Hunt Institute for Botanical Documentation
5th Floor, Hunt Library
Carnegie Mellon University
4909 Frew Street
Pittsburgh, PA 15213-3890
Telephone: 412-268-2434
Email: huntinst@andrew.cmu.edu
Web site: www.huntbotanical.org

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Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

EDWARD SANDFORD BURGESS

LECTURES ON BOTANY

1120 13TH ST. WASHINGTON, D.C.

VOL. II

POMES DRUPES LAURELS MYRTLES ORANGES ROSES SANTALACES CALYCANTHS
SILVER BERRIES LORANTHACEÆ MAGNOLIAS ANONAS BERBERIS POPPIES PEARLWORTS
COMPOSITES VACCINIA ERICACEÆ SPACRIDS RUES
GENTIANS PINKS PORTULACCAS CRASSULACEÆ PRIMROSES
VIOLETS PASSION-FLOWERS CRUCIFERS CAPPARIDS CISTACEÆ RESEDACE
LABIATES VERBENAS BORAGES SCROPHULARIACEÆ LENTIB- ACANTHS BIGNONIAS LOBELIAS
MALVACEÆ DIDYNAMIAS STERCULIAC- MALVAC- TEAS HYPERIC- GOURDS BEGONIAS
SCITAMINEÆ MUSACEÆ GINGERS MARANTAS WATER-LILIES LOTUSES
CANNAS SANTACEÆ CYCADS

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B6-4

LECTURE TOPICS.

1st Qr. PHYSIOLOGY.

1. Oct. 12. The Skeleton; Bones and Joints.
2. Oct. 19. Muscles and Movement.
   Oct. 26. Circulation and the Blood.
4. Nov. 2. Respiration and the Lungs.
5. Nov. 9. Digestion, Food and Drink.
6. Nov. 16. Nerves and Senses.

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2d Qr. GEOLOGY.

7. Nov. 23. Planet Forming.
8. Nov. 30. Rock Forming.
9. Dec. 7. Sedimentary Rocks (*a*, Arenaceous, *b*, Argillaceous, *c*, Calcareous.)
10. Dec. 14. Igneous and Metamorphic Rocks (*a*, Granitic, *b*, Trappean, *c*, Volcanic.)
11. Dec. 21. Metal-bearing Rocks.
12. Jan. 4. Earliest Rocks.
    1. Archæan Era; (Laurentian System.)
    2. Palæozoic Era; (Cambrian, Silurian and Devonian Systems.)
13. Jan. 11. The Coal Period (Carboniferous System.)
14. Jan. 18. The Age of Reptiles (Mesozoic Era.)
15. Jan. 25. The Age of Mammals (Cænozoic Era.)
16. Feb. 1. The Age of Man (Psychozoic Era.)

THE ROSE FAMILY is known in general by Numerous Stamens and Pistils; Flowers in 5s; Stamens inserted on the Calyx (which distinguishes it from Ranunculaceae)

b. Related Families. The Saxifrage Family has like insertion, but stamens usually 10 and pistils few. Examples of the Saxifrage family which are wild here are the Early Saxifrage and the Alumroot. Cultivated examples are the Goosebery, Currant, Syringa, and Hydrangea and Deutzia

The Pulse family or Leguminosae is also very closely related to the Rose family, but is very easy of distinction: formula $S_5 P_5 St_{5+5} C_1$

c. Importance of the Rose Family.

The Rose family is in the first place, large, containing 1000 species; 2d, universal or almost so; 3d, highly ornamental, containing ~~not only the Roses but the~~ Shrubs and the flowering trees; 4th, useful, from furnishing the more important fruits of temperate climates.

d. Kinds.

The Rose family consists of 3 very distinct Suborders. In the first or Almond Suborder, which is to be distinguished by its fruit being a drupe, or stone fruit, are included the Plum, Cherry, Almond, ~~Flowering Almond~~, Peach, Apricot, Prune, Prunello, Sloe, ~~Medlar~~, Nectarine; all of which are valued fruits of temperate climates. Three species of the Almond suborder are native to the District, the Wild Plum, Choke Cherry and Black Cherry. Four others are to be found growing here, escaped from cultivation; they are the Peach, Apricot, Chickasaw Plum, and Black Thorn. Over 100 species of this suborder are

POMEÆ.

Trees or shrubs; differing for rest of Rose fam., by Fruit always Carpels adherent to sides of Calyx & more or less to each other; the ovaries only 1-5; ovules 2, seed 1.

Peculiar in tendencies to monstrous flos; best order to study for morphological variation; best in the order is the Pear; of 20 a permanent monstrosity of 14 styles, 14 ovaries, 10 sepals in 2 rows, formed a link to Roses; (& Prunus is seen so too).

Localities; + in Eur NAs, mts of Ind, NAm; rare in Mex; 0 in Afr except N shore & in Madeira; 1 sp in Sicily Is, 0 in S hemisphere.

Wor, 16 genera, 200 sp. Lindley

Include

Pyrus, Pear	Bean-tree	(P. aria) timber invalb. for axle trees
Apple		P. communis, Wd also have as Pix; used by ind. [illegible]
Sorbus		
Mountain Ash		P. aucuparia, [illegible]
Chokeberry		
Serb		
Mespilus the Medlar		
Amelanchier	Juneberry	
Osteomeles		
Peraphyllum		
Cotoneaster		C. Uva Ursi & microphylla have slide Prussic Ac.
Nagelia		
Hesperomeles		
Eriobotrya	Loquat	
Photinia		P. dubia, bark used in Nepaul to dye scarlet
Myrtomeles		
Chamomeles		
Rhaphidopis		
Cratægus	Thorn	
Stranvæsia		
Cydonia	Quince	Seeds mucilaginous used to make a wine; find use, (Emmathic other)

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APPLE, the fruit; applied to the eye-ball, as round.
True origin unknown; Eur. at origin some fruit? or a ball? Fide the ff to an Eur form ABALA of wh. ala a sufix like Lat. alus, Eng al.

MEng appel, appil, appell vernalum 8116
AS æpl, æppel
O Fries appel, appa, Icel. epli, Swedh äple, äppla; Dan. æble;
OHG aphal, apful, G apfel Icel. abhal Gael. ubhall W afal
Boor aval Russ. jabloko Lithu. obulys

So Skeat, Rhind quotes opinion that it is allied to Gr. αστυς, Celtic apl, fruity.

Also wild apple called in compos; fires in woods to last yrs wood or one can only be equal to 2 yr growth; all called sue fr Wild Crab, qv.

Age see changes, Holder noted son trees in Herefds 1000y old & highly prolific. Kent says 200 the ordinary life of healthy tree grafted on a crab-stock in a deep-tenacious soil. Tree in orchd at Burcom-Joyce nr Nottingham, 160 yr old, has 7-8 yds rd the bole; in 1792 produced 400 pecks apls, 8 yearly; [illegible] Rouge varieties, Dubuch; culted to 60° N; vy good in Orkneys & Shetlds; sdy Ab lin N as in Ingld wh they showed. Lions, as A, wh they sd have no fruit trees if hd not been purchased by a [illegible]

Vaudrin, [illegible] 1000 yrs old.

Hist. DC considers the wild & also culted As to be to be in Eur fr prehistoric times; indigen in Eur; Anatolia, S of the Caucasus; N Russia; culted began early; [illegible] "pab lon only to the W Aryans"; absence of an earlier name [illegible] in Pers, 586) in India appears that its culture, now common in Kashmir & Thibet, was not by soc; yless is was there in NW & Central India. Western Aryans bndy the in N Eur. kept the name wd wh they hd lft it, wrt Ab; Joel hd noted the A tree as dried up in Pal in t of drs; Elloys rct is there to indic in was scarce as Rome; Ab; Greks used it μαλον, μηλεαν, vd of vy use, ορφανικη: coherence Attician μ ποιε; x Lat malus, malum. (Dec[illegible] wild & culted [illegible]). Basques lin in as sagara, wh implies [illegible] exce in Eur.

Prehistoric occurrence, DC. Free use of A and by inhbs of the [illegible] of Parma & of the palafittes of Ls of Lembdy, Savoy & Swiz; also cut them longdwns & kept them dried as provn for winter; specimens oft carbonized by fire, but instr than the mr oldy seen; Heer fds 2 kds A lin to L. Dwelw bt they lin metals; 1, smlr, 16-24 mm. lgthwise, 3 mm across, in dried & carbonized state; larger, 29-32 mm. lg, 36 wide, dried but not carbonized & corresps to an apl of the Gr-Swiss orchds now cld. compdnes. Bagwild A is sy of Nat, [illegible] the of LDs may be in wild, but ilr stage in stores mk it actual. Ors qu (p 236) fr L Neuchâtel, Lagezs Landby, Chapo Varese,

APPLE was so poorly used for fruit of oth from a cattle that earlier uses of the cod must not be rectly rlat to keep refere to our A, but the ordinary find its equiv in fruit instd, as in May-apple = May-fruit, the fruit of our common Anthlandrake; May-apple, the tuspid swelly com in Azalea; Thorn-apple, the fruit of the Thorn-tree; Love-apple, old name of the Tomato when culted for beauty of fruit alone; Pine-apple; Bramble-apple, AS for Blackberry. Ap Cedar-apples, cones of Cedars of Leb; Rose-apple, Jambosa vulgaris, Mahuap A, J, malaccensis, Tamirin A, Spondias dulcis; Custard A, Anona reticulata; Mammee A, Mammea americana;

If so in our com Eng now, much mr indef in apln in two centuries ago & bef, acdg to the tendency of the names to become mr & mr ill-defined the further back we go. So the apln of the Eve's Apple, and the Apple of the Bible to gently is not to our A, but to fruit mr gently; so wh the Eng Bible cmns the A it is also cmns mr A, but the Orange, Citron, Quince, or fr fruit in gen.

