Flora of South Australia

5th Edition | Edited by Jürgen Kellermann

GLOSSARY OF BOTANICAL TERMS[1]

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The illustrations are, as far as possible, based on species in this *Flora*. In many cases the drawing is of a form which is not the commonest in the species used, so that the species cited should not be expected always to display the character as illustrated.

The glossary is reproduced from edition 4 of the *Flora of South Australia* (1986), with amendments. Other useful glossaries are listed in the reference list, below. The line drawings were prepared by G.R.M. Dashorst and first published in *Flora of South Australia*, 1: 45–61, Figs. 1–16 (1986).

abaxial, the parts of a flower or leaf furthest from the axis of the branch or stem on which it grows.

abortive, imperfectly developed.

accrescent, growing larger after flowering, as the sepals.

accumbent, of the radicle (in Brassicaceae seeds) when it lies against the appressed margins of the cotyledons.

achene, a dry indehiscent 1-seeded fruit. Figs 16E & F.

acicular, needle-shaped.

acropetal, produced in succession with the youngest nearest the apex of the supporting organ.

actinomorphic, a flower in which the segments of the perianth, or the parts of either of the two whorls of the perianth (calyx and corolla) are alike in size and shape (although in the latter case the two whorls need not have the same number of parts), and are arranged regularly round the axis. Such flowers are buttercup, poppy, *Boronia, Geranium,* Brassicaceae, etc. Figs 14A & B. See **regular**.

acuminate, tapering gradually into a point. Fig. 9B.

acute, sharp, gradually pointed. Fig. 9A.

adaxial, the parts of a flower nearest to the axis of the branch.

adnate. See **connate**.

adventitious, any organ produced in an abnormal position. For example, adventitious roots arise from stems and not as branches of other roots.

adventive, introduced accidentally or deliberately by humans to a specifies geographical area, as are most weeds.

albumen, material stored within the seeds of many plants for the nourishment of the embryo; it lies between the seed-coats and the embryo-sac (perisperm), or within the embryo-sac (endosperm).

[1] This work can be cited as: Jessop, J.P., Toelken, H.R. & Kellermann, J. (2011). Glossary of botanical terms (version 1). In: Kellermann, J. (ed.), *Flora of South Australia* (ed. 5). 24 pp. (State Herbarium of South Australia: Adelaide). www.flora.sa.gov.au/ed5

[2] State Herbarium of South Australia, DENR Science Resource Centre, PO Box 2732, Kent Town, SA 5071, Australia.

 ISBN 978-1-922027-16-0 (PDF).
Publication date: 26 Oct. 2011.

Government of South Australia
Department of Environment and Natural Resources

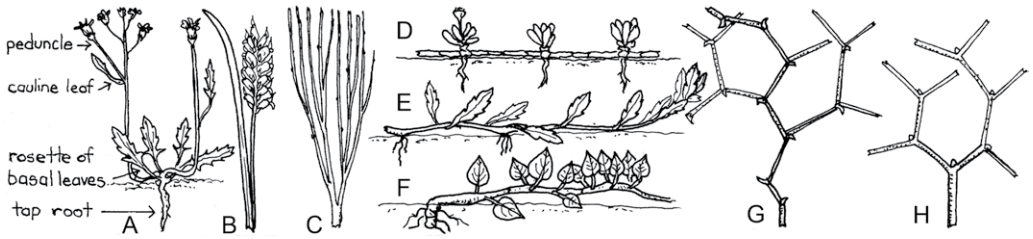

Fig. 1. A, plant with ascending branches (*Goodenia fascicularis*); **B**, erect habit (*Microtis unifolia*); **C**, virgate habit (*Choretrum chrysanthum*); **D**, prostrate habit (*Disphyma crassifolium*); **E**, decumbent habit (*Osteospermumfruticosum*); **F**, procumbent habit (*Vinca major*); **G**, divaricate branching (*Corynotheca licrota*); **H**, dichotomous (strictly pseudodichotomous) branching (*Gleichenia microphylla*).

alternate, (1) leaves or flowers inserted individually at different heights along the branches; (2) intervening between; as stamens which are between rather that opposite the petals in most flowering plants.

amphitropous, when the ovule is laterally attached to the funicle, so that the chalaza and micropyle are at opposite ends of the ovule.

amplexicaul, with the base (of a leaf) clasping the stem.

anadromic, with the first veins or pinnule of a pinna on the side towards the apex.

anastomosing, applied to veins of a leaf joined by cross veins to form a network.

anatropous (**inverted**), when an ovule is bent back along its funicle, so that the micropyle stands at the apparent base of the ovule and the chalaza at the opposite end (the apparent summit). Owing to the presence of the rhaphe the hilum of the seed does not coincide with the chalaza, but lies close to the micropyle. This is the commonest form of ovule.

androecium, a collective name for the stamens.

androgynous, when male and female flowers are mixed in a spike or head.

androgynophore, a column composed of an ovary on a long stalk to which the stamens are attached. The staminal filaments form a connate tube and the stamens continue past the ovary and the free parts hold the anthers (Passifloraceae).

andromonoecious, male and bisexual flowers developing on different individuals.

angiosperms, plants having seeds enclosed in a seed vessel.

annual, a plant flowering and dying in one year.

annular, ring-shaped.

anterior, see **abaxial**.

anther, see **stamen**.

antheridium, the male reproductive organ, as occurs in the gametophytes of ferns.

anthesis, the time of flowering.

antrorse, turned towards the tip of the supporting organ.

apiculate, ending abruptly in a short point; nearly the same as mucronate.

apocarpous, a pistil or gynoecium consisting of one carpel, or of several carpels all free and distinct (Ranunculaceae, Dilleniaceae). Fig. 14A.

apomictic, reproducing without the fusion of sexual gametes.

appressed, pressed closely against another organ, as leaves against a stem.

approximate, growing near together.

arborescent, tree-like.

archegonium, the female reproductive organ, as occurs in the gametophytes of ferns.

arcuate, curved.

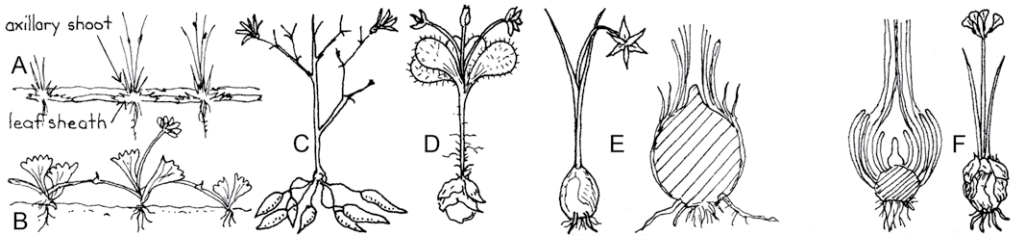

Fig. 2. A, underground rhizome (*Schoenus nitens*); **B**, stolon (*Viola hederacea*); **C**, root tubers (*Thysanotus exiliflorus*); **D**, stem tuber (*Drosera whittakeri*); **E**, corm (*Hypoxis glabella*); F, bulb (*Calostemma purpureum*).

aril, an expansion of the funicle into a membranous or fleshy appendage, sometimes covering a considerable part of the seed.

aristate, with a stiff awn or seta. Fig. 9C.

article, part of an organ which separates easily from the rest of the organ at a point called the articulation or joint.

articulate, jointed.

ascending, spreading horizontally and then becoming erect. Fig. 1A.

asperulate, minutely rough.

attenuate, narrowing gradually. Fig. 8C.

auricle, ear-shaped lobe at the base of a leaf or other organ. Fig. 8B.

auxotelic, an inflorescence axes not ending in a flower, which continue growth beyond the flowering region, sometimes causing the peduncle and rachis of the inflorescence to become somewhat elongated.

awn, a fine bristle terminating on organ or inserted on its back, used especially of the glumes and lemmas of the Gramineae.

axil, the angle formed by the leaf and the branch.

axile, placentas are axile when they and the ovules are attached to the inner angle (inner suture) of the carpels of a compound ovary. Fig. 15D.

axillary, arising from the axil of a leaf or a bract. Fig. 3A.

axis (plural **axes**), line passing through the centre of a body: the stem, the rhachis and branches of a panicle, the rhachilla of grasses, are all axes.

barb, one of the lateral or radial hairs of a plumose bristle.

barbellate, furnished with short, sometimes microscopic barbs, too small for the organ bearing them to be called plumose.

basifixed, an anther attached by its base to the filament; any organ attached by its base. Fig. 15G.

basipetal, produced in succession with the youngest nearest the base of the supporting organ.

beak, a pointed projection.

berry, a juicy fruit with the seeds immersed in the pulp. Fig. 16H.

biennial, a plant which flowers and dies in the second year.

bifid (**2-fid**), cut in two for about half its length.

bifoliolate (**2-foliolate**), a compound leaf of 2 leaflets. Fig. 5G.

bipinnate, applied to those leaves in which there are primary pinnate divisions (pinnae) which are themselves pinnate. Fig. 5C.

bipinnatifid, a leaf whose primary lobes are again pinnatifid.

bipinnatisect, twice pinnatisect.

bisexual, a flower with the reproductive organs of both sexes.

biternate, twice ternate. Fig. 5H.

bract, a small leaf at the base of the peduncles or pedicels, and differing from the other leaves in size or shape. Bracts may also occur on peduncles, scapes, or flowering branches without any pedicels in their axils.

bracteate, furnished with bracts.

bracteole, a small bract on the pedicel or even on the calyx. Bracteoles are usually two, and often placed opposite each other.

bristle, (1) a straight stiff hair, whether smooth or scabrous with minute teeth; (2) in the grasses, the upper part of an awn, when the awn is bent and has a lower stouter, sometimes more hairy and usually twisted part, called the 'column'.

