and arrangement of the stamens and pistils; sexual system.

LIP, (1) one of the divisions (especially the lower) of a labiate calyx or corolla; (2) the labellum in orchids.

LĪPŌX'ĒNOŪS, said of a parasite which leaves its host and completes its development independently at the expense of the reserve material appropriated from the host. (De Bary.) Compare **METECIOUS**.

LĪPED, see **LABIATE**. Applied in pomology to the cavity of

an apple when a broad projection of the flesh protrudes against the stem. Compare **FOLDED**.

LĪRĒL/LĀ (pl. **Līrel/læ**), a linear sessile apothecium in lichens.

LĪTHŌPH'ĪLOŪS, see **SAXICOLOUS**.

LĪTH'ŌCĀRP, see **CARPOLITE**.

LĪTH'ŌCŪST, a cell containing a cystolith.

LĪTHŌSPĒR'MŌŪS, having very hard seeds.

LĪT'TŌRAL, growing upon shores, especially upon the sea-shore between tide-marks. Compare **MARINE**.

LĪV'ID, lead-color; bluish brown or gray.

LŌ'BĀTE, lobed; said of a leaf the margin of which is divided about to the middle into rounded parts with broad sinuses.

LŌBE, a rounded portion of a leaf or petal; any division of a leaf larger than a tooth which is not a leaflet.

LŌBED, see **LOBATE**.

LŌB'ŪLĀTE, having small lobes.

LŌB'ŪLE, a small lobe.

LŌCĒL/LĀTE, having small or secondary cavities (locelli).

LŌCĒL'LŪS (pl. **LŌcĒl'li**), diminutive of **Loculus**; a little cavity. Used by some in the sense of **Loculus** for a compartment in an ovary or anther.

LŌC'ŪLĀMENT, see **LOCULUS**.

LŌC'ŪLAR, having a cavity or cavities; **loculose**.

LŌCŪLĪCĪ'DAL, dehiscant throughout the middle of the back of each cell at a dorsal suture. Compare **SERTICIDAL**.

LŌC'ŪLOSE, locular; cellular; especially, having numerous cav-

ities, as the pith of poke, *Phytolacca decandra*.

LŎC'ŪLOŪS, see LOCULAR.

LŎC'ŪLŪS (pl. Lŏc'ŭlī), the cell of an ovary, anther, or similar cavity.

LŎCŪS'TĀ, see SPIKELET.

LŎDĪC'ŪLĀ (pl. Lŏdic'ŭlā), see LODICULE.

LŎDĪCŪLE, one of the small scales at the base of the grain between the stamens and palet of many grasses.

LŎMENT, a jointed or plurilocular legume formed by spurious transverse dissepiments, as in *Desmodium*. Some lomenta are articulated and separable at the septa or pseudo-septa between the seeds.

LŎMĒNTĀ'CEOŪS, bearing or resembling a loment.

LŎMĒN'TŪM, see LOMENT.

LŎNGĪTŪ'DĪNAL SŪSTĒM, an obsolete term for fibrovascular system.

LŎ'RĀTE, having the form of a thong or strap; ligulate; linear. Compare FLABELLIFORM.

LŪ'BRĪCOŪS, slippery.

LŪ'ČĪD, clear. Often used in the sense of Nitid.

LŪM'BRĪCAL, about the shape of an earth-worm. Compare VERMICULAR.

LŪ'MĒN (pl. Lū'mīnā), the cavity of a cell or filament, or any part or spot which seems to emit light.

LŪ'NAR, (1) pertaining to the moon; (2) in the form of a half-moon or crescent, as a *lunar* spot upon a leaf; semilunar; semilunate. Compare LUNATE.

LŪ'NĀTE, said of an organ having the form of a half-moon or crescent, or which is marked

with one or more spots of that form, as a *lunate* leaf. Compare LUNAR.

LŪ'NĀTĒD, having lunar markings; lunate.

LŪ'NĪFŌRM, half-moon or crescent shaped; lunate.

LŪ'NŪLĀTE, diminutive of Lunate.

LŪ'PŪLĪNE, a yellow waxy powder resembling pollen, upon the scales of the hop, containing the active principle, which is bitter, aromatic, and tonic.

LŪ'PŪLĪ'NOŪS, resembling a head or cone of hops.

LŪ'RĪD, dingy brown.

LŪTĒS'CENT, yellowish.

LŪ'TĒŪS, bright orange yellow. Compare FLAVUS.

LŪCŌT'RŌPAL, see LYCOTROPOUS.

LŪCŌT'RŌPOŪS, said of an otherwise orthotropous ovule which is curved like a horseshoe.

LŪMPHĀT'IC, clear, like water; not clouded: said, for example, of ordinary plant-hairs containing clear cell-fluid in distinction from those which are glandular, in which the cell-contents are usually granular and turbid.

LŪ'RĀTE, pinnatifid, with the lobes decreasing in size toward the base.

LŪ'RĀTELŪ'PIN'NĀTE, pinnate, with the pinnæ decreasing in size toward the base of the leaf.

LŪ'RE-SHAPED, see LYRATE.

LŪSĪGĒNĒT'IC, see LYSIGENIC.

LŪSĪGĒN'IC, formed by the disorganization of cells; applied to the formation of certain intercellular spaces which originate by the breaking down of contiguous cells; lysigenetic;

lysigenous. Compare SCHIZOGENIC.

LÝSÍGENOÚS, see LYSIGENIC.

MÁC'RÂN'DROÚS, having large or elongated male plants in algæ.

MACRO-, large or long.

MÁC'RŌCĒPH'ÁLOÚS, a term sometimes applied to embryos which have the cotyledons very large and consolidated, as in horse-chestnut. Compare MACROPODOUS.

MÁC'RŌGŌNÍD'ÏŪM (pl. *Mác'rŏgōnid'ia*), see MACROSPORE.

MÁC'RŌPH'ÝLLOÚS, having long or large leaves.

MÁC'RŌP'ŌDOÚS, a term of little importance applied to a leaf having a long petiole, or to an embryo, chiefly in monocotyledons, having a large radicle.

MÁC'RŌSPŌRÂN'ĠÏŪM, a sporangium containing macrospores; megasporangium; oösporangium.

MÁC'RŌSPŌRE, a female or archegonium-bearing spore in some vascular cryptogams. The macrospores are larger than the male or microspores.

MÁC'RŌSPŌ'RŌPHÝL, the leaf bearing the macrosporangium in the heterosporous Pteridophyta. It is the homologue of the carpel in flowering plants.

MÁC'RŌSTÝ'LOÚS, applied to heterostylous flowers with long styles and short filaments. See remark under Microstylous.

MÁC'ŪLÁTE, spotted or blotched; maculose.

MÁC'ŪLÁ'TION, the pattern or arrangement of the spots upon a plant.

MÁC'ŪLŌSE, see MACULATE.

MAIDEN (Hort.), a term sometimes applied to a tree or other plant of one year's growth from

the bud or graft. Also applied to any plant which has not fruited, and in forestry to a seedling in distinction from a tree which has sprung from an old root or stub.

MÁL'ÁCID, mucilaginous.

MALE, bearing stamens only; staminate; bearing only male organs of whatever kind, or pertaining to individuals which bear them.

MALE FLOWER, staminate flower.

MÁL'PÍGHÍÁ'CEOÚS HAIRS, stellate hairs attached by their middle, as in the order Malpighiaceæ.

MÁL'PÍG'HÍAN CĒLLS, palisade-like cells in which one or more light lines are present, found in the seed-coats of Leguminosæ, Malvaceæ, etc.

MÂM'MÍFŌRM, breast-shaped.

MÂM'MÍL'LÁ (pl. *Mámmil'læ*), a small nipple or teat-like prominence, as on some pollen-grains. More short and obtuse than Papilla. The term is sometimes applied to the apex of the nucleus of an ovule.

MÂM'MÍLLÁTE, nipple-shaped, or bearing mammillæ. Compare PAPILLATE.

MÂM'MÍLLÁTĒD, bearing mammillæ.

MÂM'MŌSE, breast-shaped, or bearing breast-shaped prominences.

MÂN'ÍCÁTE, having a coating of entangled hairs which may be removed entire. Compare FLOCCOSE and PANNOSE.

MÂNŪ'BŘÍŪM (pl. *Mānū'briā*), a cylindrical cell which projects inward from the centre of each of the eight shields composing the wall of the globe in Characeæ. The manu-

bria support the apparatus which contains the antherozoids.

MÄR'BLĒD, covered with faint irregular wide stripes, or traversed by vein-like markings like those which occur in certain kinds of marble; marmorate.

MÄRCĒS'CĒNT, withering but not falling off, as the corolla of lobelia.

MÄR'GĪNAL VEIL, in Hymenomycetes (mushrooms, etc.), a membrane stretching from the margin of the pileus to the surface of the stipe in the young sporophore and covering the hymenium; velum partiale.

MÄR'GĪNĀTE, having a margin differing in texture, form, or color from the remainder of the surface; margined; edged.

MÄR'GĪNĒD, see MARGINATE.

MÄRĪNE', growing in the sea or upon the immediate sea-shore. Compare LITTORAL and MARITIME.

MÄR'ĪTĪME, growing upon or near the sea-shore.

MÄR'MÖRĀTE, see MARBLED.

MÄSKĒD, see PERSONATE.

MÄS'SŪLĀ (pl. *Mäs'sūlæ*), one of the lumps of mucilage derived from the disorganized tapetum of the microsporangium of *Azolla* and enclosing a number of spores. Also applied to an adherent group of pollen-grains derived from a single mother-cell, as the ultimate groups in a pollen-mass in orchids, each containing four grains.

MÄST, a popular name for the fruit of the oak, chestnut, beech, and some other forest trees.

MÄS'TÖID, large teat-shaped. (Rare.)

MÄ'TRĪX, the place or body upon or within which anything grows.

MÄTTŪL'LA, the fibrous material at the base of the petioles of palms; reticulum.

MÄTŪRĒS'CĒNT, approaching maturity.

MÄTŪTĪ'NAL, pertaining to the morning; expanding in the morning, as the flowers of morning-glory.

MĒAL'Ÿ, see FARINACEOUS.

MĒ'DĪAL, pertaining to the middle; median.

MĒ'DĪAN, see MEDIAL.

MĒ'DĪAN LINE, a line along the centre or axis of a bilateral organ, as along the midrib of a leaf.

MĒ'DĪAN PLANE of a flower or other lateral structure, the same as antero-posterior plane, i.e., a vertical plane which bisects an organ into right and left halves. The median plane of a leaf would pass through the midrib above and below. Compare LATERAL PLANE.

MĒDŪL'LĀ, pith; also central tissue of some other kinds, as of the thallus in lichens.

MĒDŪLLĀRŸ, pertaining to medulla or pith.

MĒDŪLLĀRŸ RAYS, vertical plates of cellular tissue in the fibrovascular system of exogens connecting the pith and the cortex. They form the glistening spots called "silver grain" which are seen on the surface of wood which is split radially. Only the rays formed the first season extend entirely to the pith. See XYLEM RAY and PHLOËM RAY.

MĚD'ŮLLĀŘÝ SHEATH, the ring of primary xylem bundles which project into the pith. Compare CORTICAL SHEATH.

MĚD'ŮLLĀŘÝ SYS'TEM, a term sometimes applied to the whole fundamental system, but usually, and more properly, employed to include only the pith and medullary rays, or fundamental tissue within the cortex.

MĚD'ŮLLŌŠE, pith-like.

MĚGĀLŌGŌNĪD'IŮM, see MACROSPORE.

MĚGĀRHÝ'ZOŮŠ, large-rooted.

MĚGĀSPŌRĀN'GIŮM, see MACROSPORANGIUM.

MĚG'ĀSPŌRE, see MACROSPORE.

MĚI'ŌPHÝLLÝ, the suppression of one or more leaves or foliar organs in a whorl; miophylly. It differs from Abortion in the fact that the suppressed organs have never started to grow.

MĚIŌSTĚM'ŌNOŮŠ, having fewer stamens than petals. This is its usual meaning. Compare ISOSTEMONOUS.

MĚI'ŌTĀXÝ, the complete suppression of a whole set of organs, as all of the corolla or all of the stamens.

MĚLĀNŌSPĚRM'ŌŮŠ, having dark-colored seeds or spores.

MĚLLĪF'ĚROŮŠ, honey-bearing.

MĚL'ŌN-SHĀPED, oval, with depressed lines running from end to end, as in most muskmelons.

MĚLT'ING, easily dissolving in the mouth, or under slight pressure. A descriptive character in certain varieties of pears.

MĚM'BĚR, a term employed to designate any part of a plant when treated with reference to its position and fundamental structure, but not with refer-

ence to function. Thus, all leaves are one and the same *member*, though they may be developed in different ways to form different organs. Compare ORGAN.

MĚMBRĀNĀ'ČEOŮŠ, see MEMBRANOUS.

MĚM'BRĀNE, a very thin expanded tissue, serving the purpose of separation or protection.

MĚMBRĀ'NĚOŮŠ, see MEMBRANOUS.

MĚM'BRĀNOŮŠ, thin, soft, and usually translucent, like a membrane. Compare SCARIOUS.

MĚNĪS'CŌID, shaped like a meniscus or concavo-convex lens.

MĚN'TŮM, a forward projection of the foot of the column in some orchids.

MĚR'ICĀRP, one of the carpids or ripened carpels of a schizocarp, especially one of the halves of the cremocarp in Umbelliferae; diachænum; hemicarp.

MĚR'IDĪSK, a name proposed by Clos for any process upon the receptacle, aside from the floral organs, whether glandular or not. See LEPAL.

MĚRĪSMĀT'IC, dividing into parts by the formation of septa.

MĚR'ISPŌRE, one of the cells of a compound spore.

MĚR'ISTĚM, tissue in an early condition or nascent state while the cells are still undergoing cell-division, as in cambium; formative tissue; generating tissue.

MĚR'ISTĚM, PRIMARY, see PRIMARY MERISTEM.

MĚR'ISTĚM, SECONDARY, see SECONDARY MERISTEM.

MĚRĪSTĚMĀTĪC, consisting of meristem.

MĚR'ITHĀLL, see INTERNODE.

MĚRĪTHĀL'LŪS (obs.), see INTERNODE.

MĚRŌBLĀS'TĪC, applied to the formation of the embryo from a part only of the oosphere, as in some Gymnosperms.

MĚS'ŌBLĀST (obs.), see NUCLEUS.

MĚS'ŌCĀRP, the middle layer of a pericarp when distinguishable into three layers. This layer is sometimes developed as a sarcocarp. Applied mainly to stone-fruits.

MĚS'ŌCHĪL, the central part of the labellum in such orchids as have that organ separated into three distinct portions.

MĚSŌPHLĚ'ŪM, the middle or green layer of the bark, between the liber and the outer (usually dry) epiphloeum or corky layer; cellular-envelope.

MĚS'ŌPHŪLL, all the fundamental tissue of a leaf within the epidermis.

MĚSŌPHŪL'LŪM, see MESOPHYLL.

MĚSŌPH'ŪTŪM (obs.), see COLLAR. Also applied by Lindley to the line of demarcation between internode and petiole.

MĚS'ŌSPĚRM, see SECUNDINE.

MĚS'ŌSPŌRE, the middle coat of a spore when there are three.

MĚSŌSTŪ'LOŪS, having styles of intermediate length in heterostyled plants.

MĚSŌTHĚ'CIŪM, the central of the three layers of cells in the coat of an immature anther; fibrous layer. The cells of this layer have annular thickenings. In the mature anther the proper endothecium has

often disappeared, leaving the mesothecium as the inner layer, which is then usually called endothecium.

MĚS'TŌME, a term applied by Schwendener to fibrovascular tissue on functional grounds, in distinction from cortical tissue, which (serving for support chiefly) he termed stereome. Strictly, however, the term mestome refers only to the essential or conductive portion of a bundle, the bundle-sheath being strengthening tissue and therefore stereome.

MĚTĀB'ŌLIŠM, the chemical changes which take place in a plant in the process of growth; metastasis; transmutation. It includes both Anabolism and Catabolism.

MĚTAGĚN'ĚSIS, the production of sexual individuals by non-sexual means, either directly or through intervening sexless generations; alternation of generations; polymorphism.

MĚTĀKĪNĚ'SĪS, that part of the metaphases in karyokinesis which includes only the separation of the threads.

MĚT'ĀMĚR, applied by Sachs to a Phytom (which see), or one of any number of similar parts connected in a series.

MĚTĀMŌR'PHŌSIS, the varied development of members of the same morphological value, resulting from their adaptation to different functions. Compare TRANSFORMATION.

MĚT'ĀPHĀSĚS, a term applied by Strasburger to those portions of karyokinesis which include the longitudinal splitting of the threads, the formation of the mother-star, and the subsequent separation of

the segments to form the daughter-stars.

MĚT'ĀPLĀSM, a name given by Hanstein to that part of the protoplasm which holds the formative material. Used by some synonymously with Deutoplasm.

MĚTĀSPĚR'MOŮS, see **ANGIOSPERMOUS**.

MĚTĀS'TĀSĪS, see **METABOLISM**.

MĚTĚŌR'IC, applied to flowers whose opening or closing is influenced by the weather.

MĚTĚ'ČIOŮS, see **HETERŔCIOUS**.

MĚTĚ'ČĪSM, see **HETERŔCISM**.

MĚTŌX'ENOŮS, see **HETERŔCIOUS**.

MĪĀSMĀT'IC, pertaining to infectious organisms floating in the atmosphere. See **INFECTION**.

MĪČĚL'ĽĀ (pl. *MĪčěl'Ľĕ*), a term proposed by Nägeli for certain structural particles which serve for the building up of all plant and animal tissues. They are considered to be aggregations of molecules which, like crystals, are able to increase or diminish in size without chemical change.

MĪCRĀN'DRE, see **DWARF-MALE**.

MĪ'CRŔBE, a micro-organism, animal or vegetable. In use restricted chiefly to plants, especially the Schizomycetes, or bacteria and their allies. See **MICROPHYTE**.

MĪ'CRŔČYST, a resting state of certain swarm-cells in Myxomycetes.

MĪCRŔGŌNĪD'IŮM (pl. *MĪcrŔgŏnĭd'ĭĀ*), applied to gonidia of smaller size than others produced by the same species;—they are usually male gonidia, as the so-called androspores of

Cedogonium. In pteridophytes and their allies they are usually called microspores. See **MICROSPORE**.

MĪCRŔG'RĀPHŔ, the description or study of microscopic objects; micrology.

MĪCRŔPHŔL'LOŮS, having small leaves.

MĪ'CRŔPHŔTE, any plant, such as the bacteria and smaller species of fungi, which can be clearly seen only by means of a microscope.

MĪ'CRŔPŔLE, the nearly closed foramen as it exists in the ripened seed.

MĪCRŔSŌ'MĀ (pl. *MĪcrŔsŏ'mĀtĀ*), a name proposed by Strasburger for a class of granules in the protoplasm which have a high degree of refringency and are deeply stained by hæmatoxylin.

MĪCRŔSPŔRĀN'ĜĪŮM (pl. *MĪcrŔspŕrĀn'ĝĭĀ*), a sporangium containing microspores.

MĪ'CRŔSPŔRE, a small male spore, as in *Rhizocarpæ*, *Selaginellæ*, and *Isoetæ*. See **MICROGONIDIUM**. Compare **MACROSPORE**.

MĪ'CRŔSTŔME, a small mouth or orifice.

MĪCRŔSTŔ'LOŮS, applied to that form in heterostyled plants in which the flowers have short styles and long filaments. The expressions "long-styled," "medium- or mid-styled," and "short-styled" are preferable to Macrostylous, Mesostylous, and Microstylous, and are more frequently used.

MĪCRŔZŔŔGŌNĪD'IŮM, a motile microgonidium, as in *Ulothrix*, differing from a macrozoogonidium in size and in having the power of conjugation.

MĪ'CRŌZŪME, a microscopic organism capable of producing fermentation.

MĪD'DLE LĀMĒL'LĀ, the portion of a lignified cell-wall which occupies the place of the primary membrane. It usually appears as a fine dividing line between adjoining cells. Compare **MIDDLE LAMINA**.

MĪD'DLE LĀM'INĀ, the portion of a lignified cell-wall between the middle lamella and the inner lamina.

MĪD'RĪB, the large central vein of a leaf, which usually exists as a ridge continuous with the petiole.

MĪLK, see **LATEX**.

MĪLK-SĀC, a form of laticiferous vessel existing in some species of maple.

MĪLK-SĀP, see **LATEX**.

MĪLK-VĒS'SĒL, see **LATICIFEROUS VESSEL**.

MĪMĒT'IC, pertaining to mimicry.

MĪM'ICRŪ, special resemblance to another object, serving usually for protection, as when plants bear a marked resemblance in color to the soil in dry regions, thus being less liable to be seen and eaten by animals.

MĪN'ĪATE, vermilion-colored.

MĪ'ŌPHŪLLŪ, see **MEIOPHYLLY**.

MĪŌSTĒM'ŌNOŪS, see **MEIOSTEMONOUS**.

MĪTŌ'SIC, pertaining to, characterized by, or exhibiting mitosis; mitotic.

MĪTŌ'SIS, (1) the splitting of the chromatin of the nucleus (karyomitosis) or the subdivision of any minute granular body found in protoplasm; (2) a figure occurring during mitosis as a result of that process.

MĪTŌT'IC, see **MITOSIC**.

MĪ'TRE-SHAPED, see **MITRI-FORM**.

MĪT'RĪFŌRM, conical and slightly narrowed toward the mouth like a pope's mitre. Also the same as Cucullate, but not slit upon one side; mitre-shaped.

MĪXED ĪNFLŌRĒS'CEŅCE, one in which each partial inflorescence develops in a reverse order from that of the general inflorescence, as in *Compositæ* where the general inflorescence is usually centrifugal, the terminal "flower" opening first, while each head is centripetal, the marginal florets being first developed.

MĪXED VĒS'SĒLĒ, those having thickenings in their walls of more than one kind, as both spiral and annular thickenings.

MŌ'BĪLE, movable.

MŌL'LĪS, soft.

MŌNĀDĒL'PHŌŪS, having the filaments free, and united in a ring around the pistil, as in most *Malvaceæ*.

MŌNĀN'DROŪS, having but a single stamen.

MŌNĀN'THOŪS, having but one flower upon a plant or peduncle.

MŌNĀS'TĒR, see **MOTHER-STAR**.

MŌNĒ'CIŌŪS, see **MONECIOUS**.

MŌN'GRĒL, properly, a cross. Usually applied in the United States to inferior mixed breeds resulting from unknown or heterogeneous crossing.

MŌNĪL'ĪFŌRM, necklace-shaped; cylindrical, and contracted at regular intervals so as to resemble a string of beads. Compare **NODOSE**.

MONO-, a Greek prefix, meaning one or single.

MŌN'ŌCĀRP, an annual or other plant that fruits but once.

MŌNŌCĀR'PĒLLĀRŸ, of one carpel; monogynous.

MŌNŌCĀR'PIAN, see **MONOCARPIC**.

MŌNŌCĀR'PIC, bearing fruit but once. Compare **POLYCARPIC**.

MŌNŌCĀR'POŪS, said of a flower in which the gynecium forms but one ovary, whether simple or compound. Compare **POLYCARPOUS**.

MŌNŌCĒL'LŪLAR, see **UNICELLULAR**.

MŌNŌCĒPH'ALOŪS, in single heads, or having one head. Applied to an ovary with but one style, or to flowers disposed in single umbels or other clusters.

MŌNŌCHĀ'SIAL, in single dichasia. See **DICHASium** and **COMPOUND DICHASium**.

MŌNŌCHĀ'SIŪM, a uniparous cyme. Compare **DICHASium**.

MŌNŌCHLĀMYD'ĒOŪS, having but one floral envelope or perianth-whorl. As this is usually clearly a calyx, and as in doubtful cases it is considered so, the term is often equivalent to **Apetalous**. Compare **ACHLAMYDEOUS**.

MŌNŌCHRŌ'MIC, see **UNICOLOR**.

MŌNŌC'LINOŪS, see **HERMAPHRODITE**. Compare **DICLINOUS**.

MŌNŌCŌTYLĒD'ŌNOŪS, having but one cotyledon or seed-leaf. A term applied to endogens.

MŌNŌCŸC'LIC, of a single whorl.

MŌNŌCŸIOŪS, having stamens and pistils in separate flowers on the same plant.

MŌNŌCŸIOŪSLŸ PŌLYG'AMOŪS, having perfect and separated flowers on the same plant.

Compare **DICECIOUSLY POLYGAMOUS**.

MŌNŌG'AMOŪS, see **HOMOGAMOUS**.

MŌNŌG'YNOŪS, having but one pistil or style. There may be several carpels.

MŌNŌI'COŪS (obs.), see **MONECIOUS**.

MŌNŌLŌC'ŪLAR, see **UNILOCULAR**.

MŌNŌM'ĒROŪS, of one part, as a flower having but one organ of each kind, one pistil, one stamen, etc.; applied also to tubers having but one internode.

MŌNŌPĒT'ALOŪS, see **GAMOPETALOUS**.

MŌNŌPHŸL'LOŪS, see **GAMOPHYLLOUS**.

MŌN'ŌPŌDE, see **MONOPODIUM**.

MŌNŌPŌD'IAL, having a single main axis, as ordinary plants. Compare **SYMPODIAL** and **DICHOTOMOUS**.

MŌNŌPŌ'DIŪM, an axis of growth which continues to elongate at the apex, while lateral structures of like kind are produced beneath it in acropetal succession. Compare **SYMPODIUM** and **DICHOTOMY**.

MŌNŌP'TĒROŪS, one-winged.

MŌNŌSĒP'ALOŪS, see **GAMOSEPETALOUS**.

MŌNŌSĪ'PHŌNOŪS, said of a frond in *Floridæ* when it consists of but a single row of cells.

MŌNŌSPĒR'MOŪS, one-seeded. Compare **POLYSPERMOUS**.

MŌNŌS'TICHOŪS, in one vertical rank.

MŌNŌSTŸ'LOŪS, having but one style.

MŌNŌSYMMĒT'RICAL, capable of division in but one direction into similar halves, as the

- flower of the pea; zygomorphous. Compare SYMMETRICAL and POLYSYMMETRICAL.
- MÖNÖTHÁL'AMOÜS**, unilocular; applied to galls and rarely (Tuckerman) to the apothecia of lichens.
- MÖNÖTHÁL'MÍC**, derived from a single flower, as ordinary fruits. Compare POLYTHALMIC.
- MÖNÖTÝP'IC**, said of a genus which contains but one species, or of the species itself in such a case.
- MÖN'STĚR**, a plant or animal having any marked abnormal development in form; monstrosity. See SPORT and TERATOLOGY.
- MÖNSTRÖS'ITÝ**, see MONSTER.
- MÖN'STROÜS**, developed in a remarkably abnormal manner. The term has no reference to size.
- MÖP'HĚAD'ĚD**, said of a tree without a leader and with an unusually large number of small branches.
- MÖRPHÖGĚN'ĚSÍS**, the production of morphological characters.
- MÖRPHÖL'ÖGÝ**, the science of the homologies and metamorphoses of members. It treats, for example, of the different forms which leaves assume in different plants, and in the same plant to serve different purposes.
- MÖS'CHĚTE**, having an odor like that of musk.
- MOTHER-CELL**, one from which another is derived.
- MOTHER-STĚR**, a stage of karyokinesis in which the nuclear threads lie in the equator of the nucleus, usually in the form of loops, with their free ends pointing away from the centre; monaster; nuclear disk; nuclear plate; equatorial plate.
- MÖT'TLED**, covered with partially confluent dots, or with blotches of varying intensity. Applied mainly to fruits.
- MOUN'TAINÖÜS**, see ALPES-TRINE.
- MÖVE'MENTS OF VĚRIĚTION** (Peffer), see ALLASSOTONIC MOVEMENTS.
- MÜČĚD'INOÜS**, mould-like.
- MÜ'CĪLĚGE**, dissolved vegetable jelly; any slimy vegetable product.
- MÜ'CĪLĚG'INOÜS**, slimy, or yielding mucilage; mucous.
- MÜ'COÜS**, see MUCILAGINÖUS.
- MÜ'CRÖ**, a short sharp point.
- MÜ'CRÖNĚTE**, terminating abruptly in a short stiff point.
- MÜCRÖN'ÜLĚTE**, diminutive of Mucronate; ending abruptly in a minute stiff point.
- MÜLE**, see HYBRID. The term Mule is by some restricted to genus-hybrids and by others to sterile hybrids of any origin. The term is now useless in botany.
- MÜLTĚN'GÜLAR**, having more than four angles; polygonal.
- MÜLTĪ**, a Latin prefix denoting many.
- MÜLTĪČĪP'ĪTĚL**, many-headed; applied to a root or root-stock from which several stems arise.
- MÜLTĪCÖS'TĚTE**, having many ribs proceeding from the base of the leaf.
- MÜLTĪCÜS'PĪDĚTE**, having many cusps or points.
- MÜLTĪDĚN'TĚTE**, having many teeth.
- MÜLTĪFĚR'ĪÖÜS**, (1) diversified, or composed of many diverse parts; (2) arranged in many ranks or rows.

- MŪLTĪFĒROŪS**, producing fruit several times in a season.
- MŪLTĪFĪD**, cut about half way to the midrib into many segments; many-cleft.
- MŪLTĪFLŌROŪS**, many-flowered.
- MŪLTĪFŌLĪĀTE**, having numerous leaflets.
- MŪLTĪJŪGĀTE**, having many pairs of leaflets.
- MŪLTĪLĀTĒRAL**, many-sided.
- MŪLTĪLŌCŪLAR**, many-celled: applied mainly to ovaries or pericarps.
- MŪLTĪLŌCŪLAR SPŌRE**, see COMPOUND SPORE.
- MŪLTĪNŪCLĒĀTE**, having more than one nucleus in a cell.
- MŪLTĪPĀR'TĪTE**, divided into many parts.
- MŪLTĪPLE**, compound.
- MŪLTĪPLE CŌRŌL'LĀ**, one having more than one whorl of petals, as in "double" flowers.
- MŪLTĪPLE FRUIT**, see COLLECTIVE FRUIT.
- MŪLTĪPLE-PRĪMĀRŸ ROOT**, one having several main divisions from the crown, as the fascicled root of dahlia.
- MŪLTĪPLICĀTE FLOWER**, see DOUBLE FLOWER.
- MŪLTĪRĀDIĀTE**, having many rays.
- MŪLTĪRĀMŌSE**, having many branches.
- MŪLTĪSĒPTĀTE**, having numerous septa.
- MŪLTĪSĒRĪĀL**, in several horizontal rows. Compare MULTISTICHŌUS.
- MŪLTĪSTĪCHŌUS**, in several or many vertical rows.
- MŪRAL**, growing upon walls.
- MŪRĪCĀTE**, covered with short, sharp points. Compare SCABROUS.
- MŪRĪCŪLĀTE**, slightly muricate.
- MŪRĪFŌRM**, arranged like courses of bricks or stones in a wall, as the cells in medullary rays.
- MŪSCĀRĪFŌRM**, having long hairs toward the end like an ancient fly-flap, as the styles of some Compositæ. Compare ASPERGILLIFORM.
- MŪSČĪFŌRM**, moss-like.
- MŪSCŌLŌGŸ**, see BRYOLOGY.
- MŪTĪCŌUS**, pointless; blunt. Mainly in distinction from Awned or Mucronate.
- MŪTŪĀLIŠM**, see SYMBIOSIS.
- MŪTŪĀL PĀRĀSĪTĪSM**, see SYMBIOSIS.
- MŸCĒLĪĀL STRĀND**, see FIBROUS MYCELIUM.
- MŸCĒLIŪM**, the vegetative portion of a fungus, consisting of one or more hyphæ.
- MŸCĒTŌGĒNĒTĪC**, produced by fungi.
- MŸCĒTŌGĒNĒTĪC MĒTĀMŌRPHŌSIS**, deformation due to a parasitic fungus.
- MŸCĒTŌLŌGŸ**, see MYCOLOGY.
- MŸCŌLŌGŸ**, the botany of fungi.
- MŸCŌPRŌTĒIN**, a term sometimes applied to the peculiar protoplasm of which the putrefactive bacteria are composed.
- MŸCŌRRHĪZĀ**, a term applied by Frank to a symbiotic relation supposed to exist between the roots of many plants and the mycelium of certain fungi in soils containing a large amount of humus.
- MŸCŌSĪS**, the presence of parasitic fungi in a plant or animal,

together with the morbid effects of their presence.

MŶCÔPRÔTĒIN, a term sometimes applied to the peculiar protoplasm of which the putrefactive bacteria are composed.

MŶCRÔPYLE, see MICROPYLE.

MŶXÂME/BĒ, zoöspores in Myxomycetes having an amœboid or creeping motion.

MŶX'ÔSPÔRE, a spore produced in the midst of a gelatinous mass without distinct ascus or basidium.

NĀ'KĒD, destitute of the usual covering, as a cell without a wall, a stem without leaves, a flower without floral envelopes.

NĀ'KĒD-SEEDED, see GYMNO-SPERMOUS.

NĀNĀN'DROŪS, having short or dwarf male plants. Applied to certain algæ.

NĀ'NĪSM, a dwarf condition.

NĀ'NŪS, dwarf. Compare HUMILIS.

NĀ'PĪFÔRM, turnip-shaped; i.e., depressed-globose and tapering below, like most varieties of turnip.

NĀS'ÇENT, in the earliest rudimentary condition.

NĀS'ÇENT TĪS'SŪE, see MERISTEM.

NĀ'TANT, floating unattached in or upon water. Compare FLUITANT.

NĀT'URAL GRĀFT'ING, see INARCHING.

NĀT'URALIZED, introduced from another country, but fully established, growing and reproducing itself spontaneously. Compare ADVENTITIOUS.

NĀT'URAL ÔR'DĒR, see ORDER.

NĀT'URAL SŶSTĒM, the system of classification introduced by

A. L. de Jussieu and now in general use, which takes into account all parts of the plant, and seeks to place each species or other group nearest to those which in all respects it most resembles. Compare ARTIFICIAL SYSTEM.

NAU'TĪFÔRM, see NAVICULAR.

NĀVIC'ŪLAR, boat-shaped, or like the hull of a ship, as the glumes of many grasses; naviculoid; nautiliform; cymbæform; cymbiform; scaphoid.

NĀVIC'ŪLOID, see NAVICULAR.

NĒB'ŪLÔSE, clouded.

NĒCK, the line of junction between root and stem (collar); the upper tapering end of a bulb; the narrow part of a pear, toward the base; the upper end of the sheathing petiole in grasses; the upper part of the tube of a gamopetalous corolla (throat); the prolonged apex of a pyrenocarp; the outer portion of an archegonium containing the canal, etc.

NĒCK'LÂÇE-SHAPED, see MONILIFORM.

NĒCRÔG'ĒNOŪS, hastening or producing death. A term formerly applied to certain parasitic fungi.

NĒC'TAR, a sweet secretion by some part of a flower.

NĒC'TAR-GUIDE, a term applied to various color-marks on flowers which seem designed to indicate to insects the locality of the nectar; nectar-spot; nectar-mark; honey-guide; honey-spot; pathfinder.

NĒCTARĪF'ĒROŪS, secreting nectar, or having a nectary.

NĒCTĀ'RĪŪM, see NECTARY.

NĒC'TAR-MĀRK, see NECTAR-GUIDE.

NĚCTARŌTHĚ'ČÁ, a spur or other receptacle containing a nectary. (Obs.)

NĚCTAR-SPŮT, see NECTAR-GUIDE.

NĚCTÁŘŮ, the part of a flower which secretes nectar. Applied especially to spur-shaped appendages to the petals containing nectar, as in the columbine, and sometimes used for similar organs which contain no nectar.

NĚDLE-ŠÁPEĐ, see ACEROSE and ACICULAR.

NĚĀTĪVE ĠĚŌT'RŌPĪSM, see APOGEOTROPISM.

NĚĀTĪVE HĚĹŌT'RŌPĪSM, see APHELIOTROPISM.

NĚĀTĪVELY HĚĹŌTRŌP'IC, see APHELIOTROPIC.

NĚĀTĪVELY RHĚŌTRŌP'IC, said of an organ (usually a root) when it tends to grow in a direction opposite to that of a current of water in which it is placed, as the roots of maize. (Jönsson.)

NĚMÁTHĚ'ČŮM (pl. *NĚmáthě'člá*), a wart-like group or mass of tetraspores in Florideae.

NĚM'ÁTOID, thread-like; filamentous.

NĚMĚŌŮS, composed of threads or filaments; filamentose. (Obs.)

NĚM'ŌRŌSE, growing in groves.

NĚPH'RŌID, see RENIFORM.

NĚRV'ÁTE, see NERVED.

NĚRV'ÁTION, the manner in which the nerves of a leaf are arranged; venation.

NĚRVE, a term formerly in general use for the veins of monocotyledons, now mainly used for the veins (when moderately developed) on the floral enve-

lopes of grasses. Compare VEIN and RIB.

NĚRVED, having nerves instead of veins; nervate.

NĚRVŌSE', abounding in nerves.

NĚST'LING, see NIDULANT.

NĚT'TĚĐ, see RETICULATED.

NEŮR'ÁTION, see NERVATION.

NEŮTĚR, having neither stamens nor pistils; neutral. Said of a plant or flower.

NEŮ'TRAL, see NEUTER.

NEW SPĚ'ČIĚŠ. A species is considered new when its name and description are published for the first time. The botanical name is then followed by the words "new species," or their abbreviation ("n. s." or "n. sp." in English, "sp. nov." in Latin), without the name of the author, the writer of the description being understood to be the author of the name. When the name is republished in any manner the species is no longer considered new, and the name of its author is then appended.

NĚD'ŮLÁNT, embedded in pulp or other loose material, or partly enclosed in a receptacle; nestling.

NĚDŮS, a suitable place for a spore or seed to germinate.

NĚĠĚR, black and either glistening or slightly tinged with gray. Compare ATER.

NĚĠRĚS'CENT, becoming black or blackish; nigricant.

NĚĠRĪCÁNT, see NIGRESCENT.

NĚT'ID, smooth and shining; bright; lustrous. Compare LUCID and LÆVIGATE.

NĚT'IDŮS, see NITID.

NĚV'ĚŌŮS, snow-white; pure white. A clearer and purer white than Candidus.

NŌCTŪR'NAL, lasting through a night, or occurring at night.

NŌD'DING, see CERNOUS.

NŌDE, the place on a stem where one, two, or more leaves are attached; any knot or swelling; a point of intersection, as of threads in reticulated protoplasm.

NŌDIF'EROŪS, bearing nodes.

NŌDŌSE', knotted; with swollen joints; swollen at intervals. Compare MONILIFORM.

NŌD'ŪLE, a small knot or rounded body.

NŌD'ŪLŌSE, diminutive of Nodose.

NŌR'MAL, according to rule; usual; of the ordinary type or structure.

NŌSŌL'ŌGŸ, VEGETABLE, see VEGETABLE NOSOLOGY.

NŌT'ATE, marked by colored spots or lines.

NŌTŌRHĪ'ZAL, see INCUMBENT.

NŌTŌTRĪBE, said of an irregular flower when arranged so that the pollen from the stamens strikes the back of a visiting insect. Compare STERNOTRIBE and PLEUOTRIBE.

NŪCAMĒNTĀ'CEOŪS, nut-like, or pertaining to nuts.

NŪCAMĒN'TŪM (obs.), see AMENT.

NŪÇĒL'LŪS, the nucleus of an ovule.

NŪÇIF'EROŪS, nut-bearing.

NŪÇIFŌRM, nut-shaped; nucamentaceous.

NŪ'CLĒAR, pertaining to a nucleus.

NŪ'CLĒAR BĀR'RĒL, a stage in karyokinesis, immediately preceding the nuclear spindle.

NŪ'CLĒAR DĪSK, see MOTHER-STAR.

NŪ'CLĒAR FĪBRĪLS, see SPINDLE-FIBRES.

NŪ'CLĒAR FĪL'AMENT, a general term for the chromatin of a nucleus, which in karyokinesis appears as segments of a filament, and in the resting state as a filamentous network; chromatic filament. See CHROMOSOME.

NŪ'CLĒAR PLĀTE, see MOTHER-STAR.