Gerarde not alluded to Mosentinner & Herefds; but by Elloys as if then com says "A trees of bear the lst pomdes cmn fr the sec mr trees in Hesperides or the ge That yield mr pmdr than a cool from."

Old names are Codling for a yg A, Costard a large A.

Shksp has 24 mnts of A;

An A cleft in two be not mr to me Than these 2 occurrences Merch. Ad. 1.
An coll-end pardner holly rotten Is like a [illegible] or a snails [illegible] Ad. of E. 3.
A [illegible] Ad. of E. 3.
[illegible] yet old enough [illegible] Cod[illegible] Malvolio, 1 Cen. Hy. 4, 1, 5.
Codling when it is ripe and, Malvolio, 1 Cen. Hy. 4, 1, 5.
Even like Eve's Apple doth day beauty pass,
If they sweet virtue d name not they show. Sonnet 93

In do pls the no cmn "rotten As"; "heads crumbled like A"; "there's rod chastis RA"; "bitten As"; "truths that light too"; "he rol carry the ild hm x go it his sm fr an A"; "as its sul 3"; "savored like an Apple-tart"; "Falstaff" coltwored like an old Apple"; "a pavcelr ilkd than kn"; "my dr lofs to apd kds fr wh see Ellwanda.

Bowmarcee
Dear Madam I know not if the very choicest shd Bonn apple-blossoms or if the selected [illegible] To hold, or if the vrtues call be bouque The most with thy delight. W of Olay.

Wild sorts DC [illegible] Eur exc fr N; Anatolia; S of Cauc; Pers pro Ghilan; smi trees at them seen nr Trebizond by Bourgeau; smo to be mt nato the pl in G; 3 rare wild in Ir; 2 ors in Pa, one called Malus communis or his domy ken, the [illegible] sweet fruit; ist the sec wild at Trebizond. Apparently cult in mts of NW India; & sd cultd [illegible] in Hills, & Washm; by escape nat x in many pts & cultd vars.

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CRAB-APPLE, CRAB, CRAB-TREE, WILD CRAB;

Scand. name; et. Sceth. krabbaple, a C; Pyrus coronaria; perh related to crab be worn of pincy, to its sourness; and so to crabbed.

Old Eng gives Crestbe, Bosworth Pro. gives as = tree, scorbus, malianus, acutus; and (?) = appetite or taste, malianum; MS Bodl 3388 = "malo-marciana" = "rose C."

Wild C of Eng has spines, sessile leaf, and ry acid fruit; note the coast of Bus.

Shakspr makes much mention of C; in Sp of Winter's Tale, Act IV, Sc. 4,

When roasted Crabs lies in the bowl When nutty ages the ales, and Crabs being held in for nr esteem in Britain now; the roasted hole served in hot ale was a favorite Christmas dish, & was a fav or we Ale, & nor far wanted of a holy tide for Gerard tells us that then "the sticke or kindred of Apls was in choice & hot bee could please fred. So Puck in MND, II, 1,

And sometimes lurk I in a gossip's bowl In the very lips of a roasted C.

And when the duke, apt his lips (Orl) And in her withered dewlap pour the Ale, We hear in Ilear I, 5, of one person being lk an "as a C to an Apl" and of "tastes as lk as a C to a C". Other allusions to the sour of a C,

Petruchio, Nay, any, Kate, any you must not lk so sour.

Kt. So is my fashion when I see a crab,

Pt. Why here's no C, & therefore lk not sour.

Allusion to its inferiority to sweet Ap

Noble stock Was grafted with a C tree, slip Suffolk in 2 H6, 3, 2

Allusion to [illegible] of Mercutio [illegible]

[illegible] here at home, one of Albany, II, 2

I yet beseech, let me bring thee unto Crabs grove.

Allusion to strength of the wolfy wood,

Fetch me a dozen C tree staves, & stump ones. Ant, V, 3.

Eng Crab is "sing one nate trees O me be wet than the C, both in the wbs. An old C tree in full fr is a sr that wl deft any orchst, tho is it sing use as jis nd is ry hard & ry tough, & fr its hair verjuice is md, prin in Fr, a kind of vinegar, also md & unripe pears; literally green juice; Fr. verjus, ME vergeoys, verjous)

Custom of the Crab-wake or Crabbing the Parson, as Hales-owen, Shr, on St Barnabas's Day, Jutes C, Brand Pop Antq, 1, 343, Bohn's edn; curious use of crabs.

Emerson, Eng. In his rich mansion, timely skill Strong Crab with rillac blood did fill; And the world sun warmed to cine Pe drudge all day for Eng the wolves.

PEAR, Pyrus communis

Wort unka; cuwce of Perry the wine fr it. (perrie, fr Fr poire, perry, fermented drink made of pears) fr Fr poire a pear; Roman mis Pliny

ME pere, Chaucer CT. 16205 : A-S peru (Ten pera), pera, pere, Lat pirum a pear (Pyrus Pliny & Clum)

Pear-tree, ME pery; Chaucer, pirie Plinnian; A-S piriga, Elfric.

Sm this pear? is to penila Lwo hot (for a little year? as Horace calls a pear a berry, bacca) (Sp. perilla, a lit pear and also for a pear-shpd ornament; O Fr. perele, a lit. bunch or wsp. Fr perle a Pearl was used for an onion & a berry also).

Wild P is thorny & has upr bes tendy to pyramid shp with apl; twigs or spray hairy; wild in Eng, & + in Fr & Gce & Bur, geo, to Russia to lat 59°; ne also ang rolli: Ah. Wild wor Was esp Anat, S of Conc, & in N of Lors, DC, prin in mtns regns; prefs thrive & Bursce to all cultn; fr is & fr P nivale are the cuted vars.

Wild P of Eng diff fr fr sm cute vars; bot sms, sprd, nard wood, stalk or sely rd on sm trees. Relapses fr cultn acc in US

Unlike to Shr, Hob, Aromatic lgs; does not flour in hot cls; latterly cuted in Ind.

Hist. Homer, Theophr, & Dioscorides call it ἀχράς, ἀκρίς, ἀχρὰς; Lat cuted in Pliny + vars. Mural pts at Pompeii ofc cope fr to its fruit.

Lake-dwlrs of Switz wbl gathg Apl in qu, less soil; P sold fd among the stores, not sents; I fd at Wangen or Ribenbausen, nauseous below, 1½" lg, 1" wide, cut showed coal pale and w cartilgns centre. Anny fd at Lops di Vinesse [illegible] Wild P of Fr & Bucharest [illegible] wl Wild P bu fleshy [illegible] [illegible] bu the sun or the [illegible] the [illegible] after cutg (wen P was, wbl must bu chrunk them, (as the flesh, pave) No kn of metals or bonys in the pls; poss not older Fs bower than Trojan wore or fdn of Rome, DG

Aryans certly did not dt Pirewood but tndg it in Eur may bu fm it the ns they wr used to gr it, wbl con prves ns survv, as Basque udarea & madaria, the Sr & Rom diff ns, the Armenian & Georgian pauta, the Hung vatsler, the Slov (Rus. gruschia, Bsh. hruska, Illyr. kruska) all diverse, pt to its orgl origin of ld bet those peoples.

Homer mks P one of the trees of Laertes' orchd in Ithaca.

In Eng Chaucer has it in the garden of January, as the tree of whs fruit his wife May was to find,

So long abt the alleys is he gon, Til he was comen agn to thilke Pery,
Whereas his Damian sitteth al merry On high, sing the bethe lorez grene.
Now Sire, quod she, for ought that may betide I must have of the Peres that I see,
Or I mor die, so sore longeth me, To eten of the smale PERES grene;
I tell you, wel woman in my plit May have to fruit so gret an appetit
That she may dien, but she of it have,
... Wold ye vouchesauf ... The pery with your armes for to take ...
Then wold I climben wel ynough.

Shksp makes but 4 refs to P; Ellac. supts they are all worthless, & he ans tsbn bad be respect fr it; they are "as overtallen as a dried P" Falstaff; "sue Pe withered Ps" etc. Yet the ne pd Ps they as Gerarde "the stocke & kindred of Ps are not to be rad"; Shksp mentns 2 sprd Ps; the Warden P, (so named to its early ripg the Clerg or Abbey of Warden Abbey, Beds, fdd 12th cy) "Saffron is dr the Warden Pies," Winterslo. Parkinson says "the Red W & the Synk W are reckoned

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amongst the introduct of Ps, ein is bake or roast, for the sick or for the aged; indd the Qu & the Ware the only 2 fruits that are permitd to the sick to eat at any time." Ellac. renders the Sattam-cild W Pies of Skk & are now replied by stewed Ps cld in Chineal.