bulb, a short thick and fleshy rootstock in which the bud or buds are covered by fleshy leaf-scales. Fig. 2F.

bulbil, a small bulb, especially when a plant has several of them. Sometimes loosely used for similar small corms.

bullate, blistered.

caducous, falling off very early.

caespitose, tufted as, for example, in the tufted growth-form of some grasses.

callus, (1) a hard protuberance on some petals such as the standard of *Swainsona* and the labellum of some orchids, (2) a hardened decurrent extension of the lemma along the rhachilla in some grasses, such as *Stipa*: this callus and the adnate article of the rhachilla fall off with the fruiting lemma in the form of a short obconical stipes.

calyptra, a deciduous cap formed by fusion of perianth parts, covering stamens and carpels (e.g. *Eschscholtzia*). In *Eucalyptus* this is called **operculum**.

calyx (plural **calyces**), outer envelope of the flower, consisting of free or united sepals.

campanulate, bell-shaped. Fig. 12A.

campylotropous, when an ovule is curved so that the micropyle and chalaza come near each other.

canaliculate, with longitudinal grooves.

capillary, hair-like, very slender.

capitate, (1) shaped like a head (stigma, etc.); (2) growing in a head-like cluster (flowers of Asteraceae).

capitulum (or **head**), a dense group of sessile flowers, especially a feature of Asteraceae. Fig. 13H.

capsule, a dry fruit (consisting of two or more united carpels,) usually splitting into pieces called valves when ripe, or opening at the summit by teeth or pores. Figs 16B-D, G.

carpel, a segment of the female reproductive element of a flower, the lower and swollen portion forms the ovary, inside which the ovules are produced; the upper and narrower portion forms the style and stigma. When there is only one carpel, the terms carpel, pistil, and gynoecium are synonymous; when more than one, the carpels may be free of one another or fused into a single structure.

carpophore, stalk or axis supporting certain fruits. See **gynophore**.

cartilaginous, gristly.

caruncle, a fleshy appendage of the seed, arising near the funicle.

cauda, a tail-like appendage.

caudex, a trunk-like axis surrounded by a mantle of roots, for example in *Dicksonia*.

caudicle, a strap-like structure connecting the pollen-masses in orchids to the viscid disk of the rostellum.

cauline, inserted on the stem. Fig. 1A.

cell, (1) the cavity of the ovary, and especially each cavity of a compound ovary or compound fruit; (2) a pouch or pollen-sac of the anther (Fig. 15H); (3) one of the minute masses of protoplasm which go to make up the tissue of plants.

centrifixed, a leaf, anther, branched hair or other organ attached by its centre.

centrifugal (or **definite**), applied to that kind of inflorescence, such as a cyme, where the terminal flower opens first

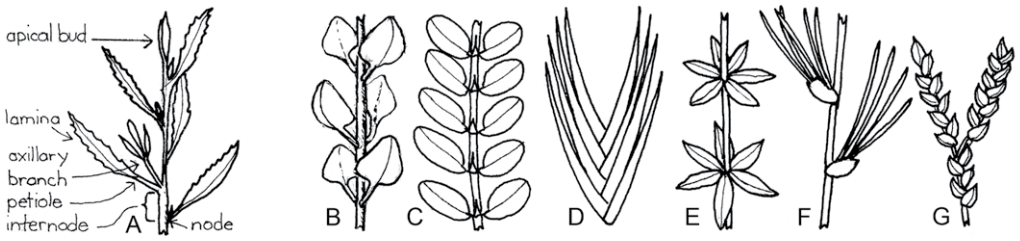

Fig. 3. A, twig (*Eremophila* sp.); **B**, opposite and decussate leaves (*Plectranthus* sp.); **C**, opposite and distichous (*Euphorbia australis*); **D**, equitant (*Dianella revoluta*); **E**, whorled or verticillate (*Bauera rubioides*); **F**, fascicled cladodes (*Asparagus officinalis*); **G**, imbricate (*Azolla filiculoides*).

and then those on the lateral branches.

centripetal (or **indefinite**), that kind of inflorescence, such as a head, spike, raceme, or panicle, where the outermost or lowest flowers open first and the main rhachis continues to lengthen, developing fresh flowers.

chalaza, see **ovule**.

channelled (or **canaliculate**), with the edges curved round as in a gutter. Fig. 4J.

chartaceous, paper-like in texture.

chasmogamous, with pollination occurring in the open flower. See **cleistogamous**.

chelate, shaped like a lobster's claw.

ciliate, bordered by hairs like eye-lashes (cilia). Fig. l0A.

ciliolate, bordered by very short hairs.

circinate, coiled with the apex innermost as in the fronds of many fern species.

circumscissile, when a capsule opens by a transverse line, so that the upper part comes off like a lid. Fig. 16D.

clade, a group of organisms, whose members are derived from a common ancestor.

cladode, a shoot modified to assume the functions and usually the appearance of a leaf; often identifiable by arising in the axil of a modified leaf. Fig. 3F.

cladogram, a branching, tree-like diagram indicating the level of similarity between taxa, used as a representation of evolutionary (phylogenetic) relationships.

clathrate, latticed or pierced with apertures.

clavate, club-shaped.

claw, the narrow lower part of, for example, a petal or involucral bract.

cleistogamous, with pollination occurring within the closed flower. See **chasmogamous**.

clinandrium, the depression on the top of the column in orchids, on which the anther rests.

clone, a group of plants eventually able to exist on their own but originating from the vegetative growth of a common parent.

coenosorus, a compound sorus formed by the fusion of sori.

colleter, a group of mucilaginous secretory hairs, often near the base of the leaf lamina, and on calyx (Apocynaceae, Asclepiadaceae).

collateral, placed side by side.

colliculate, covered by low rounded protuberances. Fig. 11A.

column, (1) the combination of stamens and style in a solid body, as in orchids and Stylidiaceae; (2) the lower usually twisted part of an awn in many grasses, passing into the bristle or slender upper part.

coma, an apical tuft, especially used for tufts of hairs on seeds or fruits.

comose, with an apical tuft of hairs.

complicate, folded flat together. See **conduplicate**.

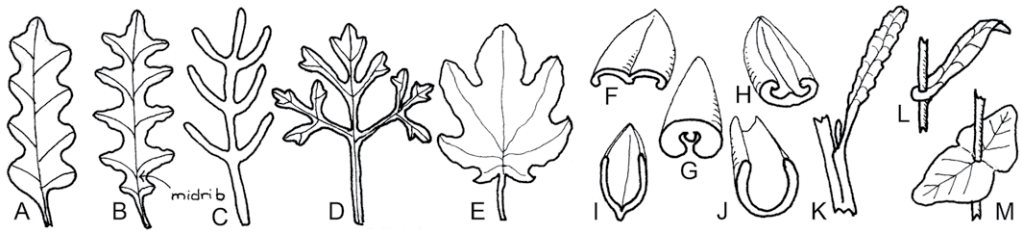

Fig. 4. A, pinnatifid or lobed (*Solanum hystrix*); **B**, pinnatipartite (*S. lacunarium*); **C**, pinnatisect (*Carinavalva glauca*); **D**, palmatisect (*Trachymene ornata*); **E**, palmatifid (*Ficus carica*); **F**, recurved (*Frankenia serpyllifolia*); **G**, revolute (*Muehlenbeckia horrida*); **H**, incurved (*Pultenaea tenuifolia*); **I**, keeled (*Eragrostis basedowii* glume); **J**, channelled (*Lomandra longifolia*); **K**, decurrent (*Pterocaulon sphacelatum*); **L**, perfoliate (*Cotula coronopifolia*); **M**, gamophyllous (*Eucalyptus gamophylla*).

compound, composed of several parts, as a leaf consisting of several leaflets, or a pistil consisting of several carpels; the opposite of simple. A compound panicle has the branches again divided.

compressed, flattened lengthwise, either from side to side (laterally) or from front to back (dorsally).

concolorous, of the same colour throughout.

conduplicate, see **complicate**.

cone, a fruit usually woody, ovoid or globular, consisting of scales arranged around an axis and sheltering the naked seeds, characteristic of the gymnosperms.

confluent, of two structures merging with one another.

connate, when organs are so closely united that they cannot be separated without tearing. Each of the connate parts is said to be **adnate** to the other.

connective, the part of an anther which connects the two cells.

converging (**connivent**), organs approaching one another at the summit.

contorted, of the segments of a perianth whorl when in the bud each overlaps an adjacent one but is itself overlapped by the segment on its other side. Fig. 15B.

cordate, heart-shaped, with the notch below. Fig. 8G.

coriaceous, leathery; stiff, tough but somewhat flexible.

corm, a solid tuberous bulb-like stem ('rootstock'), in which the buds are not covered by scales, or by very thin ones. Fig. 2E.

corolla, inner envelope of the flower, consisting of free or united petals.

corona, a small crown of free or united appendages inserted inside the corolla and derived from the corolla or stamens. Fig. 14B.

corymb, inflorescence where the branches start from different points, but reach about the same height. Fig. 13D.

cosmopolitan, in plant distributions: occurring virtually world-wide.

costa, the **midrib** of a leaf.

costule, the midrib of a pinna or pinnule.

cotyledon, see **embryo**.

crenate, bordered by blunt or rounded teeth or small lobes. Fig. l0B.

crenulate, crenate with very small teeth or lobes.

crisped, finely curled (along the margin). Fig. 10C.

crustaceous, hard, thin and brittle.

cryptogam, plants without stamens, ovaries or seeds; that is the lower groups including the ferns.

cucullate, with the apex hood-like.

cultrate, shaped like a knife blade .

cuneate, wedge-shaped. Fig. 8D.