NŪ'CLEAR SPĪN'DLE, a spindle-shaped achromatic figure in the nucleus during cell-division, consisting of slender filaments which cross the equator or extend toward it from the poles. It begins to appear in the skein stage, and is completed in the mother-star stage.

NŪ'CLĒAR STĀR, see ASTER.

NŪ'CLĒAR THREADS, see SPINDLE-FIBRES.

NŪ'CLĒĀTĒD, having a nucleus.

NŪ'CLĒĪN, usually employed in the sense of chromatin. By some authors there is believed to be a distinct chemical substance, a form of protoplasm, which is termed nuclein.

NŪ'CLĒŌLĀTĒD, having a nucleolus.

NŪ'CLĒŌLE, see NUCLEOLUS.

NŪCLĒ'ŌLŪS (pl. Nūclē'ōlī), any distinct body of considerable size within a nucleus—not a definite and constant organic structure. There may be more than one.

NŪ'CLĒŌPLĀSM, the more fluid protoplasm of the nucleus between the nuclear threads; karyoplasm.

NŪ'CLĒŪS, (1) an organized structure within the living cell by means of which cell-division takes place. It is usually spherical in form, richer in

protoplasm, and of higher refractive power than the remaining cell-contents; (2) the part of the ovule containing the embryo-sac (nucellus); (3) any organic centre, as the hilum of a starch-grain.

NŪ'CLĒŪS OF THE EMBRYO-SAC, see SECONDARY NUCLEUS.

NŪCŪLĀ'NIŪM, a term sometimes applied to fruits like the medlar which contain several nut-like seeds or carpels.

NŪ'CŪLE, (1) the female organ in Chara; (2) any small nut-like seed or pericarp.

NŪDE, see NAKED.

NŪDĪCAU'LOŪS, having no leaves on the stem.

NŪ'MĒROŪS, too many to be readily counted; indefinite.

NŪRSE (Hort.), a shrub or tree which serves for the temporary protection of a younger tree or plant.

NŪT, the fruit of certain trees and shrubs, consisting of a hard shell enclosing the seed; —also applied to other small nut-like fruits, as those of Carex, Rumex, and Lithospermum. These latter are more properly called nutlets. See GLANS.

NŪ'TANT, see CERNOUS.

NŪTĀ'TION, the motion of a flower, leaf, or growing stem in following the apparent movement of the sun from east to west during the day; simple nutation. Compare CIRCUMNUTATION.

NŪT'LĒT, a small nut, or nut-like seed or fruit, as many achenia.

NŪTRĪ'TION includes the absorption, elaboration, distribution, and final assimilation

of plant-food resulting in growth.

NŪX, see NUT.

NŪYTŌTRŌP'IC, applied to the movements of organs which occur at night, or upon the approach of night, producing what is called the "sleep" of plants.

NŪYTŌT'RŌPIŒM, the so-called "sleep" of plants.

OB-, inversely.

ŌBCLĀ'VĀTE, clavate in shape, but attached by the large end.

ŌBCŌMPRĒSSĒD', flattened in the reverse of the usual direction, as when a legume is flattened so that the dorsal and ventral sutures approach each other. Compare DEPRESSED.

ŌBCŌN'IC, conical, but attached at the apex instead of the base; inversely conical. Also applied improperly in pomology to a fruit which has the form of a very short or flattened cone.

ŌBCŌN'ICAL, see OBCONIC.

ŌBCŌR'DĀTE, inversely heart-shaped, i.e., with the attachment at the small end.

ŌBDĪPLŌSTĒM'ŌNOŪS, diplostemonous, with the stamens of the outer whorl opposite to the petals.

ŌBĪM'BRĪCĀTE, (1) having overlapping scales directed downward or backward; (2) having the outer scales in an involucre progressively longer than the interior ones.

ŌBLĀN'ČĒŌLĀTE, lanceolate in form, but tapering toward the base instead of toward the apex.

ŌBLĀTE', flattened or depressed at the ends or poles. Compare PROLATE.

ÖBLIGÄTE, necessary; essential. Compare **FACULTATIVE**.

ÖBLIGÄTE-PÄRÄSITE, an organism to which a parasitic life is indispensable for the attainment of its development. Compare **FACULTATIVE PARASITE**.

ÖBLIQUE', (1) occupying a position between horizontal and erect; (2) having one side extending farther forward than the other; (3) having one side more developed than the other, as many leaves and some fruits; unsymmetrical. In pomology, **Oblique** is used in the second sense only, the third being called **Angular**.

ÖBLITERÄTION, see **SUPPRESSION**.

ÖBLÖNG, longer than wide, with nearly parallel sides. Compare **OVAL**.

ÖBÖVAL, sometimes used improperly for **Obovate**.

ÖBÖVÄTE, ovate with the attachment at the narrow end.

ÖBÖVOID, ovoid, and attached by the small end. Sometimes used incorrectly for somewhat obovate.

ÖBSÖLÄTE, suppressed, or very rudimentary; scarcely apparent. See **ABORTIVE**.

ÖBTÜSE', having a rounded end or apex; blunt. Compare **ACUTE**.

ÖBVÄL'LÄTE, appearing as though surrounded by a wall.

ÖBVERSE', inverse; reverse;—as a leaf which is narrowest at the base.

ÖB'VÖLÜTE, a modification of **Convolute** in which the entire halves of adjoining organs successively overlap or enfold each other. **Half-equant** is one form of this condition.

ÖÇĖL'LÄTE, see **OCELLATED**.

ÖÇĖL'LÄTĖD, having a circular patch of color with a spot of another color within it like an eye; **ocellate**; **oculate**.

ÖÇĖL'LÜS, a circular spot, resembling an eye.

ÖCHRÄ'ÇEOÜS, brownish yellow; yellowish.

Ö'CHRĖÄ (pl. **Ö'chrĖä**), see **OCREA**.

Ö'CHRĖÄTE, see **OCREATE**.

ÖCHRÖLEÜ'COÜS, yellowish white; whiter than **Ochraceous**.

Ö'CRĖÄ (pl. **Ö'crĖä**), a sheath formed by a stipule or pair of stipules united around the stem, as in **sycamore**.

Ö'CRĖÄTE, having **ocrae**.

ÖCTÄG'YNOÜS, see **OCTOGYNOUS**.

ÖCTÄM'ĖROÜS, having the parts in eights, as a flower with eight petals, eight stamens, etc.

ÖCTÄN DROÜS, having eight stamens.

OCTO- (or **OCTA-**), (from the Greek,) eight.

ÖCTÖG'YNOÜS, having eight pistils or styles; **octagynous**.

ÖCTÖLÖC'ÜLAR, having eight cells or compartments in a fruit or pericarp.

ÖCTÖPĖT'ALOÜS, having eight petals.

ÖCTÖRÄ'DIÄTE, having eight rays, as some ligulate flowers.

ÖCTÖSPĖR'MOÜS, eight-seeded.

ÖC'TÖSPÖRE, an eight-fold tetraspore. Formerly applied to the oögonium of *Fucus vesiculosus*, which contains eight oösppheres.

ÖC'TÖSPÖROÜS, containing eight spores, as most **asci**.

ÖC'ÜLÄTE, see **OCELLATED**.

ÖDD'LÝ PİN'NÄTE, see **IMPARI-PINNATE**.

ÖFFIČ'INAL, used in medicine or the arts.

ÖFF'SĚT, a short lateral branch or stolon proceeding from the base of the plant, which serves or may serve for propagation. It usually takes root of itself. Lateral bulbs are also called offsets.

ÖFF'SHOOT, an offset, or lateral branch.

OIL-TUBE, see VITTA.

ÖLEÄG'INOŮS, oily.

ÖLĚRÄ'ČEOŮS, esculent; used for food; applied mainly to garden vegetables.

ÖLIGÄN'DROŮS, having few stems; oligostemonous.

ÖL'IGÄRCH, applied to a fibrovascular cylinder having few rays, i.e., containing or representing few fibrovascular bundles.

ÖLIGÖPHÝL'LOŮS, having few, or comparatively few, leaves.

ÖLIGÖSPĚR'MOŮS, few-seeded.

ÖLIGÖSTĚM'ÖNOŮS, see OLIGANDROUS.

ÖLIVÄ'ČEOŮS, dusky green.

ÖMNIV'ÖROŮS, applied to a parasitic fungus which attacks many kinds of plants.

ÖM'PHÁLÖDE, see OMPHALODIUM.

ÖMPHÁLÖ'DIŮM (pl. *Ömphälö'diä*), the central part of the hilum, containing the vessels which enter the raphe or chalaza.

ONE-SID ĚD, see SECUND, UNILATERAL, and HOMOMALOUS.

ÖNTÖG'ENÝ, the study of the development of an individual through all its stages. Compare PHYLLOGENY.

ÖÖČÝST, a female organ or oogonium of doubtful nature.

ÖÖG'ÄMÝ, the conjugation of gametes which are dissimilar in form. Compare ISOGAMY.

ÖÖGÖ'NĪŮM (pl. *Öögö'niä*), the female sexual organ in Oösporeæ before fertilization, containing one or more oöospheres, as in Peronospora.

ÖÖ-NŮ'CLĚŮS, the nucleus of an oöosphere. Compare SPERMONUCLEUS.

Ö'ÖPHÖRE, the first or sexual stage or generation in plants having an alternation of generations, as ferns; oöphyte. Compare SPOROPHORE.

ÖÖPHÖRĪD'IŮM (pl. *Ööphörĭd'iä*) (obs.), see MACROSPORANGIUM.

Ö'ÖPHÝTE, see OÖPHORE.

Ö'ÖSPĚRM, see OÖSPORE.

Ö'ÖSPHĚRE, the oöspore previous to fertilization; i.e., the cell or protoplasmic mass which after fertilization becomes the oöspore.

Ö'ÖSPÖRÄNGE, see OÖSPORANGIUM.

ÖÖSPÖRÄN'GĪŮM (pl. *Ööspörän'giä*), an old term for oogonium.

Ö'ÖSPÖRE, a fertilized oöosphere; oöspERM. As a result of fertilization the oöosphere, thus changed to an oöspore, takes on a firm cell-wall and acquires the power of germination.

ÖPÄQUE', having a dull surface; neither transparent nor shining.

Ö'PEN, applied to fibrovascular bundles which always contain cambium capable of further growth, as in exogens. Compare CLOSED.

ÖPĚR'CŮLAR, like an operculum; operculate.

ÖPĚR'CŮLÄTE, having an operculum. Compare DEOPERCULATE.

ŎPĚR'CŮLŮM, (1) a transversely dehiscent lid or cap, like that covering the capsule of many mosses; (2) the lid of a pitcher-shaped leaf.

ŎPĚS'THŎDAL, posterior; applied to the inner or posterior opening of a stoma. Compare **EISODAL**.

ŎP'PŎSITE, opposed in position. Said, for example, of leaves when situated over against each other in pairs at the same height upon the stem. One floral organ, however, is *opposite* another when it is superposed to it, i.e., when it stands between it and the axis. Compare **ALTERNATE**.

ŎP'PŎSĚTĚFLŎ'ROŮS, having opposite peduncles.

ŎP'PŎSĚTĚFLŎ'LĚŮS, (1) having opposite leaves; *adversifolious*; (2) situated opposite a leaf, as the tendrils in the grape.

ŎP'PŎSĚTELĚ'PĚN'NATE, having leaflets in pairs.

ŎRBĚC'ŮLAR, circular in outline, or nearly so; orbiculate.

ŎRBĚC'ŮLĚTE, see **ORBICULAR**.

ŎR'DĚR, a division of a class containing one or more genera; family.

ŎR'DĚNAL, pertaining to an order.

ŎR'GAN, any part having a special function, as a leaf or stamen. Compare **MEMBER**.

ŎRGĚN'ĚC ĆĚN'TRE, a point or axis around which growth takes place. It may not remain the mathematical centre.

ŎRGĚNŎG'ĚNĚ, the origin and development of organs; organogenesis.

ŎRGĚNŎG'RĚPHĚ, the study of organs.

ŎRGĚNŎPLĚS'TĚC, having the

power of producing organs, as *organoplastic* tissue.

ŎR'GANŠ OF RĚPRŎDŮC'TION, those whose chief function is to serve directly or indirectly in the production of seeds or spores. In the higher plants the stamens and pistils are usually indicated by the term.

ŎR'GANŠ OF VĚGĚTĚTION, those which minister to the growth of the whole plant: roots, stem, and leaves.

ŎRĚNTĚTĚTION, strictly, facing the east. Used in horticulture for the setting of transplanted trees facing the same way as they stood originally. Used in botany for assuming any definite direction with respect to the points of the compass or to the axis of the plant or organ.

ŎR'MŎGŎN, see **HORMOGONIUM**.

ŎRTHŎPLŎ'ĆEOŮS, having con-duplicate cotyledons. (Obs.)

ŎRTHŎS'TĚĤĚ, a vertical row of organs. Compare **PARASTICHĚ**.

ŎRTHŎS'TŎMOŮS, having a straight opening.

ŎRTHŎT'RŎPAL, see **ORTHOTROPOUS**.

ŎRTHŎTRŎP'ĚC, growing erect, as stems in contrast with leaves, etc. Compare **PLAGIOTROPIC**.

ŎRTHŎT'RŎPOŮS, (1) applied to an ovule or seed in which the hilum coincides with the chalaza and the micropyle occupies the apex opposite. Compare **ANATROPOUS**. (2) Applied to the embryo it means the opposite of *antitropous*, i.e., having the radicle next the hilum, as in anatropous seeds.

ŎS'ĆĚLLĚTĚNG, see **VERSATILE**.

ŌS'MŌSE, the mutual diffusion of liquids of different densities through a membrane. It is the peculiar property of osmose that the denser fluid absorbs from the other through the membrane more than it gives in exchange. The imbibition of fluids by roots is due partially to osmose (endosmose), the fluid within the plant being denser than that in the soil. The outward diffusion of fluid from the plant into the soil, which takes place in a feeble degree, is termed Exosmose.

ŌSMŌ'SIS, see **OSMOSE**.

ŌS'SEŌŪS, bony in texture.

ŌS'SIFĪED, become like bone, as a peach-stone.

ŌS'TIŌLE, a small orifice, as that in a perithecium for the discharge of spores.

ŌSTIŌLŪM, see **OSTIOLE**.

ŌUTĒR GLŪMES, see **EMPTY GLUMES**.

Ō'VAL, about twice as long as broad, with regular curved outlines; broadly elliptical.

ŌVĀ'RĪŪM (pl. **Ōvā'riā**), see **OVARY**.

Ō'VĀRŪ, the part of a pistil containing the ovules or seeds.

Ō'VĀTE, like a longitudinal section of an ordinary hen's egg, with the attachment, if any, at the broad end. Compare **OVOID**.

Ō'VĪFŌRM, see **OVOID**.

Ō'VOID, of the shape of a hen's egg, and attached, if at all, at the large end. Compare **OVATE**.

Ō'VŪLE, the seed previous to fertilization.

ŌVŪLĪFĒROŪS, bearing ovules.

Ō'VŪM (pl. **Ō'vā**), see **OŌSPHERE**.

PĀCHŪPHŪL'LOŪS, thick-leaved.

PĀD, a popular name for the leaf of a water-lily.

PĀG'INĀ (pl. **Pāg'inā**), the surface of an organ, especially the upper or lower surface of a leaf.

PĀINT'ĒD, having colors disposed in streaks of unequal intensity. (Rare.)

PĀIRED, see **CONJUGATE**.

PĀLĒĀ'CEOŪS, see **PALEACEOUS**.

PĀL'ĀTE, the convex base of the lower lip of a personate corolla, as in snap-dragon.

PĀLE, see **PALET**.

PĀ'LĒĀ (pl. **Pā'lēā**), (1) the inner bract of a flower in grasses (palet); (2) one of the bracts or scales upon the receptacle in Compositæ. Also used by some for Ramentum.

PĀLĒĀ'CEOŪS, chaff-like; bearing chaff or chaffy scales; consisting of chaff.

PĀLĒŌBŌT'ĀNŪ, see **FOSSIL BOTANY**.

PĀLĒ'ŌLĀ (pl. **Pālē'olā**), see **LODICULE**.

PĀLĒŌPHŪTŌL'ŌGŪ, see **FOSSIL BOTANY**.

PĀL'ĒT, the inner bract or chaff of a flower in grasses; formerly known as the upper palet; palea. Compare **GLUME**.

PĀLĪSĀDE' CĒLLS, elongated cells perpendicular to the epidermis in the upper side of most leaves.

PĀLLĒS'CENT, somewhat pale.

PĀL'LĪD, pale; wan; deficient in color.

PĀLM, three inches.

PĀL'MĀTE, lobed or divided so that the sinuses all point toward the apex of the petiole, either moderately as in the maple-leaf, or more deeply,

when it is sometimes improperly called *pedate*, or so as to make the leaf compound when it is *digitate*.

PĀL'MĀTĒD, see PALMATE.

PĀL'MĀTELŸ CLĒFT, having the sinuses in a palmate leaf reaching about half way to the base; palmatifid.

PĀL'MĀTELŸ CŌM'POUND, having the leaflets all attached to the apex of the petiole; digitate.

PĀL'MĀTELŸ DĪVĪ'DĒD, cleft to the base in a palmate manner, but not compound; palmatisect.

PĀL'MĀTELŸ LŌBED, having the lobes directed toward the apex of the petiole.

PĀL'MĀTELŸ NĒRVED, sometimes applied to palmately veined leaves in endogens; palm-nerved; palminerved.

PĀL'MĀTELŸ PĀRT'ĒD, cleft nearly to the base in a palmate manner.

PĀL'MĀTELŸ VEINED, having the principal veins proceeding from the apex of the petiole, as in palmate leaves; palm-veined; palmiveined; radiate-veined.

PĀLMĀT'ĪFĪD, see PALMATELY CLEFT.

PĀLMĀT'ĪLŌBED, see PALMATELY LOBED.

PĀLMĀTĪPĀR'TĪTE, see PALMATELY PARTED.

PĀLMĀT'ĪSĒCT, see PALMATELY DIVIDED. Sometimes improperly used for Palmately Parted.

PĀL'MĪNĒRVED, see PALMATELY NERVED.

PĀLM-NĒRVED, see PALMATELY NERVED.

PĀLM-VEINED, see PALMATELY VEINED.

PĀL'ŪDĪNE, see PALUSTRINE.

PĀL'Ū'DĪNOŪS, see PALUSTRINE.

PĀL'ŪDŌSE, see PALUSTRINE.

PĀLŪS'TRĪNE, growing in marshes or swamps; paludine; paludinous; paludose; uliginose; uliginous.

PĀNCHE, have pale faint stripes.

PĀN'DŪRĀTE, see PANDURIFORM.

PĀNDŪ'RĪFŌRM, obovate, with one or two large sinuses or concavities in each side, like the body of a violin; fiddle-shaped.

PĀNGĒN'ĒSĪS, a theory proposed by Charles Darwin to account for the reproduction of every part of an organism. It is, that each separate part of the individual throws off minute reproductive gemmules, which are capable of multiplication, and may be transmitted from generation to generation. Spores and seeds are abundantly supplied with these gemmules from all parts of the organism, and therefore specially fitted for reproduction. If other parts can serve for propagation, it is because gemmules from the remaining parts are present;—if a cutting "strikes root," for example, it is because it contains root gemmules. Atavism is caused by dormant gemmules from a previous generation. A modification of this theory proposed by De Vries is that each cell contains all the essential elements for the reproduction of the plant, the protoplasm containing a vast number of self-reproductive particles (pangens) which transmit the characters of the individual.

PĀN'ĪCLE, a branched raceme, as in oats. Panicles are either determinate or indeterminate

in their mode of inflorescence. If the former they are called "cymose;" if the latter, "botryose." They have a variety of shapes, the typical form being loose and spreading, with repeatedly branched peduncles, as in many grasses. Panicles of certain forms have received special names. A compact panicle like that of lilac is called a thyrsus; a spike-shaped panicle like that of wheat is usually called a spike, or compound spike; a corymb might be called a level-topped centripetal panicle, and a cyme a similar centrifugal panicle.

PĀN'ICLED, see **PANICULATE**.

PĀN'IC'ULĀTE, resembling a panicle; furnished with panicles; arranged in panicles; panicked.

PĀN'IC'ULĀTĒD, see **PANICULATE**.

PĀN'IC'ULĪFŌRM, panicle-shaped.

PĀN'NĀRŸ, pertaining to bread; suitable for making bread.

PĀN'NĪFŌRM, thick and spongy, like coarse cloth.

PĀN'NŌSE, (1) having a felted coat of hairs. Compare **FLOCCOSE** and **MANICATE**. (2) Having the texture of coarse cloth; panniform.

PĀNSPĒR'MĪĀ, the theory that seeds and spores are everywhere present, ready to be developed upon favorable opportunity.

PĀ'PĒRŸ, see **CHARTACEOUS**.

PĀPĪLĪŌNĀ'CEOŪS, having flowers, as in the Papilionaceæ, a tribe of the Leguminosæ or pea family; i.e., with a large upper or posterior petal called the vexillum, two lateral petals called wings, and two small

inferior petals more or less united into a carina or keel.

PĀPĪL'LĀ (pl. **Pāpīl'lā**), a small soft, elongated teat-shaped protuberance. Compare **MAMILLA** and **WART**.

PĀP'ILLĀRŸ, having or resembling papillæ. Compare **VERUCOSE**.

PĀP'ILLĀTE, having papillæ; papilliferous. Compare **MAMILLATE**.

PĀPĪLLĪF'ĒROŪS, see **PAPILLATE**.

PĀPĪL'LĪFŌRM, in the form of a papilla.

PĀP'ILLŌSE, papillate or papillary; especially, covered with papillæ.

PĀP'PĪF'ĒROŪS, bearing a pappus, as the seeds of thistle.

PĀP'PĪFŌRM, like a pappus.

PĀP'PŌSE, pappiferous or pap-piform.

PĀP'PŪS, the calyx in Compositæ, especially when developed in a hairy or feathery manner to effect the dispersion of the seed. Compare **COMA**.

PĀP'ULĀ (pl. **Pāp'ulā**), see **PAPILLA**.

PĀP'ULOŪS, see **PAPILLOSE**.

PĀP'YRĀ'CEOŪS, papery; chartaceous.

PĀRĀCŌRŌL'LĀ, see **CROWN**.

PĀR'ĀČŸST, a term proposed by Tulasne, but not generally adopted, for De Bary's term **Pollinodium**.

PĀRĀHĒLIŌT'RŌPĪSM, the power which certain leaves have when placed in bright sunlight of placing their surfaces parallel to the rays of light; diurnal sleep. Compare **DIAHELIOTROPISM**.

PĀR'ALLĒL NERVED, see PARALLEL VEINED.

PĀR'ALLĒL VEINED, having the veins or the principal ones parallel, or merely diverging: opposed to Reticulate veined and characteristic of the veins (or nerves) of endogens. In some exogens, however, as the beech, the principal lateral veins are parallel, but in exogens the term *parallel veined* is not applied, the condition being expressed in examples like this by the special term *pinnately veined*.

PĀRĀMĪTŌM, a name given by Flemming to the more fluid portion of the cell-substance which is contained in the meshes of the *mitom* or network of threads. It is the *paraplasma* of Kupffer.

PĀRĀNĒMĀTĀ (sing. Pārānē'mā), paraphyses among the spores of *Fucus* and other algæ. (Obs.) See PARAPHYSES.

PĀRĀNŪCLĒŌLŪS (pl. Pārānū-clē'ōlī), one of the additional or secondary nucleoli in a nucleus, when there are more than one.

PĀRĀNŪCLĒŪS (pl. Pārānū-clēī), an object resembling an additional nucleus—generally adjoining the true nucleus and in some cases budded off from it; lateral nucleus.

PĀRĀPĒT'ALOŪS, standing by the side of a petal, as stamens in some Rosaceæ.

PĀRĀPHŪL'LŪM (pl. Pārāphyl'lā), a foliaceous expansion which is not a true leaf, as the large stipules of the pea. Especially one of the leaf-like scaly hairs among the true leaves in mosses.

PĀRĀPH'YSEŠ (sing. Pārāph'ysis), sterile filaments among reproductive bodies of various kinds, as those among the archegonia and antheridia in certain mosses, among the asci in Ascomycetes, and among the basidia in Basidiomycetes.

PĀR'ĀSITE, a plant which grows upon or within another living body, from which it derives a part or the whole of its nourishment. Compare SAPROPHYTE.

PĀR'ĀSITE - ŠĀP'RŌPHŪTE, a parasite which kills its host, then continues to feed upon it.

PĀRĀSĪT'IC CĀSTRĀTION, sterility of a reproductive organ caused by a parasite.

PĀR'ĀSĪTĪŠED, affected by a parasite; having a parasite growing upon or within it.

PĀR'ĀSĪTĪŠM, the condition of being a parasite.

PĀRĀSTĀ'MĒN, see STAMINODIUM.

PĀRĀSTĒ'MŌN, see STAMINODIUM.

PĀRĀS'TĪCHŪ, a whorl, or spiral row of organs. Compare ORTHOSTICHY.

PĀR'ĀSTŪLE, an abortive style.

PĀRĀTŌN'IC, depressing or retarding: opposed to stimulating. Applied mainly to certain spontaneous movements of plants, such as the "sleep" of leaves, induced by the withdrawal of the usual stimulus, in distinction from movements caused by mechanical or artificial irritation. Sometimes applied to all movements of organs which are produced by the presence or absence of external stimuli. The term is also applied to the condition of plants when un-

sually insensitive to stimuli of any kind. Compare PHOTO-TONIC.

PĀREN'CHĪMĀ, all tissue composed of cells which do not have tapering extremities. Especially soft cellular tissue like that of pith and the pulp of leaves. Compare PROSENCHYMA and SCLERENCHYMA.

PĀRENCHĪM'ĀTOŪS, pertaining to, containing, or resembling parenchyma; spongy; porous.

PĀRĪĒS (pl. **PĀRĪ'ētēs**), the wall of any enclosing body.

PĀRĪ'ĒTAL, belonging to or situated upon the wall, as ovules or seeds upon the wall of the pericarp.

PĀRĪPĪN'NĀTE, see ABRUPTLY PINNATE.

PĀRĒ'CIŌŪS, having male and female "flowers" in mosses placed close together. (Lesquereux and James.)

PĀRTĒD, divided nearly to the base.

PĀRTHĒNŌGĒN'ĒSĪS, the occasional production of true spores or seeds without fertilization. Compare APOGAMY.

PĀRTHĒNŌSPŌRE, a spore in certain algae resembling a zygospore, but produced without conjugation.

PĀR'TIAL, secondary or subordinate.

PĀR'TIAL ĪN'VŌLŪCRE, one which subtends a subordinate part of an inflorescence, as a partial or secondary umbel.

PĀR'TIAL PĒDŪN'CLE, a branch of an inflorescence (pedicel) bearing more than one flower.

PĀR'TIAL PĒTĪŌLE, a division of a petiole bearing one or more leaflets; petiolule.

PĀR'TIAL ŪM'BĒL, one of the parts or secondary umbels of

a compound umbel; umbelule; umbellet.

PĀRT'IBLE, capable of being readily divided, but not dividing spontaneously.

PĀR'TĪTE, see PARTED.

PĀRT'ĪTĪŌN, see SEPTUM.

PĀR'VŪS, relatively small.

PĀSTEUR'ĪSM, a term applied by some writers to the protective or prophylactic inoculation of the attenuated virus of certain diseases, especially of hydrophobia, as devised by Louis Pasteur. The older term Vaccination, however, is being very properly extended to all operations involving this principle. Compare PASTEURIZATION.

PĀSTEURĪZĀ'TION, the preservation of wines or other fermented liquids by destroying the fungi and their spores that would produce further and deleterious changes. This is effected by prolonged heating to a moderate degree (about 140° F.) for the purpose of inducing the germination and subsequent destruction of the spores which are present.

PĀTĒL'LĀ (pl. **Pātēl'lā**), a form of sessile apothecium in lichens. (Obs.)

PĀTĒL'LĪFŌRM, kneepan-shaped; in the form of a watch-crystal or shallow saucer, especially if thickened like a kneepan.

PĀT'ENT, spreading nearly at right angles.

PĀTH'FĪNDĒR, see NECTAR-GUIDE.

PĀTHŌGĒN'IC, disease-producing; pathogenetic.

PĀTHŌL'ŌGŪ, see VEGETABLE PATHOLOGY.

PĀT'ŪLOŪS, slightly spreading.

PAUCI-, a Latin prefix: few.

PAUCIFLÔROÛS, few-flowered.

PEÂR-FÔRM, see PEAR-SHAPED.

PEÂR-SHAPED, ovoid or obovoid, and contracted at the sides like the Bartlett pear. Compare **TEAR-SHAPED**.

PËCTÎNÂTE, having close narrow divisions like the teeth of a comb. Applied also by De Bary to two series of fibrovascular bundles when the members of each alternate with those of the other, like the teeth of two combs.

PËDÂTE, palmately parted or divided into somewhat linear lobes, with two strong lateral lobes from each of which somewhat linear divisions arise, as in the maidenhair fern and *Viola pedata*. Compare **PALMATE**.

PËDÂTELÛ CLËFT, see **PEDATIFID**.

PËDÂTELÛ VEINED, having no mid-vein, but with two strong lateral veins, from each of which others originate which extend toward the apex; pedatinerved. Compare **PALMATELY VEINED**.

PËDÂTÎFID, divided in a pedate manner about half-way to the base; pedately cleft.

PËDÂTÎNERVED, see **PEDATELY VEINED**.

PËDÂTÎPÂRTÎTE, pedately veined and lobed with the sinuses reaching nearly to the principal veins.

PËDÎÇËL, a branch of an inflorescence, supporting one or more flowers. Also applied to a little stalk or support of any kind. In orchids it is a portion of the pollinium in some genera which is derived from the rostellum and con-

nects the caudicles with the retinaculum. Compare **FOOT-STALK** and **PEDUNCLE**.

PËDÎÇËLLÂTE, having a pedicel; pedicelled.

PËDÎÇËLLED, see **PEDICELLATE**.

PËDÎÇÛLÂTE, see **PEDICELLATE**.

PËDÛN'CLE, the stalk of an inflorescence, whether of one flower or more. Compare **PEDICEL** and **PARTIAL PEDUNCLE**.

PËDÛN'CLED, see **PEDUNCULATE**.

PËDÛN'CÛLAR, pertaining to or serving as a peduncle; growing upon or attached to the side of a peduncle, as a *peduncular* tendril.

PËDÛN'CÛLÂTE, having a peduncle, as a *pedunculate* flower or inflorescence; peduncled.

PËG, a lip or projection at the lower end of the hypocotyl in Cucurbitaceæ which serves in germination to hold the seed-coats down while the cotyledons are withdrawn.

PËLÂGÎAN, see **PELAGIC**.

PËLÂGÎC, pertaining to the deep sea; widely dispersed through the ocean; pelagian.

PËL'LÎCLE, a distinct, firm, and in some cases separable, outer layer of the cortex in lichens and some other fleshy fungi.

PËLLÛÇID, translucent.

PËLÔRÎÂ, a regular condition in flowers which are usually irregular. See **REGULAR** and **IRREGULAR PELORIA**.

PËL'TÂ (pl. *Pël'tæ*), an obsolete term for certain target-shaped apothecia in lichens.

PËL'TÂTE, shield- or target-shaped; circular, and fixed by the lower surface, especially the centre of it.

PĚL'TĀTEL'Y VEINED, having veins radiating in all directions from the summit of the petiole, as in a peltate leaf.

PĚL'VÍFÓRM, shaped like the cavity of the pelvis; basin-shaped. (Rare.) See **ACETABULIFORM** and **COTYLIFORM**.

PĚN'ČÍLED, marked with fine distinct lines as if with a pencil.

PĚN'ČÍLED, see **PENCILLED**.

PĚN'DENT, hanging directly downward. Compare **CERNOUS** and **DROOPING**.

PĚN'DULOŮS, hanging downward more than cernous, nearly vertically.

PĚN'ČÍL'LĀTE, bordered or tipped with fine hairs like those of a camel's-hair pencil. Compare **PENCILLED**.

PĚN'ČÍL'LÍFÓRM, like a camel's-hair pencil.

PĚN'NĀTE, see **PINNATE**.

PĚN'NÍFÓRM, in the form of a feather or plume.

PĚN'NÍNĚRVED, see **PINNATELY VEINED**.

PENTA-, a Greek prefix: five.

PĚNTÁCĀR'PĚLLĀŘY, having an ovary with five carpels.

PĚNTÁCŮC'COŮS, of five cocci.

PĚNTÁČY'C'LÍC, in five whorls.

PĚNTÁĀ'YNOŮS, of five pistils or styles.

PĚNTĀM'ĚROŮS, of five parts: said of a flower having five organs in each whorl. Sometimes written 5-merous.

PĚNTĀN'DROŮS, having five stamens.

PĚNTÁPĚT'ALOŮS, of five petals.

PĚNTÁPHYL'LOŮS, five-leaved; applied mainly to the parts of the calyx; pentasepalous.

PĚNTÁP'TĚROŮS, five-winged.

PĚNTÁSĚP'ALOŮS, of five sepals; pentaphyllous.

PĚNTÁSPĚR'MOŮS, five-seeded.

PĚNTÁS'TÍCHOŮS, in five vertical ranks.

PĚ'PŮ, a cucurbitaceous fruit, as a melon or gourd. It is indehiscent, fleshy, inferior, polycarpellary, and has a thick, more or less hardened, rind.

PĚRÁPHYL'LŮM, an accrescent foliaceous calyx, as in quince. (Obs.)

PĚRCŮR'RENT, running through-out, as a midrib through the entire length of a leaf to the extreme apex.

PĚRĚN'NĀL, adj., living more than two years.

PĚRĚN'NĀL, n., a plant which lives more than two years.

PĚRĚN'NĀL HĚRB, a plant that lives from year to year, but dies to the ground or nearly so at the close of each season.

PĚR'FĚCT, containing both stamens and pistils; hermaphrodite; bisexual. Compare **COMPLETE**.

PĚRFŮ'LĪĀTE, said of a leaf which is united around the stem at its base. Compare **CONNATE**.

PĚR'FŮRĀTE, pierced with small round holes. Compare **PERTUSE** and **PUNCTATE**.

PĚRGĀMĚ'NĚOŮS, see **PERGAMENTACEOUS**.

PĚRGĀMĚNTĀ'ČEOŮS, like parchment. (Rare.) See **CHARTACEOUS**.

PĚR'ĪĀNTH, the calyx and corolla taken together, or calyx alone when there is no corolla. Used mainly where calyx and corolla are much alike, as in lilies. Formerly applied to the

calyx only, or to calyx and involucre.

PĒRIĀN'THĪŪM, see **PERIANTH**.

PĒRIĀNTHŌMĀNĪĀ, an unnatural multiplication of sepals, bracts, etc.

PĒRĪBLĒM, the primordial cortex, i.e., the layer of nascent cortex beneath the dermatogen.

PĒRICĀMBĪŪM, see **PHLOĒM-SHEATH**.

PĒRĪCĀRP, the wall of a ripened ovary or seed-vessel. Sometimes improperly applied to husks or other protective coverings surrounding the fruit.

PĒRĪCHĒTH, the involucre of leaves around the base of the seta (or sessile capsule) in mosses; also around the archegonia in *Marchantia*, etc.; perichætium.

PĒRĪCHĒ'TIAL, belonging or pertaining to the perichæth.

PĒRĪCHĒ'TIŪM, see **PERICHÆTH**.

PĒRICLĀ'DIŪM, a sheathing petiole in exogens, as in many *Umbelliferæ*. (Rare.)

PĒRICLĪ'NAL, said of cell-walls or any lines when parallel with the outer surface of the plant or organ. Compare **ANTICLINAL**. The annual rings of a trunk, for example, extend in a *periclinal* direction, and the medullary rays in an *anticlinal*.

PĒRICLĪ'NIŪM, a name for the involucre in *Compositæ*.

PĒRĪCYCLE, the outer portion of the central or fibrovascular cylinder.

PĒRĪ'DERM, see **EPIPHLŒUM**. Also applied to the cell-wall or any other enclosing membrane.

PĒRIDĪ'OLŪM (pl. *Pēridī'olā*), di-

minutive of *Peridium*: a secondary or interior peridium containing a hymenium, as in *Crucibulum*.

PĒRID'IŪM (pl. *Pēridī'ā*), the covering of almost any closed spore-case, or fungus-fruit, as of a puff-ball.

PĒRĪGŌNE, see **PERIANTH**.

PĒRĪGŌ'NIŪM (pl. *Pērigō'niā*), see **PERIANTH**. Sometimes used for *Perichæth*.

PĒRĪGŪ'NIŪM (pl. *Pērigū'niā*), a term applied to various appendages of unusual or doubtful character surrounding the pistil, as the sac-like envelope (utriculus) surrounding the ovary in *Carex*. Also used for *Perichæth* in *Hepaticæ* and mosses.

PĒRĪG'YNOŪS, adherent to the calyx and free from the ovary: said of stamens.

PĒRĪPĒ'TALOŪS, around the petals.

PĒRĪPHĒ'IC, situated around the outside or periphery.

PĒRĪPHLŌ'EM, see **PHLOĒM-SHEATH**.

PĒRĪPHŌRĀN'THĪŪM, see **PERICLINIUM**.

PĒRĪPHŪ'LŪM (pl. *Pēriphū'lā*), see **LODICULE**.

PĒRĪPLĀSM, a hyaline peripheral layer of protoplasm; ectoplasm. Especially, in *Peronosporæ*, a part of the protoplasm in the oögonium and antheridium which does not take part in fertilization. Compare **GO'NOPLASM**.

PĒRĪP'TĒROŪS, surrounded by a wing-like expansion.

PĒRĪSPĒRM, the albumen of a seed, especially that formed outside the embryo-sac. Sometimes applied also to the seed-

- coat and to the pericarp. Compare ENDOSPERM.
- PĒRISPĒR'MĪC**, furnished with perisperm.
- PĒRISPŌRĀN'ĠIŪM**, see INDUSIUM.
- PĒR'ISPŌRE**, a covering of one or more spores, as the cell or sac in which tetraspores are formed.
- PĒR'ĪSTŌME**, the fringe of teeth around the mouth of the capsule in mosses.
- PĒRĪTHĒ'ĠIŪM** (pl. *Pērithē'ġiā*), the receptacle containing the asci in Ascomycetes. Commonly applied in a general way to the whole ascocarp.
- PĒRĪT'RŌPAL**, see PERITROPOUS.
- PĒRĪT'RŌPOŪS**, having the axis of the seed perpendicular to that of the pericarp. (Rare.)
- PĒRĪZŌ'NĪŪM**, a thin non-silicious membrane of a young auxospore in Diatomaceæ.
- PĒRPĒNDĪC'ŪLAR SŪS'TĒM**, see FIBROVASCULAR SYSTEM.
- PĒRSĪS'TĒNT**, remaining longer than usual, as parts of the flower which remain (either living or dead) until the fruit is ripe, or leaves which die but remain upon the tree during winter.
- PĒR'SŌNĀTE**, labiate, with the throat nearly closed by a projection in the lower lip called the palate; masked. Compare RINGENT.
- PĒRSPIRĀ'TION**, see TRANSPIRATION.
- PĒRTŪS'ĀTE**, see PERTUSE.
- PĒRTŪSĒ'**, having slits or holes; perforate.
- PĒRTŪSĒD'**, see PERTUSE.
- PĒR'ŪLĀ** (pl. *Pēr'ŭlæ*), see PERULE.
- PĒR'ŪLĀTE**, having perules.
- PĒR'ŪLE**, see BUD-SCALE.
- PĒT'AL**, a leaf of a corolla; flower-leaf.
- PĒT'ALED**, having petals; petalous: opposed to Apetalous. Used mainly in compounds, as *five-petaled*.
- PĒTĀLĪF'ĒROŪS**, bearing petals.
- PĒTĀL'ĪFŌRM**, shaped like a petal.
- PĒT'ALĪNE**, see PETALOID.
- PĒT'ALŌDE**, an organ resembling a petal; a false petal.
- PĒTĀL'ŌDŸ**, the conversion of other floral organs into petals.
- PĒT'ALŌID**, petal-like in texture, color, and form; petaline. Compare CORALLACEOUS.
- PĒTĀLŌMĀ'NĪĀ**, any unusual development of the petals. Not usually applied to ordinary doubling, but to some remarkable development in size or form.
- PĒT'ALOŪS**, see PETALED.
- PĒT'ĪLAR**, pertaining to or having a petiole; borne on a petiole, as a *petiolar* gland or tendril.
- PĒT'ĪLĀRŸ**, pertaining to a petiole.
- PĒT'ĪLĀTE**, having a petiole; petioled.
- PĒT'ĪOLE**, the stem or foot-stalk of a leaf. Compare STIPE and PEDUNCLE.
- PĒT'ĪOLED**, see PETIOLATE.
- PĒTĪŌL'ŪLAR**, pertaining to the petiole of a leaflet.
- PĒT'ĪŌLŪLE**, see PARTIAL PETIOLE.
- PĒZ'ĪZŌID**, in the shape of *Peziza*; cyathiform, or nearly so.
- PHĒNŌCĀR'POŪS**, having the fruit free from the perianth. (Rare.)