Shkp also mentions the Popering Pear; Menutio calls Romeo a Poperinell; Parkinson says thr are 2 PPs, of Sum & Wing "both very sd, firmy dry Pears, smellt sweet & trish in outsd". Pit a Flemish pear, prob introd by Leland the lexicog, whom HS md rector of Popering.

Kin sd to have pleind in a dish of Ps by the counts of Southstead.

HS's old bk of mind acts has them "2 d to a woman who gaff the lying pers".

Ype bone in arms of Warden Aby & A Ware; prob nfthd of W calcb thus as now for ier Ps.

Geardr wrts a vll wd be reqd (first) all the lds of Apls & Ps, add Master Ric K Pointer has them all prog in his grd at Twickenham nr Lon, who is a most cunning & curious grafter & planter of all manr of pare fruits; & also in the grd of the an excl grafter & painful planter, Master Henry Bunbury, & likws in the grd of a diligent & mt attcht lover of frts, Master Warner &c.

Pear much finer cultd by Fr & Neth, our best vars thus fr them, w foreign names oft corrupted, as Bury for Beurré, Bon crutching for Bon chrétien, Chaumontel for Chaumontelle, Fondant Bosscq; Vergulieu, Jamonl, Winter Bergamot (Bergamotte), & 600 vars.

Cultd P diffs fr Apl in nr tendy to lf-sup res; in being as a seedlg (prts bome to bearing (15-16 y); in being fr lived (when on its own stock or a wild pear stck), lvs in dry soil for centuries in Eng. Bear at Brussels & sdlgs it is sd in 4-5 y; but slw better 2d or 3d (prof) bearing.

Propgtd by seedy layers, suckers; not easily by cuttings; approved way is by graft or budd, gently on cam pear or wilding; suc well on medlar, quince, sorbus, white beam; on quince or white-thorn P is dwarfd & brot earlier into bearing (as Apl is effected in both ways so by graft on the paradise or okepest and on the thorn the P cut its pollic, & wl thrive well even on stky clay; Duff. Rh.

P frs in cymbs, not on the former yr wd, but on spurs prong out of wd not yr them 1 year old; prjecty spurs must be left all wn tree. If frs wanted, Rh. Sept this pear not as hardy as Apl, but the growth of the tree is for more defant; & sould P tree, w its curiously roughened bark, 40 ft tall, pyram shape; sheet of snow-wht blossms, is a lovely ornamt of an old garden & lawns of mny cd houses" Ellac.

One of the finest allusns in Lit is Browning's,

Hark, robt say blossmd P tree in the hedge
Leans o'er the sld & scatters on the clover
Blossms & dewdrops . . .

SNOW-PEAR Pyrus nivalis Jacquin, cultd in Swtz, Nlt, Ex & Scotl Fr. I so cnsd it to be Gar in Schneebirn, bcs Austrn peasts eat its fruit whn the snow is on the grd; cld by Fr Poirier d'hiver, Sapely, bec wd side of lvs is cov w a white down wh makes them lk Sage (Fr Sauge). Cultd in Fr to mk perry; being the rst of the Cider Pears, fruit sour; bv gen wild in Fr wods occ; sol vars, bear a large fruit. Gar & Rees md cider & prb had this P; Decaisne thks the Pin, to be fr the P hotschyana Boissr (later named) wh is wild in As Minr.

SAND PEAR, CHINESE PEAR, Pyrus sinensis Lindley; rmbl allied to cval; wild in Mongolia & Manchuria; cultd in China; fruit is large rather than gd; used in preservs; recently introd in Gr gardens trying to cross it w nrsp.

ALLIGATOR PEAR, AVOCADO, Persea gratissima, of Thunberg, Laurineae, is lk a P cotnly; large tree; wild fr Mex & N Gr & W to Amazon; both wild & cultd in Mex & Gr. Introduced, cultd in Kew Gdns in 1850. Illustrated at Kew in the Gardeners' Chronicle (of one highly prized tropical fruits. Rhind 374.

SERVICE, TRUE S, Pyrus domestica, native of Fr & B Is, occ wild in Eng, now only cultd in Eng; mdd sgd tree; lvs cmall, pinnate, villous bcn; produces abundnt frs; 2 vars, lo applesape, & pearshpd fruit; vy sml, eatable only when mdd lowed by age; pecln acid flavor. Wood vy hard, homogeneous, qu free of pores, used to mk mathematical nstrs; in Fr once used to mk the screws for wine presses; propag by seeds, cuttgs, layers, or grafts on seedlgs of its Rhind. Sweet O; Ware O & exc to quce its culture in Genoa & Beckmann's expce. "A basket of services". The Sorb (mnd by Milton) Sorb-tree, Sorb-apple, is expld in dicts as the Service; as Sorbus domestica of L; prb Pyrus (Sorbus) domestica; mentnd as Sorbus, Cl, Pall, Ming; & as fruit as Sorbus, do, & Cotoneaster, & Veg. 6.3.380.

SERVICEBERRY, JUNE-BERRY, SHAD-BUSH, SHAD-BLOW, Amelanchier Canadensis, of N US, called Am. by Savnards

ROWAN TREE *Pyrus aucuparia*, QUICKBEAM, WILD SERVICE; MOUNTAIN ASH OF BOROM. *Bhimd* 445

Juliet; It is the Nightingale, & not the Lark That pierced the fearful hollow of thine ear;
Nightly she sings on yon P tree." ; of wh Kate quts fr Russell's Hist of Aleppo, "Hap to a bird, says in silence he heard such a choir of birds as in a row of P trees that skirt the road fr Smyrna to Bendjia."

POME GRANATE *Punica granatum*, Myrtaceae.

"Its scarlet blossoms, glittering foliage, rosy-cheeked & kernelled fruit, must have strongly excited the mystically disposed imagination of the nations of WAsia from the East." Its Syro-Phenician name *Rimmon* is same as their sungod, *Hadad Rimmon*.

In Gr: Venus is said to have planted the tree in Cyprus; it was dedic to Adonis; is intimately connected w the divine myth of the Phrygians.

Homer in Odyssey twice mentions Ps as *ῥοιαι*, *ροιε*. (The Athenians continued to call the fruit *ῥοιε*.) Doubtless the *apple* of discord was first imagined as a *pome*.

σίδη, anc name for tree & fruit in Gr, prob. a Carian or Phrygian wd, first appears in a verse of Empedocles, 450 BC, qu by Plutarch. Boeotius used *σίδη* for P tree, Ath's *ῥοιε*; says Athenaeus, the two quarreling about a broken land named *Side*, Epaminondas suddenly held up a P tackle. What ails the [illegible] Ath's [illegible] Ep. cried, but to call it *σίδη*, [illegible] his cause [illegible] [illegible] had been derived fr this word; at Side a town on Laconian coast, named fr a d. of Danaus; *Sidene* in Lycia; *Sidous* a village near Corinth on seaport in Megaris had very fine *μηλα*, wh were if place-name a guide, Ps; sd villages *Sidous* on Attic coast near Klazomenae & Erythrae; *Sidenessa* in Iaonia; *Side* in Pamphylia, on whose coins is seen a pomegranate; founded by Aeolians fr Kyme. *Side*, lofty coast-town far within Euxus, in the beautiful district of Sidene; *Sibda*, an older form of the name, brings us back to Caria: see Pliny sub v.

rimmon, Semitic; *ῥιββαν*, a kind of large P; [*ῥοιβάν*] [*ροιβάν*] *ῥοιαν*.

Κόκκινος also for the blossom of P

βαλαύστιον, " " ", prob. an Oriental word; hence Ital. *balaustro*, *balaustrata*, Eng. *balustrade*.

Myths. Theban, Asian & Gr, & Gr-Roman; symbol of fruitfulness & procreation; & of death. Theban legend w. Phrygian coming, that P planted by the Furies grew on the grave of Eteocles; fr its fruit if plucked, blood flowed.

Anar, a P w fruit red as blood grew on the tomb of Mnemoikeus, who, obeying the Delphic oracle, k himself on approach of Persians.

Dionysiac; Dionysus lay in a cave surr. by vines, apple-trees & pomegranates, as figured on the chest of Cypselus at Olympia in Hera's temple; made in 1st qr of the Olympiads; fd. in pl. by Pausanias.

Hera; her statue by Polycletus in her temple, betw. Argos & Mycene, held in one hand the sceptre w the cuckoo, in the hr a P. Pausanias descr it, says the latter symbol cannot be expressed. Hera holds it as the earth-goddess, fructified by heavy showering rain. cuckoo the rainy springtime, & fructifying

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Persephone; P a significant part; Hymn to Demeter tells how Persephone was forced in the world below to taste the pip of a P, i.e. unite sexually w Aidoneus, & became thereby subject to him.

Athens it could not be dedicated to "goddess of intellectual chastity" as P mystically symbolised the natural life; until Cimon erected a statue of her on the ascent of the Acropolis, unveiled, in her right hd a P, in her left a helmet; bec he cod imitate the statue of the P sacr of Side, a town close to the Eurymedon, where Cimon had gained a double victory.