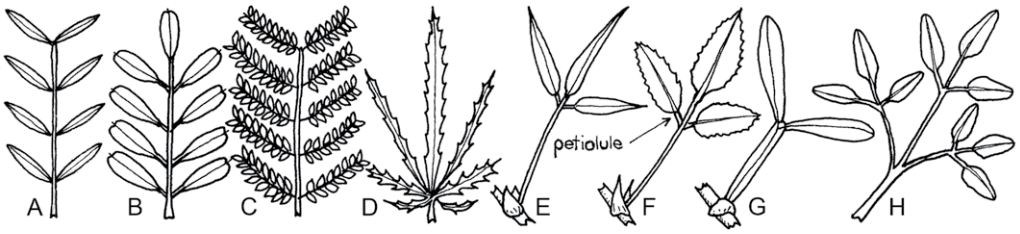

Fig. 5. A, paripinnate (*Atalaya hemiglauca*); **B**, imparipinnate (*Indigofera australis*); **C**, bipinnate (*Acacia mearnsii*); **D**, palmately compound (*Cannabis sativa*); **E**, palmately trifoliolate (*Cullen parvum*); **F**, pinnately trifoliolate (*C. patens*); **G**, bifoliolate (*Zygophyllum billardierei*); **H**, biternate (*Clematis microphylla*).

cusp, a rigid, usually small but sharp point.

cyme (adjective **cymose**), an inflorescence in which the main axis ends in a flower and further growth of the inflorescence is by means of 1 or more branches which themselves end in a flower. This pattern may be repeated many times. Fig. 13E.

deciduous, eventually shed.

decompound, applied to a compound leaf in which the subdivisions are again compound.

decumbent, with branches on the ground but turning up at the ends. Fig. 1E.

decurrent, when the base of the leaf is prolonged downwards along the stem in raised lines or narrow wings. Fig. 4K.

decussate, when one pair of opposite leaves arise at right angles to the pairs above and below them. Fig. 3B.

deflexed (**decurved**), bent downwards.

dehiscent (**dehiscing**), opening when ripe, as a seed vessel or anther.

deltoid, triangular, with the sides more or less equal.

dendroid (**dendriform**, **dendritic**), used of hairs branched distally like the crown of a tree. Fig. 11B.

dentate, toothed. Figs 10D & E.

denticulate, finely toothed.

depressed, dorsally flattened along its length.

diad (or **dyad)**, a pair.

diadelphous, having the stamens in two groups (especially in most of the Papilionoideae, where 9 stamens are fused to one another and the tenth is free).

dichasium, a cyme in which branches appear in regular opposite pairs. Fig. 13E.

dichotomous, forking once or several times, each time into two equal branches. Fig. 1H.

diffuse, spreading horizontally and loosely branched.

digitate, a compound leaf whose leaflets spread from a common centre, like the fingers of a hand.

dimidiate, appearing as if one half were wanting. Fig. 6B.

dimorphic, occurring in two forms.

dioecious, male and female flowers developing on different plants.

diaphanous, permitting the light to shine through, translucent.

discrete, separate.

disk, (1) an extension of the **receptacle** between the calyx and pistil. It may be conspicuous in the form of a ring or cushion, or reduced to separate glands or scales; (2) all the central or **disk-flowers** in a radiate flowerhead (applicable to many members of the Asteraceae).

dissepiment, one or more vertical partitions dividing the ovary and fruit into two or more cells. The dissepiment is usually caused by the adhesion of the sides of two adjoining cells or carpels. See **septum**.

distal, applied to the free end of, for example, a leaf, as opposed to the proximal or attached end.

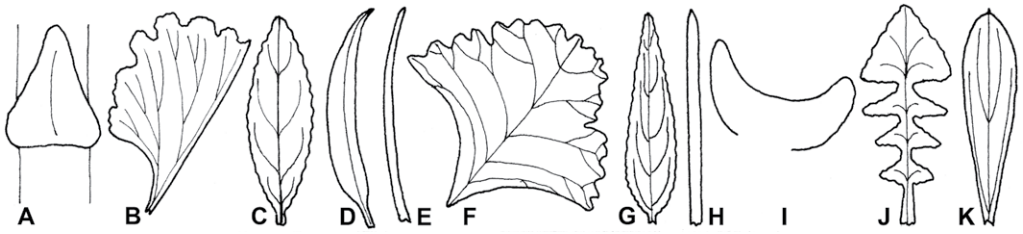

Fig. 6. A, deltoid (*Thysanotus dichotomus* bract); **B**, dimidiate (*Adiantum capillus-veneris*); **C**, elliptic (*Anagallis arvensis*); **D**, falcate (*Eucalyptus incurva*); **E**, filiform (*Gyrostemon ramulosus*); **F**, flabellate (*Asplenium flabellifolium*); **G**, lanceolate (*Epilobium pallidiflorum*); **H**, linear (*Glischrocaryon behrii*); **I**, lunate (*Euphorbia lathyrus* gland); **J**, lyrate (*Arctotheca calendula*); **K**, oblanceolate (*Selliera radicans*).

distichous, regularly arranged in two opposite rows. Fig. 3C.

distinct, readily discernible; separate, free.

divaricate, with the branches spreading more or less at right angles from their point of attachement. Fig. 1G.

divergent, spreading from their point of attachement, but b y less than a right angle. See **divaricate**.

dorsal, relating to the abaxial side.

dorsifixed, an anther attached to the filament by its abaxial side. Fig. 15H.

dorsiventral, of leaves in which the adaxial and abaxial surfaces are clearly different from one another.

doubly dentate or **serrate**, when each tooth is itself again dentate (or serrate).

drupe, a fruit in which the pericarp consists of three layers: (1) the epicarp or skin, (2) the mesocarp or juicy layer, (3) the bony endocarp or stone: within the endocarp lies the seed or kernel. The peach and olive, and (among Australian plants) the fruit of *Nitraria billardierei* are familiar examples. Fig. 161.

ebracteate, without bracts.

echinate, spiny.

ecostate, without a midrib.

elliptic, when a flat surface, such as that of a leaf, has regularly rounded ends and is broadest near the middle. Fig. 6C.

emarginate, notched at the summit. Fig. 9E.

embryo, the young plant while still enclosed in the seed, consisting of the radicle, or base of the future root, one or more cotyledons, or future seed-leaves, and the plumule, or future bud. The radicle always points towards the micropyle.

embryo-sac, see **ovule**.

endemic, peculiar to a country or district and not native elsewhere.

endocarp, the innermost layer of the pericarp.

endopleura, the inner seed-coat, sometimes called the tegmen.

ensiform, shaped like the blade of a sword.

entire, when the margin of an organ (such as a leaf) is neither toothed, lobed, or divided. Fig. l0F.

epicarp, see **pericarp**.

epigynous, when the sepals, petals and stamens are inserted upon the inferior ovary and the adnate torus or receptacle, as, for example, in Asteraceae and most Myrtaceae. Fig. 14B.

epipetalous, arising from the corolla.

epiphyte, one plant growing upon another, without deriving nourishment from it.

equitant, when a leaf is folded lengthwise and the edges adhere except at the base, where it clasps another leaf on the opposite side of the stem. Fig. 3D.

ericoid, heath-like in shape or habit.

erose, with the margin irregular as though nibbled.

estipellate, without stipels.

estrophiolate, without a strophiole.

exalbuminous, without albumen.

exindusiate, without an indusium.

exocarp, the combined epicarp and mesocarp of the fruit.

exserted, projecting beyond, as the stamens beyond the corolla, the awn beyond the glumes or the

panicle beyond the uppermost leaf sheath.

exstipellate, without stipels.

exstipulate, without stipules.

extravaginal, when the lateral shoot of a grass breaks through the subtending leaf-base.

extrorse, an anther which opens towards the outside of the flower.

falcate, curved like the blade of a scythe. Fig. 6D.

family, a group of genera (see **genus**) which resemble each other.

farinose, see **mealy**.

fascicle, a tuft of leaves or other structures apparently all arising at the same node. Fig. 3F.

ferruginous, rust-coloured.

fertile, (A) of flowers: producing seeds; (B) of anthers: containing pollen.

-fid, cleft.

filament, see **stamen**.

filiform, thread-like. When applied to leaf blades it means more slender than subulate, but of similar construction. Fig. 6E.

fimbriate, fringed. Fig. 10G.

fistula, the opening in a hollow leaf-base through which the stem emerges.

fistulose, hollow, like a pipe.

flabellate, fan-shaped. Fig. 6F.

flammuliform, term used to describe the complicated leaf division in some species of *Clematis* (derived from *C. flammula*); see treatment of Ranunculaceae for detailled explanation.

flavescent, yellowish.

flexuose, (of axes) bending backwards and forwards at alternate nodes.

floral leaves or **leafy bracts**, the upper leaves at the base of the flowering branches. In Rhamnaceae floral leaves are the leaves surrounding a head-like inflorescence, covered with a dense white indumentum.

floral tube, a tube bearing the perianth and stamens, made up of tissue derived from the receptacle and/or perianth and/or stamens.

floret, a small flower, especially when forming part of a dense inflorescence (e.g. in Asteraceae).

-foliolate, the number of leaflets to a compound leaf; e.g. a 5-foliolate leaf has 5 leaflets.

follicle, a fruit consisting of a single carpel opening only along the inner suture. Fig. 16J.

foveate (diminutive **foveolate***),* with small pits (**foveae**).

free, not united with any other similar organ.

free central placenta, one in the form of a central column rising from the base of the ovary, or consisting of a prolongation of the receptacle, and in both cases unconnected with the walls of the ovary. Primulaceae, Caryophyllaceae, Santalaceae. Fig. 15F.