PHĚNŎG'ĀMOŮS, see PHENO-
GAMOUS.

PHĚNŎLŎG'ICAL, see PHENO-
LOGICAL.

PHĚ'ŎČYST, an old term for
Nucleus.

PHĀ'LĀNX (pl. Phālān'gēs), a
bundle of more or less cohe-
rent stamens with broad fila-
ments, as in some Malvaceæ.
Compare ADELPHIA.

PHĀN'ĒRŎGĀM, see PHENOGAM.

PHĀNĒRŎGĀ'MĪAN, see PHENOG-
AMOUS.

PHĀNĒRŎGĀM'IC, see PHENOG-
AMOUS.

PHĀNĒRŎG'ĀMOŮS, see PHENOG-
AMOUS.

PHĚL'ĒM, cork.

PHĚL'LŎDĒRM, green cells be-
neath the cork formed from
the inner layers of the phel-
logen; cork-cortex.

PHĚL'LŎGĒN, the inner active
growing layers of cork-tissue;
cork-cambium; cork-meristem.

PHĚ'NŎGĀM, a flowering plant,
i.e., one which produces true
seeds; phanerogam. Compare
CRYPTOGAM.

PHĚNŎGĀ'MĪAN, see PHENOG-
AMOUS.

PHĚNŎGĀM'IC, see PHENOG-
AMOUS.

PHĚNŎG'ĀMOŮS, producing true
flowers and seeds. Compare
CRYPTOGAMOUS.

PHĚNŎLŎG'ICAL, applied to the
blossoming of plants, and other
periodical phenomena of plants
and animals; phænological.

PHLŎ'ĒM, that portion of a fibro-
vascular bundle which contains
the bast and sieve tissue; lep-
tome. In exogens it is always
sharply defined from the re-
maining portion (xylem) by a
layer of cambium. The inner

bark is derived from the phloëm,
and the wood from the xylem.

PHLŎ'ĒM-RĀY, a ray or plate of
phloëm between two medullary
rays. It is an outward con-
tinuation of a xylem-ray.

PHLŎ'ĒM-SHĚATH, a layer of
thin-walled cells surrounding
the fibrovascular cylinder next
within the cortex—usually
better defined in roots than
in stems; bast-sheath; peri-
phloëm; pericambium; vascular
bundle-sheath.

PHŎRĀN'THĪŮM, see ANTHO-
DIUM.

PHŎTŎ-ĚP'INĀSTŮ, downward
curvature due to the presence
of light. Compare PHOTO-
HYPONASTY.

PHŎTŎ-HŮPŎNĀSTŮ, upward
curvature due to increased il-
lumination. Photo-epinasty
and photo-hypnasty should
be distinguished from helio-
tropism, as the curvatures are
in the directions stated, from
whatever direction the light
comes.

PHŎTŎTĀX'IS, taking a definite
position with reference to the
incident rays of light, as cer-
tain desmids and the leaves of
the compass-plant, *Silphium
laciniatum*.

PHŎTŎTŎN'IC, a term applied to
the stimulating influence of
light upon plants, inducing or
increasing irritability and ex-
citability. Thus, when growth
which has been arrested by
prolonged darkness is restored
upon admission of light, the
effect is termed the *phototonic*
influence of the light; with
most organs, however, growth
is more rapid in darkness.
This effect of light in retard-
ing growth is called its *para-*

tonic influence. See PARATONIC.

PHRĀG'MĀ (pl. Phrāg'mātā), a horizontal false dissepiment in a pericarp, as in some species of Cassia. Formerly any false dissepiment, or any dissepiment.

PHYCOCY'ANINE, a bluish pigment, found in certain marine algæ.

PHYCŌERŪTH'RINE, the reddish pigment in Floridææ.

PHYCŌL'ŌGŪ, see ALGOLOGY.

PHYCŌMĀ, the whole plant in algæ, including thallus and reproductive organs. (Obs.)

PHYCŌMĀ'TĒR, gelatine containing spores in algæ. (Obs.)

PHYCŌPHĒ'INE, the brown pigment of Fucaceæ and some other algæ.

PHYCŌXĀN'THINE, a buff-colored pigment in diatoms and certain other algæ; diatomine.

PHŪLĀ, pl., see PHYLUM.

PHYLLĀ'RĪES, an old term for the bracts forming the involucre of the flower-head in Compositæ.

PHŪL'ŌCLĀDE, see PHYLLOCLADIUM.

PHYLLŌCLĀ'DIŪM (pl. Phyllōclā'diā), a flattened branch which somewhat resembles a leaf, as in *Ruscus* and *Psilotum*; cladode; cladodium; cladophyll; phylloclade. Compare PHYLLODIUM.

PHYLLŌCY'ANIN, a bluish pigment which with phylloxanthine forms the green coloring matter of chlorophyll; cyanophyll.

PHŪL'LŌDE, see PHYLLODIUM.

PHYLLŌ'DIŪM (pl. Phyllō'diā), a dilated petiole taking the place of a blade.

PHŪL'LŌDŪ, the reversion of bracts or floral organs to leaves; frondescence; phyllo-morphy.

PHŪL'LŌGĒN, see PHYLLOPHORE.

PHYLLŌGĒNĒT'IC, leaf-producing.

PHYLLŌG'ĒNOŪS, growing upon leaves.

PHŪL'LŌID, leaf-like.

PHYLLŌMĀ'NĪĀ, an abnormally abundant growth of leaves, or their production in unusual places. Compare PLEIO-PHYLLY.

PHŪL'LŌME, a general term for all organs which are morphologically leaves, as bracts, scales, petals, etc.

PHYLLŌM'IC, pertaining to a leaf or phyllome.

PHŪL'LŌMŌRPHŪ, see PHYLLODY.

PHŪL'LŌPHŌRE, any leaf-bearing organ, especially the leaf-bearing portion of the stem in palms.

PHYLLŌPŌ'DIŪM, the branched or unbranched axis of a leaf, as the stipe and rachis of a frond, an ordinary petiole, or any arrangement which serves as an axis or support for the expanded portion or portions of a leaf.

PHYLLŌTĀX'IS, the order of arrangement of leaves upon stems; phyllotaxy.

PHŪL'LŌTĀXŪ, see PHYLLO-TAXIS.

PHYLLŌXĀN'THIN, a yellow pigment associated with phyllocyanin in the production of chlorophyll; xanthophyll.

PHŪL'LŌG'ĒNŪ, the comparative study of the development of animals or plants. It seeks to

trace the origin of species, varieties, etc., and their various organs from preëxisting forms. It deals with the history of a species or other group, in distinction from Ontogeny, which deals with the history of an individual. See EVOLUTION.

PHŶ'LŬM (pl. Phŷ'lâ), a scale, group, or system of organisms arranged in the manner in which its individuals or subordinate groups have succeeded each other in point of time.

PHŶSĪOLŌG'ICAL BŌT'ĀNŶ, the science which treats of how plants live, grow, and perform their various functions; vegetable physiology.

PHŶTŌGĒN'ĒSĪS, plant reproduction, germination, and development, or the science which treats of these processes; phyto-geny.

PHŶTŌGĒNŶ, see PHYTOGENESIS.

PHŶTŌGĒŌG'RĀPHŶ, see GEOGRAPHICAL BOTANY.

PHŶTŌG'RĀPHŶ, descriptive botany, including both the describing and naming of plants. See VEGETABLE TAXONOMY.

PHŶ'TŌID, plant-like.

PHŶ'TŌLĪTE, see PHYTOLITH.

PHŶ'TŌLĪTH, a fossil petrified plant; phytolite.

PHŶTŌLĪTHŌL'ŌGŶ, see FOSSIL BOTANY.

PHŶTŌL'ŌGŶ, see BOTANY.

PHŶTŌL'ŶSĪS, the change in position undergone by the chlorophyll of a cell in consequence of the alternation of day and night or of the intensity of the sunlight. See APOSTROPHE, EPISTROPHE, and SYSTROPHE.

PHŶ'TŌMĒR, see PHYTON.

PHŶ'TŌN, an internode with a node at its upper extremity which bears one or more leaves, in the axil of each of which may appear one or more buds; phytomer. The name was given by Gaudichaud, who regarded plants as compound individuals made up of successive *phytons*. See METAMER.

PHŶTŌN'ŌMŶ, see PHYSIOLOGICAL BOTANY.

PHŶTŌN'ŶMŶ, see PHYSIOLOGICAL BOTANY.

PHŶTŌPĀTHŌL'ŌGŶ, see VEGETABLE PATHOLOGY.

PHŶTŌT'ŌMŶ, (1) the science of vegetable anatomy; (2) the art or act of plant-dissection. Compare STRUCTURAL BOTANY.

PHŶTŌZŌ'ŌN (pl. Phytōzō'ā) (obs.), see ANTHEROZOID.

PĪLĒATE, like a pileus; having a cap or pileus; pileform.

PĪLĒ'ĪFŌRM, shaped like the pileus or cap of a mushroom.

PĪLĒ'ŌLŬS (pl. Pīlē'ŏlī), a little pileus, especially where there are several from the same stem.

PĪLĒŌRHĪ'ZĀ, see ROOT-CAP.

PĪ'LOŬS, see PILOSE.

PĪ'LEŬS (pl. Pī'lēi), the cap of mushrooms. Extended to other similar objects, as the stalked stroma of Claviceps.

PĪLĪF'ĒROŬS, bearing hairs.

PĪLĪFŌRM, hair-like.

PĪLĪG'ĒROŬS, producing hairs.

PĪLŌSE', (1) covered with long, soft, nearly erect and somewhat distant hairs; (2) having the nature of hair.

PĪ'LŬS (pl. Pī'lī), a hair.

PÍN-EYED, a florist's term for certain flowers which have the style more conspicuous than the stamens. Compare **THRUM-EYED**.

PÍN'NĀ (pl. *Pin'nā*), a leaflet, or branch of a pinnately-compound leaf.

PÍN'NĀTE, having leaflets borne along a common petiole; pinnately compound. Compare **BIPINNATE** and **TRIPINNATE**. See **LEAFLET**.

PÍN'NĀTĒD, see **PINNATE**.

PÍN'NĀTELŸ CŌM'POUND, see **PINNATE**.

PÍN'NĀTELŸ CLĒFT, see **PIN-NATIFID**.

PÍN'NĀTELŸ DĒCŌMPOUND', bipinnate, or further divided in a pinnate manner.

PÍN'NĀTELŸ DĪVĪDĒD, see **PIN-NATISECT**.

PÍN'NĀTELŸ LŌBED, having several lobes of about the same size on each side of an elongated leaf; pinnatilobate.

PÍN'NĀTELŸ PĀRTĒD, see **PIN-NATIPARTITE**.

PÍN'NĀTELŸ TĒR'NĀTE, see **PINNATELY TRIFOLIATE**.

PÍN'NĀTELŸ TRĪFŌLIĀTE, trifoliolate, with at least the terminal leaflet distinctly stalked; pinnately ternate.

PÍN'NĀTELŸ VEINED, having one primary vein or midrib from which secondary veins run parallel toward the margin, as in the beech; feather-veined.

PĪNNĀT'ĪFĪD, pinnately veined with marginal divisions reaching about half-way to the midrib.

PĪNNĀTĪLŌBĀTE, see **PINNATELY LOBED**.

PĪNNĀTĪPĀR'TĪTE, having marginal divisions in a pinnate leaf reaching nearly to the base; pinnately parted.

PĪNNĀT'ISĒCT, having the lobes of a pinnate leaf divided to the midrib but not petioled.

PĪN'NĪFŌRM, like a feather.

PĪN'NĪNĒRVED, see **PINNATELY VEINED**.

PĪN'NŪLĀ (pl. *Pin'nūlā*), see **PINNULE**.

PĪN'NŪLĀTE, having pinnules.

PĪN'NŪLE, a secondary or other subordinate pinna, as in pinnately compound or pinnately decomposed leaves.

PĪP, originally any seed, now sometimes applied to the seeds of the apple and to some other small seeds or seed-like bodies, including the little bulbs of lily-of-the-valley.

PĪSĪFŌRM, pea-shaped.

PĪS'TĪL, the central seed-bearing organ of a flower, consisting of one or more united carpels. It consists of the seed-containing portion called ovary, the pollen-receiving part called stigma, and generally an intervening stem called the style. Usually there is but one pistil in a flower, but when, as in the strawberry, there are several distinct bodies as here described seated upon the receptacle, each is properly called a pistil.

PĪS'TĪLLĀRŸ CŌRD, an old and inappropriate name for the conductive tissue of the style. See **CONDUCTIVE TISSUE**.

PĪS'TĪLLĀTE, said of a flower containing pistils but no fertile stamens.

PĪSTĪLLĪD'ĪŪM (pl. *Pistillid'īā*), see **ARCHEGONIUM**.

PĪSTĪLLĪF'ĒROŪS, bearing pistils, or pistils without stamens.

PIS'TILLŌDŸ, the transformation of other organs into pistils.

PIT, (1) a small depression, or a thin spot in a cell-wall; (2) the endocarp of a drupe containing the kernel or seed; stone. See **BORDERED PIT** and **BORDERED PORE**.

PIT-CHAM'BĒR, the cavity of a bordered pit upon one side of the closing membrane.

PITCH'ĒR, see **ASCIDIUM**.

PITCH'ĒR-SHAPED, when applied to a corolla means tubular with a contracted throat, as in *Vaccinium*; urceolate. Applied to other organs it means shaped more or less like an ordinary pitcher with a lip or spout at the top, as the leaf in the various "pitcher-plants."

PĪTH, the column or cord of soft cellular tissue at the centre of an exogenous stem; medulla.

PIT'TĒD, marked with small depressions.

PIT'TĒD VĒS'SĒLS, vessels having thickenings in the form of a network with polygonal meshes, leaving thin spots or pits; dotted ducts. Compare **BORDERED PIT**.

PĪTŪ'ITOŪS, pertaining to pitch or mucus.

PLAĀĒN'TĀ, the part of the ovary to which the ovules are attached; the tissue from which the sporangia arise in ferns. Compare **HYMENIUM**.

PLAĀĒN'TĀTION, the arrangement of the seeds in the pericarp; the arrangement of the placenta itself.

PLAĀĒN'TĪFŌRM, in the form of a double concave lens; i.e., like a circular thickened disk depressed in the centre upon both sides.

PLĀĠĪŌTRŌP'IC, growing at an angle from the vertical or from the axis either upward or downward. Compare **ORTHO-TROPIC**.

PLĀIN, said of a margin which is not undulate in any degree, though it may be sinuate. (E.S. Goff.)

PLĀIT'ĒD, see **PLICATE**.

PLĀNE, flat.

PLĀNE OF INSĒR'TION, a plane which passes through the point of insertion of a lateral member, as a leaf, and coincides with the main axis and the axis of the lateral member.

PLĀNE OF SŪM'MĒTRŸ, any plane which divides an object into symmetrical halves.

PLĀN'ŌGĀMĒTE, a ciliated or otherwise motile coalescing (sexual) cell; zoögamete.

PLĀNT-CĀNE, a sugar-cane produced directly from seed, in distinction from Ratoon, which see.

PLĀNT'LĒT, a small or young plant.

PLĀNT PĀTHŌL'ŌGŸ, see **VEGETABLE PATHOLOGY**.

PLĀSM (or *Plāsmā*), see **PROTOPLASM**. Also used for nutritive cell-fluids of all kinds.

PLĀS'MĀSŌME, a protoplasmic corpuscle.

PLĀSMĀT'IC, serving for growth; plastic. (Rare.)

PLĀSMŌ'DĪŪM (pl. *Plāsmō diā*), a mass of naked multinucleated protoplasm exhibiting amoeboid movement; the vegetative body in Myxomycetes.

PLĀSMŌL'YSIS, the contraction of protoplasm under the influence of reagents.

PLĀSMŌLŸT'IC, pertaining to plasmolysis.

PLĀS'TĪC, serving the purpose of growth; plasmic; formative.

PLĀS'TĪD, one of a class of clearly defined protoplasmic granules in the protoplasm of active cells which forms the basis of the chlorophyll and other color-granules, and is also the centre at which starch-grains are produced. For the synonymy of the colorless plastids, see **LEUCOPLAST**; and for that of the color-plastids, see **CHROMATOPHORE**.

PLĀS'TĪN, see **ACHROMATIN**.

PLĀS'TŌID, see **RHABDOID**.

PLĀTE, see **NUCLEAR PLATE** and **SIEVE-PLATE**.

PLĀTEAU', the very short stem which bears the scales in a bulb. Formerly called **Corm** or **Cormus**. See **CORM**.

PLĀTYCĀR'POŪS, broad-fruited.

PLĀTYLŌ'BĀTE, broad-lobed.

PLĀTYPHŪYL'LOŪS, broad-leaved.

PLEIO-, a Greek prefix meaning full of, or many.

PLEIŌMŌR'PHĪSM, (1) a change of form due to excessive growth of an organ; (2) sometimes used in fungi for **Poly-morphism**.

PLEIŌPH'ŶLLOŪS, having leaves without apparent buds or branches in their axils. (Rare.) See **PLEIOPHYLLY**.

PLEIŌPHŪLLŶ, a state in which there is an abnormal number of leaves from the same point, or an unusually large number of leaflets in a compound leaf. Compare **POLYPHYLLY**.

PLEIŌSPĒR MOŪS, containing an abnormally large number of seeds. Formerly the same as **Polyspermous**.

PLEŌTĀXY, a state in which

there are an abnormally large number of whorls.

PLĒ'NŪS, full, applied to "double" flowers.

PLĒŌMŌR'PHĪSM, see **PLEIOMORPHISM**.

PLĒ'ŌN, a term proposed by Nägeli for those aggregates of molecules which cannot be increased or diminished without changing their chemical nature.

PLĒ'ŌNĀSM, having any part abnormally numerous. (Rare.)

PLĒ'RŌME, nascent fibrovascular tissue.

PLĒ'RŌME-SHĒATH, the phloëm-sheath in its nascent state.

PLĒSĪŌMŌR'PHŌŪS, nearly of the same form.

PLEŪRĒN'CHŶMĀ, fibrous woody tissue. (Rare.)

PLEŪRŌCĀR'POŪS, see **CLADOCARPOUS**.

PLEŪRŌDĪS'COŪS, growing upon the sides of the disk, as the ray-flowers in **Compositæ**.

PLEŪRŌGŶ'RĀTE, having the annulus in ferns placed laterally, as in the genus **Trichomanes**.

PLEŪRŌRHĪ'ZAL, see **ACCUMBENT**.

PLEŪ'RŌTRĪBE, said of zygomorphic flowers which have the stamens so placed that an insect entering will receive the pollen upon its side, as in the pea. Compare **NOTOTRIBE** and **STERNOTRIBE**.

PLĒX'ŪS, any network.

PLŶCĀ, see **POLYCLADY**.

PLŶCĀTE, folded like a fan.

PLĪCĀT'ŪLĀTE, diminutive of **Plicate**.

PLŪMŌSE', like a feather, as the slender branches of the pappus

in thistles, which have a row of fine hairs on each side.

PLŮMŮLÁ, see **PLUMULE**.

PLŮMŮLE, the rudimentary stem and leaves between the cotyledons.

PLURI-, a Latin prefix: more than one.

PLŮŘIFŮLIŮŠ, several-flowered.

PLŮŘIFŮLIÁTE, having several leaves.

PLŮŘIFŮLIŮLÁTE, having several or many leaflets.

PLŮŘILŮCŮLAR, having more than one cell in an ovary; multilocular. Compare **UNILOCULAR**.

PLŮŘIPĚTALOŮŠ, see **POLYPETALOŮŠ**.

PLŮŘISĚPTÁTE, having more than one septum.

PNEŮMÁTODEŠ, upward growths from the roots of palms and some other plants which assist in aëration. The "knees" of the bald cypress were formerly supposed to be of this character.

PŮCŮLIFŮRM, deep cup-shaped, with hemispherical base and nearly upright sides. Compare **ALVEOLATE** and **CAMPANULATE**.

PŮD, any dry dehiscent fruit; capsule. The term pod is the more popular, and is usually restricted in its use, among botanists as well as others, to capsules of considerable size, especially when somewhat rounded or inflated, as in the milkweed (*Asclepias*).

PŮDĚTĚIFŮRM, resembling a podetium.

PŮDĚTĚJM (pl. *PŮdětětěā*), a stalk of an apothecium in lichens.

Also applied to the fruit-stalk in *Marchantia*.

PŮDĚJM, a support for some other part. The stem, for example, is a *podium* for the branches. Used mainly in composition. See **MONOPODIUM** and **SYMPODIUM**.

PŮDŮCÁRPOŮŠ, having a gynophore.

PŮDŮCĚPHÁLOŮŠ, said of a head of flowers when supported on a distinct peduncle or pedicel.

PŮDŮGYNĚJM, see **GYNOPHORE**.

PŮDŮPTĚROŮŠ, having winged peduncles.

PŮDŮSPĚRM, see **FUNICULUS**.

PŮINTÁL, an old term for *Pistil*.

PŮINTLĚŠŠ, see **MUTICOUS**.

PŮINTLĚTĚD, see **APICULATE**.

PŮLAR BŮDĚ, see **POLAR CELL**.

POLAR CELL, a portion of a gamete budded off prior to fertilization; apoblast; directive corpuscle; polar body; polar globule. Rare in plants.

PŮLAR CŮRPŮŠCLE, a central mass in each aster of a dividing nucleus.

PŮLAR GLŮBŮLE, see **POLAR CELL**.

PŮLAR NŮCLĚŠŠ, a fourth nucleus in each end of the embryo-sac previous to fertilization. The two polar nuclei unite to form the nucleus of the embryo-sac or "secondary nucleus."

PŮLÁRĚTĚ, the state of having distinct poles; the tendency to assume a direction parallel to the poles of the earth, as the leaves of the compass-plant, *Silphium laciniatum*.

PŮLĚN, the fertilizing powder, usually yellow, produced in the anthers of flowers. It consists of unicellular grains

of definite form, varying according to species, which begin the process of fertilization when placed upon the stigma by an act of germination.

PÖL'LĒNĀTE, see POLLINATE.

PÖL'LĒNĀ'TION, see POLLINATION.

PÖL'LĒN-ĈĚLL, sometimes applied to the cells or chambers of the anther which contain the pollen; pollen-sac.

PÖL'LĒN-ĈĤĀM'BĚR, in gymnosperms, a cavity at the apex of the ovule in which the pollen-grains lie during fertilization; pollinic chamber.

PÖL'LĒN-GRĀIN, the usual term for an individual spore, cell, or particle of pollen.

PÖL'LĒNĪZE, see POLLINATE.

PÖL'LĒNĪZĀ'TION, see POLLINATION.

PÖL'LĒNĪD, used by Bennett & Murray for Antherozoid.

PÖL'LĒN-MĀSS, see POLLINIUM.

PÖL'LĒN-SĀC, the cavity of an anther containing the pollen; pollen-cell.

PÖL'LĒN-SPÖRE, see POLLEN-GRAIN.

PÖL'LĒN-TĚTRĀHĚ'DRŌN (pl. TĚtrĀhĚ'drĀ), see POLLEN-TETRAD.

PÖL'LĒN-TĚT'RĀD, a pollen-mass consisting of four pollen-grains united, either permanently or before fully developed; fourfold pollen-grain; pollen-tetrahedron.

PÖL'LĒN-TŪBE, a thin slender tube which issues from the pollen-grain on its contact with the stigma, which it penetrates until it reaches the ovule where fertilization takes place.

PÖL'LĚX, an inch. (Obs.)

PÖLLĪNĀ'RĪŪM (pl. Pöllinā'riĀ), see ANTHERIDIUM.

PÖL'LĪNĀTE, to place pollen upon the stigma; pollenate; pollenize.

PÖLLĪNĀ'TIŌN, the placing of pollen upon the stigma—the first stage of fertilization; pollenization.

PÖLLĪN'ĪĀ, pl., see POLLINIUM.

PÖLLĪN'ĪC ĈĤĀM'BĚR, see POLLEN-CHAMBER.

PÖLLĪNĪF'ĚROŪS, pollen-bearing.

PÖLLĪN'ĪŪM (pl. Pöllin'ĪĀ), a coherent mass of pollen-grains in certain plants, as orchids and milk-weeds, so arranged as to be conveyed by insects; pollen-mass. For the terminology of the parts supporting a pollinium, see RETINACULUM, CORPUSCULUM, CAUDICLE, and PEDICEL.

PÖLLĪNĪZĀ'TIŌN, see POLLINATION.

PÖLLĪNŌ'DĪŪM, the antherium or male sexual organ in Pyrenomycetes which, either directly or by means of an outgrowth, conjugates with the female organ in fertilization.

POLY-, a prefix derived from the Greek, meaning many.

PÖLYĀDĚL'PHĪAN, see POLYADELPHOUS.

PÖLYĀDĚL'PHOŪS, having the stamens united by their filaments into three or more sets. See ADELPHOUS, MONADELPHOUS, and DIADELPHOUS.

PÖLYĀD'ĚNOŪS, bearing many glands.

PÖLYĀN'DRĪAN, see POLYANDROUS.

PÖLYĀN'DROŪS, having twenty or more hypogynous stamens. Compare ICOSANDROUS.

PÖLYÂN'THOÛS, having many flowers, especially if in one head. A polyanthous involucre, for example, is one investing many flowers.

PÖLYCĀR'PELLĀRŸ, said of a pistil consisting of more than one leaf or carpel.

PÖLYCĀR'PIC, fruiting successively; sychnocarpous. Compare **MONOCARPIC**. Sometimes improperly used for **Apocarpous**.

PÖLYCĀR'POÛS, used both for Polycarpic and Apocarpous. Compare **MONOCARPIC** and **MONOCARPOUS**.

PÖLYCĒPH'ALOÛS, bearing many heads.

PÖLYCLĀ'DIĀ, see **POLYCLADY**.

PÖLYCLĀ'DOÛS, having abnormally numerous branches.

PÖLYCLĀDŸ, an excessive development of twigs or branches; plica. Due either to disease or teratology.

PÖLYCLŌNŸ, an old term for Polyclady.

PÖLYCŌC'COÛS, of several cocci.

PÖLYCŌTŸLĒD'ŌNOÛS, having more than two seed-leaves.

PÖLYCŌTŸLĒD'ŌNŸ, an abnormal increase in the number of cotyledons.

PÖLYDĒL'PHOÛS, see **POLYADELPHOUS**.

PÖLYĒM'BRŸŌNĀTE, having more than one embryo in a seed.

PÖLYĒM'BRŸŌNŸ, the production, either abnormally or regularly, of more than one embryo in a seed. The term has been restricted to cases where the additional embryos arise without fertilization outside the embryo-sac, but there seems to be no good reason for the restriction.

PÖLYFLŌ'ROÛS, see **MULTIFLO-ROUS**.

PÖLYGĀ'MĪAN, see **POLYGAMOUS**.

PÖLYGĀMŌ'DIĒ'CIŌÛS, see **DICE-CIOUSLY POLYGAMOUS**.

PÖLYG'AMOÛS, producing male and hermaphrodite, or female and hermaphrodite, or male, female, and hermaphrodite flowers on the same or on different individuals; i.e., having both perfect flowers and those of one sex.

PÖLYG'ŌNOÛS, having many angles, knots, or nodes.

PÖLYGŸNĒ'CIĀL, containing the gynœcia of several flowers, as a collective fruit.

PÖLYG'ŸNOÛS, having many styles or pistils.

PÖLYHĒ'DRŌN (pl. *Pölyhē'drā*), in *Hydrodictyon*, a special angular cell with horn-like processes, formed by the swarm-cells produced in the zygospore, and within which a new cœnobium is developed.

PÖLYM'ĒROÛS, having many parts, or more than one: said of a flower with more than one organ in each whorl, or of a whorl containing more than one organ. Compare **MONOMEROUS**.

PÖLYMŌR'PHIC, see **POLYMORPHOUS**.

PÖLYMŌR'PHISM, (1) a condition in which different individuals of the same species have different forms, as in many diœcious plants; (2) the state of passing different stages of existence under distinct forms which might be mistaken for different species, as is the case with heterœcious and some other fungi; pleiomorphism. See **METAGENESIS**, **ALTERATION**

OF GENERATIONS, and HETEROECISM.

PÖLYMÔR'PHOÛS, existing under different forms. See above. Also having numerous more or less definite sub-types under a given type.

PÖLYPĚT'ALOÛS, having distinct petals (opposed to Gamopetalous); apopetalous; dialypetalous; eleutheropetalous; choripetalous.

PÖL'YPHÔRE, a common receptacle for many distinct carpels, as that of the strawberry.

PÖLYPH'YLOÛS, see POLYSEPALOUS.

PÖL'YPHYLLÛ, an increase in the usual number of floral organs in a whorl. Compare PLEIOPHYLLY.

PÖLYRHĪZAL, many-rooted.

PÖLYSĚP'ALOÛS, of two or more distinct sepals; aposepalous; apophyllous. Compare POLYPETALOUS.

PÖLYSĪ'PHŌNOÛS, said of the thallus in Floridææ when it consists of several parallel rows or filaments of cells.

PÖLYSPĚR'MOÛS, containing many seeds. Compare PLEIOSPERMOUS.

PÖL'YSPĚRMÛ, the fertilization of a female cell by more than one male cell.

PÖL'YSPÔRE, see COMPOUND SPORE.

PÖLYSPÔ'ROÛS, containing many spores.

PÖLYS'TĀCHOÛS, having many spikes.

PÖLYSTĚM'ŌNOÛS, having many more stamens than petals. Compare ISOSTEMONOUS and POLYANDROUS.

PÖLYSYMMĚT'RICAL, capable of division into two symmetrical

or equal halves in more than one direction; actinomorphic.

PÖLYTHĀLMIC, derived from more than one flower, as a collective fruit. Compare MONOTHALMIC.

PÖLYT'ŌMOÛS, having the blade of a leaf distinctly divided into many subordinate parts, but not compound; having the stem forked or divided into many coördinate parts.

PÖLYT'RĪCHOÛS, bearing numerous hairs.

PÖLYZYGŌ'SIS, the conjugation of more than two cells (gametes).

PŌMĀ'ČEOÛS, having the appearance or nature of an apple.

PŌME, an indehiscent fruit of more than one carpel, with the seeds enclosed in horny or parchment-like endocarps, and an adnate fleshy calyx, as in the apple.

PŌMĪ'ĚROÛS, pome-bearing.

PŌM'ĪFORM, apple-shaped.

PŌMŌL'ŌGÛ, the department of horticulture which relates to fruits. See FRUIT. Compare CARPOLOGY.

PŌRE, a small circular opening.

PŌRE-CĀNĀL', the passage through a bordered or other pit between adjoining cells.

PŌRE-CĀPSÛLE, one from which the seeds or spores escape by a pore or pores.

PŌRĚN'ĚHÛMĀ (obs.), see PITTED TISSUE.

PŌ'RŌSE, pierced with many small circular openings.

PŌRRĚCT', directed outward or forward; outstretched. Compare ARRECT.

PŌR'RĚT, see SCALLION.

PŌŠĪTĪVE ĠĚŌT'RŌPĪŠM, growing toward the centre of the earth—usually called simply

- Geotropism. Compare **NEGATIVE GEOTROPISM**.
- POŚ'ITĪVE HĒLIŌT'RŌPIŚM**, the same as Heliotropism. Compare **NEGATIVE HELIOTROPISM**.
- POŚ'ITĪVELŲ RHEŌTRŌP'IC**, having the direction of growth in a rheotropic organ coincide with that of the stream in which it is placed, i.e., point down-stream. (Jönsson.) Compare **NEGATIVELY RHEOTROPIC**.
- POŚTĒ'RĪOR**, the side of a flower, etc., adjoining the axis or main stem. Compare **ANTERIOR** and **DORSAL**.
- POŚ'TICOŲS**, see **EXTORSE**.
- POUCH**, see **SILICLE**.
- POUCH-SHĀPED**, like a short bag, as the pod of shepherd's-purse.
- PRĒ'CŌX**, see **PRECOCIOUS**.
- PRĒFLŌRĀ'TION**, see **ÆSTIVATION**.
- PRĒFŌLIĀ'TION**, see **VERNATION**.
- PRĒMŌRSE'**, see **PREMORSE**.
- PRĀTĒN'SIS**, growing in meadows.
- PRĒCŌ'CIOŲS**, appearing or ripening before the proper or usual time: said of flowers which expand before the leaves, and of plants which flower or fruit much younger than usual, etc.
- PRĒFLŌRĀ'TION**, see **ÆSTIVATION**.
- PRĒFŌLIĀ'TION**, see **VERNATION**.
- PRĒMŌRSE'**, abrupt, and irregularly notched at the end as if bitten off. Compare **TRUNCATE**.
- PRĪCK'LE**, a small, sharp, stiff outgrowth from the epidermis. Compare **SPINE** and **THORN**.
- PRĪMĀRŲ**, chief or first formed. For examples see **PRIMARY AXIS**, **PRIMARY CORTEX**, etc.
- PRĪMĀRŲ ĀX'IS**, the main stem.
- PRĪMĀRŲ CŌR'TĒX**, the true cortex or fundamental tissue of the bark. Compare **SECONDARY CORTEX**. See **PERIBLEM**.
- PRĪMĀRŲ LEĀVES**, see **PRIMORDIAL LEAVES**.
- PRĪMĀRŲ MĒR'ISTĒM**, the growing tissue of a young organ. Compare **SECONDARY MERISTEM**.
- PRĪMĀRŲ PĒT'ĪLE**, the midrib of a compound leaf.
- PRĪMĀRŲ RŌOT**, the central or main root, being a direct continuation of the stem; tap-root.
- PRĪMĀRŲ STRŪCTŪRE**, the early structure of a plant or organ after all its distinctive tissues are formed and before any further growth or modification takes place.
- PRĪMĀRŲ TĪS'SŪE**, (1) tissue in the condition when first formed; (2) that which is formed during the first stage or season of growth.
- PRĪMĀRŲ WŌOD**, that contained in the fibrovascular bundles of exogens when first developed, before the formation of the cambium ring. Compare **SECONDARY WOOD**.
- PRĪMĪNE**, the outer coat of the ovule, called testa in the seed. Mirbel applied the term primine to the *inner* coat of the ovule, because first formed, and some other German writers have used it in the same sense.
- PRĪM'ITĪVE**, original: applied, for example, to the original species from which cultivated plants have been derived.

PRÎMÔR'DÏAL, original, or first formed.

PRÎMÔR'DÏAL CĒLL, a cell without a cell-wall; naked cell.

PRÎMÔR'DÏAL ĒPIDĒR'MÏS, the epidermis as it exists when first formed.

PRÎMÔR'DÏAL LĒAVEŖS, the first leaves to succeed the cotyledons. Applied especially to lower leaves which differ considerably from those on the upper portion of the stem. Compare **PROTOPHYLL**.

PRÎMÔR'DÏAL Ū TRÏCLE, the outer layer of protoplasm adjoining the cell-wall. The term has with some about the same significance as **Ectoplasm**, though it usually refers more particularly to the immediate surface of the protoplasm (considered as a membrane, though not really one) rather than to a definite outer layer. The term was first used by Mohl and applied to the layer of protoplasm adjoining the cell-wall in cells which are nearly filled with sap. Upon the application of certain reagents the protoplasm contracts from the wall as a sac, the "primordial utricle."

PRÎMÔR'DÏŪM (pl. **Primôr'diâ**), any member or organ in its earliest condition.

PRÏSMÂT'ÏC, in the form of a prism—with flat, longitudinal faces separated by angles. Applied to stems. Compare **TĒRETE**.

PRÔCÂM'BÏŪM, the first formed fibrovascular tissue of an organ before it becomes differentiated into xylem and phloëm. Compare **CÂMBÏUM**.

PRÔCÂRP, see **PROCARPIUM**.

PRÔCÂRPE (Bornet & Thuret), see **PROCARPIUM**.

PRÔCÂR'PIŪM (pl. **Prôcâr'piâ**), in *Floridese*, the female organ (archicarp) before fertilization. It consists of a carpogonium, together with the trichogyne and any other accessory part. Compare **CYSTOCARP**.

PRÔC'ĒSS, any projection from a surface.

PRÔCŪM'BENT, see **PROSTRATE**.

PRÔDŪCED', prolonged; extended; projected.

PRÔĒM'BRÏŌ, (1) the Suspensor, which see; (2) formerly applied to a prothallus, or to the first result of the germination of any spore; now restricted to special cases, as the rudimentary first stage of the sporophore arising from the oöspore in *Characeæ*. Compare **PROMYCELIUM**, **PROTONEMA**, and **PROTHALLUS**.

PRÔĒMBRÏŌN'ÏC BRANCHES, short branches sometimes found on the nodes of *Chara fragilis* which resemble the proëmbryos in structure and serve for reproduction.

PRÔG'ÂMOŪS, preceding fertilization: applied to the cell of the pollen-grain which forms the pollen-tube, in distinction from vegetative cells which are also sometimes found.

PRÔGRĒS'SÏVE MĒTÂMÔR'PHÔSÏS, the appearance in place of organs of the usual character of those belonging to a higher or succeeding set, as when petals are replaced by or "converted into" stamens; ascending metamorphosis. Compare **RETROGRESSIVE METAMORPHOSIS**.

PRÔ'LÂTE, elongated in a polar direction. Compare **OBLATE**.

PRÔLE, a useless term applied both to Form and Race.

PRÖLĚP'SIS, accelerated, anticipated, or hurried development, as in the disease known as "peach-yellows," where axillary buds develop into branches the first year.

PRÖLIFĚRĀTION, development in a proliferous manner.

PRÖLIFĚROÜS, developing buds, branches, flowers, etc., from unusual places. Applied, for example, to a flower from which another flower or a branch proceeds, to a leaf from which other leaves or branches arise, to a bulbous plant which abnormally produces bulbs upon the stem above ground, or to any plant which forms young plants in unusual number about its base.

PRÖLIF'IC, fruitful. Sometimes used in the sense of Proliferous.

PRÖLIFĚCĀTION, development in a prolific or proliferous manner; proliferation.

PRÖLIG'ĚROÜS, bearing reproductive bodies of any kind.

PRÖM'INENT, standing out more than usual, or beyond adjoining parts.

PRÖMYCĚ'LĪŮM, in Uredineæ and Ustilagineæ, a short and short-lived mycelial growth proceeding from a resting-spore and upon which sporidia are borne.

PRÖNĀTE, inclined to grow prostrate; somewhat prone or prostrate.

PRÖNE, lying flat, especially with the face downward; ventricumbent. See PROSTRATE and SUPINE.

PRÖNŮCLEÜS, the nucleus of a gamete. Compare GERM-NUCLEUS.

PRÖP, see FULCRUM.

PRÖPĀC'ULŮM, see PROPAGULUM.

PRÖPĀG'ULĀ, pl., see PROPAGULUM.

PRÖPĀG'ŮLE, see PROPAGULUM.

PRÖPĀG'ULŮM (pl. *Pröpäg'ulā*), a term applied to runners, offsets, and stolons—especially to a slender runner or stolon terminating in a new plant.

PRÖPĚND'ENT, hanging forward and downward.

PRÖP'ĚR, true or individual. A *proper* calyx, for example, would be the true calyx of an individual flower as opposed to the general calyx (involucre) of a head.

PRÖP'ĚR JŮICE, a term formerly used for any characteristic fluid of a plant (especially if thickened) in distinction from the ordinary sap, as the "milk" of milk-weeds. Applied also to the cambium or so-called "descending sap" when in a growing mucilaginous condition.