In Italy

Hera's worship in Achaean cities in Ita no doubt retained the Gr use of the P. & its cultn, nose temples & in gardens; the statue at Olympia of Milo of Croton, a Magna-Graecian athlete of 520 BC, was copied as priest of Hera bearing a P in left hand.

Roman Ritual in use of older poets mentions the P; the wife of the Flamen Dialis in manner & dress was an image of the Roman matron, & place on her head a P branch, its ends tied together w white wool thread as sign of wedded fecundity; & her husband's head was adorned at top w olive branch, oh cannot be older than the P & was introd into It. t. of the Parcquins.

Imitations of P in clay have been found in quantities in the anc tombs of S It. especially Nola "Gerhard

Aidon P were pub reddest, sweetest, juiciest;" piplers African P" Martial writes of its soft pippes: hence Rufinus name for P of Malum punicum. Rufinus Festus Avienus, Prosper, date fr. cir BC, it has been in Afr, perhaps a little prior to Pun Wars brought it from there, adding "Not that my own garden is without their fruit, but it is hard & sour, & not to be compared w the nectar produced by the warm sun of Africa!" Vandals in Afr, no doubt called it, Arabs, lovers of flies & refreshing fruit juices" did so, calling it Romman, Avicenna, vol 2, the Portug names for it now, borrowed fr them; the Arab contentedness in the rind gard was of frem of P, hence the fr derived their present name for the S, romano, romaine. Granada, founded by Moors in 9th, is said to have been named for the P; figure of P was adopted in its arms, & still adorns all its streets & public buildings.

Roman writers mention the P com from Carron, Pliny many kinds, used in various ways.

Med Wild P, i.e. P com wild, have in mind Ir & Gr, as they bedges w unscathl fruit. Even the cultd cultn & of inferior flavor opd w Afr; the beauty bed Ir fruit belonging placed on table for sight rather than eating, the Lemon having taken the pl of the anc P in its esteem; the people in Gr still connect the P w idea of abundance & incalculable no; Kotto 1894 coming to "Dionysius, an old woman bore him a bag P & wished him as many happy yrs as there were pips in it. And in Gr. a pomegr. & the scarlet fr is a symbol of the most ardent love"

Wine see P 237-8-9-40.

Bilbao see p. 169-171 Rhine 358

In Eng. same pr. Bilbao list resident tot E 1, "one malo granatus, VI. lxiv. 5, and pro vino nostrum pomegranatum, xx. lv. lxiv 5" i.e. 8d 5 for 6 Pr; & 60 5 for 20 lb. Office for them. Chaucer in The Garden full ripe P (pip) Rowe, & full ripe P, & Pomegranate of a fair pretty delle." "it is a hair there being so many of them." Gy. w Yarrow & Yarrow. Rosevile had it 1596; says it is their Granada red its arms

QUINCE and Pomegranate were both included by the ancients under the general name of Apples

In Myths, the Q idealised was the Golden Apple of the Hesperides and of Atalanta

In Rites the Q was the apple dedicated to Venus & used as bridal gift

In Customs the Q was the apple used in all kinds of girl's games & love games; could not be eaten raw, but on preserving in wine, must, oil, & esp. honey, it gave them a very fine aroma & taste.

History Its Gr name Cydonian Apple proves it came to Gr fr Crete, land of the Cydonians, who whe Semitic or not, were of its oldest & semi-mythic inhabs. They lived on the NW coast nearly Jardanus: their city, Cydonia, mater urbium of the Q; fact of Q named fr it indicates earliness of its introd to Gr.

Alcman 650 BC mentions it first, Stesichorus 600 BC, the Sicilian poet also; Solon decreed about that time, in confirmation of old Attic laws, the bride shd eat quince, in the bridal chamber, munch a Cydonian apple — to consecrate herself to the service of V.

Ibycus of Rhegium It, a born Italiote, 550 BC, speaks of Cyd. apple trees in well watered gardens", proving cultn in It.

Italians early adopted its cultn; as indic by its Gr name latinized as mala Cotonea (fr Cyd-) ; " " by Properties, comparing fr more simplicity "Once the young people gave each other Q's shaken down fr the tree, & baskettfuls of blackberries, but now it must be Gillyflowers & luxurious Lilies!"

Varieties see, t, Pliny & Columella; the malum struthium litly sparrow apple they mention, had been mentd by Cato

Use is t Pliny; Qs placed in rooms for their perfume as any and's made & sweet confection fr them. Like the modern Ital cotognata. Ann van mentioned by Varro Horace & Martial, melimela, = honey-apples, many suppose were but sweet apples; were a var of Q, fitted to cooking w must & aft, in honey; hence Sp. membrillo, Portu, marmelo, quince jelly; marmalade fr Portug. Span membrillo was also exptd fr Spt & Rome time Galen.

Modern Q not com in It, much less in Sp. but the pineapple & orge In the E however, & all over E Eur, "that region of preserves & confectionery, the Q was in Mid Ages & is now a cheap & com sweetmeat of imagery in the bazaars; striking proof of it seen in the variety of names for it in Slav nations, some being Pers & Turk words.

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Chinese Q. is Pyrus Sinensis (Cydonia) at —

Japan Q. P. Japonica or C.J., is Burning-bush or Mag Qu at our gardens; possd here acc a lit. hard tait.

Quince, P. Cydonia, see Rhind, p 327 8, & DC p 236 7; DC considers it to Not Boeotia, Sab Cauc, & Anatolia.

Bilsc. p 181-183.

Tusser mentns 1, "Then call for Dates & Quinces in the pottery", Nuts in Rol.

Chauc. Rot Rose, And many homely trees ther were

Mirr Peches, Coynes & Apples bean, Medlers, Plommes, Pears, Chestoyns,

Cherys, of ich many ore fayre is, Quince & Coyne, Cydonia.

Nominale, 14th Hæc Cocianus, a coreube

Vocabulary, 13th Hoc coccinum, a quoyne

Walter de Bibesworth, Stacy, 1351 trovere en ce verger

E-stang un sek Coigner (a Coyn-tre, Quince-tree) They fel on the rote bolden ale.

Skeat, see for derivation.

HAWTHORN

Crataegus oxyacantha.

Also called MAY, QUICKSET, HAWTHORN, WHITE THORN, ALBESPINE, ever a favorite to all lovers of Eng. landscape. HAW, HAG,

Bilsc. p 84-6 gives qu for Shape, Bramble, Juniper,

Rhind, p. 447

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MEDLAR *Mespilus Germanica*, a middl sized branchy tree; brs woolly; cov w ashen bk; the wild, armed w stiff spines; lvs oval, lanced, serrat; woolly toward apex; petioles vy short; channelled; flrs on eml natl spurs at ends & sides of brs; bracteae lg as the petals; sepals ends woolly (clos'd); petals white; flrs June, July, ripe Nov. Naturlzd rarely in Eng hedgerows.

Fruit res smlr apls; has gd deal of flavor; not fit to use tl vy ripe, sold a new so whl on tree; timber vy hard & durable. Slow grower; lasts to great age. Supsd to be natr of S of Eur.

Kinds; *Sicilian*, in S, rises to be a large tree, w straight stem & pear shpd fruit; *Dutch M* not cultd in Eng; not tall, crooked & untidy w brs; lvs much larger than dy common M; downy beneath; fruit larger & firs; flavor & pungency inferior to smaller kd, wh is cld *Nottingham M.* Rhind.

Ellacombe has of it + A tree M fr full of blms is a hdsm ornamt to any lawn; thr are few decid trees th mk bett lawn trees; O stiff abt its growth ov fr its early youth; it forms a low, irreg, picturesq tree, excl for shade, w vy hdsm wht flrs, fold by the curious fruit; it wl not flower do well in the N of Eng, or Sc.

Chaucer gs it a vy pomplic in his descr. of a beaut. garden; *Flr & the leaf.*

I was aware of the faireste Medlar tree That ever yet in alle my life I see,
As full of blossomes as it mot be; Thereon a goldfinch, leaping prettie
Hop'd bough to bough, & as him lust he eet Hoge & chr of fruites sweet.

Rotten Ma Gouch said to the [illegible] There is no more [illegible] a ripe Peach, or Nectarine, or Apricot, or Plum, or Pear, or Strawberry, but Medlars only; and a ripe I as rotten." For the softness, then, of the ripe M, cmpe

Chaucer. That ilke treyt is ever lenger the wores Till it be rote in a mullicr
We slde noon, I drede, so fare we; Pill we be rotten, can we not be ripe.

Shakesp. They wd hv said me to a rotten M. Lucio in Meas. for M, IV, 3.

Dido wl he sit under a M tree, And wish his mistress wr that kd of fre
As maids call Ms when they laugh alone. Rosl, III, sc 1; Merchtis.

"Truly the tree yields bad fruit;" says Touchstone.

I'll graft it to you (says Rosalind) & then I shl graft it to a M; then it wl be the earliest fruit in the co, for yo'll be rotten ere you be half ripe, & that's the right virtue of a M." AYLi, III, 2.

Shakesp has 1 ex allusn, *Timon of Ath*, IV, 3, wher Timon says he hates a M, when one is offered him.