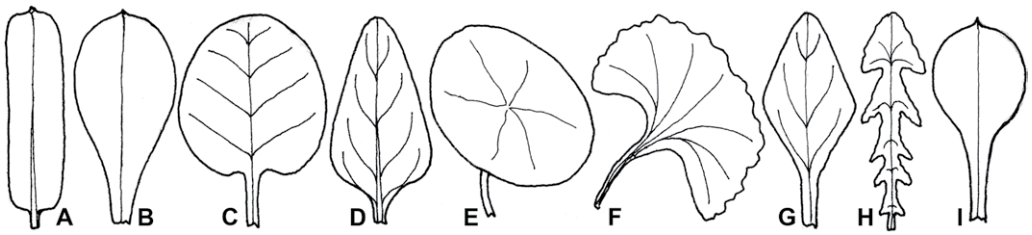

Fig. 7. A, oblong (*Euphorbia lathyrus*); **B**, obovate (*Polycarpon tetraphyllum*); **C**, orbicular (*Muehlenbeckia adpressa*); **D**, ovate (*Epilobium billardierianum*); **E**, peltate (*Hydrocotyle verticillata*); **F**, reniform (*Viola hederacea*); **G**, rhomboid (*Tetragonia tetragonioides*); **H**, runcinate (*Sonchus oleraceus*); **I**, spathulate (*Ptilotus spathulatus*).

frond, the fern leaf.

fruit, the enlarged ovary and whatever other parts of the flower may adhere to it at the time the seed is ripe.

funicle, a little stalk by which the ovule is attached to the placenta.

fuscous, dusky.

fusiform, spindle-shaped, tapering gradually at each end. Fig. 12B.

galeate, helmet-shaped.

gametophyte, a plant which bears sexual organs; in ferns usually a small but discrete plant very different from the sporophyte (which is the fern plant); in seed-plants reduced to a microscopic structure within an anther or ovary not recognisable as a discrete plant.

gamophyllous, of opposite leaves joined to one another around both sides of the stem. Fig. 4M.

geniculate, bent like a knee.

genus (plural **genera**), a group of species which resemble each other.

gibbous, when an organ is swollen in one part, most frequently towards the base.

glabrescent, becoming glabrous gradually.

glabrous, devoid of hairs.

gland, a wart-like excrescence on or near the surface of an organ and usually secreting a substance, such as a fluid, gum or salt.

glandular hairs, hairs tipped with a gland. Fig. 11C.

glaucous, bluish-green, usually of a pale tint.

globose, almost spherical.

globular, rounded like a globe or sphere. Fig. 12C.

glochidium (plural **glochidia**), a barbed bristle as on the fruit of some Apiaceae.

glomerule, a small dense cluster of flowers forming part of an inflorescence.

glume, bract enclosing the flower of reeds or one of two bracts at the base of a grass spikelet.

glutinous, sticky.

grain, the fruit of grasses, also called caryopsis.

granular, covered with small rounded protuberances.

gymnosperms, plants, such as pines, which produce ovules and seeds, but these are not enclosed in a carpel or fruit..

gynoecium, see **pistil**.

gynomonoecious, a plant with bisexual and female flowers.

gynophore, stalk supporting an ovary. See **carpophore**.

gynostemium, a column formed by the union of style and stamens.

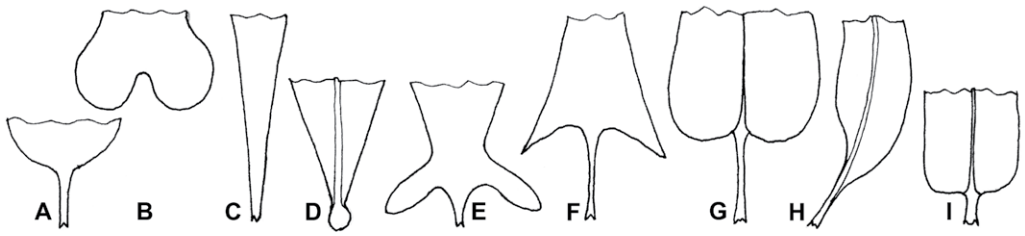

Fig. 8. A, obtuse (*Malvastrum spicatum*); **B**, auriculate (*Goodenia amplexans*); **C**, attenuate (*Lysiana exocarpi*); **D**, cuneate (*Dodonaea bursariifolia*); **E**, hastate (*Acetosella vulgaris*); **F**, sagittate (*Fallopia convolvulus*); **G**, cordate (*Sida corrugata*); **H**, oblique (*Eucalyptus obliqua*); **I**, truncate (*Lasiopetalum discolor*).

habit, the general external appearance of a plant.

habitat, the environment in which a plant lives.

hastate, shaped like a halbert, with two spreading somewhat triangular lobes at the base. Fig. 8E.

head, see **capitulum**.

helicoid cyme, a monochasium branching repeatedly on the same side so that the apex is often recurved or recoiled (cf. **scorpioid**).

herb, a plant which does not develop a woody stem.

herbaceous, green and relatively soft in texture.

heterogamous, when the outer flowers in a flowerhead are female or neuter, and the inner ones bisexual or male.

heterosporous, with spores of two kinds.

hilum, the scar left on the seed where it separates from the funicle.

hirtellous, minutely hirsute.

hispid, rough with short stiff hairs.

hoary, densely covered by almost microscopic hairs, which give the surface a whitish or greyish hue.

homogamous, when all the flowers in a flowerhead are bisexual.

homosporous, with spores of one kind only.

hyaline, delicately membranous and transparent.

hydrophilous, pollinated through the agency of water.

hypanthium, a tube formed by the floral receptacle and bearing the perianth and stamens.

hypocrateriform, shaped like a more or less circular tray with a central tubular base.

hypogynous, inserted below the (superior) ovary, as the sepals, petals and stamens in most flowering plants. Fig. 14C.

imbricate, overlapping like tiles (Fig. 3G); when the members of a perianth whorl in a bud overlap each other at the edges with one segment overlapped on both edges and another overlapping its adjacent segments on both sides. Fig. 15A.

imparipinnate, a pinnate leaf terminating in a single leaflet. Fig. 5B.

incised, deeply and unequally cut into lobes or teeth.

included, enclosed, as stamens within the corolla.

incumbent, leaning upon another organ; of the radicle (in Brassicaceae seeds) when it lies along the back of one cotyledon.

incurved, bent inwards. Fig. 4H.

indehiscent, a fruit which does not split open in a regular manner when ripe.

indumentum, surface covering such as hairs and scales.

induplicate, when the edges of petals or sepals are folded inwards in bud, but without overlapping.

indurate, hardened.

indusiate, possessing an indusium.

indusium, (1) a membrane covering the sporangia of some ferns (Fig. 17C); (2) a cup enclosing the stigma in Goodeniaceae.

inferior, an ovary is inferior when it is united with the cup-shaped or tubular torus or receptacle; the calyx, petals, and stamens are then all superior to the ovary, or epigynous (Fig. 14B). An inferior radicle points towards the base of the fruit; an inferior (apotropous) micropyle points towards the base of the ovary.

inflated, swollen like a bladder.

inflorescence, arrangement of the flowers on a plant.

infructescence, an inflorescence in fruit.

innocuous, spineless.

integument, covering, one of the outer layers of tissue of an ovule.

interfoliar, between the leaves.

internode, the part of the stem between two nodes. Fig. 3A.

interpetiolar, of stipules placed between the petioles of opposite leaves.

interrupted, having bare spaces between the parts.

intravaginal, when the lateral shoot of a grass does not break through the subtending leaf sheath.

introrse, an anther which dehisces by slits facing the pistil and therefore turned inwards.

involucel, (1) the involucre of a partial umbel; (2) the outer calyx in Dipsacaceae.

involucre, a number of bracts surrounding the base of a flowerhead or of an umbel.

involute (**inrolled**), with the edges rolled inward, as in the leaf blades of many grasses.

irregular, this term is used in its strictest sense to describe those rare asymmetric flowers which cannot be divided into two equal halves through any vertical plane (such as the Valerianaceae). It is here applied in a more general sense to a flower in which the parts of either the calyx or corolla are dissimilar in size or shape. It therefore includes flowers, which are altogether asymmetric and those which are zygomorphic, or bilaterally symmetrical, i.e., which can be cut through only one vertical plane into two equal and similar halves (flowers of Papilionoideae, *Pelargonium, Viola*, etc.). Fig. 14C.

joint, see **article**.

keel, (1) a projecting ridge along the middle of a flat or convex surface (Fig. 41); (2) the two partially united lowest petals of pea-shaped flowers.

kernel, see **drupe**.

labellum, (1) the lowest petal of orchids, usually different in form from the two lateral ones; (2) the lowest petal of Stylidiaceae.

labiate, lipped; where the limb of a corolla is divided into two parts, called an upper and lower lip.

lacerate, jagged, as if torn. Fig. 10H.

laciniate, cut into narrow lobes.

lamella, a thin plate.

lamina the blade of a leaf, or the expanded upper part of a petal, sepal, or bract. Fig. 3A.

lanceolate, shaped like the head of a lance, tapering at both ends, but broadest below the middle. Fig. 6G.

leaflet, each division of a compound leaf.

lemma, the bract (**glume**) subtending the flower in grasses.

lenticels, small corky interruptions to the bark.

lenticular, more or less disc-shaped but convex on both sides.