PRÖPH'ĀSĚS, a term proposed by Strasburger for all the phenomena of karyokinesis up to the longitudinal splitting of the threads. Compare METAPHASES and ANAPHASES.

PRÖPHLÖ'ĚM, the first-formed elements of phloëm in a fibrovascular bundle; protophloëm. Applied also to the cylinder of elongated cells with thickened walls containing granular protoplasm found in the seta of certain mosses surrounding the proxylem.

PRÖSCÖL'LĀ, an old term for the retinaculum in orchids.

PRÖSĚN'CHŮMĀ, tissue composed of elongated cells with tapering extremities in the wood and liber. Compare PARENCHYMA.

PROSTRATE, lying flat upon the ground, but not rooting; pro-cumbent. Compare CREEPING.

PRŌTĀN'DRŌŮS, having stamens which ripen their pollen before the pistils of the same flower are ready for fertilization. Compare PROTOGYNOUS.

PRŌ'TĚĬD, see ALBUMINOID.

PRŌ'TĚĬN, see ALBUMINOID. Formerly considered a distinct substance.

PRŌ'TĚĬN CRÝSTAL, see CRYSTALLOID.

PRŌ'TĚĬN GRĀIN, see ALEURONE.

PRŌ'TĚN, see PROTENCHYMA.

PRŌTĚN'CHÝMĀ, a term used by Nägeli for all tissue not of the fibrovascular system; proten. Compare EPENCHYMA. These terms are little used.

PRŌTĚRĀN'DRŌŮS, see PROTANDROUS.

PRŌTĚRĀN'THOŮS, having flowers which appear before the leaves, as in the red maple. Sometimes improperly used in the opposite sense. Compare HYSTERANTHOUS and SYNANTHOUS.

PRŌTĚRŌG'ÝNOŮS, see PROTOGYNOUS.

PRŌTHÁL'LĪĀ, pl., see PROTHALLIUM.

PRŌTHÁL'LĪŮM (pl. *Prŏthāl'Hā*), see PROTHALLUS.

PRŌTHÁL'LŮS, the thalloid structure resulting from the germination of the spore in ferns and other pteridophytes, upon which the antheridia and archegonia are borne; prothallium. Extended also to the sexual generation of other plants which have an alternation of generations.

PRŌTŌGĚN'ĚSĪS, a term proposed by Rociŏn for reproduction by budding after the manner of protophytes.

PRŌTŌGĚN'ĬC, formed in the beginning: said of intercellular spaces which are formed at the time the tissues are beginning to differentiate. Compare HYSTEROGENIC.

PRŌTŌG'ÝNOŮS, having pistils which are ready for fertilization before the pollen of the same flower is ripe. Compare PROTANDROUS.

PRŌ'TŌ-MĚR'ĪSTĚM, see PRIMARY MERISTEM.

PRŌTŌNĚ'MĀ (pl. *PrŏtŏnĚ'mâtā*), the proembryo, or confervoid (often branched) filament first formed from the spore in mosses, and upon which the conspicuous moss-plant is developed by budding.

PRŌTŌPHLŌ'ĚM, see PROPHLOËM.

PRŌTŌPHÝL, a cotyledon or other first-formed leaf of a plant; protophyllum. Used mainly in vascular cryptogams. Compare PRIMORDIAL LEAVES.

PRŌTŌPHÝL'LŮM (pl. *Prŏtŏphýl'lā*), see PROTOPHYLL.

PRŌTŌPHÝTŌL'ŌGÝ, (1) the study of protophytes; (2) fossil botany.

PRŌ'TŌPLĀŠM, the nitrogenous fluid of variable composition found in living cells. It is the vital substance into which all food is assimilated and from which all parts of the plant are formed.

PRŌ'TŌPLĀST (Hanstein), the smallest body of protoplasm capable of individual action, either with or without a cell-

wall, and either associated in a tissue or independent. It is generally at least a nucleus, together with the protoplasm associated with it. Essentially a cell.

PRŌTŌSPŌRE, any spore which develops a promycelium. Applied by Cook to æcediospores. An unnecessary term. Compare SPORIDIUM.

PRŌTŌTHÁL'LŪS, see PROTHALLUS.

PRŌTŌXY'LĒM, see PROXYLEM.

PRŌTŌZŌPH'ÍLOŪS, applied to certain water-plants which have the pollen conveyed by minute animals called protozoa.

PRŌTRŪD'ÍNG, see EXsertED.

PRŌX'ÍMAL, pertaining to the base, or extremity of attachment. Compare DISTAL.

PRŌXY'LĒM, the first-formed xylem in a bundle; protoxylem. The term has also been applied to the layer of water-conducting cells destitute of protoplasm around the central strand in the seta of certain mosses. Compare PROPHLOËM.

PRŪ'ÍNÁTE, see PRUINOSE.

PRŪ'ÍNŌSE, covered with a powdery bloom, like the fruit of most plums; pruinose. Compare GLAUCOUS, HOARY, and CANESCENT.

PRŪ'ÍNOŪS, see PRUINOSE.

PRŪ'NÍFŌRM, plum-shaped.

PRŪ'RIENT, stinging, as the hairs of nettle.

PSEŪDÁX'ÍS, see SYMPODIUM.

PSEUDO-, a prefix derived from the Greek signifying false or spurious.

PSEŪ'DŌ-BŪLB, see CORM. Especially the corm or fleshy base

of the stem in many epiphytic orchids.

PSEŪ'DŌ-BŪLBĪL, an outgrowth which sometimes replaces the ordinary sporangia in ferns and bears antheridia and archegonia.

PSEŪ'DŌCÁRP, any fruit which is not derived exclusively from a single ovary without accessory parts. The fruits of the apple, rose, mulberry, and juniper are pseudocarps.

PSEŪDŌCŌS'TÁTE, said of a leaf in which the veins unite to form an outer vein parallel to the margin, as in Eucalyptus.

PSEŪDŌ-GĒ'NŪS, see FORM-GENUS.

PSEŪDŌGŸ'RÁTE, sometimes applied to the annulus in ferns when it crowns the sporangium, as in the Schizæaceæ. Compare PLEUROGYRATE.

PSEŪDŌMŌNŌCŌTŸLĒD'ŌNOŪS, having two or more consolidated cotyledons. (Obs.)

PSEŪDŌ-PĀR'ÁSÍTE, see EPI-PHYTE and SAPROPHYTE.

PSEŪDŌ-PĀRĒN'CHŸMÁ, a term applied by De Bary to tissue in fungi which is formed by interlacing and united hyphæ.

PSEŪDŌPĒRÍTHĒ'ÇÍŪM, a false perithecium.

PSEŪDŌ-PĪN'NÁTE, having leaflets (or rather segments) which are not articulated or petioled at their base; pinnatisect.

PSEŪDŌPŌ'DÍŪM (pl. *Pseŭdŏpŏ-diá*), (1) a stipe or stem of unusual origin, as the leafless upper portion of the stem which supports the capsule in Sphagnum (instead of the true seta which remains undeveloped; (2) one of the tem-

porary changeable branches of a plasmodium, or one of the retractile appendages of the zoöspores (myxamœbæ) of Myxomycetes.

PSEUDORĀM'ŪLŪS, a false or spurious branch found in certain Nostochacæ, consisting of a younger filament agglutinated for a portion of its length to an older one.

PSEŪ'DŌSPĒRM, an Achene or Caryopsis.

PSEUDŌSPĒR'MĪC, having a single seed so closely invested by the pericarp that the whole appears like a seed, as in grasses and Compositæ; pseudospermous.

PSEUDŌSPĒR'MOŪS, see PSEUDOSPERMIC.

PSEUDŌSŸN'CĀRP, see COLLECTIVE FRUIT. Compare SYN-CARP.

PTĒRĪD'IŪM, see SAMARA.

PTĒRŌCĀR'POŪS, wing-fruited.

PTĒRŌCAŪ'LOŪS, having a winged stem.

PTĒ'ROĪD, wing-like.

PTĒRŌP'ŌDOŪS, having a winged petiole.

PTĒRŌSPĒR'MOŪS, having the seeds winged.

PTĒRŸGŌ'NOŪS, having winged expansions on the angles of the stem.

PTŌ'MĀĪNE, any alkaloid formed by the activity of bacteria.

PŪ'BĒRTŸ, the period when a plant first begins to blossom.

PŪBĒR'ŪLENT, minutely pubescent; covered with short, soft, rather distant hairs. Compare HOLOSERICUS.

PŪBĒS'CENCE, soft and rather short hairs; also extended to hairs of all kinds.

PŪBĒS'CENT, covered with fine, soft, rather short hairs.

PŪGIŌN'ĪFŌRM, dagger-shaped. (Obs.)

PŪL'LEŸ-SHĀPED, see TROCHLEAR.

PŪL'LŪLĀTĪNG, budding; sprouting;—now used only for the budding or sprouting of a cell, a special form of cell-multiplication as seen in yeast, in which a new cell gradually swells out from an older one.

PŪLP, the soft, more or less juicy portion of a fruit, or other plant-substance of similar structure.

PŪLVĒRĀ'CEOŪS, dusty or powdery on the surface. Compare PULVERULENT.

PŪLVĒR'ŪLENT, (1) powdery or crumbly; (2) pulveraceous.

PŪL'VINĀTE, shaped like a cushion or pillow; having a pulvinus.

PŪL'VINĀTĒD, having a pulvinus.

PŪLVĪN'ŪLŪS (pl. PŪlvīn'ālī), diminutive of Pulvinus. Applied to various excrescences, and also formerly to the soredia of lichens.

PŪLVĪNŪS (pl. PŪlvī'nī), a term applied to various cushion-shaped or wart-like protuberances and swellings, as (1) the projection left by the fall of a leaf in many plants; (2) the enlargement at the base of the petiole in certain Leguminosæ which has the power of contraction, producing the "sleep" of leaves; (3) an enlargement formed by the thickening of the bark at the base of certain twigs, as in arbor-vitæ; (4) a thickened, usually median, portion of

the prothallus in ferns bearing the archegonia and antheridia.

PŪ'MILŪS, see HUMILIS.

PŪNC'TĀTE, dotted as if by punctures. The dots may be colored or colorless, superficial or internal, in the latter case sometimes caused by minute oil-glands. Compare PERFORATE.

PŪNC'TĪFŌRM, in the form of either a dot or point.

PŪNC'TŪM VĒĢĒTĀTĪŌ'NĪS, the extremity of a stem, or other central point where the cells are in the process of division and growth; growing point; apical cone.

PŪN'ĢENT, terminating in a hard sharp point. Compare MUCRONATE.

PŪR'PŌSE, see ADAPTATION.

PŪS'TŪLĀTE, bearing pustules or low, blister-like elevations; pustular; pustulose.

PŪS'TŪLE, a slight elevation like a pimple or little blister. Compare PAPILLA.

PŪTĀ'MĒN, the stone of a drupe, or shell of a nut.

PŪC'NĪDE, see PYCNIDIUM.

PŪC'NĪD'ĪŪM (pl. *PŪc'niđ'ĭā*), a receptacle in Ascomycetes containing stylospores; clinosporangium.

PŪC'NŌĢĒPH'ĀLOŪS, having the flowers densely crowded in the inflorescence.

PŪC'NŌĢNĪD'ĪŪM, see STYLO-SPORE.

PŪC'NŌĢŌNĪD'ĪŪM, see STYLO-SPORE.

PŪC'NŌSPŌRE, see STYLO-SPORE.

PŪC'NŌS'TĀĢHOŪS, in compact spikes.

PŪŌĢĒNĒT'ĪC, pus-forming, as certain bacteria.

PŪRĀM'ĪDAL, either angular and tapering upward, or conical.

PŪRĒ'NĀ (pl. *PŪrĒ'nā*), a nutlet, or the stone of a small drupe.

PŪRĒNE, see PYRENA.

PŪRĒ'NŌĢĀRP, (1) the perithecium in Pyrenomycetes; (2) a drupe.

PŪRĒ'NŌĪDS, minute rounded colorless granules, one or more of which are embedded in the chromatophores of many algæ; amyllum bodies; chlorophyll vesicles.

PŪR'ĪFŌRM, see PEAR-SHAPED.

PŪX'ĪDATE, resembling a pyxidium or bearing pyxidia.

PŪXĪD'ĪŪM (pl. *Pyxid'ĭā*), a capsule which dehisces by a circular transverse line; pyxis. Now restricted to seed-capsules, but formerly applied also to certain spore-capsules, as those of mosses.

PŪX'ĪS (pl. *Pyx'ēs*), see PYXIDIUM.

QUAD-, or **QUADRI-**, a prefix from the Latin meaning four.

QUADRĀN'ĢŪLAR, four-angled.

QUADRĪCRŪ'RAL, having four stems or supports.

QUADRĪDĒN'TĀTE, four-toothed.

QUADRĪDĪĢ'ĪTĀTE, digitate in four divisions.

QUADRĪFĀ'RĪŌŪS, in four vertical ranks.

QUAD'RĪFĪD, cleft into four segments half-way to the base or midrib.

QUAD'RĪFOĪL, see QUADRIFOLIATE.

QUADRĪFŌ'LIĀTE, strictly, four-leaved, but used for having four leaflets arising from the

apex of the petiole; quadrifoliate; quadripHYLLous; quadrifoil.

QUADRIFŌ'LIŌLĀTE, the same as Quadrifoliate, and more precise; i.e., having four leaflets arising from the apex of the petiole.

QUADRIFŪR'CĀTE, dividing into four branches.

QUADRIGĒM'INĀTE, growing in fours

QUADRĪJ'ŪGĀTE, having four pairs of leaflets; quadrijugous.

QUADRĪJ'ŪGOŪS, see **QUADRĪJ-UGATE**.

QUADRĪLŌ'BĀTE, having four lobes, as a leaf.

QUADRĪLŌC'ŪLAR, having four cells in an ovary.

QUAD'RINĀTE, see **QUATER-NATE**.

QUADRĪP'ĀRTĪTE, divided to the base or midrib in four parts; four-parted.

QUADRĪPH'ŶLLOŪS, see **QUADRIFOLIATE**.

QUADRĪVĀL'VŪLAR, of four valves—said of pericarps.

QUĀQUĀVĒR'SAL, directed every way.

QUAR'TĒRING, applied by florists to petals which have an external angle or vacancy between them.

QUAR'TĪNE, a fourth integument in an ovule (if present) counting from the outside. It is really a layer or fold of the secundine or of the nucleus.

QUĀTĒR'NĀRŶ, of four parts. Compare **TETRAMEROUS**.

QUĀTĒR'NĀTE, growing in fours.

QUILLED (Hort.), applied to double flowers in *Compositæ* when the corollas of the florets, instead of being ligulate,

are more or less tubular in form like a cornet of paper, as is often seen in the dahlia.

QUIN-, a prefix from the Latin meaning five.

QUĪ'NĀRŶ, in fives or multiples of five.

QUĪ'NĀTE, growing together in fives, as five leaflets from the apex of a petiole.

QUĪNCŪN'CIĀL, applied in æstivation to a whorl of five parts, two of which are external, two internal, and one half external and half internal (the typical method of imbricative æstivation when the parts are five). Formerly used also in the sense of five-ranked. In general use the term is applied to objects arranged in squares with one at the centre. In horticulture this arrangement is sometimes termed "false quincuncial," the true quincuncial arrangement being the disposition of objects so that the intervening spaces are all hexagons.

QUĪN'CŪNX, a set of five objects arranged in a quincuncial manner.

QUĪNQUĀN'GŪLAR, five-angled.

QUĪNQUĒCŌS'TĀTE, five-ribbed.

QUĪNQUĒDĒN'TĀTE, five-toothed.

QUĪNQUĒFĀ'RĪŌŪS, five-ranked.

QUĪN'QUĒFĪD, in five segments reaching about half-way to the base or margin; five-cleft.

QUĪNQUĒFŌ'LIĀTE, having five leaflets; strictly, five-leaved.

QUĪNQUĒFŌ'LIŌLĀTE, the same as **Quinquefoliate**; i.e., having five leaflets.

QUĪNQUĒJŪ'GĀTE, in five pairs.

QUĪNQUĒLŌ'BĀTE, having five lobes.

QUINQUELOC'ULAR, having five cells in a pericarp.

QUIN'QUĒNĒRVED, having two strong veins arising from the midrib on each side near the base; quintuple nerved or veined. Compare **QUINQUECOSTATE** and **QUINQUEVEINED**.

QUINQUEP'ARTITE, divided into five parts nearly to the base.

QUINQUEVÁL'VULAR, having five valves in a pericarp.

QUIN'QUĒVEINED, having five strong veins proceeding from the base of a leaf. The same as **Quinquenerved**, and usually preferable.

QUIN'TUPLE, in fives, or multiples of five.

QUIN'TUPLE-NĒRVED, see **QUIN-QUĒNĒRVED**.

QUIN'TUPLE-RĪBBED, see **QUIN-QUECOSTATE**.

RACE, a variety, artificial or natural, which reproduces itself from seed.

RACEME', an indeterminate inflorescence consisting of single-flowered pedicels arranged along a common axis. Compare **PANICLE** and **SPIKE**.

RACÉMIF'ĒROUS, bearing racemes.

RAC'EMOSE, disposed in racemes or resembling a raceme.

RAC'EMULE, a small raceme.

RACĒM'ŪLOSE, producing or disposed in small racemes, or resembling a small raceme.

RACHIL'LA, the axis of a spikelet in grasses.

RACHIS, a common peduncle or petiole or elongated receptacle, especially (1) the midrib of a pinnate frond in ferns; (2) the axis of a spike or raceme; *rachis*.

RĀ'DIAL, pertaining to a radius, ray, or border; developed uniformly on all sides around a longitudinal axis. Compare **DORSIVENTRAL**.

RĀ'DIAL BŪN'DLE, the axial fibrovascular system in roots and some lycopods—so called because it consists of alternating radial bands of xylem and phloem.

RĀ'DIANT, spreading from a common centre; radiating; *radiate*. Also having a ray or border, as the inflorescence of *hydrangea*.

RĀ'DIĀTE, having rays or ray-florets.

RĀ'DIĀTE-VEINED, see **PALMATELY VEINED**.

RĀ'DIĀTING, see **RADIANT**.

RĀD'ICAL, proceeding from the root, or base of the stem.

RĀD'ICANT, rooting—applied only where roots proceed from the stem above ground; *radicating*.

RĀD'ICĀTĒD, having a root or roots.

RĀD'ICĀTING, see **RADICANT**.

RĀD'ICĀ'TION, (1) the arrangement or disposition of the roots in the soil, i.e., whether spreading near the surface or running vertically downward, etc.; (2) the arrangement of the roots and rootlets on their respective axes (*rhizotaxis*)—corresponding to *Phyllotaxis*, *Caulotaxis*, and *Inflorescence*; (3) the act of taking root. Compare **RAMIFICATION**.

RĀD'ICĒL, a rootlet.

RĀD'IC'ŌLOUS, growing upon the roots of other plants, as certain parasitic fungi.

RĀD'ICIFLŌ'ROUS, having the flower-stalk arising from the crown of the root.

RĀDĪC'ĪFŌRM, root-like.

RĀD'ĪCLE, the portion of an embryo below the cotyledons, including the caulicle and nascent root; by some now restricted to the extreme point of the caulicle from which the root develops.

RĀD'ĪCŌSE, having roots unusually large or otherwise remarkable.

RĀDĪC'ŪLĀ (obs.), see RADICLE.

RĀD'ĪCŪLE (obs.), see ROOTLET.

RĀDĪC'ŪLOSE, bearing rootlets or rhizoids, especially if numerous.

RĀ'DĪŪS (pl. *Rā'dī*), see RAY.

RĀ'DĪX (pl. *Rād'icēs*), see ROOT.

RĀG (Hort.), the placenta and dissepiments (core and membranes) in the orange and other citrus fruits.

RĀ'MAL, see RAMEAL.

RĀ'MĒAL, growing on or pertaining to branches; ramal; rameous.

RĀM'ENT, sing., see RAMENTA.

RĀMĒN'TĀ (sing. *Rāmēn'tūm*), scale-like hairs of various forms, especially when attached at an end or side like those on the petioles of ferns; raments. Also applied to other scales. Compare LEPIDES.

RĀMĒNTĀ'CEOŪS, bearing ramenta.

RĀMĒN'TŪM, sing., see RAMENTA.

RĀ'MEOŪS, see RAMEAL.

RĀ'MĪ, pl., see RAMUS.

RĀMĪF'ĒROŪS, see RAMOSE.

RĀMĪFĪCĀ'TION, (1) the act or process of branching; (2) a branch, division, or offshoot; (3) the general arrangement of a system of branches. Applied to either stems or roots. Compare RADICATION.

RĀMĪFLŌ'ROŪS, producing flowers along the larger branches.

RĀM'ĪFŌRM, branch-like.

RĀMĪP'AROŪS, producing branches.

RĀMŌSE', bearing branches; divided into branches; especially, divided into many branches; ramous.

RĀ'MOŪS, see RAMOSE.

RĀM'ŪLĪ, pl., see RAMULUS.

RĀM'ŪLOSE, full of small branches.

RĀM'ŪLOŪS, see RAMULOSE.

RĀM'ŪLŪS (pl. *Rām'ālī*), a small branch or twig.

RĀ'MŪS (pl. *Rā'mī*), a branch.

RĀNK, a row, especially a vertical row of leaves or other organs upon a stem.

RĀ'PHĒ, the adherent funiculus connecting the hilum and chalaza in anatropous or amphitropous seeds. Also applied to a median line on the frustules of many diatoms, and formerly to the suture between the two halves of the fruit in Umbelliferae; rhapshe.

RĀPH'ĪDĒS, needle-shaped crystals; raphides. Sometimes improperly applied to plant-crystals of other forms. They are usually composed of oxalate of lime, and occur in large numbers in certain plants.

RĀPHĪD'ĪAN, pertaining to raphides. A *raphidian cell* is a cell containing raphides.

RĀRE, sparse or few. Seldom used in this sense.

RĀRE'-RĪPE, see RATH-RIPE.

RĀTH'-RĪPE (rare), ripening or maturing early in the season; rare-ripe.

RĀTOON', a sprout from the root or base of a plant which has been cut off (applied mainly

to sugar-cane). Compare
SUCKER and PLANT-CANE.

RAÛMPÄR'SÍT, see **ÆULOPHYTE**.

RĀY, a branch of an umbel or other somewhat radiating inflorescence; the ligulate corolla of an outer floret in a head of *Compositæ*; the margin of any circular surface, as distinguished from the central portion or disk.

RĀY - FLŌRĒT, see **LIGULATE FLORET**.

RĀY-FLOW'ĒR, one of the marginal florets of a head in *Compositæ*; ray-floret; ligulate floret. Also, a marginal flower in other flat-topped flower-clusters, especially when different from those of the centre or disk, as in *hydrangea*.

RĒĈĒP'TĀCLE, the place upon or within which anything is borne, as the summit of a flower-stalk upon which the floral organs are arranged, or upon which the flowers of a head are situated.

RĒĈĒPTĀC'ŪLAR, pertaining to or growing upon a receptacle.

RĒĈĒPTĀC'ŪLAR TŪBE, see **CALYX-TUBE**. Compare **HY-PANTHIUM**.

RĒĈĒP'TĪVE SPŌT, the place in an oosphere at which the male gamete enters; i.e., at which fertilization takes place.

RĒĈĒSS', see **SINUS**.

RĒC'LĪNĀTE, bent over so that the apex is lower than the base, or until it rests on some support; reclined; reclining. Said of stems or branches when erect or ascending at the base, then turning toward the ground; of leaves in the bud when the blade is bent down upon the petiole, etc. When applied to a vine grow-

ing upon the ground it has about the same meaning as **Recumbent** and **Decumbent**.

RĒCLĪNĒD', see **RECLINATE**.

RĒCLĪN'ING, see **RECLINATE**.

RĒCRUDĒS'ĈENCE (obs.), see **REJUVENESCENCE**.

RĒC'TĪNĒRVED, parallel-veined.

RĒCTĪPĒTĀL'ĪTŸ, the tendency of growing organs to grow in a straight line. (*Vochting.*)

RĒCTĪSĒ'RĪAL, in straight rows.

RĒCŪR'VĀTE, see **RECURVED**.

RĒCŪRVED', curved outward or backward to a moderate extent, between forty-five and ninety degrees. Compare **REFLEXED**.

RĒDŪ'PLICĀTE, applied to parts of a flower in aestivation when they are valvate and have the margins reflexed.

RĒDŪPLICĀ'TION, an increase in the number of parts in a flower according to the plan upon which it is founded, i.e., by the addition of similar whorls; regular multiplication.

RĒFLĒCT'ĒD, see **REFLEXED**.

RĒFLĒXED', turned backward or outward more than **Recurved**, or to about the same extent but abruptly; reflected. Compare **RECURVED** and **DEFLECTED**.

RĒFLŌRĒS'ĈENCE, blossoming anew.

RĒFRĀCT'ĒD, bent abruptly outward or backward, at an angle of more than forty-five degrees. Compare **DEFLEXED** and **RECURVED**.

RĒGĒNĒRĀ'TION, see **REJUVENESCENCE**.

RĒ'GION, an extent of country enclosing particular species, which are distributed through it in the stations adapted to their growth, and which, owing

to natural conditions, are not generally found elsewhere, as the Arctic and Mediterranean regions.

RĚG'MĀ, a fruit with elastically dehiscent cocci, as in *Euphorbia*.

RĚG'MĀCĀRP, see **REGMA**.

RĚGRĚS'SION, see **RETROGRESSIVE METAMORPHOSIS**.

RĚG'ŪLAR, said of a flower which has all the parts of each whorl alike in size and form; actinomorphic.

RĚG'ŪLAR PĚLŌ'RĪĀ, when a flower, usually regular, becomes irregular by the non-development of some part. Compare **PELORIA**, **IRREGULAR PELORIA**, and **EPANODY**.

RĚJŮVENĚS'ČENČE, (1) the formation of a single new cell from the entire contents of a cell already formed ("renewal of cells"); especially, where the new cell escapes from the old cell-wall and develops a new plant, as in *Oedogonium* and some other algæ; (2) the renewal of growth and vigor as the result of conjugation or other form of fertilization (rare); (3) any renewed growth, or manifestation of increased vigor, as the annual growth of new canes in the raspberry or the formation of vigorous shoots from near the ground in other shrubs; renewal; regeneration.

RĚLĪQ'ŪĪĚ, see **INDUVIÆ**.

RĚMŌTE', separated by greater intervals than usual.

RĚNEW'AL OF ČĚLLS, see **REJUVENESCENCE**.

RĚN'ĪFŌRM, kidney-shaped: heart-shaped, but broader than long and very deeply lobed at the base.

RĚPĀND', having a slightly undulating or sinuous margin. Compare **SINUATE**.

RĚP'ENT, see **CREEPING**.

RĚP'LĪCĀTE, folded backward at the sides or end. Compare **REVOLUTE**.

RĚP'LŪM, a frame-like placenta in *Cruciferae* and certain other plants across which the septum stretches, and from which the two valves fall away in dehiscence.

RĚPRŌDŮC'TĪVE ŌR'GANS, in flowering plants, the stamens and pistils.

RĚP'TANT, see **CREEPING**.

RĚŠĚRVE MĀTĚ'RĪĀL, assimilated plant-food which is capable of again becoming food to serve in the growth of the plant, as starch.

RĚŠ'IN-ČĚLL, a cell which has the office of secreting resin.

RĚŠ'IN-DŮCT, see **RESIN-PASSAGE**.

RĚŠ'IN-GLĀND, a cell or group of cells which secrete resin.

RĚŠ'INĪF'ĚROŮS, producing resin.

RĚŠ'IN-PĀS'SĀČE, an intercellular space or continuous gland in or into which resin is secreted; resin-duct; resin-tube.

RĚŠ'IN-TŮBE, see **RESIN-PASSAGE**.

RĚŠPĪRĀ'TION, in a broad sense, includes all transfers of gases and vapors between the plant and the air. As usually employed it refers to the absorption of carbon dioxide from the air, and its decomposition in the plant, with the assimilation of the carbon and the liberation of the oxygen. In a strict sense it applies to the same process as respiration in animals, though existing in

plants to a feebler degree, namely, the reception of oxygen, the oxidation of oxidizable matter, and the release of the products of oxidation. See TRANSPIRATION.

RĚSPĚRÁTŮŘŮ ČÁVĚTÝ, see STOMATIC CHAMBER.

RĚSPĚRÁTŮŘŮ CHÁMBĚR, see STOMATIC CHAMBER.

RĚSTANT, see PERSISTENT.

RĚSTĚNG ČĚLL, see RESTING-SPORE.

RĚSTĚNG-NŮCLĚŮS, a nucleus when not in the act of karyokinesis. The nuclear filament then exists in the form of granules, or as a network, often with one or more nucleoli.

RĚSTĚNG PĚRĪŮD, the period during which a plant, seed, or spore remains dormant. Applied mainly to the dormant period of a resting-spore, then also called by some "involution-period."

RĚSTĚNG-SPŮRÁN'GIŮM, a term applied by Pringsheim to certain dormant gonidia of Saprolegnia and related fungi which eventually produce swarm-spores.

RĚSTĚNG SPŮRE, a spore furnished with thick walls and able to retain its vitality for a considerable time, and generally requiring the lapse of time, often over winter, before it will germinate; winter-spore; hypnospor; statospor.

RĚSTĚNG-STÁGE, the stage or condition of a plant, bulb, seed, or spore during its dormant or resting period.

RĚSŮPÍNÁTE, upside-down; inverted; retroverted; reversed. Compare SUPINE.

RĚTÍCŮLÁTE, in the form of

network, as the veins in the leaves of most plants.

RĚTÍCŮLÁTĚD, see RETICULATE.

RĚTÍCŮLÁTĚD VĚSŠĚL, one having thickenings in the form of network.

RĚTÍCŮLÁ'TION, any network; reticulum.

RĚTÍCŮLŮM, a fibrous membrane at the base of the petioles in palms (mattulla); the network which pervades the substance of the cell and nucleus enclosing the softer portions of the protoplasm; any system of filaments or fibres in the form of network.

RĚTĚFŮRM, see RETICULATE.

RĚTĚNÁČŮLŮM (pl. *RĚtĚnác'ulá*), (1) the viscid glandular disk derived from the rostellum at the base of the caudicle of a pollinium in orchids by which it is attached to a visiting insect (cement-disk of Müller); (2) one of the arms connecting the pollinia of milk-weeds with the corpusculum; (3) the persistent indurated hook-like funiculus of the seeds in most Acanthaceae.

RĚTĚNĚRVED, see RETICULATE-VEINED.

RĚTRŮFLĚXĚD, see REFLEXED.

RĚTRŮFRÁCTĚD, see REFRACTED.

RĚTRŮGRĚS'SION, see RETROGRESSIVE METAMORPHOSIS.

RĚTRŮGRĚS'SÍVE MĚTÁMŮR'-PHŮSÍS, the occurrence in the place of organs of the usual character of those belonging to a lower condition or position, as when pistils become converted into stamens, petals, or leaves; descending metamorphosis; retrogression; re-

gression. Compare PROGRESSIVE METAMORPHOSIS.

RÊTRÔRSE', turned backward in any manner.

RÊTRÔRSE'LY ÂCÛ'LEÂTE, having prickles directed backward or downward, as on the stem of *Galium asprellum*.

RÊ'TRÔVÊRTÊD, see RESUPINATE.

RÊTÛSE', slightly notched at a rounded apex. Compare EMARGINATE.

RÊVÊRSED', upside-down; resupinate; directed backward toward the base; extending in an opposite to the usual direction.

RÊVÊR'SION, appearance in an earlier, lower, or simpler form than usual. See RETROGRESSIVE METAMORPHOSIS and ATAVISM.

RÊV'ÔLÛTE, rolled outward, backward, or downward. Compare INVOLUTE and CIRCINATE.

RÊV'ÔLV'ING NÛTÂ'TION, see CIRCUMNUTATION.

RHÂB'DOID, an acicular or spindle-shaped protoplasmic body found in the stalk-cells of the tentacles of *Drosera* and in the mesophyll cells of *Dionæa*; plastoid. It tends to become spherical when the part is stimulated, but its full significance is unknown.

RHÂ'CHÎS, see RACHIS.

RHÂ'PHÊ, see RAPHE.

RHÂPH'IDÊS, see RAPHIDES.

RHÊÔT'RÔPISM, having the direction of growth determined (not mechanically) by a current of water. (Jönsson.) See POSITIVELY and NEGATIVELY RHEOTROPIC. Compare HELIOTROPISM.

RHÎZÂMÔR'PHOID, see RHIZOMORPHOUS.

RHÎZÂN'THOÛS, parasitic upon the roots of another plant, and producing flowers with little or no green foliage of its own, as *Rafflesia* and *Monotropa*. A term of little importance, seldom used. Compare RADICIFLOUS.

RHÎZÎ'NÂ (pl. *Rhîzî'nâe*), see RHIZOID.

RHÎ'ZÎNE, see RHIZOID.

RHÎZÔCÂR'POÛS, having a perennial root and herbaceous stem; rhizocarpic. (Rare.)

RHÎZ'ÔGËN, (1) a plant which is parasitic upon the roots of another; (2) any part or organ which emits roots or rhizoids.

RHÎZÔGËNÊT'IC, root-producing, as *rhizogenetic* tissue; rhizogenic.

RHÎZÔGËN'IC, see RHIZOGENETIC.

RHÎ'ZOID, adj., see RHIZOMORPHOUS.

RHÎ'ZOID, n., a root-like organ in many cryptogams; rhizina; rhizine. Compare Root.

RHÎZÔ'MÂ (pl. *Rhîzô'mâtâ*), see RHIZOME.

RHÎZÔMÂT'IC, having the appearance or character of a rhizome.

RHÎZÔME', a subterranean stem, especially if uniformly thickened for the storage of starch, etc.; rhizoma; root-stock. Compare STOLON and TUBER.

RHÎ'ZÔMÔRPHS, root-like organs in Agarics and some other fungi composed of many united hyphal strands.

RHÎZÔMÔR'PHOÛS, root-like; rhizomorphoid; rhizoid.

RHÎ'ZÔPHÔRE, a structure in certain species of *Selaginella* which resembles a root and from which true roots are developed.

RHĪZŌPHŪYL'LOŪS, emitting roots from the leaves. (Rare.)

RHĪZŌTĀX'ĪS, the position or order of arrangement of the roots upon a plant; radication. Compare **PHYLLOTAXIS** and **CAULOTAXIS**.

RHĪZŌTĀX'Y, see **RHIZOTAXIS**.

RHŌDŌL'ŌG'Y, the part of botany which treats of roses.

RHŌDŌPH'YL, the compound pigment which is the coloring matter of red algæ, the Floridææ.

RHŌDŌSPĒR'MĪN, crystalloids of proteid found in the Floridææ containing the rhodophyl or red coloring matter.

RĪB, a large prominent vein.

RĪBBED, (1) having more than one prominent longitudinal vein; (2) applied to an apple or other fruit with large longitudinal ridges.

RĪC'TŪS, an old term for the throat of a personate flower.

RĪGĒS'ĠENT, approaching a rigid or stiff consistence. (M. C. Cooke.)

RĪGHT, see remarks under **DEXTORSE** and **LEFT**.

RĪ'MĀ (pl. RĪ'mæ), a chink or cleft.

RĪMŌSE', abounding with chinks, clefts, or cracks, as the bark of many trees and the thallus of certain lichens; rimous.

RĪM OŪS, see **RIMOSE**.

RĪM'ŪLŌSE, diminutive of **Rimose**.

RĪND, see **CORTEX**.

RĪNG, see **ANNULUS**.

RĪNGED, see **ANNULATED**.

RĪN'ĠENT, bilabiate, with the lips widely separated and the throat open, as in *Lanium*. Compare **PERSONATE**.

RĪPĀ'RĪAN, see **RIPARIOUS**.

RĪPĀ'RĪOŪS, growing along rivers or other water-courses; riparian.

RĪVŌSE', having sinuate channels. Compare **SULCATE**.

RĪV'ŪLŌSE, having small sinuate channels. Compare **STRIATE**.

RŌD - FRŪCTĪFĪCĀ'TION, unbranched gonidiophores in Basidiomycetes.

RŌGUE (Hort.), an inferior sport or variation, i.e., a plant which deviates in an undesirable manner from the type of the species or variety.

RŌOT, the descending axis;—differing in character from the stem chiefly in being destitute of leaves. Compare **RHIZOID** and **RHIZOME**. Sachs extends the term **Root** to the root-like organs (rhizoids) of cellular plants.

RŌOT-CĀP, a protective covering to the growing extremity of roots; calyptra; pileorhiza.

RŌOT-HĀIRS, slender hairs upon the younger roots, which serve to absorb food from the soil.

RŌOT-LĒAF, a leaf springing from the base of the stem.

RŌOT-PRĒS'SŪRE, see **SAP-PRESSURE**.

RŌOT'LĒT, a small root; root-fibre.

RŌOT-SHĒATH, see **COLEORHIZA**.

RŌOT'STŌCK, see **RHIZOME**.

RŌ'RĪDŪS, covered with transparent elevations resembling drops of dew. (Obs.)

RŌŠĀ'ĠEOŪS, rose-like, or belonging to the family *Rosacæ*.

RŌŠĒL'LĀ (obs.), see **ROSETTE**.

RŌŠĒTTE', a cluster of leaves or other organs arranged somewhat like the petals of a

double rose, as the leaves of the dandelion or those upon the short spurs of the larch.

RÖSTĚĽ, see **ROSTELLUM**.

RÖSTĚLLĀTE, diminutive of Rostrate, having a small beak.

RÖSTĚĽ/LĪFÖRM, beak-shaped, especially when the process is small; rostriform.

RÖSTĚĽ/LŮM (pl. *Röstěľ/lä*), a little beak; especially, the process upon the column in orchids containing the disk (retinaculum) of the pollinia. It is one of the three united styles which has become modified for this purpose.

RÖSTRĀTE, see **BEAKED**.

RÖSTRĪFÖRM, beak-shaped.

RÖSTRŮM, see **BEAK**.

RÖŠŮĽĀ (obs.), see **ROSETTE**.

RÖŠŮĽAR (obs.), see **ROSULATE**.

RÖŠŮĽĀTE, arranged or shaped like a rosette; having the leaves in little tufts like the petals of a double rose, as those of the dandelion.

RÖTĀTE, wheel-shaped. In flowers, applied to a gamopetalous corolla with a very short tube and nearly flat spreading border.

RÖTĀTE-PLĀNE, gamopetalous, with a flat border and no tube.

RÖTĀTION, a flowing movement of the protoplasmic cell-fluid; cyclosis; streaming. In some active or growing cells the movement is readily visible as distinct currents having a rotary or back-and-forth direction. The term Cyclosis is now well established, and is perhaps preferable to Rotation as a general term, the latter word being applied especially to circulation next the cell-wall, to a rotation of the whole mass

within the cell, or to a peculiar spiral movement of the cell-fluid in certain plants, as in *Chara*.

RÖTĪFÖRM (obs.), see **ROTATE**.

RÖTŮND', rounded; somewhat orbicular.

ROŮGH, see **SCABROUS**.

ROŮGH LĚAVES, a gardener's term for the true leaves which succeed the cotyledons.

RUBĚSČENT, reddish or rosy; rubicund.

RŮBĪCŮND, see **RUBESCENT**.

RUBĪG'INŌSE, of the color of iron-rust; brownish red; rubiginous; rufous; rusty; ferruginous.

RUBĪG'INOŮS, see **RUBIGINOSE**.

RŮDĚRAL, growing in rubbish or waste places.

RŮDĪMENT, an imperfectly developed, vestigial, or aborted part.

RŮDĪMĚN'TAL, see **RUDIMENTARY**.

RŮDĪMĚN'TARŸ, imperfectly developed, or in an early stage of development; rudimental.

RUFĚSČENT, somewhat rufous.

RŮF'FLED, sometimes applied to a margin when very strongly waved.

RŮFOŮS, see **RUBIGINOSE**.

RŮGĀ, a wrinkle.

RŮG'GĚD (obs.), see **SCABROUS**.

RUGŌSE, wrinkled, as the leaves of sage. Compare **BULLATE** and **CRISP**.