Skeat derives it fr Lat mespilum, Plny mespilus, Gr μέσπιλον; by curious interd of d for th, thus OF *meslier* and OPicard *mesle*. The fruit is pop in Eng. *medle* but obsolete; the tree is the medler tree; it bears *medles*; in Sw Bevis of Hampton we find *medle-tre*; Romaunt of the Rose, 1375, *medler*, a medlar-tree.

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LOQUAT. *Eriobotrya japonica*, tropical, for hard, sweet, fruit of peach, fine yellow; "good as a mango" Sir Jose, Barbados brot to Spain in Eng, in May by store heat; may be grafted on any sp. of genus E, even the Hawthorn.

DRUPACEÆ, or AMYGDALEÆ

Trees or shrubs. Lvs simple. Flrs wht or pink; 1 or in umbels. S5 P5 St.20 Pistil 1 ovary, 1 cell; ovule 2, style, terminal, stig. capitate: fr a Drupe, Bk yields a gum; nar gnl prop of Hydrocyanic Ac than in Roses; monsoous Plums or + ovaries mk Hnk to Roses; betw Lepum & Ro the Mimosae & Amyg- are links both to stale structy gums in Bk, & sm to peculr astrin-gency as *Prunus* — & *Acacia Catechu*.

Only in N hemisph, in cold or temperr. Tropical or subtr- are *Cerasus occidentalis* in WI, some Plums in Braz woods; *Amygd. microphylla*, in Alas, in hot arid plns of Mex; & *A. orchinchinensis*, sd to grow in CC woods.

Nos, 5 genera, 110 sp Liy.

Uses, + medical, for the acid in them.
+ edible
gums for all, similar to G Tragacanth
essence, Oil of Bitter Almd; Oil *Prunus brigantiaca*, thille des Hautes Alpes, with of plums
tea, lvs of Sloe & Bird Cherry are substit for Chin, Bk tea is oft adult by lvs of Sloe in Eng.
brandy distilled for prunes, they cont so much sugar
Kirschen-wasser, a liq in Vosges & Bk Forst, fr a var of Bird-Cherry.

Genera;
Prunus
Amygdalus, L. the Almd
Persica, Tourn. the Peach, Nectarine, Apricot.
Cerasides,
Prunus L. the Plum, Sloe,
Cerasus, Juss. the Cherry

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ALMOND *Amygdalus communis*

Rhind p 331-2

DC p 220 considd it to Medit, basing on, tempor Asia.

Shkp mentns it once in *PtC*, 5, 2, wh *Theophras* says Ar. *The parrot will not do more for an A*, of wh E remks *An A for a parrot* sms to hold a comb for the pr temptan that cd be put bef a man.

Spenser, FQ, i, 1, 32, Like to a A tree ymounted hye
On top of greene Selinis all alone
W blooms brave bedecked daintily.

Chaucr, Rom of the Rose, And Almandes gret plente

Alex Neckam, Noyz de Valmande, nux Phyllidis

Gerard "in our Lon gardens it exceeds in gr plenty"

Losing introd by Rom prob; is in A-S lists of plts; in Durham glossary of Rtn cy has the name of the Eastern nut-beam: Welsh almaundis, almonds, almaundor, wh tree.

Name fr Gr. *αμυγδαλος*, L, amy-, Prov *amandala*, Fr, *amande*. The *l* inserted prob fr confusn w ME fr forms havg *alm* in wh *l* but lie add, Sk. So its Sp name, *almendro*; *almendro* an A tree. Gr *αμυγ-δ*

Hebr name Shaked most expressive, fr *awakening*, so a most fitg n for a tree wh beaut flos appear in Feb - in Jan shows the colsg up of Creatn. Alw a favrt in Bly.

Old supn not yet extinct in Eng, that "*Dose* As being then tasty do lep a man fr being drunk" Gerard; Lindl. quotes that Bitter almonds x Resin fns a remedy in cases of.

FLOWERING ALMOND or DWARF A, *A nana*, "a lit shrub of the form that is my property in the beat ess of a strawberry" Ellwc "Something vy charming in the poetry wh belgs to this, of blooms on the bare brs; —

"The hope in dreams of a happier hour That alights on misery's brow
Syrge act of the silvery Almond flower That blooms on a leafless twig."

One of the most beaut tales of the Grk myth, that of the loves of Phyllis x Demophoon, is told in this prop. of the A" Rhind, "In Eng A are chiefly cultd for the beauty of their early flos; x for this reason the common kind x the dbl-flwrd dwarfs, are preferred" Rhind.

BITTER ALMOND *Amygd. amara*, Rhind 331-2

PEACH *Amygd. Persica*

Rhind, 328-331

DC. 221 — considn, fr China.

Skeat; fr L *Persicum*, the P, fr Pers, Pers, *Persia*;

"Peaches, Sir T Elyot, Castel of Helth

ME, Peche, Peche, Peske, Prompt Parvulorum p 335

or Peche Swedish Persica whence L, persica, shortened from of It. *persica*

All the above for the peach, as growing on L. *persicus*, i.e. P. arbor, the Persian tree. So Portug. pecego.

Ellacombe, Rom prob instead P. into Eng; occurs 9xx in Archbp Ælfric's Vocabulary as *Persicarius*, *Persico-tree*

13th cy, fr de Gaulandgreco it, "In vicipulto Magistri Johannis, pozzicus fert persica.

1276, 4 Ed I, note of purchases of Palace of Westminster has "Will le Gardener ... pro j peschere vjd." i.e. for 1 peach 6d: aga. pro ij pescheve iii s."

Eram, Pomo, extoll, "Peche or Peske, Forte - Persca Prunum Persicum"

t Tolp, vol kn tree, fruit a gr delicacy, + diff vars cult. But he alludes to it only in Measure M, whn the clown refers to suits of peach-colored satin, wh now peaches him a beggar. and 2 H IV 2, 2, some Jeffrey jokes abt peach-colored stockings.

Gerarde, "with color like unto a peach" Flowering Peach, of the Parkinson, E says "Pero too to be here dreamt a tree is the P. as an 'ornal' fruit."

Shkp, Why do I praise a P, Nor on my wall now yet on my reach?

Digitized by Hunt Institute for Botanical Documentation

SLOE *Prunus spinosa*; this, *P. insititia*, & *P. domestica*, are regd by DC as the 3 wild Plums of the Old World; BLACKTHORN.

DC p 211, 212.

Rhind p 330

Ellac. The Sloe is a shrub of very marked appearance in our bottomes in early spg, when it is covered w its pure white blossoms, but the thorns & leaves were indispensable in the implements of quasi-warfare, & the 3 pot treat than (Engl proverb) as Plackes & Sloe was my cass, & as useless as a Sloe, no not worth a sloe, also,

Sie Amys answered, "Do'
Lgv thee thoest not one Sloe!
Do right al that thou may!"
Amys & Amylion, Ellis Romances

The official seyde, 'Phys ys nowth
Be God, that me der bowthe
Het ys not worthe a Sloe
The Frere & his Boy – Ritson's Popular Poetry.

But the end of Acepo gather up Sloes, Have thou in readiness plenty of those;
And keep them in bed-straw or still on the trough, To stay both the flux of thyself & thy cow.
Thos Tusser thus advises; so even as a hair the Sloe had its value!

BEACH PLUM

CHERRY *P. Cerasus*, L.

DC p 207 cultd, fr the Caspian to W Anatolia

Rhind p 334-5

Ellac. p 40, 41, sul Shkp extra,

Sheary, p 106, derives it fr Lat C, Gr κεράσος, fr cy Cerasus in Pontus whence Gks say it came,

Extracts, Shkp, Helena in MND, 3, 2, – Shkp Helenagn, O how ripe in show
Thy lips, those kissing cherries, tempting show,
Shkp, Lady, H 5, 5 1,
'Tis as like you As Cherry is to C,
Shkp, Gower, She w her needl composes
Natures own shape of bud, bird, branch or berry
That even her art sisters the natural roses,
For indeed, silly twin w the ruddied Cherry.

So we grew together
Like to a double C seeming parted
But yet a union in partition.
Two lovely berries moulded on 1 stem.

Venus & Adonis,
When he was by the birds in pleasure bode
That some wd sing, some other in their bills
Would bring him Mulberries & ripe Red Cherries,
He fed them with his sight, they him with berries.

BIRD-CHERRY, *P. avium*, GEAN, GUIGNE in Fr.

Rhind p 335

DC p 206, 7; consid. to be the only fr W World species wild wh has prod. cultd cherries; fr. W temp Asia & temperate Eur.

Digitized by Hunt Institute for Botanical Documentation

LAUREL. *Prunus laurocerasus*, one of the most generally prized evergreens in Eng, but introduced in 1576; first in Eng to Parkinson; cons in Eng gardens 50 y, later, to Bay; now used in ev shrubbery. Lvs for centuries a considbl prussic acid, wh used to flavor food; but juice in excess is a violent poison. Sot have bn poisoned by cordials flavored w infusion of lvs. Laurel-water is distilled for the recent lvs; poisonous. Bears a small red berry wh is also poisonous.