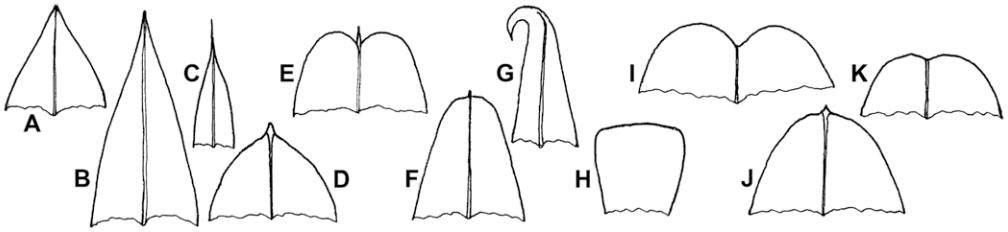

Fig. 9. A, acute (*Codonocarpus cotinifolius*); **B**, acuminate (*Salix babylonica*); **C**, aristate (*Sagina apetala*); **D**, apiculate (*Santalum spicatum*); **E**, emarginate (*Euphorbia lathyrus*); **F**, obtuse (*Clematis microphylla*); **G**, uncinate (*Santalum acuminatum*); **H**, truncate (*Panicum decompositum* glume); **I**, obcordate (*Stenanthemum leucophractum*); **J**, mucronate(*Indigofera uncinata*); **K**, retuse (**Abutilon theophrasti** petal).

lignotuber, a woody swelling at the base of the stem (especially in some Proteaceae or species of *Eucalyptus*).

ligulate, having the limb of the corolla strap-shaped, as in many Asteraceae.

ligule, (1) a small membranous appendage at the summit of the sheath of the leaves of Poaceae and a few other plants; (2) the one-sided limb of the corolla in many Asteraceae.

limb, (1) the upper, often spreading part of a calyx or corolla; it is an expansion upwards of the tube or united part of the calyx or corolla; (2) the lamina of a leaf or of a petal.

linear, long and narrow, with parallel edges. Fig. 6H.

lobe, division of a leaf reaching about half-way to the midrib, or of other organs, such as petals or sepals, which are partly fused.

lobed, (1) cut about half-way (Fig. 4A); (2) a compound ovary or fruit which is deeply grooved between the carpels.

lobule, a small lobe.

loculicidal, when a ripe capsule splits open along the abaxial sides of its cells (i.e., along the midrib of the carpels), as in Juncaceae and Asparagaceae. Each valve into which the capsule splits consists of 2 halves of adjoining carpels, with the dissepiment attached along the centre of the valve. Fig. 16C.

loment, a legume contracted between the seeds.

long-creeping, in ferns a rhizome which elongates rapidly so that the fronds are usually distant.

lorate, strap-shaped.

lunate, crescent-shaped. Fig. 6I.

lyrate, a pinnatifid or pinnatisect leaf with a terminal lobe much larger than the lateral ones. Fig. 6J.

mallee, one of the several-stemmed species of *Eucalyptus,* or the vegetation characterised by such species.

mamillary, nipple-shaped.

mamelon, a mound of tissue in the Loranthaceae ovary containing the ovules, which do not have true integuments.

marcescent, withering without being shed.

mealy (**farinose**), covered with a scurfy powder like flour.

megasporangium, sporangium containing megaspores; not readily visible in flowering plants.

megaspore, spore giving rise to female gametophyte and egg cells.

megasporophyll, leaf associated with a megasporangium.

membranous, thin, transparent and flexible, not green.

mericarp, one of the segments into which some fruits (e.g. Geraniaceae) split.

-merous, the number of parts per floral whorl; e.g. Brassicaceae flowers are 4-merous.

mesocarp, the second or middle layer of the pericarp; often succulent and then sometimes called the sarcocarp. See **drupe**.

mesophyll, the internal tissues of a leaf.

micropyle, a minute opening in the coats of the ovule . In the great majority of plants the pollen-grain finds its way

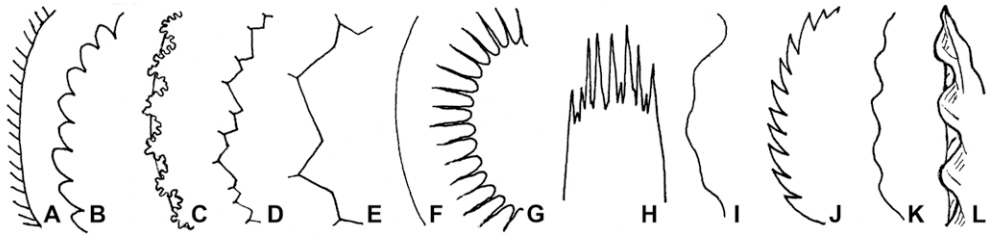

Fig. 10. A, ciliate (*Adenanthos terminalis* bracts); **B**, crenate (*Melissa officinalis*); **C**, crisped (*Rumex crispus*); **D**, finely and irregularly dentate (*Sonchus oleraceus*); **E**, coarsely dentate (*Grevillea ilicifolia*); **F**, entire (*Alectryon oleifolius*); **G**, fimbriate (*Thysanotus juncifolius* perianth); **H**, lacerate (*Polygonum patulum* stipules); **I**, repand (*Commicarpus australis*); **J**, serrate (*Melianthus major*); **K**, sinuate (*Solanum elaeagnifolium*); **L**, undulate (*Potamogeton crispus*).

to the embryo-sac through the micropyle.

microsporangium, sporangium containing microspores.

microspore, spore giving rise to male gametophyte and sperm.

midrib, the central nerve of a leaf or similar organ. See **costa**. Fig. 4B.

monadelphous, with the stamens all fused to one another as in many Leguminosae.

moniliform, when a pod or other organ is constricted at regular intervals, so as to resemble a necklace of beads.

monochasium, a cyme in which a single axis develops below each flower; cf. a **dichasium** where two axes develop. For example Fig. 13F.

monoecious, male and female flowers developing on the same individual.

monotypic, having only one representative, e.g. a genus with only one species is monotypic.

mucronate, terminating abruptly in a short stiff point called a mucro. Fig. 9J.

mucronulate, minutely mucronate.

muricate, rough owing to many minute hard outgrowths.

muticous, of an apex lacking any projection such as a mucro or awn.

naked, flower without any perianth; seed without a pericarp.

native, of a texon that grows in a specific area without being brought into the area during recent times (usually through the agency of humans). See **naturalised**.

naturalised (*****), of a taxon that has originally been introduced by humans to an area deliberately or accidentally (from overseas, from other states in Australia or from other areas within S.A.), then has become established and is reproducing itself in a new environment. An asterisk (*) in front of the species or subspecific name indicates that a taxon is naturalised in S.A.; asterisks are also placed before each of the S.A. botanical regions or Australian states in which the plant is naturalised. See **native**.

nerves (**veins**), the vascular bundles which start from the petiole and traverse the blade of the leaf, the smaller ones often forming a network.

node, the swollen part of the stem from which leaves or branches spring. Fig. 3A.

nut, properly a 1-seeded indehiscent fruit, such as the hazel-nut, with a hard dry pericarp ('shell'), but also used to describe any hard l -seeded nut-like fru it, such as those of Polygonaceae and Cyperaceae.

ob-, a prefix indicating that a shape is the opposite way up to its usual position; e.g., turbinate means top-shaped with the broadest end uppermost; obturbinate means top-shaped but with its point uppermost.

obcordate, inversely heart-shaped, broad, and rather deeply notched at the summit. Fig. 8I.

oblanceolate, lanceolate with the narrow end at the base of the leaf. Fig. 6K.

oblique, slanting; (of a leaf) unequal-sided. Fig. 8H.

oblong, much longer than broad, and rounded at both ends. Fig. 7A.

obovate, ovate with the broadest part above the middle. Fig. 7B.

obovoid, egg-shaped (of solid organs such as fruits), with the broadest part towards the apex.

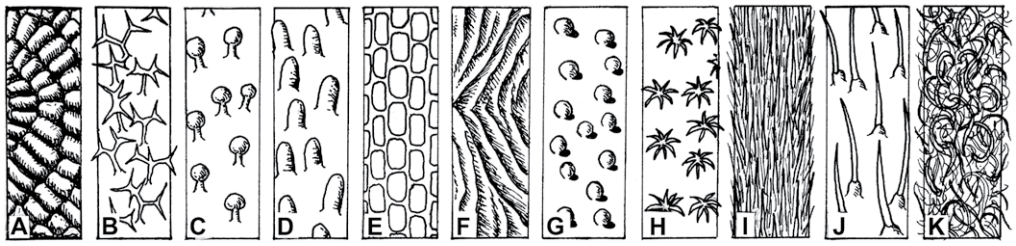

Fig. 11. A, colliculate (*Calandrinia polyandra* seed); **B**, dendriform hairs (*Dicrastylis doranii* branch); **C**, glandular hairs (*Boerhavia coccinea* branch); **D**, papillae (*Gunniopsis septifraga* leaf); **E**, reticulate (*Schoenus apogon* seed); **F**, rugose (*Allocusuarina decaisneana* cone); **G**, sessile glands (*Chenopodium pumilio* branch); H, stellate hairs (*Pomaderris oraria* leaf); **I**, tomentose (*Amyema gibberula* leaf); **J**, tubercle-based hairs (*Eriachne artistidea* glume); **K**, woolly (*Malacocera tricornis* branch).

obtuse, blunt. Figs 8A & 9F.

operculum, the **calyptra** in the genus *Eucalyptus*.

opposite, (1) of two leaves or other organs rising at the same level, but on opposite sides of the stem (Figs 3B & C); (2) of the members of two concentric floral whorls when they are on the same radii.

orbicular, flat, circular or almost so. Fig. 7C.

order, a group of families resembling each other.

orthotropous (**atropous**), when an ovule has a straight axis , the chalaza being at its base and the micropyle at the opposite end. .

oval, elliptic (usually broadly so).

ovary, the lower part of the carpel or pistil, containing the ovules, and finally becoming the fruit. Compound ovary, see **syncarpous**.

ovate, when a flat surface, such as that of a leaf, is egg-shaped and broader below the middle. Fig. 7D.

ovoid, egg-shaped (of solid organs such as fruits), with the broadest part towards the base. Fig. 12D.