RŮGŮĽŌSE, slightly rugose.

RŮMĪNĀTĚD, said of the albumen or cotyledons of a seed which has holes or channels into which the inner seed-coat penetrates, as in the papaw and nutmeg.

- RŮN'ČINÁTE**, having large sharp teeth or lobes projecting backward, as the leaves of dandelion.
- RŮN'NĚR**, a stolon which roots and forms new plants at intervals, as the strawberry; the prostrate stem of a vine, as in melons.
- RŮN'NÍNG**, prostrate upon or beneath the surface, but not rooting. Often used improperly in the sense of Creeping, which see.
- RUPĚSTRÍNE**, growing upon rocks or in rocky places; lapidose; saxatile; saxicole; saxicoline; saxicolous; rupicoline; rupicolous. The distinctions between these terms are mainly slight and inconstant. Lapidose may, however, be defined as growing upon land abounding in loose stones or coarse gravel (compare GLAREOSE), while the other terms usually refer to fixed or massive rock. There is a tendency, also, to restrict the terms Rupicolous and Saxicolous to growth directly upon the rocks, as with many lichens, mosses, and some ferns.
- RUPÍC'OLOŮS**, see RUPESTRINE.
- RŮP'TÍLE**, dehiscing in an irregular or accidental manner.
- RŮST'Ů**, see RUBIGINOSE.
- SĀB'ŮLÍNE**, see ARENACEOUS.
- SĀB'ŮLÓSE**, see ARENACEOUS.
- SĀC**, a deep or closed receptacle. Also written Sack.
- SĀC'CÁTE**, in the form of a bag or pouch; sacciform.
- SĀC OF THE ĀM'NĪŌS** (obs.), see EMBRYO-SAC.
- SĀC OF THE ĒM'BRYŌ**, see EMBRYO-SAC.
- SĀCK**, see SAC.
- SĀG'ĪTTATE**, arrow-shaped. Differs from Cordate in having the lobes as well as apex acute.
- SĀ'LĪENT**, projecting outward.
- SĀ'LÍNE**, growing upon the seashore or other places impregnated with salt; salsuginous.
- SĀLSŮ'GÍNOŮS**, see SALINE.
- SĀL'VĚR-FŌRM**, see HYPOCRATERIFORM.
- SĀL'VĚR - SHĀPED**, see HYPOCRATERIFORM.
- SĀMĀ'RĀ**, a winged fruit, like that of the ash, elm, or maple; pteridium; key.
- SĀM'ĀROID**, winged like a samara.
- SĀP**, in general, any vegetable fluid, especially limpid fluid, such as abounds in many trees in spring. See CELL-SAP.
- SĀP-CĀV'ĪTŮ**, see VACUOLE.
- SĀP'ĪD**, having a pleasant taste.
- SĀP'LÍNG**, a tall seedling tree having a stem from two to six inches in diameter.
- SĀP-PRĚS'SŮRE**, the force exerted by the soil-fluid in entering the plant, and by the sap in passing upward within it; root-pressure. See OSMOSE.
- SĀPRŌG'ĒNOŮS**, causing putrefaction.
- SĀP'RŌPHŮYTE**, a plant which lives upon dead animal or vegetable matter; humus-plant. Compare PARASITE.
- SĀPRŌPHŮYT'IC**, living upon dead organic matter. Compare PARASITIC.
- SĀP-VĚS'SĚL**, see VESSEL.
- SĀP'-WOOD**, see ALBURNUM.
- SĀRCŌB'ĀSÍS**, see CARCERULE.
- SĀR'CŌCÁRP**, the succulent fleshy portion of a fruit, especially of a drupe. Used by

M. T. Masters synonymously with Berry.

SĀR'CŌDĒRM, a fleshy layer in certain seed-coats; sarco-derma.

SĀR'MĒNT, a long slender runner, stolon, or twig; sarmen-tum; flagellum.

SĀRMĒNTĀ'CEŌŪS, see SAR-MENTOSE.

SĀRMĒNTĪF'ĒROŪS, bearing sarments.

SĀRMĒNTŌSE', bearing or re-sembling sarments; sarmenta-ceous; sarmentous.

SĀRMĒN'TOŪS, see SARMEN-TOSE.

SĀRMĒN'TŪM (pl. *Sārmēn'tā*), see SARMENT.

SAU'SĀGE-SHĀPED, see ALLAN-TOID.

SAW-TOOTHED, see SERRATE.

SĀX'ĀTĪLE, see RUPESTRINE.

SĀX'ĪCŌLE, see RUPESTRINE.

SĀXĪC'ŌLINE, see RUPESTRINE.

SĀXĪC'ŌLOŪS, growing upon rocks, as many mosses and lichens; rupicolous. Com-pare RUPESTRINE.

SCĀ'BRĀTE, see SCABROUS.

SCĀ'BRĪD, slightly scabrous.

SCĀ'BRĪDOŪS, somewhat scabrid or scabrous.

SCĀBRĪD'ŪLOŪS, slightly scabrid or scabrous; scabridous.

SCĀ'BROŪS, rough with short stiff hairs or points; scabrate; asperate.

SCĀLĀR'ĪFŌRM, having transverse bars like a ladder; ap-plied mainly to thickenings of this form characteristic of scalariform vessels.

SCĀLĀR'ĪFŌRM DŪCT, see SCA-LARIFORM VESSEL.

SCĀLĀR'ĪFŌRM MĀRKĪNG, an

elongated pit of a scalariform vessel.

SCĀLĀR'ĪFŌRM VĒS'SĒL, a ves-sel marked with elongated transverse bordered pits, as in many ferns.

SCĀLE, any thin, scale-like ap-pendage, usually a degen-erated and metamorphosed leaf, as those of buds and buds. See RAMENTUM and LEPIDE.

SCĀL'LION, a small or imperfect onion, particularly the shallot, *Allium Ascalonicum*. Com-pare SCULLION.

SCĀL'LOPED, see CRENATE.

SCĀL'Ÿ, consisting of scales; furnished or covered with scales; scale-like in texture.

SCĀL'Ÿ BŪLB, one with narrow and somewhat separate scales, as in the lily. Compare TUNI-CATED BULB.

SCĀN'DENT, see CLIMBING.

SCĀPE, a peduncle rising from the ground, as in blood-root, *Sanguinaria Canadensis*; i.e., a stalk from the root or collar which bears one or more flow-ers but no foliage-leaves.

SCĀPH'OID, see NAVICULAR.

SCĀPĪFLŌ'ROŪS, having the flow-ers on scapes.

SCĀ'PĪFŌRM, scape-like; scapoid.

SCĀPĪG'ĒROŪS, bearing scapes.

SCĀ'POID, see SCAPIFORM.

SCĀ'PŪS, see SCAPE.

SCĀR, the mark left by the natu-ral separation of a leaf or other organ; cicatrix. See LEAF-SCAR and HILUM.

SCĀ'RĪOSE, see SCARIOUS.

SCĀ'RĪOŪS, dry and membranous; scariöse.

SCĀT'TĒRED, either sparse, or without apparent regularity

of arrangement. See **ALTER-NATE**.

SCHIZŌCĀRP, a fruit of which the carpels separate when mature and retain the seeds in cocci or mericarps.

SCHIZŌGĒNĒTĪC, see **SCHIZO-GENIC**.

SCHIZŌGĒNĪC, formed by the separation of parts, as some intercellular spaces; schizogenetic; schizogenous. Compare **LYSIGENIC**.

SCHIZŌGĒNOŪS, see **SCHIZO-GENIC**.

SĪMĒTAR-SHĀPED, see **ACINACIFORM**.

SĪŌN, formerly used for any shoot or twig; now applied only to one intended for grafting. Improperly written *Cion*. A scion is considered by most nurserymen to be a part of a twig or shoot long enough to make one graft, usually four to six inches.

SĪŪROID, in the shape of a squirrel's tail.

SCLĒRĒNĒHĪMĀ, lignified tissue of any kind, especially such as composes the shell of a nut. It is not usually applied to ordinary woody tissue, but is used by many botanists for thick-walled fibres of the bast and hypoderma.

SCLĒRŌGĒN, see **LIGNINE**.

SCLĒROID, woody or bony in texture.

SCLĒRŌSĪS, see **LIGNIFICATION**.

SCLĒRŌTE, see **SCLEROTIUM**.

SCLĒRŌTĪC, resembling or consisting of sclerenchyma.

SCLĒRŌTĪŪM (pl. *Sclērōtīā*), a consolidated and hardened mass of hyphæ in a resting condition, as in *Claviceps* (ergot) and some other Ascomy-

cetes. Also a temporary condition assumed by the plasmodium of *Myxomycetes*, chiefly due to dryness, in which it appears in dry, compact, wax-like, gritty nodules.

SCLĒRŌTŌID, consisting of or resembling a sclerotium.

SCŌBĪĪLAR, see **SCOBIFORM**.

SCŌBĪFŌRM, resembling sawdust; scobicular.

SCŌBĪNĀ, an old term for the zigzag rachis of certain grasses.

SCŌLĒCĪTE, Tulasne's later term for the "vermiform body" of Woronin. It is the ascogonium or archicarp in certain Ascomycetes, as *Ascobolus pulcherrimus*.

SCŌRPĪOID, commonly used in the sense of *Helicoid*, but properly restricted now to alternately progressive or zigzag development. See **SCORPIOID CYME** and **SCORPIOID DICHOTOMY**.

SCŌRPĪOID CŪME, one in which the successive flowers are situated on alternate sides of the pseudaxis; *cicinal cyme*; *cicinus* or *cincinnus*. The term *Scorpioid Cyme* was given by A. P. de Candolle to a unilateral cyme, the undeveloped portion of which is usually rolled up like the tail of a scorpion, as in *Boraginaceæ*, and this is the meaning still attached to the term by most botanists of England. Compare **HELICOID CŪME**.

SCŌRPĪOID DĪCHŌTŌMŪ, one in which alternate branches develop in the successive bifurcations; *cicinal dichotomy*. Compare **HELICOID DICHOTOMY**.

SCRŌBĪĪLĀTE, pitted.

SCRŌ'TĪFŌRM, see **POUCH-SHAPED**.

SCŪ'LĪON, a term applied by gardeners in America to onions which fail to "bottom" properly, but remain soft and become thick-necked. Probably derived from Scallion, which see.

SCŪLP'TŪRED, a horticultural term applied to the seeds of certain gourds, etc., which have peculiar markings.

SCŪRF, small bran-like epidermal scales.

SCŪ'TĀTE, shield-shaped, especially like a round shield; scutiform; clypeate. Compare **PELTATE**.

SCŪ'TĒL, see **SCUTELLUM**.

SCŪTĒL'LĒFŌRM, see **SCUTELLIFORM**.

SCŪ'TĒLLĀTE, diminutive of Scutate; somewhat scutate, like a platter; especially, covered with small plate- or shield-like surfaces; scutellated. See **SCUTELLIFORM**.

SCŪ'TĒLLĀTĒD, see **SCUTELLATE**.

SCŪTĒL'LĪFŌRM, shaped like a saucer or small platter; scutellate; scutellæform. Compare **PATELLIFORM**.

SCŪTĒL'LŪM (pl. *Scūtēl'lā*), (1) a sessile apothecium or "shield" in lichens; (2) in Gramineæ a usually shield-like expansion of the hypocotyl which acts as an organ of suction through which the embryo absorbs nutriment from the endosperm. It is regarded as the cotyledon. It appears exteriorly as a large flat space upon the surface of the seed surrounding the embryo (plumule and radicle) to which it is attached. It forms the chief part of what is known

as the "chit" in a kernel of corn. Compare **SCUTUM**.

SCŪ'TĪFŌRM, see **SCUTATE**.

SCŪ'TĪFŌRM LĒAF, the first-formed leaf (protophyl) in *Salvinia*, differing in form from the succeeding leaves.

SCŪ'TŪM, a large circular disk-like part or organ, as the dilated stigma (stylostegium) of *Stapelia*; shield. Compare **SCUTELLUM**.

SCŪM'ĪTAR-SHĀPED, see **ACINACIFORM**.

SCŪ'PHĪFŌRM, like a scyphus; goblet-shaped.

SCŪ'PHŪS (pl. *ScŪ'phī*), an apothecium in lichens elevated on a podetium. Compare **SCUTELLUM**.

SĒBĀ'CEŌŪS, wax-like, or producing wax.

SĒBĪF'ĒROŪS, producing wax.

SĒC'ŌNDĀRŪY, opposed to Primary; often includes Tertiary, etc.

SĒC'ŌNDĀRŪY BŪDŠ, see **ACCESSORY BUDS**.

SĒC'ŌNDĀRŪY CŌR'TĒX, a collective term for the successive formations of liber or bast within the cortical sheath and primary cortex. It is not applied to secondary cork formations.

SĒC'ŌNDĀRŪY FŪN'GŪS, a saprophytic or parasitic fungus which attacks a plant after it has been killed or injured by another fungus. Compare **SUPERPARASITE**.

SĒC'ŌNDĀRŪY HŪ'BŘĪD, see **DERIVATIVE HYBRID**.

SĒC'ŌNDĀRŪY MĒD'ŪLLĀRŪY RAYS, those intermediate between the rays first formed, and which do not extend to the pith.

- SĚC'ONDĀŘÝ MĚR'ISTĚM**, meristem in an organ or part after its first development is completed and by means of which further growth is effected, as cambium. Compare PRIMARY MERISTEM.
- SĚC'ONDĀŘÝ NŮ'CLĚŮS**, the "nucleus of the embryo-sac," resulting from the union of the two polar nuclei.
- SĚC'ONDĀŘÝ PĚDŮŇ'CLE**, the stalk of a branch of an inflorescence bearing more than one flower; partial peduncle. Compare PEDICEL.
- SĚC'ONDĀŘÝ PĚT'IOLE**, the stalk of a leaflet; partial petiole petiolule.
- SĚC'ONDĀŘÝ ROOT**, a lateral root, especially one growing from the stem. Compare PRIMARY ROOT and AĚRIAL ROOT.
- SĚC'ONDĀŘÝ SPŮRE**, a spore borne on a promycelium (sporidium), or one derived immediately from another spore.
- SĚC'ONDĀŘÝ STRŮC'TŮRE**, the structure or condition of a plant or organ after its first year, or after it has grown beyond its first-formed state. Compare PRIMARY STRUC-TURE.
- SĚC'ONDĀŘÝ WOOD**, the portion of the wood or xylem which is formed after the primary xylem, or after the formation of the cambium ring. Compare PRIMARY WOOD.
- SĚC'ONDĪNE** (obs.), see SEC-UNDINE.
- SĚC'TĪLE**, divided into separable parts.
- SĚC'UND**, either unilateral (one-ranked) or homomalous (one-sided), i.e., having lateral organs upon one side only, or all turned to one side.
- SĚC'ŮNDĪNE**, the secondary or inner coat of an ovule, called tegmen in the seed. By some authors this inner coat, since it is first formed, is called the Primine and the outer coat the Secundine.
- SEED**, a fertilized ovule: a structure enclosing when mature a rudimentary plant (the embryo) which is protected while in a dormant condition, and furnished with nutriment, either in its cotyledons or around them, with which to begin the process of growth.
- SEED'ĀGE**, a term proposed by L. H. Bailey for the process, state, or condition of being propagated by seed.
- SEED-BŮD**, an old term used both for ovule and ovary.
- SEED-CŌAT**, the covering of a seed. See TEGMEN and TESTA.
- SEED-LĚAF**, see COTYLEDON.
- SEED'LĪNG**, (1) a plant produced from seed, in distinction from one produced in any other manner, either naturally or artificially; (2) a young plant produced from seed, in distinction from one of considerable age or size.
- SEED-LŌBE**, see COTYLEDON.
- SEED-SPŮRT**, a sport which originated from seed; seminal sport. Compare BUD-SPORT.
- SEED-VĀRĪĀ'TION**, a variation derived from seed instead of buds. Compare BUD-VARIATION.
- SEED - VĀRĪ'ĚTŮ**, any variety which originated from seed, either suddenly (seed-variation or seed-sport) or gradually in the ordinary way, and is propagated in any manner. Compare BUD-VARIETY.
- SEED-VĚS'SĚL**, see PERICARP.

SĚG'MENT, a natural division or part; as one of the parts of a compound or deeply divided leaf, an internode, the cell of a pericarp, any joint or regular part whether separable or not.

SĚGMĚNTĀTION, the act or process of dividing into segments.

SĚG'RĚGĀTĚD, separated.

SĚĪRŌSPŌRE, a kind of gonidium produced in monilliform rows in certain red algæ.

SĚLF, a florist's term for a flower or plant which is wholly of one color.

SĚLF-CŌL'ORED, applied to fruits and flowers which are of one color; unicolor. Compare **CŌLORED**.

SĚLF-FĚRTĪLĪZĀTION, see **CLOSE-FERTILIZATION**.

SĚMĪ, a Latin prefix meaning half or partial.

SĚMĪĀDHĚR'ENT, adherent half-way, as the calyx half-way to the summit of the ovary.

SĚMĪAMPLEX'ICAUL, slightly clasping the stem.

SĚMĪĀNĀT'RŌPOŪS, see **AMPHITROPOUS**.

SĚMICŌLŪM'NAR, see **SEMITERETE**.

SĚMICŌR'DĀTE, in the shape of a lateral half of a cordate body.

SĚM'IDOŪBLE, when a part only of the stamens are replaced by petals. Compare **FULL**.

SĚMIĚQ'UITANT, see **HALF-EQUITANT**.

SĚM'IFLŌRĚT, a floret in *Compositæ* having a strap-shaped corolla; ligulate floret; semi-floscule.

SĚMIFLŌS'CŪLAR, having the florets of a head in *Compositæ* all ligulate; semiflosculous.

SĚMIFLŌS'CŪLE, see **SEMIFLORET**.

SĚMIFLŌS'CŪLOŪS, see **SEMIFLOSCULAR**.

SĚMILĚNTĪC'ŪLAR, see **SUBLENTICULAR**.

SĚMILŌC'ŪLAR, having the dissepiments incomplete and the pericarp therefore really unilocular; semiseptate.

SĚMILŪ'NAR, see **LUNAR**.

SĚMILŪ'NĀTE, see **LUNAR**.

SĚM'ĪNAL, pertaining to seed.

SĚM'ĪNAL LĚAF, see **COTYLEDON**.

SĚM'ĪNAL SPŌRT, see **SEEDSPORT**.

SĚMĪNĀTION, the production of seeds. Sometimes used for their dissemination or dispersion.

SĚMĪNĪF'ĚROŪS, seed-bearing.

SĚMĪŌRBĪC'ŪLAR, in the shape of one half of a circular body. Compare **SUBORBICULAR**.

SĚMĪŌ'VAL, having the shape of half of an oval, divided lengthwise.

SĚMĪŌ'VĀTE, in the form of half of an ovate figure, divided lengthwise, as where one side of an otherwise ovate leaf is wanting.

SĚMĪRĀ'DĪĀTE, having a part only of the marginal florets of a head ligulate.

SĚMĪRĚN'IFŌRM, reniform, with one lobe wanting.

SĚMĪSĀG'ITTĀTE, sagittate, with one lobe wanting.

SĚMĪSĚP'TĀTE, see **SEMILOCLULAR**.

SĚMĪSTĀM'ĪNĀTE, formerly sometimes used for semidouble.

SĚMĪTĚRĚTE', half-terete; half-cylindrical; semicolumnar.

SĚMĪVĀL'VĀTE, applied to a pericarp in which the valves are only partially dehiscent.

SĚMĪVĚRTIČ'ILLĀTE, see SUBVERTICILLATE.

SĚMPĚRVĪ'RENT, see EVERGREEN.

SĚN'SITĪVENĚSS, see IRRITABILITY.

SĚ'PAL, a leaf or lobe of a calyx.

SĚP'ALĪNE, pertaining to or resembling a sepal.

SĚPĀL'ŌDŮ, the reversion of petals to sepals.

SĚP'ALŌID, sepal-like.

SĚP'ALOŮS, having or relating to sepals; sepaline.

SĚP'ARĀTE, see FREE and DISTINCT.

SĚP'ARĀTĚD FLOW'ĚRS, those having stamens or pistils but not both.

SĚP'ARĀTING LĀY'ĚR, see ABSCISS LAYER.

SĚP'TĀ, pl., see SEPTUM.

SĚPTĀM'ĚROŮS, having the parts in sevens.

SĚP'TĀTE, having one or more partitions (septa). Compare SEPTIFEROUS.

SĚP'TĀTE SPŌRE, see COMPOUND SPORE.

SĚP'TĚNĀTE, having seven parts, or the parts in sevens; septamerous.

SĚPTIČĪ'DAL, a mode of dehiscence in which the separation takes place through the partitions, i.e., along the line of junction of the carpels. Compare SEPTIFRAGAL and LOCULICIDAL.

SĚPTIF'ĚROŮS, bearing one or more partitions or septa—said of the valves of certain capsules after dehiscence. Compare SEPTATE.

SĚP'TIFŌRM, resembling a septum.

SĚPTIF'RĀGAL, a mode of dehiscence in which the valves break away from the septa or partitions. Compare SEPTICIDAL and LOCULICIDAL.

SĚP'TŪLĀTE, imperfectly or rarely septate, or having false or supernumerary septa.

SĚP'TŪLŪM (pl. *SĚp'tulā*), diminutive of Septum: a little septum or partition. Also a spurious or supernumerary septum.

SĚP'TŪM (pl. *SĚp'tā*), a partition of any kind, as between two cells in a tissue, or between cavities in an ovary. See DISSEPIMENT.

SĚ'RĪAL, in rows or regular succession.

SĚ RĪATE, see SERIAL.

SĚRĪČ'EOŮS, silky; covered with fine, straight, soft, smooth, glossy, appressed hairs.

SĚ'RĪĚS, (1) a row or rank; (2) a term applied to various subordinate groups of different values, and also used by Asa Gray as equivalent to Subkingdom, which see.

SĚRŌT'INOŮS, occurring late, or comparatively late, in the season.

SĚR'RĀTE, having sharp marginal teeth projecting toward the apex.

SĚR'RĀTE-ČĪL'ĪATE, having the teeth of a serrate margin tipped with fine slender hairs.

SĚR'RĀTĚD, see SERRATE.

SĚR'RĀTŪRE, one of the teeth of a serrate margin. Compare SERRULATION.

SĚR'RĪED, close together in rows, like the kernels in the rows upon an ear of Indian corn.

SĚR'RULĀTE, diminutive of Ser-

- rate; serrate with small teeth.
Compare SUBSERRATE.
- SĚR'RULĀTĚD**, see SERRULATE.
- SĚRRULĀ'TION**, (1) the state or condition of being serrulate; (2) a tooth of a serrulate margin. Compare SERRATURE.
- SĚS'QUĪ-ĀL'TĚR**, half as many more: applied to stamens when half as many more than the petals; also to a fertile floret in grasses when accompanied by a small abortive one.
- SĚS'SILE**, (1) having no stalk, as a leaf which has no petiole but is seated directly upon the stem; (2) quiescent, not moving about --applied to bacteria and zoöspores at certain times.
- SĚ'TĀ** (pl. *SĚ'tæ*), a bristle or slender bristle-like body; the stalk of the capsule in most mosses above the true stem.
- SĚTĀ'CEOUS**, (1) bristle-shaped; setiform; (2) setigerous.
- SĚTĪFĚROUS**, see SETIGEROUS.
- SĚ'TĪFŌRM**, see SETACEOUS.
- SĚTĪGĚROUS**, bristle-bearing; setiferous. See SETOSE.
- SĚTŌSE**, bearing or abounding with bristles; bristly; setaceous; setous; setiferous; setigerous.
- SĚ'TOUS**, see SETOSE.
- SĚT'ULĀ** (pl. *SĚt'ulæ*), diminutive of Seta.
- SĚT'ULŌSE**, bearing minute bristles.
- SEX**, Latin for six. See HEX.
- SĚX**, one of the attributes of nearly all living bodies, which manifests itself in a certain method of reproduction, the first stage of which is the blending of the contents of two cells which are usually of distinct character and different origin, one of which is called male, the other female.
- SĚXĀN'GULAR**, having six angles; hexagonal.
- SĚXFĀ'RIOUS**, six-rowed.
- SĚX'IFĪD**, six-cleft.
- SĚXLŌC'ULAR**, having six cells in an ovary.
- SĚX'PĀRTĪTE**, six-parted.
- SĚX'UAL GĚNĚRĀ'TION**, the generation or stage which bears the sexual organs in plants which have an alternation of generations. In ferns it is the prothallus. Compare ASEXUAL GENERATION.
- SĚX'UALSĚS'TĚM**, see LINNĚAN SYSTEM.
- SHĀG'GY**, either villose or hirsute.
- SHĚATH**, the petiole or base of the leaf in grasses which surrounds the stem; any tubular part surrounding another; vagina.
- SHĚATHED**, surrounded by a sheath; invaginated; vaginate.
- SHĚATH'ING**, surrounding a stem or other body in a convolute or tubular manner, as the petioles of grasses; vaginant. Compare AMPLEXICAUL.
- SHĚLL**, the bony covering of a nut.
- SHĚILD**, see APOTHECIUM and INDUSIUM. In Chara one of the eight flat cells forming the wall of the globule.
- SHĚILD - SHĀPED**, scutate or peltate.
- SHOOT**, a young growing branch or twig, or an unusually vigorous stem or branch, generally from the ground or near it. Also used by botanists as a general term for the stem or leaf-bearing part of a plant in distinction from the root.
- SHRŪB**, a woody plant which seldom exceeds twenty feet in

height; especially one having several stems. Compare BUSH, UNDERSHRUB, and TREE.

SÍC'ŪS, dry.

SIEVE-CELL, see SIEVE-TUBE.

SIEVE-DISK, the perforated septum between the ends of adjoining sieve-tubes; sieve-plate.

SIEVE-PLATE, see SIEVE-DISK.

SIEVE-PORES, the perforations in a sieve-disk.

SIEVE-TUBE, a form of vessel characteristic of the phloem portion of fibrovascular bundles. Sieve-tubes consist of elongated, thin-walled cells, united end to end in rows, with the transverse septa (sieve-disks) perforated in a sieve-like manner so that the protoplasm is continuous from one vessel to another; sieve-cell; clathrate-cell; bast-vessel.

SIGILLATE, appearing as if marked with impressions of a seal, as the rootstock of Solomon's seal.

SIG'MOÏD, curved in two directions, like the Greek sigma or letter S.

SIL'ICLE, a short silique, as that of shepherd's-purse.

SILÍC'ŪLĀ (pl. *Silíc'ulæ*), see SILICLE.

SIL'ICŪLE, see SILICLE.

SILÍC'ŪLŌSE, having silicles, or resembling a silicle.

SIL'ÍQUĀ (pl. *Sil'iquæ*), see SILIQUE.

SILIQUE [pro. *Si-lék'*], the fruit in Cruciferae—a pod of two carpels, which separate in dehiscence from a frame-like placenta called a replum; siliqua.

SIL'ÍQUŌSE, resembling or bearing siliques.

SÍLK, the style of Indian corn.

SÍLK'Ÿ, see SERICEOUS.

SÍL'VĀ, see SYLVA.

SÍL'VĒR GRĀIN, plates of medullary rays which appear as glimmering spots upon the surface of wood when split radially. See MEDULLARY RAY.

SÍL'VĒŘŸ, white, tinged with bluish gray, and having a metallic lustre.

SÍM'PLE, without subdivisions; entire; unbranched. Compare COMPOUND.

SÍM'PLE FRŮIT, one derived from a single flower containing a single pistil. Compare COLLECTIVE FRUIT and COMPOUND FRUIT.

SÍM'PLE LĒAF, any leaf which does not have distinct subordinate leaflets, though it may be lobed. Compare COMPOUND LEAF.

SÍM'PLE NŪTĀ'TION, see NUTATION. Compare CIRCUMNUTATION.

SÍM'PLE PÍS'TĪL, one consisting of a single carpel.

SÍM'PLE PĪT, one having no more than a slight enlargement at the centre where the pits of adjoining cells meet (simple pore of Gregory). Compare BORDERED PIT.

SÍM'PLE PŌRE (Gregory), see SIMPLE PIT.

SÍM'PLE PRĪ'MĀŘŸ RŌŌT, a tap-root.

SÍM'PLE SPŌ'RŌPHŌRE, a sporophore consisting of a single hypha or hyphal branch; filamentous sporophore. Compare COMPOUND SPOROPHORE.

SÍM'PLE STĒM, an unbranched stem.

SÍMŪLTĀ'NĒŌŮS WHORL, one whose members originate si-

multaneously. (Sachs.) Compare **SUCCESSIVE WHORL**.

SINGLE, said of a flower which has but one set or whorl of petals. Compare **DOUBLE**, **SEMIDouble**, and **FULL**.

SIN'ISTRORSE, turning or twining to the left; said of a twining stem which turns in the opposite direction to the sun or hands of a watch. See remarks under **DEXTORSE**.

SIN'UATE, strongly wavy on the margin, with large alternate convexities and concavities. Compare **REPAND** and **UNDULATE**.

SIN'UOUS, flexuose; curving back and forth.

SIN'US, a cavity or recess, either rounded or angular, in the margin of a leaf or other organ.

SIPHON, a large tubular cell in *Chara* and various algæ.

SIST'ER-CELL, a cell of the same origin as another: thus, if several cells arise simultaneously by free cell-formation within another, as in the development of pollen, they are called sister-cells with reference to each other, and the same term is applied to the relation existing between two or more cells which arise by the division of a single cell in ordinary growth. Compare **MOTHER-CELL** and **DAUGHTER-CELL**.

SKEIN, a condition of the chromatin of the nucleus in the first and last stages of karyokinesis when the nuclear filament is emerging from or passing into its reticulated condition in the resting nucleus; mother-coil; tangle.

SKIN, any soft, thin covering, especially if easily removable; cuticle; epidermis. Compare **RIND**.

SLASHED, see **LACINIATE**.

SLEEP, a condition assumed by certain plants, usually upon the withdrawal of light, as at night, in which the flowers temporarily close, and the leaves or leaflets droop or fold together.

SMALL FRUITS, a horticultural term for certain low-growing, perennial, fruit-bearing plants and their product, including the strawberry, raspberry, blackberry, gooseberry, currant, huckleberry, and cranberry. The term includes grapes, but excludes cherries.

SMOOTH, see **GLABROUS**.

SÔ'BÔLE, an old and useless term, usually meaning stolon, but sometimes and more properly a sucker or slender shoot from the ground or base of the stem; soboles.

SÔB ÔLĚŠ (n., sing.), see **SOBOLE**.

SÔ ÇIAL, growing naturally together, so as to occupy a considerable extent of ground with individuals of the same species; gregarious. Compare **CESPI-TOSE**.

SÔFT BÂST, the sieve-tubes, together with any other unligified portion of the phloëm.

SÔ LĚĚFÔRM, see **CALCEOLATE**.

SÔL'ID, without either cavities or separable articulations; continuous.

SÔL'ID BÛLB, see **CORM**.

SÔL'ITĀRŸ, single, not closely associated with other objects of the same kind, as flowers which grow one upon a stem, or plants which do not grow in groups or masses. Compare **SOCIAL**.

SÔLÛTE, free; not adhering: opposed to *Adnate*, as a *solute* stipule.

SOLU'TION, the isolation or separation of whorls (apostasis), or of organs or parts which are usually close together or adherent. Compare DIALYSIS.

SŌ'MĀ (pl. Sō'mâtā), a small body or granule of any kind. Compare MICROSONIA.

SŌMĀT'IC CELLS, cells forming a part of the body of the individual, not modified for any particular purpose; especially the growth-cells of an organism, in distinction from reproductive cells of any kind.

SŌMĀTŌT'RŌPĪSM, an influence which the substratum exerts on the direction of growth of certain plants and organs. Thus the hypocotyl of the mistletoe is directed toward the branch (positive somatotropism) and the stem at first away from it (negative somatotropism) upon whatever side of the branch the seed is situated.

SŌR'DĪD, of a dirty white or muddy color.

SŌRĒ'DĪĀ, pl., see SOREDIUM.

SŌRĒ'DĪĀL BRĀNCH, a branch produced by the development of a soredium into a new thallus while still on the mother-thallus.

SŌRĒ'DĪĀTE, see SOREDIFEROUS.

SŌRĒDĪF'ĒROŪS, bearing soredia; sorediate.

SŌRĒ'DĪŪM (pl. Sōrē'diā), a single gonidial cell or group of gonidia in lichens, surrounded by a web of hyphæ, which is thrust out of the thallus and grows directly into a new lichen; brood-bud.

SŌ'RĪ, pl., see SORUS.

SŌRĪF'ĒROŪS, bearing sori.

SŌ'RŌSE, (1) heaped or clustered together; (2) bearing a sorosis, or in the form of a sorosis.

SŌRŌ'SĪS (pl. Sōrō'sēs), a collective fruit, consisting of a consolidated fleshy spike, as the mulberry and pineapple.

SŌR'RŌWFUL FLOW'ĒRS, those which exhale their odors only at certain hours of the day, as *Pelargonium triste*. (Rare.)

SŌ RŪS (pl. Sō'rī), a heap or collection of spores or other objects, as a "fruit-dot" or group of sporangia in ferns.

SPĀDĪ'CEŌŪS, resembling or bearing a spadix.

SPĀ'DĪCŌSE, resembling a spadix.

SPĀ'DĪX, a spike, usually fleshy, enclosed within a spathe.

SPĀN, the space between the tip of the thumb and that of the little finger, separated as widely as possible: nine inches.

SPĀRSE, few and scattered.

SPĀ'THĀ, see SPATHE.

SPĀTHĀ'CEŌŪS, bearing or resembling a spathe; spathose.

SPĀ'THAL, furnished with a spathe. (Rare.)

SPĀTHE, a large bract, usually colored, enclosing or subtending an inflorescence, which is generally a spike (spadix).

SPĀTHĒL'LĀ (pl. Spāthēl'læ) (rare), (1) a glume in grasses; (2) a spatilla.

SPĀTHĪL'LA (pl. Spāthīl'læ), a diminutive or secondary spathe, as in palms.

SPĀTH'ŌSE, see SPATHACEOUS.

SPĀTH'ŪLĀTE, see SPATULATE.

SPĀT'ŪLĀTE, flat, with a linear base and gradually rounded summit, like a druggist's spatula; spatulate.

SPAWN, the mycelium of mushrooms; occasionally applied to that of some other fungi.

SPĒ'CIĒS, the lowest well-defined natural group of plants, the

individuals of which differ but slightly among themselves and are sharply distinguished from those of other groups. They reproduce themselves from seed for successive generations with little or no variation. Compare GENUS and VARIETY.

SPĖČIES-HYBRID, see HYBRID.

SPĖČIF'IC, relating to species.

SPĖČIF'IC CHĀR'ĀKTĒRS, the features which distinguish the plants of one species from those of all others.

SPĖČIF'IC NĀME, the name of the species, forming a part of the botanical name; trivial name.

SPĖČ'IMEN, a plant or portion of a plant prepared and preserved for study.

SPĖR'MĀGŌNE, see SPERMOGONIUM.

SPĖRMĀGŌ'NĪŪM, see SPERMOGONIUM.

SPĖR'MĀPHŌRE, see SPERMOPHORE.

SPĖRMĀTIF'ĒROŪS, bearing spermatia.

SPĖRMĀ'TIŪM (pl. *Spērmā'tiā*), a non-motile male gamete (spermatozoid) in the red algæ. Also applied to certain minute non-germinating spore-like bodies in fungi, some of which have been regarded as functionless male gametes. Many of these are now known to be *stylospores* capable of germination.

SPĖR'MĀTŌČYST, the mother-cell of a spermatozoid.

SPĖRMĀTŌŽŌ'ID, see ANTHEROZOID and SPERMATUM.

SPĖRMĀTŌŽŌ'ŌN (pl. *SpērmātōžŌ'ā*), see ANTHEROZOID.

SPĖRM - ČĒLL, a male repro-

ductive cell (gamete). Compare GERM-CELL.

SPĖRM'IC, pertaining to seed.

SPĖRMĪD'IŪM (pl. *Spērmīd'iā*), an old term for achenium.

SPĖRM-NŪ'CLĒŪS, the nucleus of a male gamete (male pronucleus) which coalesces with the nucleus of a female gamete (female pronucleus) to form a germ-nucleus; spermo-nucleus. In the pollen-tube it is called the generative nucleus, which see.

SPĖR'MŌDĒRM, the covering of a seed, consisting of the several coats taken together; seed-coat.

SPĖRMŌGŌ'NĪŪM (pl. *SpērmōgŌ'niā*), a cell or receptacle in which spermatia are produced.

SPĖRMŌ-NŪ'CLĒŪS, see SPERM-NUCLEUS.

SPĖR'MŌPHŌRE, an old term, applied both to funiculus and placenta. See TROPHOSPERM.

SPĖR'MŌPHYTE, a plant which produces true seeds instead of spores; a flowering plant.

SPĖRMŌTHĒ'ČĀ, an old term for pericarp.

SPĖR'MŌŪS, see SPERMIC.

SPĖHĀČ'ĒLĀTE, dark and withered as though dying or dead; like a sphacelium.

SPĖHĀČ'ĒLIĀ, a former genus of fungi, now known to be the first or conidia-bearing stage of *Claviceps* when it appears as the spur or ergot.

SPĖHĀČ'ĒLIŪM, see SPHACELIA.

SPĖHĒRĀPH'IDĒS, sphere-crystals, especially if composed of needle-shaped parts.

SPĖHĒRE - CRŪS'TALS, spherical aggregations of crystals, either irregularly united or having a radiating structure. Compare

CYSTOLITH and SPHERAPHIDES.

SPHÆRŌ-CRŪS'TAL, see SPHERE-CRYSTAL.

SPĪ'CATE, arranged in a spike; spike-like; spicose.

SPĪCĪF'ĒROŪS, bearing or producing spikes.

SPĪCĪFŌRM, spike-shaped.

SPĪCŌSE', bearing spikes or arranged in spikes; spicous.

SPĪC'ŪLĀ (pl. **SPĪc'ŭlæ**), see SPICULE.

SPĪC'ŪLAR, resembling a spicule or bearing spicules.

SPĪC'ŪLĀTE, (1) covered with spicules; (2) bearing or composed of spikelets. (Rare.)

SPĪCŪLĀ'TION, a term employed by Nylander for an attenuated constriction of the hypha in the formation of spores, leaving the extremity as a spicule after the separation.

SPĪC'ŪLE, (1) a small pointed appendage somewhat soft or fleshy, like the sterigmata of fungi; (2) a needle-like crystal; (3) a spikelet (obs.); spicula.

SPIKE, an inflorescence of sessile or nearly sessile flowers on a single elongated axis. See SPADIX, AMENT, SPIKELET, and COMPOUND SPIKE.

SPIKE'LĒT, (1) a secondary spike; (2) in grasses a flower (or ultimate flower-cluster) usually enclosed by one or more (generally two) empty glumes; locusta.

SPĪN'DLE, (1) a name sometimes given to the tassel of Indian corn; (2) see NUCLEAR SPINDLE.

SPĪN'DLE - FĪBRES, the achromatic filaments which form the nuclear spindle; spindle-

threads; nuclear fibrils and cell-fibres of Strasburger; conjunctive threads of Fol (probably).

SPĪN'DLE - SHĀPED, see FUSIFORM.

SPĪNE, any sharp, rigid process of considerable size which is not a transformed branch; especially an organ, such as a leaf, stipule, tooth, etc., of whatever size, which is modified by becoming sharp and rigid for protection. In general, where no other distinction exists, as in the cactus, spines are considered merely as sharp processes intermediate in size and rigidity between thorns and prickles. See THORN and PRICKLE.

SPĪNĒS'CENT, somewhat spiny in structure, or bearing few spines. Compare SPINULESCENT.

SPĪNĪF'ĒROŪS, bearing a spine or spines; spinigerous.

SPĪN'ĪFŌRM, shaped like a spine or thorn.

SPĪNĪG'ĒROŪS, see SPINIFEROUS.

SPĪNŌSE', bearing spines; covered with spines; spinous; spiny.

SPĪNOŪS, spinose or spiny.

SPĪN'ŪLE, a very small spine.

SPĪNŪLĒS'CENT, slightly spiny in structure, or bearing small spines; spinulose. Compare SPINESCENT.