Portuguese Laurel, *P. lusitanica*, also a highly adored evgn shrub; introd to Eng from Port; prob not there a nat, but to Madeira, etc.

LAUREL of the ancient Laurel wreath is *Laurus nobilis*, of Lauraceae, an order of trees in the cooler tropics, represd in Eur only by *Laurus nobilis* & in the US by *Persea* the Alligator Pear, see *Pears*, *Sassafras*, *Benzoin* the Spice-bush; abt berries sd to be bn used for Allspice during Rev.

Camphor is fr *Camphora officinarum* fr wood, bcs & lvs, by dry distillation, in China, chiefly in Formosa I, exported to Canton. Rhind 489

Cinnamon prod from sot sp of *Cinnamomum*. Rhind 482

Cassia, the spice, is from same; mostly all sp of C; Chinese Cas-tlk fr *C. Cassia*. Rhind 483

Daphne (Gr), the Mezereum of gardens, shrub w lilac-purple or white flrs, of the related tribe Daphnoideae, fam Thymelaeaceae. See *Daphne laureola*.

Ocotea foetens, a large genus of trees, yields val timbers in S Am; in Africa wd, the Stinkwood of Jamaica, a hard, yellow durable wood; *O. exaltata*; *O. opifera* constitutes part forests near the Orinoco, yields sev qts of odatile oil by single incision; its fairt yields yellow-wine-colored aromatic acid odatile oil, used as liniment in bros & *Camella de Cheiro*.

Laurus nobilis, the Laurel of Rom, *dafny* of Gr, consecr to priests & heroes, used in the rocks, sml tree in S Eu, prolific in suckers & low shoots; forms a dense yet broken & picturesque mass of a cy dk grn inclng to olive; + cons w berries, dk purple, or blk, & sc odr an oil is made by boiling water. Lvs & berries have a sweet odor, aromatic astringent taste; oil yel-grn, strong but similar odor & taste. Hence it also is the BAY TREE; AS - bcoy-beam, the Garland Tree; as Chr Brooke in t Shep writes, Rhind 453

And when fr Daphne's tree he plucks more Bales
His shepherd's pipe may chant more heavenly lays.

Shkp, R 2, 2, 1: "D is thr the King is dead, We will not stay
The Bay-trees in our country are all withered: the Roman superstn; and used to deck the dst dish at high feasts, w Rosemary etc;
The wrinkled shrivels as the green Bay tree" in the Sor. is that to refer to Oleander or Cedar.

Sassafras, Rhind 525

Oreodaphne Californica, CALIFORNIAN BAY, becomg cons in cultn in Eng gardens, w bot gnr lanceolate lvs & pecul aromatic scent; arts v liable to be cut by spgr winds as *L. nobilis* in Eng; in Am US the v best timbers for cabinetwork, esp for ornamnt pts of pianos, etc.

L. indica, ROYAL BAY, in Va & Conny is VIG MARTICO in Madeira, imptd to Eng as MADEIRA MAHOGANY, lk m but lighter; cored is yel & rather lk, used for bldgs & furniture. Rhind 459

L. Carolinensis, RED BAY, lk 70 ft high in Carolinas, S Va & Ga; lvs & flrs sly res to *L. nobilis*; same aldr when bruised. Wood, beach, reddish, shy fine compact grain, v beautiful, polish; bef mahogany was much used for furniture; later for shipbldg fines strength & durability. Rhind 459

AVOCADO, ALLIGATOR PEAR, p. 505

LAURESTINUS *Viburnum tinus*, sml dwf V, highly ornamntl shrub, lvs evgrn, obly, undg, flrs +, cohice, showy.

MYRTLE, the dr grn evergrn of classic assocn; a most abdt shrub in S of Eur, prob introd into Brit bef Shkspr, kept alive w difficulty, held at the emblem of refined beauty, a delicate & elegant cacity; in Bible assocn also w peace & plenty; in Milton w. the Bower of Adam & Eve,

The roof Of thickest covert was inwoven shade
Laurel & Myrtle, & what higher grow Of form & fragrant leaf.

In ancts, dedicr to Venus, hence in Mid Ages was the Ab for bridal gnrlds, (since repl by Orange blossom); as in *Boxtunphe Ballads*,

The lover w Myrtle sprays Adorns his crisped cravesses.
And I will make thee beds of Roses And a thousd fragrt posies,
A cap of flrs, & a kirtle Embroidered ofr w lvs of Myrtle.

Shkpr of Venus Then sad she hasted to a Myrtle grove Wh A
Venus w ys Adonis sitting by her Under a M shade began to wooh him.
I was of late as petty fr his ends
As is the morn-dew on the M-leaf
To his grand sea. *A & Cleop*, 3, 12. And so Virgil,
amantes litora myrtus,
ie. the M, thrives best nr the sea.

Deus M is of M Rom, f 415 gen, c 1300 gr, Ly, Myrtus communis. Victors at Olympic gs wr crned w c. Its oils syst of acth for Ath, nrvlgia, trts & berries wre both infused in wine, the latter used in anch cookery: anch medcnl also. Nato of Persia, naturlzd in S of Eur S: 1, Hbr. Rhind 600

Myrtus cotinacea, Sumach-lvd M, nato of Egypt, the WILD CINNAMON, vy elegant tree, show growg, flrs late, 2 cay, bark aromatic, wdrt & lgs in shoe in age; wd red, vy hard, fit for mill wk; berries lk peas, used in cotg; please accnts. (Rhind 600).

Hehn.

Laurus nobilis cannot be traced further than to Thessaly
Myrtle Myrtus communis can fr the hon of Tyrius, Lydia etc
" fr its balsamic odor
Wild myrtle of Dioscorides is Ruscus aculeatus
Laurus silvestris of Cato is Viburnum Tinus
Box. not fr S Eur nat says the Autn, yes says Brts.

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Daphne, the Mezereum of gardens, shrub w lilac purple or white flrs, the berries poisonous. Dr. Prior

Obeche, the Mozambique

AURANTIACEÆ, Index of Rutales of Li'97, p 457, g 20, sp 95

Trees, smooth, filled exactly co lit tgt receptrls of colatl oil; lvs alt, cpd/sim arch w petiole) rectle ferm winged. Sg 5 P 3-5 St same or 1 or, C, Fr succulent.

Petals imbricated. Raphe & Chalaza usually distinctly, occ, beautifully marked on the testa.

Mosaicism sepn of carpels aft in Citrus produg horned cruepes & hesperid citrous, the fam of wh is the g. Sarcodactylis of pre Gaertner

Multiplin of normal no of carpels freq in Citrus, teratg Oc wh Oc: fgd by p 457

Hance fl; thence same to aged over tropics.

2-3 sp nato to Madag; 1 wild in woods of Essequibo; 1 in Brazil, a wild Oc, the Naranja da terra, of manilish sweet taste,

One only on tops of old & lofty mtns, the fac am mts Oc g, buried in snow, the Limonium laurola. Hill people of India call it Kidder-pated and Kidder-dara, & wh that by fordg exists lve the Muck acquo tte peels flavor.

Bogs, Fet pidg also acid. Lvs also + of volatile, fragr, bitter, excitg oil. Wood hard & compact Rhind 247

Medical; Egle; Bergera Königii, lv that stomachics toric by Hindus; lotum of them, roasted stops vomit; gen lvs used como tadyscentery; tk g vt, jon, as stimuli. Feronia elephantum g lve bruised lv dettl animate mal, that in bad constipation stomachic; its gum g lk gum arabic Orange lve used for hysterics

Acids, Malic in Or, Citric in Lemon, Lime

Perfumes, Oil of Neroli & Mogho waters, fro distilled fr Or flow; Cedrati fr Cedrat; Lemon essence.

Orange wine

Fruit consists of

[illegible] Rhind 248 DC 177 Citrus aurantium;

Citrus, g. Rhind 248 DC 177

Nibbuk Nee, 188, classified Orl at 169 vars of Citrus Sam Or, Bitter Or, Orange, Lime, Pampelmoes, Sweet Lime, Lemon, Citron.

Mandarin, Citrus nobilis DC 178

Sweet Orange, DC 178

Bitter Orange, India DC 177 medica

Lemon, India, Citrus, limonium Rhind 253 DC 179

Lime, India, Citrus medica, acida Rhind 253 DC 179

Sweet Lime of India, Citrus medica limetta DC 179

Cedrat, India,

Shaddock, India, Citrus decumana Rhind 254 DC 177

Pompelmoose, India,

Forbidden Fruit, India,

Citron, India, Citrus medica, Rhind 254 DC 178

Wampee, China and Arabia, highly esteemed, there; fam of Cookia punctata

Glycosmis chrysolin, berries delicious lvy

Twigh a sia " extremely agreeable lvy

Casimiroa edulis, fr delicious but soporific, Freeman

Egle Marmelos, Ceylon, fr not delic, exquis fragr, nutritious, pn laxato; mucus of seed is a good cement for some dyes, Ou Malabar cosm, et a bile & remedy for polyphagia; lvs fro asthma; fro a little, tincture, for diarr & dysentery.

Micrococcum flavum, fgd lvy p 258

Murraya

Rissoa

Atalantia

Incunya, resembl fro hog fet of the order but the climby habit of Xanthoxyl

RUBUS

RASPBERRY Rubus idæus, as from Mt Ida.