ovule, the seed in its early stage. It consists of the embryo-sac, containing the future embryo, completely surrounded by the nucellus, which is in its turn surrounded (except at the micropyle) by an outer covering, usually consisting of two coats, an inner and an outer. On the ovule are a spot called the chalaza, where nourishment enters from the placenta through the funicle, and a small opening through the outer covering, which is called the micropyle.

palea, the upper of two bracts enclosing the indivicual flower of grasses.

palisade tissue, a tissue of elongate chlorophyll-containing cells with their axes perpendicular to and just below the upper surface of most leaves.

palmatifid, leaf divided into diverging lobes , and so resembling the open hand. Fig. 4E.

palmatisect, palmately divided nearly to the base. Fig. 4D.

pandurate, fiddle-shaped.

panicle, an inflorescence where the axis is divided into branches bearing several flowers. Fig. 13C.

paniculate, arranged in a panicle.

papilionate, with a corolla like that of a pea (literally butterfly-like).

papillose, covered with minute protuberances called papillae. Fig. 11D.

pappus, a ring of hairs or scales which represents the calyx in many Asteraceae. Fig. 16F.

parasite, a plant growing on another, and deriving its nourishment from the latter.

parietal placenta, when the placentas and ovules are attached to the walls of a 1-celled compound ovary. Fig. 15E.

paripinnate, a pinnate leaf terminating in two opposite leaflets. Fig. 5A.

parted (**partite**), an organ divided into parts almost to its base .

patent, spreading.

pectinate, arranged like the teeth of a comb.

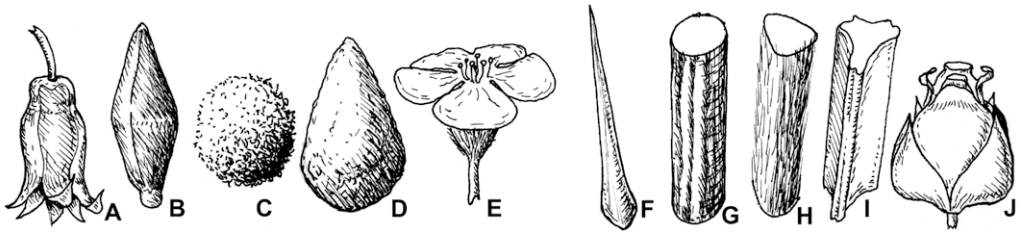

Fig. 12. A, campanulate (*Lomandra densiflora*); **B**, fusiform (*Muehlenbeckia diclina* seed); **C**, globular (*Acacia pycnantha* flower head); **D**, ovoid (*Sagina maritima* seed); **E**, rotate (*Leptospermum myrsinoides*); **F**, subulate (*Scleranthus pungens* leaf); **G**, terete (*Amyema preissii* leaf); **H**, trigonous (*Maireana eriantha* leaf); **I**, triquetrous (*Choretrum chrysanthum* young branch); **J**, urceolate (*Erica baccans*).

pedicel, stalklet of a flower , when the peduncle bears two or more pedicellate flowers.

pedicellate, growing on a pedicel.

peduncle, stalk of a solitary flower, or common stalk (floral axis or rhachis) of several pedicellate or sessile flowers.

pedunculate, growing on a peduncle.

peltate, (1) leaf (or other flat organ, e.g. scales) whose stalk is attached to its under-surface, instead of to the edge (Fig. 7E); (2) shield-like, pendulous ovule, one hanging from the summit of the ovary. The term suspended is sometimes used when the ovule is attached slightly below the summit.

penicillate, arranged like a tuft of hairs in a paint brush.

penninervation, with pinnately arranged veins.

perennial, living for several years .

perfoliate, with the base of the leaf fused round the stem so that the leaf appears to pass through it. Fig.4L.

perianth, the floral envelope, usually consisting of two whorls , the calyx and corolla. The term is specially employed to describe flowers in which the segments of the perianth (perianth-segments) are much alike but in whorls (as in Iridaceae and Juncaceae), or quite similar and in a single whorl (as in Chenopodiaceae).

pericarp, the walls of the fruit, consisting of the ripened ovary. The walls or layers may be more or less fused into one, or they may be easily distinguishable as three: the epicarp, mesocarp, and endocarp. In inferior fruits the concave receptacle remains adherent to the pericarp and forms part of the fruit. Combined epicarp and mesocarp are often called exocarp.

perigynous, when the sepals, petals and stamens are inserted round the superior ovary on the cup-like or tubular torus or receptacle. The stamens also appear perigynous when inserted on the corolla. Fig. 14D.

perisperm, that part of the albumen in a seed which is outside the embryo-sac.

persistent, lasting until the fruit is ripe, as sepals or glumes; also applied to leaves remaining green during the winter: the opposite of caducous and deciduous.

petal, one of the divisions or leaves of the corolla, usually coloured.

petaloid, resembling a petal.

petiolate, supported on a petiole.

petiole, stalk of a leaf. Fig. 3A.

petiolule, stalk of a leaflet. Fig. 5F.

phyllode, a flat dilated petiole, fulfilling the functions of a leaf, as in many acacias.

phylogeny, the evolutionary history of a taxon at any rank.

pilose, with soft hairs.

pilosulose, finely pilose.

pinna (plural **pinnae**), a primary division of a pinnate leaf; a leaflet.

pinnate, a compound leaf whose leaflets are arranged on each side of the common petiole or axis. When there is an odd terminal leaflet, the leaf is called unequally pinnate or imparipinnate. Also applied to lateral nerves arranged on

each side of the mid-nerve of a leaf.

pinnatifid, with the margin pinnately cleft. Fig. 4A.

pinnatipartite, cut more than half-way to the midrib. Fig. 4B.

pinnatisect, pinnately divided almost to the midrib. Fig. 4C.

pinnule, a secondary or tertiary division of a leaf.

pistil or **gynoecium**, the innermost and female part of the flower, consisting of one or more carpels. When there is only one carpel, the terms carpel , pistil, and gynoecium are synonymous. When two or more carpels adhere by their ovaries, the pistil or gynoecium is compound or syncarpous. When the carpels are separate the gynoecium is apocarpous.

pistillode, an abortive or rudimentary pistil.

placenta, part of the ovary to which the ovules are attached by their funicles . Figs 15D–F.

plano-convex, flat on one side and convex on the other.

plicate, pleated.

plumose, when a hair or similar organ branches into rather long spreading secondary hairs, arranged irregularly or in two opposite rows like the barbs of a feather.

pod, (1) the legume of Fabaceae, a dry fruit formed of a single carpel; (2) the siliqua and silicule of Brassicaceae, a dry fruit composed of two carpels separated by a partition.

pollen, see **stamen**.

pollinium (**pollen-mass**), pollen-grains cohering by a waxy texture or fine threads into a single body.

polygamo-dioecious, mainly dioecious but with some bisexual flowers on otherwise male and/or female plants.

polygamo-monoecious, mainly monoecious but with some bisexual flowers.

polygamous, when the same plant bears male, female and bisexual flowers.

polymorphic, occurring in several forms.

poricidal, of capsules opening by pores. Fig. 16G.

posterior, see **adaxial**.

prickle, sharp excrescence arising from the bark and detachable without tearing the wood.

procumbent, spreading along the ground, but not so closely as prostrate. Fig. 1F.

proliferous (**viviparous**), plants which bear adventitious leaf-buds on the leaves or flowers, such buds being capable of rooting and forming separate plants.

prostrate, lying flat on the ground. Fig. 1D.

proximal, see **distal**.

pruinose, covered with a powdery waxy material.

pseudodichotomy, false dichotomy.

pseudostaminode, floral tissue that resembles a sterile stamen (staminode) or a staminal filament.

puberulent (**puberulous**), downy.

pubescent, downy, covered with short soft hairs.

pulvinus, a swollen base of a petiole (e.g. in *Acacia*).

punctuate, marked with dots.

punctiform, like a point or dot.

punctulate, finely dotted.

pusticulate, with minute blisters.

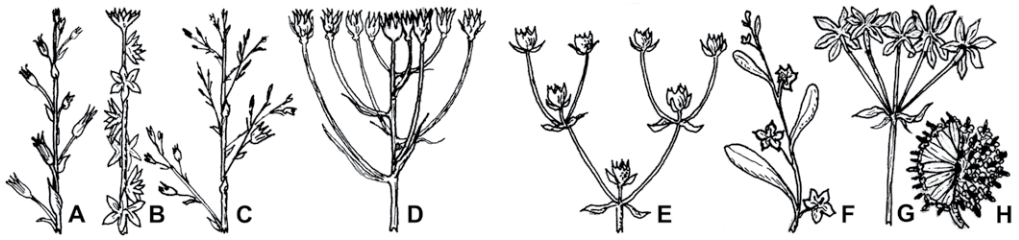

Fig. 13. A, raceme (*Caesia calliantha*); **B**, spike (*Wurmbea dioica*); **C**, panicle (*Thysanotus baueri*); **D**, corymb (*Scilla peruviana*); **E**, cyme (*Gunniopsis septifraga*); **F**, scorpioid cyme (*Cynoglossum suaveolens*); **G**, umbel (*Burchardia umbellata*); **H**, capitulum (*Trifolium glomeratum*).

putamen, a hard bony endocarp.

pyrene, 1 or more 'stones' containing the seed in a drupe or similar fruit.

pyriform, pear-shaped (of solid forms such as fruits).

quadrate, square or nearly so.

raceme, an undivided axis or peduncle bearing pedicellate flowers. Fig. 13A.

racemose, arranged in a raceme.

radiate, flowerhead of Asteraceae which has ligulate flowers in the circumference and tubular flowers in the centre.

radical, arising from the root.