SPĪNŪLĪF'ĒROŪS, bearing very small spines.

SPĪN'ŪLŌSE, spinulescent; especially, bearing many small spines.

SPĪN'Ŷ, bearing spines; having the nature of a spine; terminating in a spine.

SPĪRAL DŪCT, see **SPĪRAL VESSEL**.

SPĪRAL MĀRKĪNG, the spiral fibrous thickening characteristic of spiral ducts or vessels.

SPĪRAL VĒSSEL, a duct or vessel having fibrous thickenings upon the wall in the form of a coil or spiral. Formerly called Trachea.

SPĪRE, (1) a young leaf or shoot of grass; (2) the continuation of the trunk, in excurrent trees like pines, above the insertion of the lowest branches; (3) one turn of a coil or spiral.

SPĪRĪCLE, a minute spiral thread or filament.

SPĪTH'ĀMĀ (obs.), see **SPAN**.

SPĻĀSHED (Hort.), having broken stripes of various sizes. Used mainly in describing the coloring of apples.

SPĻĪT, the same as **Parted**. (Obs.)

SPŌN'GIŌLE, a term formerly applied to the extreme apex of growing roots, which was erroneously supposed to be devoid of epidermis and specially fitted for the absorption of food from the soil. See **ROOT-CAP**.

SPŌNTĀ'NĒŌŪS GĒNĒRĀ'TION, the development of living organisms from dead or inorganic matter; equivocal generation; heterogenesis; abiogenesis; autogenesis. The theory of spontaneous generation is not now held by scientists.

SPOON'FORM, having the inner surface of a leaf concave or dish-shaped, as the outer leaves of a cabbage-head. (E. S. Goff.)

SPŌRĀD'IC, scattered; occurring apart from others of the same kind.

SPŌRĀNGE', see **SPORANGIUM**.

SPŌRĀNGĪD'IŪM, (1) the columella in mosses; (2) a sporangium. (Rare.)

SPŌRĀN'GIŌLE, an old term for **Ascus**. Also applied to a small sporangium produced in some genera of *Mucorini* in addition to the large form, the spores being similar in both; **sporangiolum**.

SPŌRĀNGĪŌLŪM, see **SPORANGIOLE**.

SPŌRĀN'GIŌPHŌRE, the stalk, support, or receptacle of a sporangium, including such supports as the sporophyll in *Equisetaceæ* and the axis or columella from which the sporangia arise in the sori of certain ferns.

SPŌRĀNGĪŌPH'ŌRŪM, see **SPORANGIOPHORE**.

SPŌRĀN'GIŪM (pl. **SpŏrĀn'giĀ**), any case or capsule immediately enclosing spores. Applied chiefly to certain kinds which have not received special names, such as the spore-cases of ferns and the *Mucorini*, and rarely used for **Ascus**, cluster-cup, and other named forms.

SPŌRE, one of the reproductive bodies of cryptogams which take the place of the seeds of flowering plants, but from which they differ in containing no embryo. Spores usually and properly consist of but one cell, which differs materially in character from the other cells of the plant. They may thus be distinguished from **gemmae**, produced by comparatively few plants, which usually contain a number of cells only slightly differing from those of the plant producing them. In a

restricted sense, proposed by Sachs, the term *spore* is applied to reproductive bodies which arise either directly or indirectly as the result of fertilization, in distinction from *gonidium*, which is applied to those produced asexually. Spores in this restricted sense are by De Bary termed *carpospores*. See *ÆCIDIOSPORE*, *MACROSPORE*, *OÖSPORE*, *PROTOSPORE*, *TELEUTOSPORE*, *TETRASPORE*, *UREDOSPORE*, *ZOÖSPORE*, *ZYGOSPORE*, etc.

SPÖRE-CÄSE, see *SPORANGIUM*.

SPÖRE-CELL, a spore, or a cell which gives rise to a spore.

SPÖRE-GROUP, see *COMPOUND SPORE*.

SPÖRID, see *SPORIDIUM*.

SPÖRIDĖSM, see *COMPOUND SPORE*.

SPÖRID'ÏŪM (pl. *Spörid'lä*), a spore produced upon a promycelium; germ-cell; secondary spore. Formerly applied to any spore, especially if very small, and still improperly used for *Ascospore*.

SPÖRIF'ËROŪS, spore-bearing.

SPÖRÖCÄRP, a group of spores resulting from fertilization, together with enclosing or attendant parts. It is thus the fructification developed from an archicarp or procarp in fungi and *Rhodophycæ*; also the sporogonium in mosses. The term is also used for the body enclosing the sporangia in heterosporous *Filicinæ*. Compare *SPOROGONIUM*.

SPÖRÖCÄRP'ÏŪM, see *SPOROCARP*.

SPÖRÖCLÄ'DÏŪM, a spore-bearing branch, as a stichidium in *Floridæ*.

SPÖRÖČŸST, the mother-cell of a spore; sporocyte: occasionally also applied to certain sporangia in *algæ*.

SPÖRÖČŸTE (Goebel), see *SPOROCYST*.

SPÖRÖDĖRM, the coat or covering of a spore, including exospore and endospore. Compare *SPERMODERM*.

SPÖRÖDÖ'CHÏŪM (pl. *Spörödö'-chlä*), a spore-bearing or spore-holding apparatus. Applied mainly to the sporiferous mass, including the spores, in the *Tuberculariæ*.

SPÖRÖGĖN, a plant which produces spores; cryptogam. Compare *SPERMOPHYTE*.

SPÖRÖGÖNE, see *SPOROGONIUM*.

SPÖRÖGÖ'NÏŪM (pl. *Spörögö'nlä*), the whole product of the sexual act in the higher cryptogams; asexual generation; sporophore; sporophyte; oöphyte. In ferns it is the segment or stage in the life-cycle which we see as the ordinary fern-plant. Compare *PROTHALLUS*.

SPÖRÖID, spore-like.

SPÖRÖPHÖRE, a stalk supporting one or more spores; any spore-bearing apparatus or receptacle, such as a gonidophore, sporangiophore, or ascophore; particularly the second or asexual generation in plants having a distinct alternation of generations, such as ferns and mosses (*sporogonium*). Compare *OöPHORE*. See *SIMPLE SPOROPHORE*, *COMPOUND SPOROPHORE*, and *BASIDIUM*.

SPÖRÖPHŸL, the same as *Sporophyll* or *Sporophyllum* and a spelling now in frequent use.

SPÖRÖPHŸLL, see *SPOROPHYLLUM*.

SPÖRÖPHÝL'LŮM (pl. **Spörö-phýl'lä**), a spore-bearing leaf of any kind; sporophyl. Formerly applied to leaf-like lobes of the thallus in algæ bearing tetraspores.

SPÖ'RÖPHÝTE, see **SPOROGONIUM**.

SPÖRÖSTĚ'GIŮM (pl. **Spöröstě-giä**), the oösporangium or fruit (nucule) of the Characeæ.

SPÖRT, a plant, or portion of a plant, which has suddenly assumed an appearance very different from that characteristic of the variety or species; a seed- or bud-variation, but said mainly of the latter. Its peculiarity is not usually capable of being perpetuated by seed. When a sport is propagated artificially it continues to be called a sport. Monstrosities or extreme malformations are not usually given this name. See **VARIATION**, **SEED-VARIATION**, and **BUD-VARIATION**.

SPÖRÜLÄ'TION, the production of spores.

SPÖR'ÜLE, a small spore. Often unsuitably applied to ascospores. Compare **SPORIDIUM**.

SPÖRÜLĪF'ĚROŮS, producing sporules.

SPÖRÜLĪG'ĚROŮS, see **SPORULIFEROUS**.

SPÖT'TĚD, covered with large dots: said of fruits.

SPRAWLS, a local or obsolete term for small branches or twigs.

SPRĚADĚŇG, said of branches which bend outward considerably, but at less than a right angle.

SPROUT, any quickly grown part, as a young root or stem from

the seed, or a vigorous branch arising from the root or stem. See **WATER-SPROUT**.

SPROUT-ČĚLL, in fungi, a cell produced by sprouting or pullulation.

SPROUT-ČHÄIN, a row of united cells in fungi formed by budding (pullulation.)

SPROUT-GĚM'MÄ, in fungi, a gemma having the form of a septate confervoid filament the segments of which are capable of sprouting. (De Bary.)

SPROUT-GĚRMĚNÄ'TION, the manner of germination of a spore in which a small process with a narrow base protrudes at one or more points on the surface of the spore, then assumes an elongated cylindrical form, and is finally detached as a sprout-cell. (De Bary.)

SPROUT'ĚŇG, see **PULLULATING** and **GERMINATION**.

SPŮMĚS'ČENT, resembling froth or foam; spumose.

SPŮMÖSE', see **SPUMESCENT**.

SPŮR, (1) a short, stout branch, as those in the larch bearing a tuft of leaves or in the apple bearing the fruit; (2) a tubular appendage of a petal or sepal, usually containing nectar, as in larkspur (*calcar*); (3) the sclerotium of ergot.

SPŮ'RĪOŮS, see **FALSE**.

SPŮ'RĪOŮS BRÄNCH, see **PSEUDORAMULUS**.

SPŮ'RĪOŮS FRŮIT, a collective, aggregate, or accessory fruit.

SPŮ'RĪOŮS TĪS'SŮE, see **FELTED TISSUE**.

SPŮ'RĪOŮS WHÖRL, one which is formed by displacement and unequal growth of the axis. (Sachs.)

SPURRED, bearing a spur; calcarate.

SQUĀ'MĀ (pl. *Squā'mā*), a scale of any kind, as one of the leaves of a bud.

SQUĀMĀ'CEOUS, see **SQUAMOSE**.

SQUĀ'MĒFŌRM, see **SQUAMIFORM**.

SQUĀ'MĀTE, see **SQUAMOSE**.

SQUĀMĒL'LĀ (pl. *Squāmēl'lā*), diminutive of *Squama*: a small scale, as the bracts upon the head in *Compositæ*; *squamula*.

SQUĀMĒL'LĀTE, diminutive of *Squamate*. See **SQUAMULOSE**.

SQUĀMĒLLIF'ĒROUS, bearing *squamellæ*.

SQUĀMĒL'LIFŌRM, like a small scale; *squamuliform*.

SQUĀMIF'ĒROUS, scale-bearing; *squamigerous*; *squamos*.

SQUĀMIFLŌ'ROUS, having flowers which resemble scales or are borne upon scales.

SQUĀ'MIFŌRM, scale-shaped; *squamoid*.

SQUĀMIF'ĒROUS, see **SQUAMIFEROUS**.

SQUĀ'MOID, see **SQUAMIFORM**.

SQUĀMŌSE', scale-like; covered with scales; consisting of scales; *squamous*; *squamate*; *squumaceous*. See **SQUAMIFORM** and **SQUAMIFEROUS**.

SQUĀ'MOUS, pertaining to scales, or *squamos*.

SQUĀ'MOUS BULB, see **SCALY BULB**.

SQUĀM'ŪLĀ, see **SQUAMELLA**. Formerly applied to the lodicule of grasses.

SQUĀM'ŪLĀTE, see **SQUAMULOSE**.

SQUĀM'ŪLIFŌRM, see **SQUAMELIFORM**.

SQUĀM'ŪLŌSE, diminutive of *Squamos*; having or resem-

bling small scales; *squamellate*; *squamulate*.

SQUARRŌSE', having lateral organs, as leaves, extending at about right angles to the axis.

SQUĀR'RULŌSE, somewhat *squarrose*.

STĀG'HĒADĒD, a term applied in forestry to a tree which is dying at the top.

STAINED, faintly colored—applied to fruits.

STALKED GLĀND, see **GLANDULAR HAIR**.

STALK'LĒT, a secondary or very small stalk. See **SECONDARY PETIOLE** and **SECONDARY PUNCLE**.

STĀ'MĒN, the pollen-bearing organ of a flower, usually consisting of an anther, or part immediately enclosing the pollen, and a filament or stalk.

STĀM'INAL (obs.), see **STAMINATE**.

STĀM'INĀTE, pertaining to stamens; containing stamens but no pistils—said of a plant or flower. See **STAMINEAL**.

STĀM'IN'EAL, formed of stamens; attached to stamens; having marked reference to stamens; *stamineous*; *staminate*.

STĀM'IN'EAL CŌL'ŪMN, see **ANDROPHORE**.

STĀM'IN'EOUS, see **STAMINEAL**.

STĀM'INĪD'IŪM (pl. *Stāminīd'īā*) (obs.), see **ANTHERIDIUM**.

STĀM'INIF'ĒROUS, bearing stamens; *staminigerous*. Said especially of a plant or flower bearing stamens but no pistils.

STĀM'INIG'ĒROUS, see **STAMINIFEROUS**.

STĀM'INŌDE, see **STAMINODIUM**.

STĀM'INŌ'DIŪM (pl. *Stāminō'diā*), an altered, abortive, and sterile stamen, or body occupying the

place of a stamen; staminode; parastemon. See LEPAL.

STĀM'INŌDŸ, the conversion of other organs of a flower into stamens.

STĀM'INŌSE, having the stamens unusually large or numerous. (Rare.)

STĀND'ARD, see VEXILLUM. In horticulture (1) a tree or shrub which stands alone without being attached to any wall or support, as distinguished from an *espalier* or *cordon*; (2) a shrub, as a rose, grafted on an upright stem or trained to a single stem in tree form; (3) in the United States, a fruit-tree grafted upon a free-growing as opposed to one upon a dwarf stock.

STĀRCH-BUILD'ĒR, a plastid, generally a leucoplast, in which a starch-grain originates. See CHROMATOPHORE.

STĀRCH-GRĀIN, the grain of starch as it exists in the living plant. It is of definite shape, varying according to species, but always rounded, and formed of successive layers (or apparently so) having a common, and usually eccentric, centre.

STĀRCH-LĀY'ĒR, a term sometimes applied to the bundle-sheath, which often serves especially for the storage of starch.

STĀRCH-STĀR, a form of bulbil in *Chara stelligera*, consisting of an underground node.

STĀR'RŸ, see STELLATE.

STĀRVED, see DEPAUPERATE.

STĀ'SIMŌRPHŸ, a changed condition of form or size arising from arrested development.

STĀ'TION, a particular limited locality, without regard to character or exposure, in

which a species is found. Compare REGION, HABITATION and HABITAT.

STĀT'ŌSPŌRE, see RESTING-SPORE.

STĒGŌCĀR'POŮS, applied to capsules in mosses which have a distinct lid or operculum.

STĒL'LĀTE, star-shaped; radiating.

STĒL'LĀTE HĀIR, a hair having several branches arranged in the form of a star, as the hairs of Malpighiaceae.

STĒL'LŪLAR, see STELLULATE.

STĒL'LŪLĀTE, diminutive of Stellate; resembling a little star; stellular.

STĒM, see TRUNK, PEDUNCLE, PEDICEL and PETIOLE.

STĒM-CLĀSP'ING, see AMPLEXICAUL.

STĒM-LĒAF, a leaf growing from the stem above the ground. Compare RADICAL LEAF.

STĒM'LĒSS, see ACAULESCENT.

STĒM'LĒT, a little stem; the first internode above the cotyledons.

STĒM, SUBTĒRRĀ'NĒAN, see SUBTERRANEAN STEM.

STĒM-TĒN'DRĪL, a tendril which is a transformed stem, as in the grape. Compare LEAF-TENDRIL.

STĒNŌPĒT'ALOŮS, having narrow petals.

STĒNŌPH'YLLŌŮS, narrow-leaved. Compare LATIFOLIUS.

STĒNŌ'SIS, (1) cell-formation in which there is a direct constriction of the walls of the original cell, as in budding. Compare CYTODIERESIS. (2) The pathological narrowing of a passage.

STĚRĚĪD, a cell of stereome, which see.

STĚRĚŮME, strengthening tissue: a term applied by Schwendener to that part of a fibrovascular bundle to which it chiefly owes its strength; also to the cortex on physiological grounds, it often serving mainly for support. Compare **MESTOME**.

STĚRĚŮPLÁŠM, the solid portion of protoplasm. (Nägeli.) Compare **HYGROPLASM**.

STĚRĚŮPLÁŠ'MĀ, see **STEREOPASM**.

STĚRĪG'MĀ (pl. *Stěrīg'matā*), (1) the downward prolongation of a decurrent leaf upon the stem; (2) a very narrow support to a spore, as the pointed protuberances upon basidia, or the filaments bearing spermatia and stylospores.

STĚR'ILE, (1) unfruitful; barren—as a plant which fails to blossom or fruit, a pericarp which contains no seeds, or a stamen which produces no perfect pollen; (2) devoid of living organisms—used mainly in bacteriology.

STĚR'ILE FLOW'ĚR, one containing no perfect pistils. It may or may not contain stamens.

STĚR'ILIZE, to render free from all living bodies, as fluids in which bacteria are to be cultivated.

STĚR'NŮTRĪBE, a term applied to zygomorphic flowers which have the stamens so placed that a visiting insect will receive the pollen upon its under surface, as in most *Papilionaceæ*. Compare **NOTOTRIBE** and **PLEUOTRIBE**.

STĚR'ŮM, see **STEREOME**.

STĚCHĪD'ĪŮM (pl. *Stěchíd'já*), a branch of the thallus in red algae (*Floridææ*) containing tetraspores.

STĪG'MĀ, the part of the pistil which receives the pollen. It is usually the apex of the style, variously expanded, which is destitute of epidermis and secretes the "stigmatic fluid," which see.

STĪG'MĀ-DĪSK, a disk forming the seat of a stigma, as in *Asclepias*.

STĪGMĀT'IC CELLS OF THE ĀRCHĚGŌNĪŮM, see **LID-CELLS**.

STĪGMĀT'IC CHĀM'BĚR, the part of the rostellum in orchids in which the viscid disk or retinaculum is developed. (Functionless as a stigma.)

STĪGMĀT'IC FLŮID, a viscid fluid secreted by the stigma at maturity which serves to hold the pollen, and in which the pollen-grains germinate as the first stage of fertilization.

STĪLŌGŌNĪD'ĪŮM, see **STYLO-SPORE**.

STĪM'ŮLOŠE, covered with stinging hairs.

STĪM'ŮLŮS (pl. *Stīm'ŭlī*), see **STINGING-HAIR**.

STĪNG, see **STINGING-HAIR**.

STĪNG'ĪNG-HĀIR, a glandular hair which secretes an acrid fluid; sting; stimulus.

STĪPE, a term applied to various kinds of stalks or stems, including the petiole of ferns, the stalk of a mushroom, the stem of a pappus above the seed, the stalk of an ovary raising it above the receptacle, etc. Various forms of stipes in flowering plants are distinguished under the terms *thecaphore*, *gynophore*, *antho-*

phore, gynobase, gonophore, carpophore.

STĪPĒĻ, the stipule of a leaflet.

STĪPĒĻ/LĀTE, furnished with stipels.

STĪPĒS, an uncommon spelling of Stipe.

STĪPĪFŌRM, resembling a stipe; stipitiform.

STĪPĪTĀTE, having a stipe; supported on a stipe.

STĪPĪTĪFŌRM, see STĪPIFORM.

STĪP'ŪĻĀ (pl. Stip'ulā), see STĪP-ULE.

STĪPŪĻĀ'ČEOŪS, see STĪPULAR.

STĪP'ŪĻAR, having stipules; formed of stipules; situated near or upon stipules; pertaining to stipules; stipula-ceous.

STĪP'ŪĻĀRĶ, formed of stipules.

STĪP'ŪĻĀTE, having stipules; stipulated; stipuled.

STĪP'ŪĻĀTĒD, see STĪPULATE.

STĪPŪĻĀ'TION, the situation or arrangement of the stipules.

STĪP'ŪLE, an organ situated in pairs upon the stem, one on either side of the petiole at its base and often adherent to it. They are usually expanded, scale-like or leaf-like, but sometimes exist in the form of glands, prickles, tendrils, or other organs, and are often wanting altogether. They frequently serve for protection to the bud or growing point, and fall away as the bud expands and the leaves develop.

STĪP'ŪLED, see STĪPULATE.

STĪPŪĻĪF'ĒROŪS, bearing stipules.

STĪP'ŪĻŌSE, having very large stipules. (Rare.)

STŌCK, (1) the persistent base of an herbaceous perennial;

(2) any plant or part considered with reference to another part which it supports; (3) in horticulture a tree or other plant which receives a bud or graft; (4) the original or originals (parentage) of a species or variety; (5) a seedsman's term for a quantity of seed grown in a particular locality or from a particular source. It does not imply any peculiarity of character. Compare STRAIN.

STŌLE, see STOLON.

STŌ'LŌN, a slender branch, above or below the surface of the ground, which takes root or bears a bulb at the extremity where it forms one or more new plants; stole; sobole. Compare RUNNER, RHIZOME, and OFFSET.

STŌLŌNĪF'ĒROŪS, bearing stolons.

STŌ'MĀ (pl. Stōm'atā), an opening in the epidermis for the admission of air and liberation of moisture; breathing-pore. See GUARD-CELLS.

STŌ'MĀTE, see STOMA.

STŌMĀT'ĪC, pertaining to a stoma.

STŌMĀT'ĪC ČĒLLS, see GUARD-CELLS.

STŌMĀT'ĪC CHĀM'BĒR, the intercellular space beneath a stoma; substomatic chamber; air-chamber; respiratory chamber; respiratory cavity. See CISTOME. Compare ANTE-CHAMBER and VESTIBULE.

STŌMĀTĪF'ĒROŪS, bearing stomata; stomatose.

STŌM'ĀTŌSE, see STOMATIFEROUS.

STŌNE, the bony endocarp of a drupe, containing the seed; pit.

STÓNE-FRUIT, see **DRUPE**.

STŌOL, a plant upon which offshoots of any kind are produced, usually for propagation, as in the raspberry and strawberry; especially, a plant of wheat, oats, rye, or barley which has several stems from one root.

STŌOL, v. i., to tiller, as grain; to throw out suckers.

STRĀ'GLĪNG, see **DIVARICATE**.

STRĀIN, (1) the influence of a particular ancestor existing in an individual or variety; (2) a seedsman's term for a stock of seed or subordinate variety which has been bred in a special manner and acquired a slight individual character, as "an excellent *strain* of Fottler's cabbage."

STRĀMĪ'ŒOUS, like straw; especially, straw-colored; pale yellow.

STRĀND, a fibrovascular bundle; a branch of mycelium, or similar vegetable filament; specifically, a branch of fibrous mycelium, which see.

STRĀN'GULĀTĒD, applied to a root or stem which is contracted at intervals, as though growth had been restricted by cords or bandages wrapped around it. Compare **MONILIFORM**.

STRĀP, the ligule of a ray-floret in *Compositæ*.

STRĀP-SHĀPED, broad, flat, and linear, like a belt; ligulate.

STRĀTĪFĪCĀTION, the thickening of a cell-wall by the deposition of successive layers of formed material; also the arrangement of the layers so deposited.

STRĀTĪFĪED THĀL'LŪS, a thallus in lichens in which the

gonidia or algal cells are disposed in one or more layers.

STRĀ'TŌSE, in distinct layers or strata.

STRAW, the stems of various edible grains, as wheat and oats, especially after being threshed. Extended also to the haulm of peas, beans, etc.

STRĒAK (Hort.), a long narrow stripe.

STRĒAM'ING OF PRŌ'TŌPLĀSM, see **ROTATION**.

STRĪ'Ā (pl. *Strī'æ*), a straight and very narrow mark or groove.

STRĪ'ĀTE, marked with parallel striæ. Compare **SULCATE**, **RIVULOSE**, **ACICULATED**, and **LINEATE**.

STRĪCT, straight or upright; having branches close together and erect: opposed to *Lax*. Differs from *Fastigiate* in being applied chiefly to herbs and shrubs instead of trees and in not necessarily having a pointed top.

STRĪ'GĀ (pl. *Strī'gæ*), a sharp-pointed, rigid, appressed bristle or hair-like scale.

STRĪG'ILŌSE, minutely strigose.

STRĪGŌSE', covered with strigæ. Formerly regarded as synonymous with *Hispid*.

STRĪKE (Hort.), to take root, as a cutting.

STRĪNG, any fibre; strand.

STRĪ'ŌLĀTE, diminutive of *Striate*, having very fine striæ.

STRĪPED, having longitudinal lines of color, broader than *Streaked* and narrower than *Banded*; having longitudinal colored marks of any character.

STRŌBĪLĀ'ŒOUS, cone-bearing; cone-like; pertaining to cones.

STRŌB'ĪLE, see **CONE**.

STRŌBĪLĪF'ĒROUS, coniferous.

STRÖBĪL'ĪFŌRM, cone-shaped.

STRÖBĪLŪS, see **CONE**.

STRŌ'MĀ (pl. **Strŏ'mātā**), a mass in which another object is embedded, as a protein granule which contains a crystal or starch-grain. Especially, a compact mass of mycelium upon or within which spores or sporangia are borne—applied mainly to tissue in which perithecia are embedded. Compare **HYMENIUM**.

STRŌ'MĀTOID, having the nature or appearance of a stroma.

STRŌ'MĀTOŪS, bearing or producing stromata.

STRŌMBŪLĪF'ĒROŪS, bearing spirally twisted pods (strombi).

STRŌMBŪLĪFŌRM, twisted in a spiral, like the pods of alfalfa; cochleate.

STRŌM'BŪS (pl. **Strŏm'bī**), a spirally coiled legume, like that of alfalfa, *Medicago sativa*; cochlea.

STRŌ'PHĒ, an old term for leaf-spiral.

STRŌ'PHĪŌLĀTE, furnished with a strophiole.

STRŌ'PHĪŌLE, see **CARUNCLE**.

STRŮC'TŪRAL BŌT'ĀNŸ, the study of the form and arrangement of the parts of plants, including morphology and histology; vegetable anatomy; phytotomy.

STRU'MĀ, a one-sided swelling or protuberance of any kind, as the one-sided enlargement (apophysis) at the base of the capsule in some mosses, or the pulvinus of a leaf or leaflet. The term is now seldom used except in mosses.

STRU'MĪFŌRM, like a struma in appearance.

STRU'MŌSE', swollen upon one

side like a goitre; bearing a struma.

STRU'MŪLŌSE, slightly strumose.

STŪFFED, the same as **Solid**, or the old term **Farcate**, but seldom applied except to stems having a fibrous or spongy centre. Used mainly in mushrooms.

STŪMP' ROOTĒD, applied in vegetable gardening to the roots of certain varieties of the radish, carrot, etc., which, instead of tapering gradually from the fleshy edible portion to the slender tap-root, have the transition abrupt. The term is not applied to the roots of turnip beets, flat turnips, etc., but only to such as are more elongated.

STŪ'PĀ, a tuft of matted hairs resembling tow. (Obs.)

STŪ'PEŌŪS, see **STUPOSE**.

STŪPŌSE', resembling tow; covered with matted hairs resembling tow; stupeous.

STŸLE, the slender part of a pistil supporting the stigma.

STŸLĪF'ĒROŪS, style-bearing.

STŸLĪFŌRM, style-shaped.

STŸLŌGŌNĪD'IŪM, see **STYLO-SPORE**.

STŸLŌPŌD, see **STYLOPODIUM**.

STŸLŌPŌ'DIŪM, the fleshy disk crowning the ovary in most Umbelliferae, formed by the expanded bases of the two styles.

STŸLŌSE', having the styles remarkably long, numerous, or persistent. (Rare.)

STŸLŌSPŌRE, a stalked spore, sometimes septate, produced in a pycnidium; stylogonidium; pycnogonidium; pycnospore; pycnidiospore; clinospore.

STYLÖSTĒ'GIŪM (pl. **Stylöstē'giā**), the peculiar orbicular corona, called scutum or shield, which terminates the style in *Stapelia* and similar *asclepiads*.

STYLÖSTĒ'MŌN, an epigynous stamen. (Rare.)

SUĀVĒ'ÖLENT, sweet-scented.

SUB-, a Latin prefix meaning under, beneath, subordinate, or partially.

SÜBĀCŪTE', moderately acute.

SÜBĀĒ'RĪAL, situated just above the ground or substratum, but covered with fallen leaves, etc., as many *rhizomes*.

SÜBĀPIC'ŪLĀTE, having a small or poorly defined apiculus or point.

SÜBĀRBÖRĒS'CENT, somewhat tree-like.

SÜBĀX'ILLĀRŸ, situated beneath the axil.

SÜBCĀULĒS'CENT, with the leafy stem so short as to be hardly noticeable, but rather more developed than in *Acaulescent*.

SÜBCĒS'PĪTÖSE, somewhat inclined to grow in bunches. See *CESPITÖSE*.

SÜB'CLĀSS, a group of orders or cohorts next subordinate to a class.

SÜBCŌNCĀT'ĒNĀTE, growing somewhat in chains—in short or imperfect rows or chains.

SÜBCŌN'ICAL, slightly conical.

SÜBCŌNTĪN'ŪÖŪS, rarely or imperfectly septate; seldom or slightly constricted.

SÜBCŌR'DĀTE, slightly cordate.

SÜBCRE'NĀTE, slightly or obscurely crenate.

SÜBCŪL'TRĀTE, slightly cultrate.

SÜBDĒN'TĀTE, imperfectly or

obscurely dentate. Compare **DENTICULATE**.

SÜBDĒNTĪC'ŪLĀTE, obscurely denticulate: having small, imperfect marginal teeth.

SÜBĒFFŪSE', having slightly spreading branches or filaments.

SÜBĒNTĪRE', only slightly notched or toothed.

SÜBĒPIDĒR'MAL TĪS'SŪE, see **HYPODERMA**.

SÜ'BĒR, see **CORK**.

SÜBĒRĒCT', nearly erect.

SÜBĒ'REÖŪS, see **SUBERÖSE**.

SÜ'BĒRĪN, cork - substance—nearly or quite the same as **Cutin**. See **CORK**.

SÜBĒRĪFĪC'ATION, see **SUBERIFICATION**.

SÜBĒRĪZĀ'TION, conversion into cork; suberisation; suberification.

SÜBĒRÖSE', having somewhat the appearance of being gnawed; slightly *erose*. Compare *Erose*.

SÜ'BĒRÖSE, of the nature of cork; suberous.

SÜ'BĒRÖŪS, see **SUBERÖSE**.

SÜBFĀM'ĪLŸ, a group of genera subordinate to a family.

SÜBFLĒX'ŪÖSE, slightly wavy.

SÜBGĒNĪC'ŪLĀTE, slightly bent.

SÜBGĒ'NŪS, a species, or group of species, having nearly the rank of genus.

SÜBGLÖBÖSE', nearly globose.

SÜBHŸME'NĪŪM, a layer of tissue next below the hymenium; hypothecium.

SÜBĪC'ŪLŪM, a term applied by M. C. Cooke to the abnormally thickened portion of a leaf or stem bearing the cluster-cups in *Æcidium*.

SŮBKĪŅ'DŌM, the highest subdivision of a kingdom, as the phenogams and cryptogams among plants; series. Some recent botanists divide the vegetable kingdom into more than two subkingdoms.

SŮBLĒŅTĪC'ŪLAR, somewhat lens-shaped.

SŮBMĀR'ĜĪNAL, situated near the margin.

SŮBMĒRĜED', see SUBMERSED.

SŮBMĒRSED', growing under water; submerged; demersed.

SŮBNĀS'CENT, originating or growing beneath any object.

SŮBNŪDE', nearly destitute of hairs, leaves, or other covering.

SŮBŌBTŪSE', slightly obtuse.

SŮBŌRBĪC'ŪLAR, nearly circular; subrotund. Compare SUBGLOBOSE.

SŮBŌR'DĒR, a group of genera within an order. Compare TRIBE.

SŮBŌ'VATE, somewhat ovate.

SŮBPĒDŮŅ'CŪLĀTE, having a very short peduncle; subsessile.

SŮBPĒT'ĪŌLAR, situated beneath the petiole, i. e., under (within) the base of the petiole, as the leaf-bud in sycamore. Compare SUBPETIOLATE.

SŮBPĒT'ĪŌLĀTE, having a very short petiole; subsessile. Compare SUBPETIOLAR.

SŮBRĀ'MŌSE, having very few branches; subsimple. Compare RAMOSE.

SŮBRĪĜ'ID, slightly rigid.

SŮBRŌTŪND', see SUBORBICULAR.

SŮBSĒR'RĀTE, sparsely or obscurely serrate. Compare SERRULATE.

SŮBSĒS'SĪLE, nearly sessile; subpetiolate or subpedunculate.

SŮBSHRŮB'BY, see FRUTESCENT.

SŮBSĪD'ĪĀRY ĆĒLL, see ACCESSORY CELL.

SŮBSĪM'PLE, with very few subdivisions or branches.

SŮBSPĒ'ĆĪĒS, a variety nearly equal in rank to a species; a marked variety.

SŮB'STĪTŪTE FĪBRE, a term applied by Sanio to a prosenchymatous cell larger in diameter than a libriform cell and without its attenuated ends. Not in general use.

SŮBSTŌMĀT'ĪC CHĀM'BĒR, see STOMATIC CHAMBER.

SŮBSTRĀ'TŌSE, in somewhat indistinct or irregular layers or strata.

SŮBTĒND', to embrace in its axil. A flower is *subtended* by a bract when there is a bract situated beneath it. Nearly all buds are *subtended* by leaves.

SŮBTĒRĒTE', somewhat terete.

SŮBTĒRRĀ'NEAN, beneath the surface of the ground; hypogean.

SŮB'TRĪBE, a group of genera subordinate to a tribe.

SŮ'BŪLĀTE, narrow, and tapering to a sharp rigid point, as the leaves of juniper; awl-shaped.

SŮBŪLĪF'ĒROŮS, furnished with awl-shaped spines. (Obs.)

SŮ'BŪLĪFŌRM (obs.), see SUBULATE.

SŮBŪM'BĒLLĀTE, somewhat umbelliform, as the flower-cluster of the apple.

SŮBVĀRĪ'ĒTŲ, a subordinate variety; a variety within a variety.

SŮBVĒN'TRĪCŌSE, somewhat ventricose or inflated.

SŪBVĒRTĪĈ'ĪLLĀTE, slightly verticillate; in imperfect or irregular whorls.

SŪCCĒDĀ'NĒŪM, a substitute.

SŪCCĒSSĪVE WHŌRL, a whorl the members of which do not all originate at the same time, but in succession, either in regular order or otherwise. Compare **SIMULTANEOUS WHORL**.

SŪCCĪF'ĒROŪS, producing or conveying sap.

SŪCCĪSE', terminating abruptly, as though cut sharply off. Compare **TRUNCATE** and **PREMORSE**.

SŪC'ĈOSE, see **SUCCULENT**.

SŪC'ĈUBŌŪS, having the base or lower edge of each leaf overlapping the apex of the preceding leaf, as in *Jungermannia*. Compare **INCUBOUS**.

SŪC'ĈULENT, soft, and fleshy or juicy; pulpy.

SŪCK'ĒR, (1) a sprout or shoot, especially from the root or lower part of the stem (surculus); (2) sometimes applied to aerial roots or other holdfasts; (3) a haustorium.

SŪCK'ĒR, v. i., to put forth shoots from the lower part of the stem, as *Indian corn*.

SŪDORĪF'IC, causing perspiration.

SŪFFRŪTĒS'CENT, slightly shrubby.

SŪFFRŪTĒX, a plant with a woody base and herbaceous stems or branches. Applied mainly to perennials. See **UNDERSHRUB**.

SŪFFRŪ'TĪCŌSE, either suffrutescent or like an undershrub.

SŪFFRŪTIC'ŪLOSE, slightly fruticulose, as some lichens.

SŪL'CĀTE, having one or more large, straight, longitudinal grooves or channels, as the stem of parsnip. Compare **RIVOSE** and **STRIATE**.

SŪL'CŪS (pl. **SŪL'ĈI**), a longitudinal groove or furrow; sulcation. Compare **STRIA**.

SŪLPHŪ'REŌŪS, sulphur-yellow—paler than *Luteus*. About the same as *Flavus*.

SŪM'MĒR-SPŌRE, any spore or gonidium which retains its vitality but a short time, and is intended for the propagation of the plant during the summer, as the uredospores of wheat-rust. Compare **RESTING-SPORE**.

SUPER- (or **SUPRA-**), a prefix from the Latin, meaning above in position or degree.

SŪPĒRĀX'ĪLLĀRĪ, situated above the axil, instead of within it, as the accessory buds sometimes seen in the butternut; supraaxillary; superfoliaceous; suprafoliaceous.

SŪPĒRCRĒS'CENT, a parasite. (Rare.)

SŪPĒRCRĒS'CENT, growing above another part or body; especially, growing upon some other growing thing. (Rare.)

SŪPĒRDECŌMPŌUND', see **SUPRADECOMPOUND**.

SŪPĒRFĒCŪNDĀ'TION, the conjugation of more than two gametes. Compare **SUPERFERTATION**.

SŪPĒRFĒTĀ'TION, the fertilization of an ovary by two or more kinds of pollen, so that its seeds are not all alike. Compare **SUPERFECUNDATION**.

SŪPĒRFŌLIĀ'ĈEOŪS, see **SUPER-AXILLARY**.

SŪPĒ'RĪOR, said of a radicle when it points towards the

apex of the fruit (ascending); said of the ovary when the calyx is free from it; said of the calyx when adherent to the ovary and thus, with the other floral organs, situated upon its summit; applied to the upper side of a lateral flower, the side next the axis: the vexillum, for example, is the *superior* petal of a papilionaceous corolla.

SŪPĒRNĀ'TANT, floating on the surface.

SŪPĒRNŪMĒRĀRŸ BUDS, see ACCESSORY BUDS.

SŪPĒRPĀRÁSĪTE, a parasite of a parasite; hyperparasite.

SŪPĒR-PLĀNT, a plant which grows upon another plant, either as an epiphyte or a parasite.

SŪPĒRPŌŠ'TION, situation above some other organ; or, when referring to parts of the flower, the non-alteration of the members of contiguous circles, the corresponding parts being opposite instead of alternate; anteposition. See DIRECT and INVERTED SUPER-POSITION.

SŪPĒRTŪBĒRĀ'TION, an abnormal production of secondary tubers directly upon those produced in the ordinary manner.

SŪPĒRVŌLŪTE', plaited and the plaits convolute, as the corolla of morning-glory.

SŪPĪNE', lying flat, with face upward; dorsicumbent—opposed to Prone. Compare REST-PINATE.

SŪPĀRTĪNG PLĀNT, a plant upon or within which another grows, either as a parasite or an epiphyte. See Host.

SŪPPRĒS'SION, the entire non-

development of a part; complete abortion; obliteration.

SUPRA-, see SUPER-.

SŪPRĀĀX'ILLĀRŸ, see SUPER-AXILLARY.

SŪPRĀDĒCŌM'POUND, three or more times compounded, or very much subdivided in any manner. A pinnate leaf, like that of walnut, is *compound*; a bipinnate leaf, like that of honey locust, is *decompound*; a tripinnate leaf, as in many acacias, is *supradecomound*.

SŪPRĀFŌLĪĀ'CEOŪS, see SUPER-AXILLARY.

SŪPRĒME', situated at the highest point.

SŪRCŪLĪG'EROŪS, see SURCULOSE.

SŪR'CŪLŌSE, having suckers (surculi).

SŪR CŪLŪS (pl. *Sār'cālī*), a sprout or shoot from the ground or base of the stem; sucker.

SŪRCŪR'RENT, having winged expansions from the base of the leaf prolonged up the stem. Compare DECURRENT.

SŪSPĒND'ED, said of seeds or ovules which are attached to the top or sides of the ovary and hang downward; pendulous; inverted. Compare ERECT and ASCENDING.

SŪSPĒN'SOR, (1) a single or multiple row of cells which is the first development of the fertilized oosphere in phenogams, and at the extremity of which the embryo is developed: it appears upon the embryo as a continuation of the radicle; proembryo; (2) the cell which supports the conjugating cell in Mucorini.

SŪTŪRE, a line of junction or dehiscence.

SWARM, a number of spores or unicellular individuals of common origin which remain near together without being united in any way.

SWARM-CELL, see Zoöspore.

SWARMING, moving about by means of cilia—said of zoöspores. Chiefly used when many are together. See SWIMMING.

SWARM-SPORE, see Zoöspore.

SWIMMING, moving unattached within a liquid in any definite manner. Compare NATANT. The swimming of zoöspores when massed, however, is termed Swarming.