Eng name fr rough & bristly fruit

Fr, comp Framboise; or Ronce du Mont Ida, considering it a nato of that Mt, wh Pliny states

Eng: older form raspice, raspise, corruption of raspis, raspes, an old plural = rasps, used voc berry; as by Bacon raspes. Pecrad Eng is still rasps. "Nus gn the fruit fa ron rupd cinnibar(y to a rasp, prob fr the look of it, wh is sensibly rough." Shear.

Berry, MS berie, AS berige, Skt bhas to eat"; "Edible fr."

BLACK RASPBERRY, Rubus occidentalis "a showy plant fro large shrubberies", Rhind.

RED RASPBERRY

PURPLE RASPBERRY native hybrid
THIMBLE-BERRY, SCOTCH CAPS, FLOWERING RASPBERRY

DEWBERRY, Rubus caesius, of Eu; fruit blue; continues till frost; is an edible berry; but has no high flavor; handsom, ov lk Bldb, but earlier; peels sub-yield flavor wh is admired by some, as it must be by Titania, who fedus it w such fruits as Apricots, Grapes, Figs, & Mulberries "Feed him with Apricocks & Dewberries" Readily kn fr Bldb by the fruit being of a few larger drupes, & cov, w a glaucous bloom." Ellacombe.

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BLACKBERRY, BRAMBLE, of Eng, *Rubus fruticosus* x *corylifolius*,
Rhind p 337 Ellacombe p 28, 29, Skeat, p 71 (AS, trombel, Sw. Vbram)
Bostraff It seems one ~~[illegible]~~ as plenty as Blackberries
I could give no man a reason on compulsion.

HIGH BLACKBERRY *Rubus villosus* of N US

DEW-BERRY of coast and mid. x 8, US,

SALMON-BLOSSOM, *Rubus Nutkanus* Moino, 3'-8', glandular pubescent, bark becoming brn. on shoulds, flos 1-2' broad, calyx densely tomentose x seeds so, fruit large x gleaming diamond, Ex Chapter this or Antonia, blooming at time of salmon berries,

ARCTIC BERRY, *Rubus arcticus*, Rhind p 337

CLOUD BERRY, *Rubus chamaemorus* ("Ground Mulberry"), Roebuck-B, Knot-berry, Rhind p 337-8

STRAWBERRY

Rhind p 338
Ellacombe p 220-5
Ship The S grows underneath the Nettle,
And wholesome berries thrive & ripen best
Neighbored by fruit of baser quality
And so the prince obscured his contemplation
Under the veil of wildness. Henry V, act 1, sc 1,

Skeat says AS streaberige, as above, for the sea. of its summers to strawns (strews)
pc 203

Mrs H Hudson, "My Strawberry"

O marvel, fruit of fruits, I pause
To reckon thee. I ask what cause
Set free so much of red fire heats
At core of earth, & mixed such sweets
With zest & spice; what over-that strength
Wish act of darkness, length by length
Spun all thy shining thread of vine,
Netting the fields in braids as fine.
I see thy tendrils drink by sips
From grass velvet's smiling lips;
I hear thy roots dig down for wells,
Tapping the meadow's hidden cells;
Whole generations of green things
Descended from leaf lines of springs,
Have made room for thee to hide
A quiet comrade by their side;
I see the creeping peoples go
Mysterious journeys to and fro,
Treading to right and left of thee,
Doing thee homage wonderingly;
I see the wild bees as they fare,
Thy cups of honey drink, but spare.
I mark thee bathe & bathe again
In sweet uncalendared springrain,
I watch how all May has of sun
Makes haste to have thy ripeness done,
While all her nights let dews escape
To set a cool thy perfect shape.
Ah, fruit of fruits, or ever I pause
To dream over seeds thy hidden laws!
I stretch my hand & take of thee
In an ecstasy of delicious pain
One single fruit, all things that went
To make the empire thou hast spent.

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SANGUISORBS, an apetalous divn of Rosaceae; I'll make them an order; S-acous, intermediate betwn Pomaceae & Rosaceae, of 12 gen, 12 sp. Calyx hardened; carpel solep 1; Connects link w R. Agrimonia, wh has the 2 petaliferous, but has petals. In Cape of GH they rape the Rosa-roots of Buc, Lily; natives also of beaths, hedges & exposed pls in Buy Bc & Ann beyd the tropics. Gall dase astringency.

Alchemilla, Thunb, LADIES' MANTLE; A. vulgaris decoctn is stly tonic; is sd by Frdk Hoffman & drs to restore the faded beauty of ladies to its earliest freshness, Lily.

Sanguisorba, L, BURNET; S. officinalis, Cons B, useful fodder in Dep.
S. Canadensis, root bitter, astringent, nauseous, emetic, hair stupefying, Bail.

Acena Sanguisorba cons ev in Tasm, wl has to annoy by fruit hooking on to stockings & dress; lvs sd to be excell substit for tea.

Potentilla L, GREAT BURNET, for tea Ars, Bonnetto; form of Bacco; Sbbs, HF, Ly Ellis. 33

Tetraglochin Poe

Margyricarpus Ruiz et P. M. setosus, a lit needle-lvd bush w pearly succulent fruit; decoctn used by Jesuits ape hemichdr.

Cliffortia L, nat, ids of adhesn betw lvs & stips here hv caused tiny entos to accept it as their fav plant. L. 44?

CALYCANTHACEAE, or Rose F, flrs of t isotric scales; shrubs; sq stems w 4 woody insplt axes supply central row; lvs opps, simple, scabrous; O stipules; flrs axillary, solitary; 2 valves bol, 1 collet, prod a nut w the fleshy calyx-tube. Lucien rd them of Roses, Liy sepd them. Bronchi Ly, 2 genera, C & Chimonanthus (wch has obviously diffe petals & sepals) Liy; 6 sp.

CHRYSOBALANS are Chrysobalanaceae of Liy, or Rosaceae, closed w IC by DC; near Amygdalus; have irreg stams & petals. Ecim-regular, 5 bracts, 1 gen, 1 sp in Africa & Ceylon As ch by: 1 Chrysobalanus is in pine barrens of Ga. includes
Cn. Icaco, cassin-nut, the COCOA-PLUM; root & bk also. In Brazil prescribed agt diarrh, leucorr, cafen raw & pressd; propag. by lifs (lifs thr off at a jt); grows well in sandy loam.
C. oblongifolius, the Ambsp. " " " " " " ; literally fed on by Indians.
Moquilea grandiflora, yields edible drupes in Brazil.

ROSACEAE, proper of Liy incl 38 gen, 500 sp.

Notes of temperate & cold of N. hemis. [a very few on high ld w tropics; - a few in S hemi.; 1 in WI, Rubus Jamaicensis; svl in trop high land, in El, esp Potentillas & Rubi; S Am sp chiefly a few kds of Rubus & the Quillaiae, wh are all S Am (incl Q. Kagenechia, Vauquelinia, Lindleyia of HBK, Euphronia) & Neuradeae are all S Af, in N & at Cape; peth also to Mex.

None unutilesma. Chiefly remarkl as not astringent.

1. Rosidae.

Rosa, Tournf; R. rubiginosa, lw used as substitute for Rosa. R. canina & fruity astringent, used agt chronic diarrh, etc. R. moschata & R. damascena yield Attar of Rs. R. gallica, petals astringent on drying tasty, used in debility.

Lowea, Liy.

2. Potentillidae.

Dalibarda L

Rubus L

Fragaria L

Geum L. G. palustre has bn cpd for efficacy w. Cinchona.

Potentilla L; 2 sp. used, roots for tanning in Faroes, P. reptans, a febrifuge, Thun. formed st. its sp the gen. Tormentilla, Quinquefolium, & Comarophyllaides. Tormentilla, see Rhind 530

Dryadanthe, Bail.

Sibbaldia, L.

Agrimonia Tourn.

Bremontia, Neker

Purshia, DC

Waldsteinia, Willd.

Sieversia, Willd. S. nivalis has bn compared for efficacy w Cinchona.

Geum, in Tormentil, named in Carcyophyllata, Raf. Stillipus. G. rivale is supd to be the Indn Chocolate Root of the US, much used thr in dis. of Bladder, Liy

Dryas L

3. Spiraeidae. Calyx tube herbaceous, fruit a ring of follicles, Seeds unwinged.

Kerria, DC, MEXICAN ROSE.

Spiraea L; composed Prunus genus Ulmaria, Filipendula, & Barba-Capre; the Sorbaria & Aruncus of Sos. S. Kamtschatica root is prepared into a stg liqr: they call the plt Schelammanik. Roots of S. filipendula and Ulmaria is tonic.

Neillia Don

Gillenia Monch; G. trifoliata & G. stipulacea roots are emetic cathartic, in US used as ipecacuanha, Liy.

Nuttallia, Torrey

Bryanca, Kunth, the Bauhinia of Aubl; Cusso, CABOCLO, B. anthelmintica, of Abyss, used in Brazil who says 2 oz boil one, not Astin case of taenia; I do not prefer anthelmintics in wd.