radicle, see **embryo**.

radicular, used, for example, for the slit in the perianth of *Sclerolaena* opposite the radicle and through which the germinating radicle emerges.

ray, (1) all the ligulate flowers (ray-florets) in a radiate flowerhead; (2) each of the branches of an umbel.

receptacle, (1) floral axis, torus. The summit of the peduncle or pedicel on which the parts of a single flower are arranged, either in whorls or spirally. It may extend upwards as an annular or cushionshaped disk, and this may assume the form of glands or scales, which often alternate with the stamens (Rutaceae, Zygophyllaceae). It may be lengthened into a column or carpophore, such as those which bear the fruitlets of Geraniaceae and Apiaceae, or into a small stalk supporting the ovary (some Caryophyllaceae, Fabaceae, Proteaceae). It is very frequently hollowed out into a cup or rarely a tube, which surrounds the ovary and bears the sepals, petals and stamens on or near its margin, and is usually united with the ovary, or more rarely free from it (Myrtaceae, Rosaceae, Onagraceae, Thymelaeaceae). Formerly this hollow receptacle when united with the ovary, was described as the 'adnate (adherent) calyx tube'. (2) Floral base or common receptacle. The expanded summit of the peduncle on which the flowers, surrounded by an involucre of bracts, are inserted, usually in a dense cluster (Asteraceae, Dipsacaceae). In Asteraceae both forms of the receptacle are present.

recurved, curved backward or downward. Fig. 4F.

reduplicate-valvate, when the edges of petals or sepals are turned backward and outward in the bud.

reflexed, bent abruptly backwards.

regular, practically equivalent to **actinomorphic**, or radially symmetrical, i.e., where a flower can be bisected through two or more vertical planes into two similar halves.

reniform, kidney-shaped. Fig. 7F.

repand, with margins slightly sinuate. Fig. 10I.

replum, the rim of the pod of Brassicaceae, after the valves have fallen.

resupinate (**reversed**), when a flower is inverted by a twisting of the pedicel or the ovary so that the parts usually uppermost become the lowest (e.g. in *Thelymitra*).

reticulate, when the nerves or veins cross each other like the meshes of a net. Fig. 11E.

retinacule, a marginal outgrowth from a spadix occurring in the Zosteraceae.

retracted, turned backwards.

Fig. 14. A, longitudinal section through a regular flower with apocarpous gynoecium, numerous stamens and free petals and sepals (*Ranunculus lappaceus*); **B**, longitudinal section through a regular flower with an inferior ovary (epigynous perianth), fused perianth-segments and a staminal corona (*Calostemma purpureum*); **C**, longitudinal section through an irregular (zygomorphic) flower with a superior (hypogynous perianth) ovary of fused carpels and fused petals (*Eremophila maculata*); **D**, longitudinal section through a regular flower with a superior ovary (perigynous perianth) (*Acaena* sp.).

retrorse, turned backwards.

retuse, with an obtuse apex the centre of which is shallowly notched. Fig. 9K.

revolute, when the edges of leaves are rolled backwards towards the midrib. Fig. 4G.

rhachilla, the rhachis of the spikelet in grasses and sedges.

rhachis, any principal axis of an inflorescence; also applied to the common petiole of a compound leaf.

rhaphe, a cord adhering to one side of an anatropous ovule and connecting the chalaza with the placenta. It is often visible as a raised line on the seed.

rhizome (rootstock), (1) a subterranean stem (Fig. 2A); (2) in the pteridophytes and seagrasses used in a broader sense to include prostrate creeping and short erect stems below the ground or shortly above it.

rhombo-cuneate, rhomboid in the upper part, cuneate below.

rhomboid (**rhomboidal**), lozenge-shaped. Fig. 7G.

root, the descending axis of the plant, developed from the radicle and imbibing water and nourishment through its surface. Adventitious roots arise from stems, most often rhizomes or stolons.

rootstock, that part of an underground stem of a perennial from which the roots arise (e.g. a corm or often a rhizome).

rostellum, an extension of the upper edge of the stigma in orchids.

rostrate, beaked.

rosulate, leaves arranged in a radical rosette.

rotate, wheel-shaped, a corolla with very short tube and spreading limb . Fig. 12E.

rugose, wrinkled. Fig. 11F.

runcinate, a pinnatifid leaf with lobes pointing towards the base. Fig. 7H.

sagittate, arrow-shaped; applied to a leaf with two straight acute lobes at the base. Fig. 8F.

salverform, of perianths consisting of a narrow cylindrical tube topped by the spreading segments.

samara, a dry indehiscent fruit with a membranous wing at one end. Fig. 16A.

saprophyte, a plant obtaining its nutrient from dead organic matter.

scabridulous, minutely scabrous.

scabrous, rough to touch, usually on account of minute stiff, sometimes almost microscopic hairs or bristles.

scalariform, patterned like the rungs of a ladder.

scale, (1) a reduced leaf (2) usually used for one of many small flat organs.

scape, a radical leafless flowerstalk.

scarious, almost the same as membranous, but rather stiffer.

scattered, when leaves are irregularly arranged round the stem.

sclereid, a strongly thickened (lignified) cell, also called a stone-cell.

scorpioid cyme, a monochasium branching in a spiral or in more than one rank (cf. **helicoid**). Fig. 13F.

scurfy, covered with minute loose scales.

sectile, subdivided into small parts, as the pollen-masses of some orchids.

seed, a ripened ovule, consisting usually of two coats, within which is the embryo, with or without albumen.

segment, (1) each division of a pinnatisect leaf which reaches nearly or quite to the midrib, but is not separable without tearing; (2) each division of a perianth reaching to the base.

sensu lato (**s.l.**), in the broad sense; used of a name being used for a group which may alternatively be treated as two or more smaller groups.

sensu stricto (**s.s.**), in the narrow sense; used of a name being used for a group which may alternatively be used for a larger group encorporating one or more other groups.

sepal, one of the divisions of the calyx.

septal placenta, when the placentas of a 2-celled ovary are attached to the partitions (**septa**, singular **septum**).

septate, divided by septa or partitions.

septicidal, when a capsule splits open through the dissepiments and the component carpels fall away separately. *Zygophyllum aurantiacum, Dodonaea bursariifolia, Euphorbia.* Fig. 16B.

septifragal, when the dissepiments remain attached to the axis of the capsule, but break away from the edges of the valves. *Dodonaea viscosa*, *Datura stramonium.*

septum, the membranous partition separating the two valves of the pod of Brassicaceae. See **dissepiment**.

serrate, toothed like a saw. Fig. 10J.

serrulate, when the teeth are very small.

sessile, without' any stalk; e.g. sessile glands. Fig. 11G.

seta (plural **setae**), a bristle or stiff hair.

setaceous, bristle-like. When used to describe narrow leaf blades, it has the same meaning as subulate.

sigmoid, shaped like the letter S.

silicula, similar to a siliqua but the length less than three times the width.

siliqua, a dry fruit composed of two carpels separated by a partition (Cruciferae) with the length, excluding the beak, at least three times the width.

simple, (1) when a leaf is not divided into leaflets, the opposite of compound, although a simple leaf may be entire, toothed, or lobed; (2) of a flower or perianth: having the segments or lobes in one whorl or cycle; (3) of other organs: not lobed, branched, divided, or compound; a simple panicle has the branches undivided.

sinuate, leaf or other organ whose edge consists of shallow irregular lobes or teeth, with rounded spaces, called sinuses, between them. Fig. 10K.

sinus, the recess between two lobes or segments.

slow-creeping, in ferns a rhizome which elongates slowly so that the fronds are usually clustered.

sorus, a cluster of sporangia.

spathe, (1) two or more bracts enclosing the flowers of Iridaceae; (2) a large bract enclosing the succulent flowerspike (spadix) of the arum and palm families.

spathulate, a leaf broad towards the summit, narrowed lower down. Fig. 7I.

species, a division of a genus, each species (group of individual plants) possessing characters which distinguish it from other species of the same genus. Each species bears two names, e.g., *Eucalyptus obliqua,* the first being the generic name, the second the specific one.

spicate, arranged in a spike.

spike, an undivided floral axis (rhachis, peduncle) bearing sessile flowers. Fig. 13B.

spikelet, a small spike bearing one or several flowers, occurring chiefly in the grass family.

spine (**thorn**), a sharp point proceeding from the stem or other organ and not detachable without tearing.

spinescent, ending in a sharp point.

spinule, a small spine.

sporocarp, a thick-walled woody body containing sporangia.

sporophyte, a plant which bears no sexual organs but only asexual spores (for example the fern plant and, despite appearances, spermatophytes in which the gametophytes which produce the sexual structures are microscopic).

spreading, standing out horizontally, for example of branches; or standing out at right angles to the axis, for example of leaves or hairs.

squamule, a small scale within the sheathing base of the leaf, found in most submerged aquatic plants.

stamen, male organ of the flower, consisting of a short or long stalk (sometimes wanting) called the filament, which supports the anther. The latter consists of one or two pouches, or cells, containing the minute pollen-grains, by means of which the pistil is fertilised. Figs 15G–I.

staminodium (**staminode**), an abortive or rudimentary stamen.

standard, the large posterior petal of Papilionoideae (Fabaceae).

stellate hairs, hairs with branches radiating like a star. Fig. 11H.

stem-clasping (**amplexicaul**), when the base of a sessile leaf clasps the stem.

stigma, a point or small head at the summit of the style; or the stigmas may occupy the inner face of the style branches (Asteraceae) or the spreading hairs of the styles (Poaceae). Where there is no style, the stigma is sessile on the ovary. It is sticky and papillose and receives the pollen from the anthers.

stigmatic plate, the front part of the column in certain genera of orchids, bearing the female elements, and composed of a pedicel (or expanded style), carrying a vertical plate on the face of which are the stigma, the rostellum, and the viscid disk.