SWORD-SHAPED, see ENSIFORM.
SÝCHNŌCĀR'POŮS, see POLYCARPIC.

SÝCŌ'NĪŮM, see SYCONUS.

SÝCŌ'NŮS, the fruit (hypanthium) of the fig, consisting of an expanded fleshy receptacle enclosing the flowers.

SÝL'VĀ (pl. *Sýl'væ*), the trees of a country or region, or a work describing them.

SÝL'VAN, pertaining to woods.

SÝLVĒS'TRĪNE, growing in woods.

SÝMBĪŌ'SIS, the coexistence in more or less mutual interdependence of two different organisms, as the fungus and alga which constitute a lichen; mutualism; mutual parasitism; commensalism; consortism. With some authors Commensalism implies an association less necessary or mutually helpful than Symbiosis.

SÝMMĒTRĪCAL, (1) having sepals, petals, and stamens of the same number, or multiples of one another; (2) divisible in one or more directions into halves, which are similar to,

or the reflections of, each other. See MONOSYMMETRICAL and POLYSYMMETRICAL.

SÝMPĒT'ALOŮS, see GAMOPETALOUS. Also formerly used for a partial union of the petals with monadelphous stamens, as in Malvaceæ.

SÝMPHÝĀN'THĒROŮS, see SYNANTHEROUS.

SÝMPHÝCĀR'POŮS, having the fruits confluent, as the disks of the apothecia in certain lichens.

SÝMPHÝL'LOŮS, see GAMOPHYLOUS.

SÝMPHÝŌGENĒT'ĪC, formed of parts which have become grown together or united.

SÝMPHÝŌSTĒM'ŌNOŮS, monadelphous, synantherous, or with the stamens united in any other manner: symphytemonous.

SÝM'PHÝSIS, a union of parts usually distinct; cohesion or adhesion.

SÝMPHÝSTĒM'ŌNOŮS, see SYMPHYOSTEMONOUS.

SÝM'PŌDE, see SYMPODIUM.

SÝMPŌ'DĪĀL DĪCHŌT'ŌMÝ, where one branch of each successive bifurcation continues to develop and the other remains subordinate. See SCORPIOID and BOSTRYCHOID DICHOTOMY.

SÝMPŌ'DĪŮM, a stem which consists of a series of secondary stems or axes which have arisen as branches one from another, as in the tomato; pseudaxis; false axis.

SÝNĀC'MÝ, having the stamens and pistils ripen at the same time, neither protandrous nor protogynous; synanthesis: opposed to Heteracmy.

SŸNĀN'GIŮM, the peculiar boat-shaped sorus of certain ferns of the order Marattiaceæ.

SŸNĀN'TĤEROŮS, having the stamens united by their anthers, as in Compositæ; symphyanthous; syngenesious.

SŸNĀN'TĤE'SIS, see SYNACMY.

SŸNĀN'THOŮS, (1) having the flowers expand at the same time as the leaves. Compare PROTERANTHOUS and HYSTERANTHOUS. (2) Exhibiting synanthly.

SŸNĀN'TĤŸ, the abnormal coalescence of two or more flowers.

SŸN'CĀRP, see AGGREGATE FRUIT.

SŸNCĀR'PIŮM, see AGGREGATE FRUIT.

SŸNCĀR'POŮS, formed of distinct aggregated carpels.

SŸNCŌTŸLĚD'ONOŮS, having coherent cotyledons.

SŸNČŸ'TIŮM, a collection of nuclei without cell-walls.

SŸNĚ'DRAL, growing upon the angle of a stem.

SŸNĚ'MĀ, that part of the column in orchids which represents the united filaments of the stamens.

SŸNĚR'GIDĚ (sing. *SŸnĚr'gidā*), two cells (or nuclei) in the upper end of the embryo-sac, which together with the oosphere form the egg-apparatus.

SŸNĚRGŸ, the simultaneous action of several organs.

SŸNGĚNĚ'SIOŮS, see SYNANTHEROUS.

SŸNŌC'REĀTE, said of stipules when united around the stem so as to form an ocrea or sheath.

SŸNĚ'CIOŮS, (1) having male and female flowers in the same head, as in some Compositæ; (2) having antheridia and ar-

chegonia in the same receptacle in mosses.

SŸN'ŌNŸM, a superseded plant-name.

SŸNŌPH'ŸTŸ, the cohesion of two or more embryos in a seed. (M. C. Cooke.)

SŸNŌP'SIS (pl. *SŸnŏp'sēs*), a condensed description of a genus, species, or other group.

SŸNPĚT'ALOŮS, see GAMOPETALOUS.

SŸNSEP'ALOŮS, see GAMOSEPETALOUS.

SŸNTĀG'MĀ (pl. *SŸntĀg'mātā*), a name applied by Pfeffer to all bodies composed of tagmata, which see.

SŸ'PHŌN, see SIPHON.

SŸS'TĚM, (1) an arrangement of natural objects according to some rule; (2) the sum of the parts of an organism which are of the same morphological nature or perform a similar function, as the fibrovascular or intercellular system.

SŸS'TĚM, ĀRTIFĪCIAL, see ARTIFICIAL SYSTEM.

SŸSTĚMĀT'IC BŌT'ĀNŸ, the part of botany which treats of the description, naming, and classification of plants. See VEGETABLE TAXONOMY and PHYTOGRAPHY.

SŸS'TĚM, NĀTŮRAL, see NATURAL SYSTEM.

SŸS TRŌPHĚ, the massing of the chlorophyll bodies of a cell under intense light. Compare APOSTROPHE and EPISTROPHE.

TĀBĚS'ČENT, wasting or shriveling.

TĀB'ŮLAR, flattened horizontally.

TĀG'MĀ (pl. *TĀg'mātā*), a name given by Pfeffer to any aggre-

gate of molecules, including pleon, micella, and micellar aggregate. See these terms.

TĀIL, any long, flexible, terminal appendage, as the persistent style on the seed of Clematis.

TĀIL'-POINTĒD, tipped with a long, flexible acumination.

TĀN'GLE, see SKEIN.

TĀNK'ARD-SHĀPED, thickened, about twice as long as broad, gradually enlarged downward, then suddenly contracted or terminated, as the root of some varieties of the turnip and radish. Compare STUMP-ROOTED.

TĀ'PĒR-POINTĒD, see ACUMINATE.

TĀPĒ'TŪM, (1) a layer of cells, just outside the archesporium, lining the cavity of an anther or a sporangium. It usually becomes disorganized and absorbed before the liberation of the spores or pollen-grains; (2) a similar layer of cells surrounding the embryo-sac.

TĀP'-ROOT, a main root which runs directly downward.

TĀRTĀ'REŌŪS, having the surface rough and crumbly, as that of many lichens. (Obs.)

TĀS'SEL, the popular name for the staminate inflorescence or terminal compound spike of Indian corn. Sometimes called Spindle.

TĀW'NŶ, see FULVOUS.

TĀXŌL'ŌGŶ, see TAXONOMY.

TĀXŌN'ŌMŶ, see VEGETABLE TAXONOMY.

TĒAR, a drop of gum or resin as it has issued from the plant.

TĒAR'-SHĀPED, of the shape of an apple-seed—the same as pear-shaped except that the sides are not contracted.

TĒETH, see TOOTH.

TĒG'MĒN, the innermost seed-coat; endopleura. Called Secundine in the ovule.

TĒGMĒN'TŪM (pl. TĒgmĒn'tā), an old term for Bud-scale.

TĒG'ŪMENT, see INTEGUMENT.

TĒ'LĀ CŌNTĒX'TĀ, see FELTED TISSUE.

TĒLEŪ'TŌSPŌRE, a thick-walled, usually compound, gonidium produced by the Uredinæ or rust-fungi late in the season and which serves to reproduce the fungus the next year; brand-spore; pseudospore.

TĒN'DRĪL, a slender appendage which serves for support by coiling around some other object. It may be morphologically a leaf, leaflet, stipule, or stem.

TĒN'TĀCLE, one of the sensitive glandular hairs on the leaf of *Drosera*.

TĒNŪIFŌ'LIŌŪS, having thin, narrow leaves.

TĒP'AL, one of the parts of a perianth, either sepal or petal. (Rare.)

TĒRĀTŌL'ŌGŶ, the study of abnormal structures; morphology as applied to monstrous growths. Not applied to malformations due to disease.

TĒR'ČĪNE, a third coat to the ovule, counting from the outside—not a constant and definite structure.

TĒRĒTE', cylindrical, or somewhat tapering.

TĒRGĒM'ĪNAL, see TERGEMINATE.

TĒRGĒM'ĪNĀTE, having three pairs of leaflets or other organs attached, by secondary petioles or otherwise, to the apex of a common support. Compare

TERNATE, **TERNATE-PINNATE**, and **TRIUGATE**.

TĚRGÍF'ĚROŮS (obs.), see **DORSIFEROUS**.

TĚRGÍSPĚR MOŮS, bearing reproductive bodies upon the back, as the leaves of ferns. (Obs.)

TĚR'GŮM (obs.), see **DORSUM**.

TĚR'MÍNAL, attached to or pertaining to the extremity or apex.

TĚR'MÍNAL BŮD, a bud at the extremity of a branch or stem. Compare **LATERAL BUD**.

TĚR'NARÝ, consisting of three. Compare **TERNATE**.

TĚR'NÁTE, growing in threes, as the leaflets in clover.

TĚR'NÁTELÝ TRÍFŮLIŮLÁTE, having three leaflets attached at one point, as in clover. Compare **TRIFOLIOLATE**.

TĚR'NÁTE - PÍN'NÁTE, having three secondary petioles, each bearing pinnate leaflets, attached to the apex of a common petiole. If each secondary petiole bears but a single pair of leaflets the leaf is called **Tergeminate**.

TĚRPÍN'NÁTE, see **TRIPINNATE**.

TĚRRĚS'TRIAL, growing on land, not aquatic; growing on the ground, not on trees.

TĚS'SELLÁTĚD, having square spots, arranged like those on a chess-board.

TĚS'TÁ, the outer seed-coat, called **prime**, in the ovule; **spermoderm**.

TĚS'TÁ'ČEOŮS, brownish yellow, like unglazed earthen-ware.

TĚSTÍC'ŮLÁTE, oval and solid, like the tuberous roots of certain orchids.

TĚS'TŮLE (obs.), see **FRUSTULE**.

TETRA-, in Greek compounds, four.

TĚTRÁCÁM'ÁROŮS (obs.), about the same as **Tetracoccus**. See **CAMARA**.

TĚTRÁCÁR'PĚLLÁRÝ, of four carpels.

TĚTRÁCHĚ'NÍŮM, a fruit consisting of four achenium-like carpels, as in **Labiatae**.

TĚTRÁCHŮT'ŌMOŮS, dividing at the end into four branches.

TĚTRÁCŮC'COŮS, of four cocci.

TĚTRÁČÝ'C'LÍC, composed of four whorls, as a flower having calyx, corolla, and stamens each of one whorl and a single (simple or compound) pistil.

TĚT'RÁD, a group of four pollen-grains.

TĚTRÁDÝN'ÁMOŮS, having six stamens, four of which are longer than the other two. Compare **DIDYNAMOUS**.

TĚTRÁFŮ'LÍOŮS, having bijugate leaves, i.e., having leaves with two pairs of leaflets.

TĚTRÁG'ŌNAL, prismatic and quadrangular; four-angled; tetragonus. Compare **TETRAQUETROUS**.

TĚTRÁGŌNÍD'IŮM (pl. **TĚtrágō-níď'íá**), see **TETRASPORE**.

TĚTRÁG'ŌNOŮS, see **TETRAGONAL**.

TĚTRÁG'ÝNOŮS, having four pistils or styles.

TĚTRÁM'ĚROŮS, having four parts or the parts in fours. Applied mainly to flowers which have four members in each set or whorl of organs. Compare **DIMEROUS**, **TRIMEROUS**, etc.

TĚTRÁN'DROŮS, having four stamens.

TĚTRÁPĚT'ALOŮS, having four petals.

TĚTRÁPH'ÝLLOŮS, four-leaved. Often used for Tetrasepalous.

TĚTRÁQ'UĚTROŮS, having four salient angles. Compare TETRAGONAL.

TĚ'TRĀRĚCH, a term applied to a fibrovascular cylinder which represents four fibrovascular bundles.

TĚTRÁSĚP'ALOŮS, of four sepals. See TETRAPHYLLOUS.

TĚTRÁSPĚR'MOŮS, four-seeded.

TĚTRÁSPÖRĀN'GIŮM, a sporangium (unicellular) containing tetraspores.

TĚT'RÁSPÖRE, a gonidium or asexually produced spore in Florideæ. So called from being often produced four together in a mother-cell; tetragonidium.

TĚTRÁST'TĪCHOŮS, in four vertical rows upon a stem.

THĀLĀMIFLÖ'RAL, having the stamens inserted upon the receptacle. Compare COROLLIFLORAL and CALYCIFLORAL.

THĀLĀMIFLÖ'ROŮS, see THALAMIFLORAL.

THĀL'ĀMŮS (pl. ThĀ'āmī), the receptacle of a flower.

THĀLĀS'SÖPHYTE, a sea-alga. (Rare.)

THĀL'LÖGĚN, see THALLOPHYTE.

THĀL'LOĪD, having the form or nature of a thallus. Compare FOLIOSE and FRONDOSE.

THĀLLOĪ'DAL, see THALLOID.

THĀL'LÖME, see THALLUS. Compare CAULOME.

THĀL'LÖPHYTE, a plant whose vegetative body is a thallus, as a lichen, fungus, or alga; cellular cryptogam; thallogen. Compare CORMOPHYTE.

THĀL'LŮS (pl. ThĀ'l'i), a vegeta-

tive body without true leaf or stem, as that of most cryptogams; thallome.

THĀL'LŮS PLÁCÖ'DĚS (obs.), see FOLIACEOUS THALLUS.

THĀL'LŮS THĀMNÖ'DĚS (obs.), see FRUTICOSE THALLUS.

THĚ'CĀ (pl. ThĚ'cæ), a sporangium or anther-cell. (Rare.) Formerly in general use for ascus, and still used by some writers for the sporangium or capsule of mosses.

THĚ'CĀPHÖRE (obs.), see GYNOPHORE.

THĚ'CĀSPÖRE, see ASCOSPÖRE.

THĚCĪF'ĚROŮS, bearing asci or other thecæ; thecigerous. (Rare.)

THĚCĪG'ĚROŮS, see THECIFEROUS.

THĚRMÖT'RÖPIŠM, the property or phenomenon of movement under the influence of heat or cold. Curvature toward a source of heat is called *positive thermotropism*; curvature in the opposite direction, *negative thermotropism*.

THICK'ENİNG LĀY'ĚR, an apparent layer of cellulose deposited upon the *inner* surface of a cell-wall. It appears as a layer only because of its power of absorbing water in a different degree from the remainder of the cell-wall.

THICK'ENİNG RİNG, the cambium-ring, or any other ring or layer of thickening or meristematic tissue.

THÖRN, a degenerated, sharp-pointed branch, either simple, as in the thorn-apple, or branched, as in the honeylocust. Sometimes applied to other large, sharp, rigid processes. Compare SPINE and PRICKLE.

THREĀD-SHĀPED, see **FILI-FORM**.

THREĒ - ĀNGLED, see **TRIGONOUS**.

THREĒ-CLĒFT, see **TRIFID**.

THREĒ - LĒAVED, see **TRIFOLIATE**.

THREĒ - LĒBED, having three lobes or segments.

THREĒ-NĒRVED, having three principal veins proceeding from the base of the leaf in monocotyledons. Applied mainly in the floral envelopes of grasses; trinervate; triple-nerved.

THREĒ-PĀRT'ĒD, divided into three parts, or having the parts in threes: a three-parted leaf has three lobes or leaflets; a three-parted flower has three petals.

THREĒ-RĀNKED, in three vertical rows upon a stem; trifarious; tristichous.

THREĒ-VĀLVED, having three valves or dehiscent portions of a pericarp; trivalvular.

THRĒAT, see **FAUX**.

THRŪM, an old term for stamen.

THRŪM-EYED, a florist's term for flowers having long, conspicuous stamens and a short style. Compare **PIN-EYED**.

THŸLL, see **TYLOSIS**.

THŸLĒSE, see **TYLOSIS**.

THŸRSE, a compact panicle, like that of the lilac and grape.

THŸR'SŌID, thyrse-like.

THŸR'SŪS (pl. *ThŸr'sī*), see **THYRSE**.

TIGE [pro. *tēzh*], stem. (Rare.)

TIGĒLLE', see **TIGELLUM**.

TIGĒL'LŪM (pl. *TigĒl'la*), see **CAULICLE**.

TĪL'LĒR, n., a sucker or branch

from the base of the stem. (Obs.)

TĪL'LĒR, v. i., to put forth new shoots from the root or around the base of the original stalk, as wheat; stool. Applied mainly to the smaller cultivated plants of the grass family. Compare **SUCKER**.

TĪL'LŌW (obs.), see **TILLER**.

TĪM'BĒR-LĪNE, the upper limit of arborescent vegetation upon high mountains, as determined by cold.

TĪNCTŌ'RĪŌŪS, capable of serving as a dye.

TĪS'SŪE, a general term for all the material of which plants and animals are formed; particularly, a collection of cells of similar character, as vegetable tissue, epidermal tissue, fibrovascular tissue.

TĪS'SŪE-CŌRD, see **CENTRAL CORD**.

TŌ'MĒNTŌSE, covered with matted woolly hairs.

TŌMĒN'TOŪS, see **TOMENTOSE**.

TŌMĒN'TŪLŌSE, slightly tomentose.

TŌMĒN'TŪM, matted woolly hairs.

TŌMĪP'ĀROŪS, producing spores by division. (M. C. Cooke.) See **FISSIPAROUS**.

TŌNGUE, see **LIGULE**.

TŌNGUE-SHĀPED, long, thickened, nearly flat, and rounded at the end; lingulate; linguiform; linguæform.

TŌN'ŌPLĀST, a term sometimes applied to a vacuole-wall. See **VACUOLE**.

TŌOTH, any small, pointed, marginal lobe, especially of a leaf.

TŌOTHED, see **DENTATE**.

TŌOTH'LĒT, a small or secondary tooth; denticulation.

TŌOTH'LETĒD, see DENTICULATE.

TŌP'ICAL, local; confined to a limited area.

TŌP'SHĀPED, see TURBINATE.

TŌRN, with marginal incisions deep and irregular. (Rare.) Compare JAGGED, LACINIATE, and INCISED.

TŌRŌSE, cylindrical, and swollen at intervals. See MONILIFORM.

TŌR'SION, the state of being twisted spirally.

TŌR'TUŌUS, bending or turning in various directions.

TŌR'ULŌSE, somewhat torose.

TŌ'RŪS, (1) the extremity of the stem, upon which the floral organs are situated, usually termed Receptacle; thalamus; (2) a thickened centre in the closing membrane of a bordered pit.

TRĀBĒC'ULĀ (pl. Trābēc'ulā), one of the transverse processes upon the inner face of the teeth of the peristome in mosses; a projection from the wall across a cavity, as the bands of tissue crossing the sporangia of Isoetes or the cellular filaments across the space surrounding the fibrovascular bundles in Selaginella; any cross-bar, as one of the connecting threads in a reticulum.

TRĀBĒC'ULAR, having or pertaining to trabeculæ; trabeculate.

TRĀBĒC'ULAR VĒS'SĒL, one whose cavity is crossed by ligneous threads or bands.

TRĀBĒC'ULĀTE, having trabeculæ; trabecular.

TRĀ'CHĒĀ (pl. Trā'chēā), see SPIRAL VESSEL.

TRĀ'CHĒID (pl. Trā'chēids or Trāchē'idēs), a woody vessel

composed of a single cell. Applied mainly to those having bordered pits.

TRĀIL'ING, elongated, and prostrate upon the ground, but not rooting. The same as Running, except that the plant may be shorter, or may rise at first from a woody or otherwise self-supporting base. Compare CREEPING.

TRĀJĒC'TILE (obs.), see DISTRACTILE.

TRĀ'MĀ, the substance of the same character, as the pileus in the gills of agarics. It supports the subhymeneal layer.

TRĀNSFŌRMĀ'TION. This term is used in botany mainly in the same sense as Metamorphosis. A petal, for example, is called a transformed or metamorphosed leaf, not because the particular petal under consideration has ever been a foliage-leaf, but because it is a leaf in a special or unusual condition. The word Transformation is also used for the changes in a particular organ during its development or growth.

TRĀNSMŪTĀ'TION, see METABOLISM.

TRĀNSPĪRĀ'TION, the normal escape of fluids from within the plant; exhalation. It includes not only the escape of moisture, both in the form of vapor and, as occasionally occurs, in the liquid state, but also the gaseous products of respiration. The transpiration of moisture is sometimes, but unnecessarily, termed Perspiration.

TRĀNSVĒRSE' CHŌ'RĪSĪS, when two or more organs in place of one stand one above or within another; vertical choris.

Compare COLLATERAL CHORISIS.

TRÁNSVĚRSE' ĚĚÓT'RŮPĚSM, see DIAGEOTROPISM.

TRÁNSVĚRSE' ĚĚĹÓT'RŮPĚSM, see DIAHELIOTROPISM.

TRÁPĚ'ZĹFŮRM, unsymmetrically four-sided, like a trapezium; trapezoid.

TRÁP'ĚZŮID, see TRAPEZIFORM.

TRÁP'ĚZŮID, n., a body having the form of a trapezium. (Rare.)

TREE, a woody plant capable of growing in the given locality at least twenty feet in height, with a single self-supporting stem. If the top is unusually broad the height may be somewhat less. The standard is arbitrary and varies considerably according to circumstances. Compare SHRUB.

TRĚM'ĚĹĹŮID, gelatinous, like the Tremellinæ.

TRI-, three.

TRIÁĚĹ'PHŮŤS, having the filaments in three sets.

TRIÁN'DRIÁN, see TRIANDROUS.

TRIÁN'DROŮS, having three stamens.

TRIÁN'ĚŮĹAR, having three sides or angles;—applied either to flat bodies like leaves, or to columnar bodies like stems. Compare TRIGONOUS.

TRIÁN'THOŮS, three-flowered.

TRIÁŘĚH, a fibrovascular cylinder which has three ligneous rays, and thus represents three fibrovascular bundles.

TRIBE, a group of genera subordinate to an order or suborder. Similar groups are in some cases called families.

TRICÁR'PĚĹĹÁŘŮ, having three

carpels in a flower or pistil; trigynous.

TRICÁR'POŮS, containing three ovaries or fruits.

TRĹĚPH'ÁĹŮŤS, three-headed.

TRĹĚH'ŮĹĹÁST, an internal hair, like those which project into the intercellular spaces of some water-lilies.

TRĹĚH'ŮĚŮNE, a slender prolongation of the carpogonium in Floridææ which receives upon its apex the antherozoids in fertilization.

TRĹĚHŮMÁ (pl. *TrichŮmátá*), a term sometimes applied to filaments of conferva and some other algæ, especially to the multicellular filaments in Nostochinææ.

TRĹĚH'ŮME, a plant-hair of any kind.

TRĹĚH'ŮPHŮRE, the cell or cells immediately supporting a trichogyne.

TRĹĚHŮSPŮRÁN'ĚĹŮM, a sporangium which is morphologically a hair. Formerly also applied to the plurilocular sporangia of Phæosporeæ.

TRĹĚHŮT'ŮMOŮS, dividing at the end into three branches; three-forked; trifurcate.

TRĹĚCŮC'COŮS, of three cocci.

TRĹĚCŮĹŮR, of three colors.

TRĹĚCŮS TÁTE, three-ribbed.

TRĹĚCŮS'PID, three-pointed; tricuspidate.

TRĹĚCŮS'PIDÁTE, see TRICUSPID.

TRĹĚĹĚN'TÁTE, three-toothed.

TRĹĚN'NĹAL, a plant which fruits the third year, then dies. Few plants, if any, are strictly of this character. Compare BIENNIAL.

TRĹĹÁ'RĹŮŤS, in three rows, or pointing in three directions; especially, in three vertical

rows upon a stem; three-ranked; tristichous. Compare TRISERIAL and MULTIFARIOUS.

TRIFĪD, three-cleft; divided into three parts about half-way to the base.

TRIFLŌ'ROŪS, three-flowered.

TRIFŌ'LIĀTE, strictly, three-leaved, but often incorrectly applied to leaves which have three leaflets, as those of clover. Compare TRIPHYLLOUS.

TRIFŌ'LIŌLĀTE, having three leaflets. Usually but incorrectly called Trifoliolate.

TRIFŪR'CĀTE, see TRICHOTOMOUS.

TRIG'AMOŪS, having staminate, pistillate, and perfect flowers in the same head in Composite, being one of the polygamous conditions.

TRIGĒM'INOŪS, see TERGEMINATE and TRIJUGATE.

TRIG'ONAL, see TRIGONOUS.

TRIG'ONOŪS, prismatic, and three-angled, as the stems of sedges; trigonal. Compare TRIQUETROUS.

TRIG'YNOŪS, having three pistils or styles; tricarpeal.

TRIJŪGĀTE, having three pairs of leaflets arranged in any manner upon a leaf, especially along a common petiole; trijugous. Compare TERGEMINATE.

TRIJŪGOŪS, see TRIJUGATE.

TRILĀT'ĒRAL, three-sided. See TRIGONOUS.

TRILŌ'BĀTE, three-lobed.

TRILŌC'ŪLAR, three-celled: applied to pericarps.

TRIMĒROŪS, having the parts in threes: applied to flowers having calyx, petals, and stamens each three or a multiple

of three. Sometimes written 3-merous.

TRĪMŌR'PHĪC, see TRIMORPHOUS.

TRĪMŌR'PHOŪS, having three kinds of flowers in the same species, differing in the relative lengths of their stamens and pistils; heterogonous trimorphous. Compare DIMORPHOUS. See HETEROGONOUS.

TRĪNĒRV'ĀTE, see THREE-NERVED.

TRĪNĒRVĒD, see THREE-NERVED.

TRĪNŌD'AL, having three nodes.

TRĪĒ'CIOŪS, having a polygamous condition in which there are staminate, pistillate, and perfect flowers, each on different sets of plants.

TRĪŌI'COŪS, see TRICECIOUS.

TRĪŌ'VŪLĀTE, containing three ovules.

TRĪ'PĀRTĒD, see TRIPARTITE. Compare THREE-PARTED.

TRĪP'ĀRTĪTE, divided into three parts nearly to the base; three-parted.

TRĪPĒT'ALOŪS, of three petals.

TRĪPH'ŶLLOŪS, having three leaves or leaf-like bodies in a whorl, or otherwise associated; —applied especially to a three-leaved calyx or perianth.

TRĪPĪN'NĀTE, thrice pinnate, as a bipinnate leaf the leaflets of which (or some of them) are themselves pinnate; terpinnate.

TRĪPĪNNĀT'ĪFĪD, thrice pinnatifid; thrice pinnately cleft; —said of a pinnatifid leaf when its segments are pinnatifid and the subdivisions of these are also pinnatifid.

TRĪPĪNNĀT'ĪSĒCT, the same as Tripinnatifid, with the divi-

sions extending in each case to the base or midrib.

TRIPLE-NERVED, see **THREE-NERVED**.

TRIP'LE-RIBBED, having three prominent ribs or veins.

TRIP'LICATE - GEM'INATE, see **TERGEMINATE**.

TRIP'LICATE - PIN'NATE, see **TRIPINNATE**.

TRIP'LICATE - TER'NATE, see **TRITERNATE**.

TRIP'LINERVED, see **THREE-NERVED**.

TRIP'TEROUS, three-winged.

TRIQUÉ'TROUS, prismatic, with three acute or salient angles. Compare **TRIGONOUS**.

TRISÉCT'ED, divided into three parts or segments by incisions extending to the midrib or base: said of leaves.

TRISÉP'ALOÜS, of three sepals; triphyllous.

TRISÉP'TATE, having three septa.

TRISÉ'RIAL, in three rows; tri-seriate. See **THREE-RANKED**.

TRISÉ'RIATE, see **TRISERIAL**.

TRISPÉR'MOÜS, three-seeded.

TRISTÍCHOÜS, see **THREE-RANKED**.

TRISTÍGMAT'IC, having three stigmas.

TRIS'TÍS, of some dull or dingy color. (Rare.)

TRISTY'LOÜS, having three styles.

TRISÜL'CATE, three-grooved.

TRITÉR'NATE, thrice ternate, as a compound leaf whose primary petiole divides into three secondary petioles, each of which again divides into three, each division bearing three leaflets.

TRIVÁL'VÜLAR, see **THREE-VALVED**.

TRIV'IAL NÁME, see **SPECIFIC NAME**.

TROCH'LÉAR, short-cylindrical, with the sides contracted; pulley-shaped; trochleariform.

TROCHLÉAR'IFÖRM, see **TROCHLEAR**.

TROPH'ÖPLÁST, a term including all essential granules in protoplasm.

TROPH'ÖSPERM, see **PLACENTA**.

TRÜMP'ÉT - SHAPED, tubular, long, very gradually expanded toward the summit, and having a comparatively small and usually but slightly spreading limb or border. Compare **HYPOCRATERIFORM**.

TRÜN'CATE, terminating abruptly, as though cut off or flattened at the end; extremely obtuse. Compare **PREMORSE** and **SUCCISE**.

TRÜNK, the stem of a tree.

TRÜSS, a popular name for a rather compact, moderate-sized, terminal flower-cluster of any kind, as an umbel, corymb, spike, or raceme.

TRY'MÁ, a drupaceous fruit, like the walnut or hickory-nut. It is distinguished from a drupe by being derived from an inferior instead of a superior ovary.

TÜBE, the united portion of a gamopetalous corolla, gamosepalous calyx, or monadelphous andræcium; any elongated hollow part or organ.

TÜBE'FÖRM, see **TUBE-SHAPED**.

TÜ'BÉE, a short, thickened portion of a subterranean branch.

TÜ'BÉRCLE, any small, wart-like excrescence, as those upon the rootlets of various Leguminosæ.

- TŪBĒR'CŪLAR**, in the form of a tubercle or having tubercles.
- TŪBĒR'CŪLĀTE**, having tubercles; tuberculose; tubercular.
- TŪBĒR'CŪLĀTĒD**, see TUBERCULATE.
- TŪ'BĒRCŪLE**, a tuberous root, as in the dahlia. (Obs.)
- TŪBĒR'CŪLOSE**, consisting of tubercles; bearing many tubercles; tuberculate.
- TŪBĒR'CŪLOŪS**, see TUBERCULOSE.
- TŪBĒRÍF'ĒROŪS**, bearing tubers.
- TŪ'BĒRŌSE**, see TUBEROUS.
- TŪ'BĒROŪS**, bearing tubers, as a tuberous plant; resembling a tuber, as tuberous roots.
- TŪBE'-SHAPED**, tubular and rather long and wide; about the same as Trumpet-shaped, but may be shorter; tubiform; tubæform; tubeform; tubate. See TUBULAR.
- TŪ'BŪLAR**, in the form of a tube or pipe; fistular; tubulose. Applied in Compositæ to disk-florets, in distinction from the ligulate florets of the ray; also to any gamopetalous or gamosepalous flower, especially if the tube is rather long and wide. See TUBE-SHAPED.
- TŪ'BŪLAR FLŌ'RĒT**, a disk-flower in Compositæ, when, as is usual, it differs from those of the ray in having a small and regular corolla; disk-floret; disk-flower. Compare LIGULATE FLORET.
- TŪ'BŪLĪ**, pl., see TUBULUS.
- TŪBŪLÍFLŌROŪS**, applied to a head of flowers in Compositæ which bears tubular florets only.
- TŪ'BŪLOSE**, see TUBULAR.
- TŪ'BŪLŪS** (pl. *Tŭ'bŭlī*), (1) one of the cells surrounding the central siphon in Chara; (2) applied by some to the neck in Pyrenomycetes.
- TŪFT'ĒD**, see CESPITOSE.
- TŪMĒS'CENT**, slightly tumid.
- TŪ'MID**, somewhat turgid or inflated.
- TŪ'NĪC**, any integument or investing layer, as a seed-coat, or a peridium; especially, a membranous scale of a bulb, or a dry sheath surrounding one of the lower internodes in certain grasses.
- TŪ'NĪCĀTE**, covered with a thin, separable coat or tunic.
- TŪ'NĪCĀTĒD**, see TUNICATE.
- TŪ'NĪCĀTĒD BŪLB**, a bulb with broad, thin scales which form successive overlapping coats, as in the onion; coated bulb. Compare SCALY BULB.
- TŪR'BĪNĀTE**, top-shaped; inversely conical, as the pericarp of water-lilies.
- TŪRGĒS'CENT**, swelling; slightly turgid.
- TŪR'GĪD**, (1) thickened as if swollen, like a tuber; (2) distended with liquid, but not with air. Compare INFLATED and TUMID.
- TŪ'RĪŌ** (pl. *Tŭrĭŏ'nēs*), see TURION.
- TŪ'RĪŌN**, a leafless or scaly shoot from the ground, as a young stem of asparagus; turio.
- TŪRĪŌNÍF'ĒROŪS**, bearing turions.
- TŪRN'ING IN**, commencing to head; said of cabbages, etc.
- TŪR'NĪP-SHAPED**, see NAPIFORM.
- TŪR'PĒNTINE VĒS'SĒLS**, see RESIN-PASSAGES.
- TŪS'SŌCK**, a tuft growing from the ground, as in many grasses.

TWĪN, see GEMINATE.

TWĪN'ING, ascending by coiling the stem in a spiral manner around a support; voluble. Compare CLIMBING.

TWIST'ĒD, see CONTORTED.

TWQ'-CLĒFT, see BIFID.

TWQ'-FÔRKED, see DICHOTOMOUS.

TWQ'-LĪPPED, see LABIATE.

TWQ'-PĀRTĒD, see BIPARTITE.

TWQ'-RĀNKED, situated in two vertical rows on opposite sides of the stem, as the leaves of grasses; distichous.

TWQ'-TOOTHED, see BIDENTATE.

TŸLÔSE, see TYLOSIS.

TŸLÔ'SĪS (pl. *TŸlô'sēs*), a protrusion from an adjoining cell into the cavity of a vessel, sometimes exhibiting repeated cell-division within the vessel. Sometimes written Thylose and Thyll. A vessel which contains these protrusions is said to exhibit tylosis.

TŸM'PĀNŪM, a membrane closing the mouth of the capsule in some mosses.

TŸPE, a perfect specimen or individual, exemplifying the essential characters of the species or other group to which it belongs.

TŸPE-SPĒÇ'IMEN, the original specimen from which a botanical description was written and upon which the name of the plant or group is based: the actual individual which serves as the type of a species or other group.

TŸP'ICAL, representing the type or plan.

ŪLĪG'INÔSE, see PALUSTRINE.

ŪLĪG'INOŪS, see PALUSTRINE.

ŪM'BĒL, the inflorescence of the order Umbelliferae, or any flower-cluster in which several primary rays or pedicels arise from the apex of the stem or peduncle. A typical umbel is somewhat flat-topped, and has the rays spreading like the stays of an umbrella. An umbel is *simple* when each ray or pedicel bears but a single flower; it is *compound* when each bears several flowers or secondary rays.

ŪM'BĒL, ÇŸMÔSE, see CYMOSE UMBEL.

ŪM'BĒLLĀTE, bearing umbels; pertaining to umbels; umbel-like.

ŪM'BĒLLĀTE ÇŸME, see CYMOSE UMBEL.

ŪM'BĒLLĒT, a small umbel or a partial umbel; umbellule.

ŪMBĒLLĪF'ĒROŪS, producing umbels.

ŪMBĒL'LĪFÔRM, in the shape of an umbel.

ŪMBĒL'LŪLĀTE, in the form of a small or a partial umbel. Formerly used for Subumbellate, which see.

ŪM'BĒLLŪLE, see UMBELLET.

ŪMBĒLLŪLĪF'ĒROŪS, bearing small umbels.

ŪMBĪL'ICAL CÔRD, see FUNICULUS.

ŪMBĪL'ICĀTE, having an umbilicus, or central depression like the navel.

ŪMBĪL'CŪS, an old term for Hilum; any depression resembling the navel.

ŪM'BÔ, a central elevation, like the boss of an ancient buckler.

ŪM'BÔNĀTE, having a low, rounded central projection, as the cap of many mushroom.

ŮBŮN'ŮLĀTE, slightly umbonate; subumbonate; bearing a small, or slightly elevated, umbo.

ŮMBRĀC'ŮLĪFŮRM, umbrella-shaped.

ŮMBRĀC'ŮLŮM, the fruit-cap of Marchantia, or any such umbrella-shaped appendage.

ŮNĀRMED', destitute of thorns, spines, or prickles.

ŮN'CĀTE, see UNCINATE.

ŮN'ĈĪFŮRM, hook-shaped.

ŮN'ĈĪNĀTE, hooked at the end, or furnished with hooked appendages; uncate; unciform. Compare FALCATE.

ŮNC'TŮŮS, having a greasy appearance.

ŮN'DĀTE, see UNDULATE.

ŮN'DĀTĒD, see UNDULATE.

ŮN'DĒRSHRŮB, (1) a low shrub, less than three feet high, as the wintergreen; (2) a plant with woody base and upper portion herbaceous and yearly dying back, as the garden sage (*suffrutex*). The term is now generally used in the first sense only.

ŮN'DŮLĀTE, applied to leaves which have the surface near the margin alternately concave and convex; undate. Compare CRISP, SINUATE, WAVED, and RUFFLED.

ŮNĒ'QUAL, (1) unsymmetrical, as the leaves of begonia; (2) differing in length—applied to stamens, etc.

ŮNĒ'QUALLŮ PĪN'NĀTE, see IMPARIPINNATE.

ŮNĒ'QUAL-SĪDĒD, unsymmetrical.

ŮNGŮIC'ŮLAR, see UNGUICULATE.

ŮNGŮIC'ŮLĀTE, (1) furnished with a "claw" or unguis, as

the petals of pinks; (2) ending in a curved point resembling a claw.

ŮN'GUĪFŮRM, like the claw of a petal.

ŮN'GUĪS, see CLAW.

ŮN'GŮLĀTE, hoof-shaped.

ŮNI-, a Latin prefix, one.

ŮNĪĀX'ĪAL, having an unbranched stem.

ŮNĪCĀP'SŮLAR, having the carpels of a flower all united into one capsule.

ŮNĪCĀR'ĪNĀTĒD, one-keeled.

ŮNĪĈĒL'LŮLAR, one-celled.

ŮNĪCŮL'OR, of the same color throughout; whole-colored; unicolorous; isochrous. Compare DISCOLOR and CONCOLOR.

ŮNĪCŮL'ORŮS, see UNICOLOR.

ŮNĪFĀ'RĪŮS, one-ranked. Compare SECUND.

ŮNĪFŮ'ROŮS, one-flowered.

ŮNĪFŮ'LIĀTE, one-leaved. Used also for Unifoliate, which see.

ŮNĪFŮ'LIŮLĀTE, of one leaflet, as the theoretically compound leaf of the orange and lemon.

ŮNĪJ'ŮGĀTE, having a single pair of leaflets or other organs.

ŮNĪLĀ'BĪĀTE, one-lipped;—sometimes applied also to a regular gamopetalous corolla which is open on one side, as the ligulate florets in Compositæ. See LABIATE.

ŮNĪLĀT'ĒRAL, one-sided. See SECUND.

ŮNĪLŮC'ŮLAR, one-celled, as applied to anthers and ovaries; elocular.

ŮNĪNTĒRRŮP'TĒD, see CONTINUOUS.

ŮNĪP'ĀROŮS, bearing or producing but one stem or axis.

ŪNĪP'AROŪS ČYME, a cyme with one main axis; monochasium. Compare **DICHASĪUM**.

ŪNĪPĒT'ALOŪS, having but one petal, as *Amorpha*. Compare **GAMOPETALOŪS**.

ŪNĪSĒPTĀTE, having a single septum.

ŪNĪSĒRĪAL, having one row or whorl; uniseriate. Compare **ONE-RANKED**.

ŪNĪSĒRĪĀTE, arranged in a single line; uniserial.

ŪNĪSĒX'ŪAL, applied to an individual or flower which has one kind of sexual organs only; diclinous.