stipe, in ferns, the stalk of the frond.

stipellae (**stipels**), two small secondary stipules sometimes found at the base of leaflets.

stipe, a small stalk, especially one rising above the insertion of the perianth and supporting a fruit, when it is the equivalent of a small gynophore; also applied to the stalks of scales and bracts.

stipitate, stalked, born on a stipe.

stipules, two often small appendages growing at the base of the leaf-stalk; they may be free from or attached to the leaf.

stolon (**runner**, **sucker**), a basal branch growing just above or just below the surface, rooting at intervals and producing new plants. Fig. 2B.

stomate, microscopic pores in the outermost layer of cells, with a pair of reniform cells usually surrounding the aperture.

stramineous, straw-coloured.

striate, marked with parallel longitudinal lines.

strigose, with sharp stiff hairs usually appressed to the surface.

strobilus, a cone containing reproductive structures, as in some pteridophytes and conifers.

style, the narrow upper part of the carpel or pistil; it surmounts the ovary and supports the stigma, but is sometimes wanting.

sub-, a prefix meaning (1) somewhat, almost, as in suberect, subglobular; (2) under, inferior, as in subfamily.

subspecies, one level of subdivision of a species. A subspecies is a subdivision between the levels of species and variety.

subulate, awl-shaped. When applied to a leaf blade it means slender, rather stiff, often orbicular in cross-section owing to the incurved or involute margins. Fig. 12F.

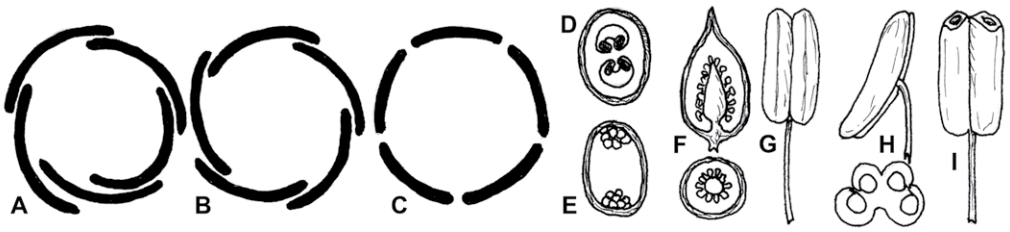

Fig. 15. A, imbricate aestivation; **B**, contorted aestivation; **C**, valvate aestivation; **D**, transverse section through an ovary with axile placentation (*Eremophila maculata*); **E**, transverse section through an ovary with parietal placentation (*Villarsia umbricola*); **F**, longitudinal and transverse sections through an ovary with free central placentation (Samolus repens); **G**, a basifixed anther with longitudinal dehiscence (*Wilsonia rotundifolia*); **H**, a 2-celled dorsifixed anther with longitudinal dehiscence (*Amaryllis belladonna*); **I**, an anther dehiscing by apical pores (*Solanum capsiciforme*).

sulcate, furrowed.

superficial, on the surface.

superior, an ovary is superior or free when the calyx, corolla and stamens are inserted below it on the floral axis, or when the hollow torus or receptacle is not united with it. In the first case the calyx, corolla, and stamens are hypogynous or inferior and in the second case they are inserted on or near the margin of the hollow torus and so become perigynous. A superior radicle points towards the

summit of the fruit, and a superior (epitropous) micropyle points to the summit of the ovary.

superposed, inserted one above the other.

suture, the dorsal suture of a carpel (carpellary leaf or fruit-leaf) represents the midrib of the leaf; it is the outer (anterior) suture or seam. The ventral suture is on the inner side of the carpel and indicates the line where the edges of the folded leaf have become united; it bears the placenta and

ovules, dehiscence may take place through one or both sutures.

sympatric, with more or less the same geographical distribution.

sympetalous, a corolla in which the petals are united by their edges into a cup or tube . Less correctly called gamopetalous or monopetalous.

syncarpous, an ovary, pistil, or fruit composed of two or more united carpels.

taxon, any group or rank in a biological classification, e.g. family, subfamily, genus, species, subspecies, variety.

tendril, a filiform organ by which climbing plants cling to some object within reach.

terete, slender-cylindrical, but not so slender as filiform. Fig. 12G.

ternate, arranged in or divided into threes.

testa, the outer seed-coat.

tetrad, a group of four.

thyrse, an inflorescence in which the primary axis is racemose and the secondary axes cymose.

tomentose, densely covered with short soft matted hairs (**tomentum**). Fig. 11I.

toothed (**dentate**), notched so as to resemble a row of sharp teeth.

torus, see **receptacle (1)**.

tree, a vague term usually used for woody plants above about 3 m high with a single trunk or rarely several trunks and most branching usually in the upper part.

triad, a group of three.

trichome, a usually unbranched epidermal outgrowth, e.g. hairs and papillae.

trichotomous, of a stem or branches divided into three, once or several times.

trifid (**3-fid**), cut about half-way into three parts.

trifoliate, having three leaves.

trifoliolate, a leaf of three leaflets.

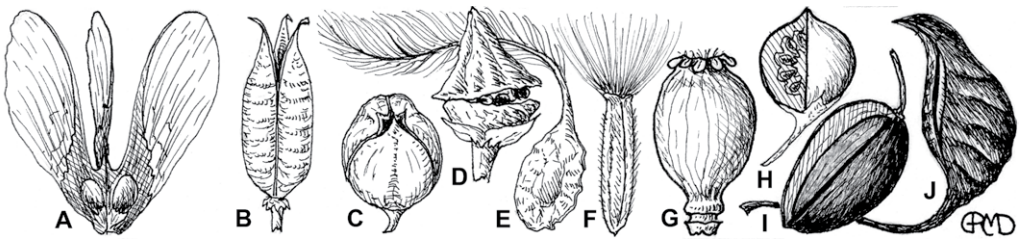

Fig. 16. A, samaras (*Atalaya hemiglauca*); **B**, a septicidal capsule (*Burchardia umbellata*); **C**, a loculicidal capsule (*Hannafordia bissellii*); **D**, a cicumscissile capsule (*Portulaca oleracea*); **E**, an achene (*Clematis microphylla*); **F**, an Asteraceae achene surmounted by a pappus (*Senecio odoratus*); **G**, a poricidal capsule (*Papaver setigerum*); **H**, a berry (*Solanum centrale*); **I**, a drupe cut through the epicarp and mesocarp to reveal a portion of the hard endocarp (*Olea europaea*): **J**, a follicle (*Brachychiton gregorii*).

trigonous, a stem or other organ which is triangular when cut transversely. Fig. 12H.

trimerous, in threes.

tripartite, divided into three parts nearly to the base.

tripinnatisect, thrice pinnatisect.

triquetrous, a triangular stem or other organ when the angles are sharp. Fig. 12I.

trisect, cut into three segments to the base of the midrib.

trullate, ovate but 4-angled like a brick-layer's trowel.

truncate, cut off squarely. Figs 8I & 9H.

tuber, (1) a swollen branch of an underground stem, producing buds, as the potato (Fig. 2D); (2) a swollen part of a root, acting as a reservoir of nourishment (Fig. 2C).

tubercle, a small wart-like protuberance. For tubercle-based hairs, see Fig. 11J.

tuberculate, covered with tubercles.

tunic, the outer covering of some bulbs and corms.

turbinate, top-shaped.

turgid, swollen.

turion, starch-filled perennating organ of *Ruppia*.

ultimate segment, final division of a leaf; in ferns it may be a pinnule or part of a pinnule if the

segment is deeply lobed.

umbel, inflorescence where the divergent branches or rays start from the same point. In a simple umbel each ray bears one flower. Fig. 13G.

umbellule, a partial umbel borne at the summit of each ray of a compound umbel.

umbilicate, with a conspicuous depression in the centre.

umbonate, bearing a small boss or elevation in the centre.

uncinate, with a hook at the apex. Fig. 9G.

undershrub, a very low growing shrub.

undulate (**crisped**), wavy on the edges. Fig. 10L.

unilateral, one-sided.

unisexual, a flower of one sex, either male or female.

urceolate, urn-shaped. Fig. 12J.

utricle, a small bladder; a membranous bladder-like sac enclosing an ovary or fruit.

vaginate, sheathed.

valvate, petals and sepals whose edges, in bud, meet without overlapping. Fig. 15C.

valve, one of the pieces formed by the vertical splitting of the pericarp of certain fruits when ripe. The

valves usually consist of the backs of the carpels.

variety, one level of subdivision of a species. See **subspecies**.

vascular bundles, long tubes or fibres which establish communication between the various parts of a plant. An open vascular bundle is one divided by a layer of cambium, so that the bundle is capable of constant growth; a closed bundle (as in vascular cryptogams and monocotyledons) has no cambium and cannot increase in size.

vascular commissure, vascular connection of vein endings.

velum, a membranous veil.

ventral, see **suture**.

vernation, the manner in which unexpanded leaves are arranged in the leaf bud.

versatile, when the anther is lightly attached by some point of its back to the filament, so as to swing easily.

verticillate, see **whorled**.

vesicular, of hairs which are bladder-like.

villous, beset with long soft hairs.

virgate, with many long slender ascending almost parallel branches. Fig. 1C.

vitta, linear longitudinal vessel in the fruit of some Apiaceae.

viviparous, see **proliferous**.

whorl (**verticil**), a set of organs, proceeding from the same node, and arranged in a circle around the axis. Fig. 3E.

whorled (**verticillate**), arranged in a whorl.

wing, (1) any kind of flat membranous expansion; (2) one of the two lateral petals of papilionate flowers .

woolly, similar to tomentose but the hairs curlier. Fig. 11K.

zygomorphic, see **irregular**.

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