ŪNĪVĀL'VŪLAR, dehiscing along one suture only, so that the pericarp has but one valve, as the pod of the common milk-weed, *Asclepias Cornuti*.

ŪNĪVĒR'SAL, see **COMMON**.

ŪNĪVĒR'SAL ĪN'VŌLŪCRĒ, see **COMMON INVOLUCRE**.

ŪNĪVĒRSAL ŪM'BĒL, see **COMPOUND ŪMBEL**.

ŪNLĪN'ING, the separation of parts originally united. Formerly used for *Chorisis*, from the erroneous supposition that the additional organs in *chorisis* were always produced in this manner. See **CHORISIS**.

ŪNSYMMĒT'RĪCAL, not symmetrical, which see.

ŪRČĒOLĀTE, pitcher- or urn-shaped: tubular, and contracted at the orifice.

ŪRĒDŌ-FRŪIT, a sorus or group of uredospores.

ŪRĒDŌSPŌRE, a form of unicellular spore or gonidium in the *Uredinæ* or rust-fungi, produced earlier in the season than the teleutospores, and destined for immediate germination.

ŪRĒDŌ-STĀGE, the early summer stage of the *Uredinæ*, during which only uredospores are produced.

ŪRN, the spore-capsule of mosses; also the base of a pyxidium.

ŪRN-SHĀPED, see **URCEOLATE**.

ŪRTĪCĀČEOUS, pertaining to nettles or the family *Urticacæ*.

Ū'TRICLE, (1) a fruit having a small inflated membranous pericarp, as that of *Chenopodium*; (2) the bladder of various aquatic plants, as *Utricularia*; (3) one of the large hyaline cells in the leaves of *Sphagnum*.

Ū'TRICLE, PRĪMŌR'DĪAL, see **PRIMORDIAL ŪTRICLE**.

ŪTRĪCŪLAR, bladder-like or furnished with utricles.

ŪTRĪCŪLĀTE, inflated like a bladder; utricular.

ŪTRĪCŪLĪFŌRM, shaped like a bottle or bladder; about the same as *Urceolate*, but a less definite term.

ŪTRĪCŪLŌSE, bearing utricles.

ŪTRĪCŪLŪS (pl. *Ūtric'ulī*), see **UTRICLE**.

VĀC'ŪŌLE, a sap-cavity in the protoplasm of a cell.

VĀG'INĀ, see **SHEATH**.

VĀG'INANT, sheathing.

VĀG'INĀTĒD, sheathed; invaginated.

VĀGĪNĒRVŌSE, having the small veins (nerves) in no apparent order.

VĀGĪN'ŪLĀ, a small sheath; especially, the apex of the stem which surrounds the base of the seta in mosses; *vaginule*.

VĀG'INŪLE, see **VAGINULA**.

VĀGUE, in no definite order or direction; of no definite or

constant form. Compare AMORPHOUS.

VĀIL, see VEIL.

VĀLLĒC'ŪLĀ (pl. Vāllēc'ūlā), a groove or furrow, as those between the ridges on the fruit of Umbelliferæ. Compare SULCUS.

VĀLLĒC'ŪLAR CĀNĀLS', large intercellular passages, alternating with the fibrovascular bundles in the stem of Equisetum. They are situated in the cortex, and lie between the ridges on the surface. Compare CARINAL CANAL.

VĀLV'ĀTE, said of the leaves of a flower in aestivation when they meet at their edges and do not overlap, as the sepals in the rose; valvular. The margins of valvate organs may be rolled or folded inward or outward.

VĀLVE, (1) one of the parts of a dehiscent pericarp; (2) the lid of an ascidium or pitcher; (3) one of the halves of a frustule in diatoms.

VĀLV'ŪLAR, see VALVATE.

VĀRĪABLE, said of a species or other group which embraces many individuals which depart more or less from the type of the group. The term is applied in a similar way to any organ or character which fails to exhibit uniformity.

VĀRĪ'ATION, a transient variety, consisting of but one or a few individuals, less marked than a Sport, and usually but slightly differing from the type of the species or variety to which it belongs. It is subordinate in importance to a Form, and less frequently produced by some peculiar condition of the soil or climate.

VĀR'ĪCŌSE, appearing abnormally enlarged in places;—applied to hairs and other tubular filaments.

VĀR'ĪEGĀTĒD, applied to leaves, etc., which have two or more colors upon the surface, especially to such as are permanently marked with white or yellow. Compare BICOLOR and CHLOROSIS.

VĀRĪ'ĒTŸ, a group subordinate to a species, founded on characters which in cultivated plants are often temporary, and which in the wild state are regarded as permanent, but which gradually merge into those of the main specific form. Compare SPECIES, RACE, SPORT, and VARIATION.

VĀRĪ'ĒTŸ-HŸ'BRĪD, see CROSS.

VĀR'NĪSH, see BLASTOCOLLA.

VĀR'NĪSHED, see VERNICOSE.

VĀ'SĀ PRŌ'PRĪĀ, a term applied by Mohl to the portion of the phloëm containing the sieve-tubes and other thin-walled tubular cells. Now seldom used.

VĀS'CULAR, pertaining to or containing vessels.

VĀS'CULAR BŪN'DLE, see FIBROVASCULAR BUNDLE.

VĀS'CULAR BŪN'DLE-SHĒATH, a layer of cells between the phloëm and cortex, or surrounding a fibrovascular bundle, or an entire fibrovascular cylinder; phloëm-sheath.

VĀS'CULAR ÇŸL'ĪNÐĒR, see FIBROVASCULAR CYLINDER.

VĀS'CULAR SŸS'TĒM, see FIBROVASCULAR SYSTEM.

VĀS'CULAR TĪS'SŪE, see VESSEL.

VĀS'CŪLŪM, a botanist's collecting-case. Formerly this term was applied to an ascidium or pitcher-shaped leaf.

VĀSE'-SHĀPED, shaped somewhat like a common flower-pot. (Rare.)

VĀS'IFŌRM, having the character of ducts or vessels.

VĀS'IFŌRM WŌOD - ĆĒLLS, see TRACHEIDS.

VAULT'ĒD, overarched, as the upper lip of many ringent flowers; fornicate.

VĚĖ'ĒTĀBLE, (1) any plant; (2) in horticulture applied to plants cultivated for some edible part besides the fruit, and also to some, as the melon family, in which the part used is properly a fruit.

VĚĖ'ĒTĀBLE ĀNĀT'ŌMŸ, see STRUCTURAL BOTANY.

VĚĖ'ĒTĀBLE NŌSŌL'ŌĖŸ, the department of vegetable pathology which treats of the diagnosis or classification of the diseases of plants.

VĚĖ'ĒTĀBLE PĀTHŌL'ŌĖŸ, the science which treats of the diseases of plants. It includes the study of disease-producing parasites and of the means for preventing their injuries. It does not include Teratology.

VĚĖ'ĒTĀBLE PHŸSĪŌL'ŌĖŸ, see PHYSIOLOGICAL BOTANY.

VĚĖ'ĒTĀBLE TĀXŌN'ŌMŸ, the part of systematic botany which relates to the classification of plants.

VĚĖ'ĒTĀBLE WĀX, a wax-like substance upon many leaves and fruits, an important function of which is to protect the parts from excessive moisture. See BLOOM.

VĚĖĒTĀ'TION, (1) germination and growth; (2) plants in general.

VĚĖ'ĒTĀTĪVE ĀPŌĖ'ĀMŸ, the apogamous production of growing shoots in place of

seeds or spores. See ĀPŌĖ-AMY.

VĚĖ'ĒTĀTĪVE ĆĒLL, a cell in a pollen-grain which does not develop into the pollen-tube. Compare GENERATIVE CELL.

VĚĖ'ĒTĀTĪVE NŪ'ĆĒĻŪS, any nucleus in a pollen-tube which takes no direct part in fertilization. Compare GENERATIVE NUCLEUS.

VEIL, (1) a membrane connecting the margin of the cap in mushrooms with the stalk; velum; (2) the calyptra in mosses.

VEIN, a small bundle of fibro-vascular tissue within a leaf. When large, and occupying a prominent ridge, it is called *rib*; when very small it is sometimes called *nerve*, especially in monocotyledons; but the term Nerve is now little used.

VEIN'ĻĒT, a small, secondary vein; veinule.

VEIN'ŪĻĒT, a branch of a veinlet. (Rare.)

VĒĻĀ'MĒN, an envelope of several layers of cells containing air, surrounding the aerial roots of orchids and Aroideae.

VĒ'ĻĀTE, furnished with a veil; veiled.

VĒ'ĻŪM, the membranous indusium in Isoetes. Formerly applied to the veil of mushrooms.

VĒ'ĻŪM PĀRTĪĀLE, see MARGINAL VEIL.

VĒ'ĻŪM ŪNĪVĒRSĀ'LE, see VOLVA.

VĒĻŪ'TĪNOŪS, covered with a close, silky coat of short, fine, erect hairs of even length; velvety.

VĒĻ'VĒTŸ, see VELUTINOUS.

VĚNĀTION, the manner in which the veins are arranged in a leaf.

VĚNŌSE', containing numerous veins.

VĚN'TĚR, the expanded basal portion of an archegonium, in which the oosphere is formed.

VĚN'TRAL, pertaining to the face or front, being the side opposite to the dorsal. See DORSAL.

VĚN'TRAL CĀNĀL' ĆĚLL, a small cell below the entrance of the neck of an archegonium, cut off from the mother-cell of the oosphere.

VĚN'TRAL SŮ'TŮRE, a line of union between the margins of the carpel or carpels in an ovary. Compare DORSAL SUTURE.

VĚN'TRÍCŌSE, swelling out in a rounded manner.

VĚN'TRÍC'ŪLŌSE, slightly ventricose.

VĚN'TRÍCŮM'BENT, face downward upon the ground; prone.

VĚN'ŪLŌSE, abounding in veinlets.

VĚRMÍC'ŪLAR, worm-shaped.

VĚRMÍC'ŪLĀTE, vermicular, or bearing worm-like processes.

VĚR'MIFŌRM BŌD'Ů, see SCOLICITE.

VĚR'NAL, pertaining to spring; appearing in spring.

VĚRNĀTION, the manner in which leaves are disposed in the bud; prefoliation. Sometimes improperly used for Foliation, the act or time of leafing.

VĚR'NÍCŌSE, appearing as though varnished, as the buds of many trees.

VĚRRŮ'CĀ (pl. *VĚRRŮ'ċæ*), a wart-like elevation of any kind, in-

cluding the sessile apothecia of some lichens. (Obs.) See WART.

VĚRRŮ'CĀFŌRM, wart-like.

VĚR'RUCŌSE, wart-like, or bearing wart-like prominences. Compare PAPILLATE and PUSTULATE.

VĚRRŮ'CŪLŌSE, slightly verrucose.

VĚR'SĀTĪLE, attached at one point, so as to swing freely to and fro, as the anthers of the lily.

VĚR'SÍCŌLOR, changeable in color, or appearing of different colors from different points of view.

VĚR'SIFŌRM, varied or varying in form.

VĚR'TĚX, an upper extremity; summit. Compare APEX.

VĚR'TĪCAL, (1) perpendicular to the horizon; (2) perpendicular to the surface or axis of support; (3) in the direction of the axis of growth; lengthwise.

VĚR'TĪCAL ĀN'THĚR, see INNATE.

VĚR'TĪCAL ĆHŌ'RĪSĪS, see TRANSVERSE CHORISIS.

VĚR'TĪCAL LĚAVĚS, applied especially to erect leaves like those of Iris, which have no distinct or obvious dorsal and ventral surfaces.

VĚR'TĪCALLŮ CŌMPRĚSSĚD', see DEPRESSED.

VĚR'TĪCAL SŮS'TĚM, see FIBROVASCULAR SYSTEM. Compare HORIZONTAL SYSTEM.

VĚR'TĪĆĚL, see VERTICIL.

VĚR'TĪĆĪL, see WHORL.

VĚRTĪĆĪLLĀS'TĚR, a pair of dense cymes in the axils of opposite leaves, forming an

apparent verticil, as in most Labiatæ.

VĚRTIČ'ILLĀTE, arranged in a ring or whorl; whorled.

VĚS'ICLE, a small bladder-like body or cavity.

VĚSÍC'ŪLAR, bearing or containing numerous vesicles; vesiculate; vesiculose.

VĚSÍC'ŪLĀTE, see VESICULAR.

VĚSÍC'ŪLŌSE, see VESICULAR.

VĚS'PĚRTINE, pertaining to or taking place early in the evening: applied especially to flowers which expand at that time of the day.

VĚS'SĚL, a cell, or row of confluent cells, having markings produced by thickenings in the cell-wall, forming dots, bands, rings, spirals, etc. Formerly only vessels having spiral markings were called vessels, in distinction especially from those having pitted walls, which were known as ducts, but the term Duct is now comparatively little used. The terms Duct and Vessel are partially equivalent, Duct being perhaps more often used for continuous vessels composed of more than one cell. See TRACHEA and TRACHEID.

VĚS'TIBŮLE, a term applied by Duchartre to an opening or chamber above the stomata in certain plants, as *Cycas revoluta*, formed by the depression of the guard-cells and the outward growth of the adjoining epidermal cells. Compare ANTECHAMBER and STOMATIC CHAMBER.

VĚS'TIGE, an abortive part which in some ancestral form was fully developed.

VĚT'ĚRAN (Forestry), a very old tree.

VĚX'ĪL, see VEXILLUM.

VĚX'ILLĀRŮ ĀSTIVĀ'TION, having a vexillum or other similar large petal which enfolds all the others in the bud. More properly "Cochlear Āstivation," except in Papilionaceæ.

VĚX'ILLĀTE, having a vexillum.

VĚXĪL'LŪM, the large upper petal of a papilionaceous flower; standard; banner.

VĪ'ABLE, capable of growing or manifesting life—said mainly of seeds.

VĪBRĀTĪLE, having a vibratory or back-and-forth motion.

VĪBRŮGĚN, a term applied by Penhallow to certain longitudinal bands of active tissue in the cortex of tendrils to which their movements of circumnutation are supposed to be chiefly due.

VĪCĀ'RĪŮŮS, performing the function, or occupying the place, of some other organ.

VĪL'LĪ (sing. *Vil'lūs*), velutinous hairs.

VĪL'LĪFŌRM, resembling villi.

VĪLLŌSE', covered with rather thin, soft, straightish hairs, somewhat finer, softer, and thicker than in Pilose; villous. Sometimes used for Velutinous, which see.

VĪL'LOŮS, see VILLOSE.

VĪL'LŮS, sing., see VILLI.

VĪMĚN, a long, flexible shoot or branch, like the willow branches used for wickerwork. (Obs.)

VĪM'ĪNAL, pertaining to twigs.

VĪMĪN'EOŮS, producing or resembling long, flexible twigs or branches.

VĪNE, any plant, or its stem, which is incapable of self-

support, and either grows upon the ground or supports itself upon other objects.

VIRÉS'CENTE, having petals abnormally green in color, like leaves.

VIRÉS'CENT, greenish, or becoming green.

VIR'GATE, wand-like; long, straight, and slender.

VIR'GULĀTE, diminutive of Virgate; shaped like a little twig or rod.

VIRIDÉS'CENT, greenish; virescent.

VIRŌSE', having a nauseous odor.

VIS'CID, sticky; adhesive; viscous.

VIS'CID DĪSK, the retinaculum of orchids.

VITĒL'LŪS, the embryo-sac as it appears in the seed.

VITĪC'ŌLOŪS, growing upon the grape-vine, as certain parasitic fungi.

VITĪC'ŪLĀ (pl. *Vitic'ulæ*), a trailing stem, as that of the cucumber; a little vine; a tendril; a stolon; a sarment. (Rare.)

VITĪC'ŪLOSE, bearing or resembling viticulæ.

VIT'KĒOŪS, transparent like glass. Compare **HYALINE**.

VIT'TĀ (pl. *Vit'tæ*), one of the tubular oil-receptacles in the fruit of Umbelliferæ; oil-tube. They appear externally as ridges.

VIT'TĀTE, bearing vittæ, or longitudinal stripes or ridges somewhat resembling the vittæ on the fruit of Umbelliferæ.

VIVĀ'GIOŪS, (1) living over winter, or from year to year; perennial; (2) full of life; difficult to kill.

VIVĪP'AROŪS, producing bulbs or seeds which germinate while still attached to the parent-plant. The term is not applied to the production of ordinary offsets or suckers.

VŌL'ŪBILE, see **TWINING**.

VŌL'ŪBLE, see **TWINING**.

VŌLŪNTEER'. A volunteer crop or plant is one which has come from self-sown seed within the boundaries of the field or farm and has grown without care or cultivation. The term implies that the growth is of some value.

VŌLŪTE', rolled up in any direction.

VŌL'VĀ, a covering, membranous, gelatinous, or otherwise, which extends from the margin of the cap to the base of the stipe in mushrooms, and which is ruptured by growth in those species which have an elongated stem; wrapper; velum universale.

WĀLL'ING Ō'VĒR, a term employed in forestry for the growth of a callus over a cut or injured surface.

WĀRT, a sessile gland, hard excrescence, or other protuberance resembling a wart upon animals. Compare **PUSTULE**.

WĀRT'Ÿ, applied by gardeners to a head of cauliflower when it becomes loose and covered with small prominences preparatory to throwing up the seed-stalks; frothy.

WĀTĒR-CŌRE, an abnormal condition of a part or the whole of the flesh of the apple, occasionally seen, in which the cells are unusually firm, do not lose their fluid contents upon ripening, and appear as though water-soaked.

WA'TĒR-GLĀND, a group of cells beneath the water-pores of certain plants, as in *Saxifraga*, which serve to facilitate or regulate the transpiration of water. The cells composing the gland are rich in protoplasm but destitute of chlorophyll.

WA'TĒR-PŌRE, an aperture in the epidermis directly over the extremity of a vein in the leaves of certain plants, as *Caladium esculentum*. It is a stoma whose guard-cells have lost their function and become immovable, and its probable function is to facilitate the transpiration of water.

WA'TĒR-SPROUT (Hort.), an unusually long shoot or limb of one year's growth, especially upon the body of a tree where older limbs have been removed.

WA'TĒR-STŌMĀ, see WATER-PORE.

WA'TĒR-STŌR'ING TĪS'SŪE, a form of water-tissue adapted for the storage of water for the supply of surrounding cells in times of drought, as in many plants of dry climates.

WĀVED, said of a margin when strongly undulate, but less strongly than Ruffled.

WĀV'Y, alternately concave and convex upon the surface or margin. See SINUATE, REPAND, UNDULATE, and CRISP.

WEĀTH'ĒR-PROUD, a gardener's term, employed in England, denoting that plants are larger or more thrifty than common for the season of the year.

WĒDGE'-SHĀPED, see CUNEATE.

WEED, a plant which grows where it is not wanted and which becomes troublesome. Applied chiefly to wild plants.

WEEP'ING, (1) having the smaller branches so lax that many of them hang directly downward, as those of several species of willow; (2) the copious exudation of sap from water-pores or from an injured surface, in the latter case more often called Bleeding.

WĒFT, a collection of interlacing hyphæ or other filaments.

WĒLT, a broad, raised stripe or ridge upon the surface of a fruit, as is occasionally seen in the orange and lemon.

WĒLT'ĒD, flaccid; drooping. (Obs.)

WHEEL'-SHĀPED, see ROTATE.

WHĪP'-SHĀPED, see FLAGELLI-FORM.

WHĪRL, see WHORL.

WHŌRL, a set of organs arranged in a circle around a stem or axis; verticil.

WHŌRLED, see VERTICILLATE.

WĪLD, (1) growing spontaneously without care or cultivation, either native or introduced; feral; (2) in a natural condition, not improved by cultivation or artificial selection. When used without qualification Wild means strictly native.

WĪLD'ĒRĪNG, see WILDING.

WĪLD'ING, (1) a cultivated plant that has "run wild" or reproduced itself spontaneously; wildering; (2) any wild plant; wildling. In both senses applied to fruit-trees. A fruit-tree, however, which has sprung up spontaneously within cultivated ground is not usually called a Wilding, but merely a "chance seedling."

WĪNG, (1) any thin or membranous appendage, especially a flattened appendage to a seed

which enables it to be more readily conveyed by the wind, as in the ash and maple; (2) one of the side petals of a papilionaceous flower, as of the pea or bean; ala.

WINGED, bearing a membranous expansion or wing; alate.

WINTER ANNUAL, a plant which germinates in the fall, lives over winter, and produces seed and dies the following season.

WINTER SPORE, see **RESTING SPORE**.

WITHĒRING, see **MARCESCENT**.

WOOD, all that portion of the stem in exogens within the bark or cambium layer, except the pith and medullary rays. It consists of the xylem portions of the united fibrovascular bundles. The term is also extended in popular use to all parts of similar texture in plants. See **XYLEM**.

WOOD-FIBRE, an elongated wood-cell with thick wall and narrow cavity. See **BAST-FIBRE**.

WOOL, long, dense, curled hairs.

WOOLLY, see **LANATE**.

WORMIN'S HYPHA, a coiled hypha in various Ascomycetes, believed to be morphologically an archicarp, but in which fertilization is either wanting or unknown.

WRAPPÉR, see **VOLVA**.

XANTHIC FLOWERS, those which have yellow for the typical color, including all colors except those containing blue. Compare **CYANIC FLOWERS**.

XANTHOPHYLL, see **PHYLLOXANTHIN**.

XENOGAMY, see **CROSS-FERTILIZATION**.

XEROPHILOUS, growing in dry climates. (Rare.)

XIPHOID (rare in botany), see **ENSIFORM**.

XIPHOPHYLOUS, having ensiform leaves. (Rare.)

XYLEM, the portion of a differentiated fibrovascular bundle which contains the larger continuous air-containing vessels, and the walls of whose cells are often thickened and lignified; wood; hadrome. The xylem is separated from another part called Phloem by the cambium, if there is any, and it usually occupies the side of the bundle toward the centre of the stem. Compare **PHLOEM**.

XYLEM-PLATE, see **XYLEM-RAY**.

XYLEM-RAY, a radial plate of xylem between two medullary rays; xylem-plate. Compare **PHLOEM-RAY**.

XYLÔCARPOUS, having hard, woody fruit. (Obs.)

XYLÔDIUM (obs.), see **ACHENIUM**.

XYLÔMA, a sclerotoid body which produces spores internally: found in *Polystigma* and some other Ascomycetes.

ZOADŪLA (pl. *Zoadŭlæ*) (obs.), see **ZOOSPORE**.

ZODIOPHILOUS, pollinated by the agency of animals, including, for example, *Protozophilous* and *Entomophilous*. It is the converse of *Anthophilous*, said of the insects or other animals which convey the pollen. Compare **ANEMOPHILOUS** and **HYDROPHILOUS**.

ZŌN'ĀTE, marked with circular, colored bands; zoned. Applied to the tetraspores of Florideæ when in a single row, in distinction from a cruciate or tripartite arrangement.

ZŌNE, a circular band or stripe.

ZŌNED, see ZONATE.

ZŌ'ŌGĀMĒTE, see PLANO-GAMETE.

ZŌŌGLĒ'Ā (pl. ZŌŏglŏ'æ), a gelatinous colony of bacteria.

ZŌŌGŌNĪD'ĪŪM (pl. ZŌŏgŏnĭd'ĭā), a motile gonidium, usually called zoospore. Restricted by some to a zoospore which grows into a plant directly, without conjugation. See ZOŌSPORE.

ZŌ'ŌSPĒRM, see ZOŌSPORE.

ZŌŌSPŌRĀN'ĠĪŪM, a sporangium enclosing zoospores.

ZŌ'ŌSPŌRE, a spore or gonidium having the power of independent movement, usually by means of one or more vibratile cilia; swarm-spore. See ZOŌGONIDIUM.

ZŌŌTHĒ'Ā (obs.), see ZOŌSPORANGIUM.

ZŸGŌGŌ'NĪŪM, the female conjugating cell in Conjugatæ, together with the accessory cells, if any. Compare ASCOGONIUM and CARPOGONIUM.

ZŸGŌMŌR'PHĪC, applied to flowers which are monosymmetrical, as those of the pea and bean. Compare ACTINOMORPHIC. Sachs extends the term to such irregular flowers as are capable of bisection into similar halves in two directions, but in which the halves produced by the two bisections are of different shape, as in *Dicentra*.

ZŸGŌMŌR'PHŌŪS, see ZYGOMORPHIC.

ZŸGŌ'ŚĪS, see CONJUGATION.

ZŸG'ŌSPĒRM, see ZYGOSPORE.

ZŸG'ŌSPĒRĒ, the female conjugating cell in such zygomphytes as have a distinction in sex. Compare OŌSPHERE.

ZŸG'ŌSPŌRE, a spore resulting from conjugation.

ZŸ'GŌTE, a general term for the product of the union of two gametes.

ZŸGŌZŌ'ŌSPŌRE, a motile zygospore.

ZŸM'ĀSE, a ferment secreted by certain bacteria; enzyme.

ZŸMŌ'ŚĪS, (1) fermentation of any kind; (2) an infectious or contagious disease.

ZŸMŌT'ĪC, (1) pertaining to fermentation, or caused by organisms capable of producing fermentation; (2) pertaining to an infectious or contagious disease.

THE AMERICAN SCIENCE SERIES.

THE principal objects of the series are to supply the lack—in some subjects very great—of authoritative books whose principles are, so far as practicable, illustrated by familiar American facts, and also to supply the other lack that the advance of Science perennially creates, of text-books which at least do not contradict the latest generalizations. The scheme systematically outlines the field of Science, as the term is usually employed with reference to general education, and includes ADVANCED COURSES for maturer college students, BRIEFER COURSES for beginners in school or college, and ELEMENTARY COURSES for the youngest classes. The Briefer Courses are not mere abridgments of the larger works, but, with perhaps a single exception, are much less technical in style and more elementary in method. While somewhat narrower in range of topics, they give equal emphasis to controlling principles. The following books in this series are already published:

THE HUMAN BODY. By H. NEWELL MARTIN, Professor in the Johns Hopkins University.

Advanced Course. 8vo. 655 pp.

Designed to impart the kind and amount of knowledge every educated person should possess of the structure and activities and the conditions of healthy working of the human body. While intelligible to the general reader, it is accurate and sufficiently minute in details to meet the requirements of students who are not making human anatomy and physiology subjects of special advanced study. *The regular editions of the book contain an appendix on Reproduction and Development. Copies without this will be sent when specially ordered.*

From the CHICAGO TRIBUNE: "The reader who follows him through to the end of the book will be better informed on the subject of modern physiology in its general features than most of the medical practitioners who rest on the knowledge gained in comparatively antiquated text-books, and will, if possessed of average good judgment and powers of discrimination, not be in any way confused by statements of dubious questions or conflicting views."

THE HUMAN BODY.—Continued.**Briefer Course.** 12mo. 364 pp.

Aims to make the study of this branch of Natural Science a source of discipline to the observing and reasoning faculties, and not merely to present a set of facts, useful to know, which the pupil is to learn by heart, like the multiplication-table. With this in view, the author attempts to exhibit, so far as is practicable in an elementary treatise, the ascertained facts of Physiology as illustrations of, or deductions from, the two cardinal principles by which it, as a department of modern science, is controlled,—namely, the doctrine of the “Conservation of Energy” and that of the “Physiological Division of Labor.” To the same end he also gives simple, practical directions to assist the teacher in demonstrating to the class the fundamental facts of the science. *The book includes a chapter on the action upon the body of stimulants and narcotics.*

From HENRY SEWALL, *Professor of Physiology, University of Michigan*: “The number of poor books meant to serve the purpose of text-books of physiology for schools is so great that it is well to define clearly the needs of such a work: 1. That it shall contain accurate statements of fact. 2. That its facts shall not be too numerous, but chosen so that the important truths are recognized in their true relations. 3. That the language shall be so lucid as to give no excuse for misunderstanding. 4. That the value of the study as a discipline to the reasoning faculties shall be continually kept in view. I know of no elementary text-book which is the superior, if the equal, of Prof. Martin’s, as judged by these conditions.”

Elementary Course. 12mo. 261 pp.

A very earnest attempt to present the subject so that children may easily understand it, and, whenever possible, to start with familiar facts and gradually to lead up to less obvious ones. *The action on the body of stimulants and narcotics is fully treated.*

From W. S. PERRY, *Superintendent of Schools, Ann Arbor, Mich.*: “I find in it the same accuracy of statement and scholarly strength that characterize both the larger editions. The large relative space given to hygiene is fully in accord with the latest educational opinion and practice; while the amount of anatomy and physiology comprised in the compact treatment of these divisions is quite enough for the most practical knowledge of the subject. The handling of alcohol and narcotics is, in my opinion, especially good. The most admirable feature of the book is its fine adaptation to the capacity of younger pupils. The diction is simple and pure, the style clear and direct, and the manner of presentation bright and attractive.”

ASTRONOMY. By SIMON NEWCOMB, Professor in the Johns Hopkins University, and EDWARD S. HOLDEN, Director of the Lick Observatory.

Advanced Course. 8vo. 512 pp.

To facilitate its use by students of different grades, the subject-matter is divided into two classes, distinguished by the size of the type. The portions in large type form a complete course for the use of those who desire only such a general knowledge of the subject as can be acquired without the application of advanced mathematics. The portions in small type comprise additions for the use of those students who either desire a more detailed and precise knowledge of the subject, or who intend to make astronomy a special study.

From C. A. YOUNG, *Professor in Princeton College*: "I conclude that it is decidedly superior to anything else in the market on the same subject and designed for the same purpose."

Briefer Course. 12mo. 352 pp.

Aims to furnish a tolerably complete outline of the astronomy of to-day, in as elementary a shape as will yield satisfactory returns for the learner's time and labor. It has been abridged from the larger work, not by compressing the same matter into less space, but by omitting the details of practical astronomy, thus giving to the descriptive portions a greater relative prominence.

From THE CRITIC: "The book is in refreshing contrast to the productions of the professional schoolbook-makers, who, having only a superficial knowledge of the matter in hand, gather their material, without sense or discrimination, from all sorts of authorities, and present as the result an *indigesta moles*, a mass of crudities, not un-mixed with errors. The student of this book may feel secure as to the correctness of whatever he finds in it. Facts appear as facts, and theories and speculations stand for what they are, and are worth."

From W. B. GRAVES, *Master Scientific Department of Phillips Academy*: "I have used the Briefer Course of Astronomy during the past year. It is up to the times, the points are put in a way to interest the student, and the size of the book makes it easy to go over the subject in the time allotted by our schedule."

From HENRY LEFAVOUR, *late Teacher of Astronomy, Williston Seminary*: "The impression which I formed upon first examination, that it was in very many respects the best elementary text-book on the subject, has been confirmed by my experience with it in the classroom."

ZOOLOGY. By A. S. PACKARD, Professor in Brown University.

Advanced Course. 8vo. 719 pp.

Designed to be used either in the recitation-room or in the laboratory. It will serve as a guide to the student who, with a desire to get at first-hand a general knowledge of the structure of leading types of life, examines living animals, watches their movements and habits, and finally dissects them. He is presented first with the facts, and led to a thorough knowledge of a few typical forms, then taught to compare these with others, and finally led to the principles or inductions growing out of the facts.

From A. E. VERRILL, *Professor of Zoology in Yale College*: "The general treatment of the subject is good, and the descriptions of structure and the definitions of groups are, for the most part, clear, concise, and not so much overburdened by technical terms as in several other manuals of structural zoology now in use."

Briefer Course. 12mo. 334 pp.

The distinctive characteristic of this book is its use of the *object method*. The author would have the pupils first examine and roughly dissect a fish, in order to attain some notion of vertebrate structure as a basis of comparison. Beginning then with the lowest forms, he leads the pupil through the whole animal kingdom until man is reached. As each of its great divisions comes under observation, he gives detailed instructions for dissecting some one animal as a type of the class, and bases the study of other forms on the knowledge thus obtained.

From HERBERT OSBORN, *Professor of Zoology, Iowa Agricultural College*: "I can gladly recommend it to any one desiring a work of such character. While I strongly insist that students should study animals from the animals themselves,—a point strongly urged by Prof. Packard in his preface,—I also recognize the necessity of a reliable text-book as a guide. As such a guide, and covering the ground it does, I know of nothing better than Packard's."

First Lessons in Zoology. 12mo. 290 pp.

In method this book differs considerably from those mentioned above. Since it is meant for young beginners, it describes but few types, mostly those of the higher orders, and discusses their relations to one another and to their surroundings. The aim, however, is the same with that of the others; namely, to make clear the general principles of the science, rather than to fill the pupil's mind with a mass of what may appear to him unrelated facts.

PSYCHOLOGY—Advanced Course. BY WILLIAM JAMES, Professor in Harvard University. 2 vols. 8vo., 689, 704 pp.

From Prof. E. H. GRIFFIN, *John Hopkins University*: "An important contribution to psychological science, discussing its present aspects and problems with admirable breadth, insight, and independence."

From Prof. JOHN DEWEY, *University of Michigan*: "A remarkable union of wide learning, originality of treatment, and, above all, of never-failing suggestions. To me the best treatment of the whole matter of advanced psychology in existence. It does more to put psychology in scientific position both as to the statement of established results and a stimulating to further problems and their treatment, than any other book of which I know."

From Hon. W. T. HARRIS, *National Bureau of Education*: "I have never seen before a work that brings together so fully all of the labors, experimental and analytic, of the school of physiological psychologists."

BOTANY. By CHARLES E. BESSEY, Professor in the University of Nebraska.

Advanced Course. 8vo. 611 pp.

Aims to lead the student to obtain at first-hand his knowledge of the anatomy and physiology of plants. Accordingly, the presentation of matter is such as to fit the book for constant use in the laboratory, the text supplying the outline sketch which the student is to fill in by the aid of scalpel and microscope.

From J. C. Arthur, Editor of *The Botanical Gazette*: "The first botanical text-book issued in America which treats the most important departments of the science with anything like due consideration. This is especially true in reference to the physiology and histology of plants, and also to special morphology. Structural Botany and classification have up to the present time monopolized the field, greatly retarding the diffusion of a more complete knowledge of the science."

Essentials of Botany. 12mo. 292 pp.

A guide to beginners. Its principles are, that the true aim of botanical study is not so much to seek the family and proper names of specimens as to ascertain the laws of plant structure and plant life; that this can be done only by examining and dissecting the plants themselves; and that it is best to confine the attention to a few leading types, and to take up first the simpler and more easily understood forms, and afterwards those whose structure and functions are more complex.

From J. T. ROTHROCK, *Professor in the University of Pennsylvania*: "There is nothing superficial in it, nothing needless introduced, nothing essential left out. The language is lucid; and, as the crowning merit of the book, the author has introduced throughout the volume 'Practical Studies,' which direct the student in his effort to see for himself all that the text-book teaches."

CHEMISTRY. By IRA REMSEN, Professor in the Johns Hopkins University.

Advanced Course. 8vo.

The general plan of this work will be the same with that of the Briefer Course, already published. But the part in which the members of the different families are treated will be considerably enlarged. Some attention will be given to the lines of investigation regarding chemical affinity, dissociation, speed of chemical action, mass action, chemical equilibrium, thermochemistry, etc. The periodic law, and the numerous relations which have been traced between the chemical and physical properties of the elements and their positions in the periodic system will be specially emphasized. Reference will also be made to the subject of the chemical constitution of compounds, and the methods used in determining constitution.

Introduction to the Study of Chemistry. 12mo. 389 pp.

The one comprehensive truth which the author aims to make clear to the student is the essential nature of chemical action. With this in view, he devotes the first 208 pages of the book to a carefully selected and arranged series of simple experiments, in which are gradually developed the main principles of the subject. His method is purely inductive; and, wherever experience has shown it to be practicable, the truths are drawn out by pointed questions, rather than fully stated. Next, when the student is in a position to appreciate it, comes a simple account of the theory of the science. The last 150 pages of the book are given to a survey, fully illustrated by experiments, of the leading families of *inorganic* compounds.

From ARTHUR W. WRIGHT, *Professor in Yale College*.—The student is not merely made acquainted with the phenomena of chemistry, but is constantly led to reason upon them, to draw conclusions from them, and to study their significance with reference to the processes of chemical action—a course which makes the book in a high degree disciplinary as well as instructive.

From THOS. C. VAN NUYS, *Professor of Chemistry in the Indiana University*.—It seems to me that Remsen's "Introduction to the Study of Chemistry" meets every requirement as a text or class book.

From C. LES MEES, *Professor of Chemistry in the Ohio University*.—I unhesitatingly recommend it as the best work as yet published for the use of beginners in the study. Having used it, I feel justified in saying this much.

CHEMISTRY—Continued.

Elements of Chemistry. 12mo. 272 pp.

Utilizes the facts of every-day experience to show what chemistry is and how things are studied chemically. The language is untechnical, and the subject is fully illustrated by simple experiments, in which the pupil is led by questions to make his own inferences. The author has written under the belief that "a rational course in chemistry, whether for younger or older pupils, is something more than a lot of statements of facts of more or less importance; a lot of experiments of more or less beauty; or a lot of rules devised for the purpose of enabling the pupil to tell what things are made of. If the course does not to some extent help the pupil to think as well as to see it does not deserve to be called rational."

CHASE PALMER, *Professor in the State Normal School, Salem, Mass.*:—It is the best introduction to chemistry that I know, and I intend to put it into the hands of my pupils next Fall.

A. D. GRAY, *Instructor in Springfield (Mass.) High School*:—Neat, attractive, clear, and accurate, it leaves little to be desired or sought for by one who would find the best book for an elementary course in our High Schools and Academies.

GENERAL BIOLOGY. By WILLIAM T. SEDGWICK, Professor in the Mass. Institute of Technology, and EDMUND B. WILSON, Professor in Bryn Mawr College. *Part I.* 8vo. 193 pp.

This work is intended for college and university students as an introduction to the theoretical and practical study of biology. It is not zoology, botany, or physiology, and is intended not as a substitute, but as a foundation, for these more special studies. In accordance with the present obvious tendency of the best elementary biological teaching, it discusses broadly some of the leading principles of the science on the substantial basis of a thorough examination of a limited number of typical forms, including both plants and animals. Part First, now published, is a general introduction to the subject illustrated by the study of a few types. Part Second will contain a detailed survey of various plants and animals.

W. G. FARLOW, *Professor in Harvard University, Cambridge, Mass.*:—An introduction is always difficult to write, and I know no work in which the general relations of plants and animals and the cell-structure have been so well stated in a condensed form.

POLITICAL ECONOMY. By FRANCIS A. WALKER, President of the Massachusetts Institute of Technology.

Advanced Course. 8vo. 537 pp.

The peculiar merit of this book is its *reality*. The reader is brought to see the application of the laws of political economy to real facts. He learns the extent to which those laws hold good, and the manner in which they are applied. The subject is divided, as usual, into the three great branches of production, exchange, and distribution. An interesting and suggestive "book" on consumption is added, which serves to bring in conveniently the principles of population. The last part of the volume is given to the consideration of various practical applications of economic principles.

From RICHMOND MAYO SMITH, *Professor in Columbia College, N. Y.*:—In my opinion it is the best text-book of political economy that we as yet possess.

From WOODROW WILSON, *Professor in Princeton University, N. J.*:—It serves better than any other book I know of as an introduction to the most modern point of view as to economical questions.

Briefer Course. 12mo. 415 pp.

The demand for a briefer manual by the same author for the use of schools in which only a short time can be given to the subject has led to the publication of the present volume. The work of abridgment has been effected mainly through excision, although some structural changes have been made, notably in the parts relating to distribution and consumption.

From ALEXANDER JOHNSTON, *late Professor in Princeton University, N. J.*:—Using the "Briefer Course" as a text-book, suited to any capacity, I am able at the same time to recommend the "Advanced Course" to those who are better able to use it as a book of reference, or more inclined to carry their work further.

Elementary Course. 12mo. 323 pp.

What has been attempted is a clear arrangement of topics; a simple, direct, and forcible presentation of the questions raised; the avoidance, as far as possible, of certain metaphysical distinctions which the author has found perplexing; a frequent repetition of cardinal doctrines, and especially a liberal use of concrete illustrations, drawn from facts of common experience or observation.

HENRY HOLT & CO., PUBLISHERS, N. Y.

PLEASE DO NOT REMOVE
CARDS OR SLIPS FROM THIS POCKET

UNIVERSITY OF TORONTO LIBRARY

BioMed