IV. Quillaiae. Calyx-tube herbaceous, fruit capsular, Seeds winged. See above. QUILLAI bark, for Q. saponaria, all brasiliensis is used to soap; 2 oz of bark cd wash a dress.

V. Neuradeae, Calyx adhesg to a ring of 10 carpels, Seeds pendulous
Neurada Linn.
Grielum L.

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RELATED FAMILIES

BUTTERCUPS, see P.
LEGUMINOSÆ, see P.
SAXIFRAGACEÆ; little herbs; oft in patches; lvs alt; S 5 or 4 P 5 or 0 St 5 or 10 or 4 or 8 C 2
Se ♦ attached to calyx. Seeds 1, very minute; styles 0; stigmas sessile; fruit cells dissolving.
Tendency of S to consolidation of fruit & formation of albumen; of P to diminution of corpels & absorption of All; Ly; doves deem difficult to classify. Flsr usly robust, lvs fatal. Stems glandular. Pht yel or red, sets, rev blue.
Natives of mths hur & N pts of world, freq. forming the chief beauty of that rich turfulness of nr the snow in high Alpine states. Some grow on rocks & old walls & in hedgerows, or near rivulets, or in pures. "None toxical. All tonic-astringent." Old idea of their being lithontriptic ms to be derived fr their name rather than fr. any evidence. 19, 310 ep, Ly.
Parnassus Donatia Vahlia Nimmia, Boykinia, Iritlea, Tolmiea, Zahlbruckneria,
Saxifraga L. Chrysosplenium Tiarella Heuchera L. Mitella Tiarella Mitella Tiarella Tiarella Astilbe
HEUCHERA Americana, peculiarly astringent root, ALUM-ROOT

CHRYSOSPLENIUM ALTERNIFOLIUM once in too repp as a tonic.

HYDRANGEACEÆ. Ly, pl of Saxifr, Gray; has distinct styles, lvs opp. Shrubs; aymes; S 4-6 P 4-6 St 8-12, 4-6 + 4-6 or + C 2-5. Gen. dwlg, ep E, Pc temp As & Am; only P in S bemi; 23 in China & Japan, 1 in moist abode. Many include Deutzia Lerna, & Philadelphus to wh it is a tenant.
HYDRANGEA, cultd. for mt ornt ts in China & Jap as garden ornaments; lvs of H. Thunbergii are dried in Jap & used for tea, wh the excise thing call Ama-tsja, of Tea of Heaven," Ly. See Rhind p 502-3.

PHILADELPHUS L, the g. Syringa of Pomo, the SYRINGA of Ann gardens, flrs hv a sweet but ly pedicel; lvs taste like Cucumber; once thought a tonic; oil of its flrs was used to adulterate oil of Jasmine.

DEUTZIA Thunb. D. scabra's canes lvs are used in Japan by polishers; inner bark for purposes.

FENDLERA Gr
DECUMARIA L, the Fitzythia of Walt; these 4 last Ly classes bef as Philadelphaceæ, an order of 25 sp, in S Eur, N Am, Jap & India.
ESCALLONIA, Mutis, form evergrn trees nr Equator in Am. Make tiffin of a family Ly of 7 g, 60 sp.
ITEA L classed w Esc.
RIBES L. the Gooseberries of Europe (treats on Polyporma, the GROSSULARIACEÆ of Lin, p 95 ep.) Nature of mins, pls, and others of temp Eur, As, Am (Ohio & Cal) in N Am; 8 in Eur, one in mts of Abyssinia. (Cultivated in the tropics & grown by Polyporma, wood for excess bogge of its Ars.) Besides malic & citric acids, on the rebreaks C & G; sno, as Bl. Currant, low temp plants; have Malic acid.

CURRANT named for Corinth, applied bec to Corinth raisins, Vitis Corinthiaca.
Skeat, 148. Saker's ref. W Tales 1, 2, "3 lbs sugar, 5 lb of Currants" ep El.
Rhind, 349
DC, 277-9

GOOSEBERRY Falstaff, 2 H 4, 1, 2, "gifts.. not worth a G." Prior defines it to be Crystbery.
Skeat 239
Rhind 349-5
DC 276-7

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NOTES

NEVIUSIA Alabamensis, A Gray, Ed. 1859 by Rev Dr R D Neviu, a PE minister, an ardent amateur but not yet fit observer. Blms to 6.30; 10.6 consult Grant, the Spiraeas. The seum apple is nearly by preserving the stigma in exactly which is yet another to the calyx. Gray holds it intermediate between Kerria & Rosa. At night to be not Alabama shrub with the Nymphs: calyx similar to Rosa; usually expanded. Dell wished to find to see and to Downey; but Portauing had died in Age & then Gray wrote says he did not mention this as Neviusia has it and be connected the Neviusia genus named for the Roman poet.

AMERICAN CINQUE-FOILS.

By GRANT ALLEN.

YOUR American cinque-foils are to me a deeply interesting set of plants. Excuse, I beg of you, dear Mr. Reader, this abrupt beginning. I love a *causerie:* I love to button-hole my audience, as it were, and, sitting down with it mentally on a bowlder in the meadow, to discuss the matter in hand with it *tête-à-tête*, as if we two were old friends, which I trust, after all, may be really the truth with the public of "The Popular Science Monthly" on the present occasion. For, indeed, a recent visit to America has made me realize you all far better than I ever did before; it has made me feel your individuality as I never hitherto felt it; and it has also renewed with me the acquaintance of many dear old floral favorites whose faces I had not seen in earnest for many a long and weary year. Among them, the cinque-foils or potentillas are, it is true, but a feeble folk; very different from the glorious orange lilies, and trilliums, and Solomon's-seals, whose bulbs and tubers I have brought home with me to beautify a little out-of-the-way Surrey garden; but still in their own humble fashion most interesting plants, from the implications as to their past history and transformations legibly written by the hand of Nature upon their very faces. I propose, therefore (having got you now fairly button-holed), to discourse somewhat concerning the American potentillas themselves, as well as concerning certain of their near and dear relations not included in the same genus by the artificial and unwise arrangements of our existing botany.

The first potentilla I found in America was by chance the very one that ought naturally to head the tribe in any systematic work, because it is the one which more than any other seems to preserve in the greatest simplicity the original traits of the prime ancestor. And when we consider that from this ancestor are also descended (in all likelihood) the plum, the peach, the cherry, the almond, the apple, the pear, the strawberry, the raspberry, the rose, and the hawthorn, it must immediately be apparent to the meanest understanding that the plant in question deserves the greatest consideration at our hands as the founder of a large and important family. Nevertheless, this rather scrubby weed (*Potentilla Norwegica*) with its yellow flowers and hairy stem, much resembles the founders of many other distinguished families in being personally mean, sordid, and inconspicuous. But in spite of its meanness, the Norway potentilla shows many signs of its high respectability as the representative of the elder branch of the family in the direct line. To begin with, its blossoms are a shabby yellow; and shabby yellow I take to have been the original color in every instance of the earliest petals of insect-fertilized flowers. Then, again, it is an annual

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weed, and herbaceous annuals were doubtless the earliest form of all vegetation all the world over. Once more, the leaves are divided into three leaflets; and this type I take from its frequent recurrence not only among the potentillas themselves, but in the strawberries, the lady's-mantle, the simpler brambles, and many other species as well, to have been the original type of foliage for the entire rose family. Finally, certain minute technical characters in the stipules and the styles, with which I need not trouble you at the present moment, lead to the conviction that we have here to deal to some extent with a fair representative of the old ancestral potentilla form.

The Norway potentilla, however, is distinctly weedy—that is to say, it is one of those unpleasant, dusty-looking plants which loiter about on the precincts of the road-sides and in the waste purlieus of human cultivation. It attests its weediness by its bristly hairs, intended doubtless to repel insects and to make it unpalatable to cattle and horses. As its name implies, it is an Old-World form as well as a native-born American citizen; it is, in fact, a member of that ancient circumpolar pre-glacial flora which was driven down from the once mild and genial Arctic regions by the vast ice-sheet of the Glacial epoch to occupy the plain-lands of either hemisphere in these our chilly and degenerate modern summers. In Europe, however, it remains distinctly a more northern type than with you in America, where it spreads as far south as the Virginia hills.

On the Alpine tops of the White Mountains I was lucky enough to light upon another member of the potentilla group, not far removed in essentials from the Norwegian weed, but infinitely prettier, more delicate, and in a word less weedy all round. This is the plant which Asa Gray identifies with our European *Potentilla frigida* of the Swiss Alps; and I, who have a pious horror of unnecessary splitting and renaming and tinkering, have not the slightest objection to the identification in any way. But it is worth while to notice, what I often observed of almost every American species said to be identical with those of Europe, that the two plants are not absolutely the same: the time that has elapsed since the Great Ice age effectually severed the two continents has sufficed to produce distinct differences in nearly every kind of plant or animal. The flowers in the American specimens are smaller than in the Swiss, and the stems when full-grown are far less hairy.

Potentilla frigida exhibits all the common peculiarities of high Alpine or Arctic plants. It is a dwarf form, not one fifth the size of the Norway species; it is tufted thickly on its low stems, and it has that matted, close, creeping habit which I have already pointed out in this "Monthly" as the distinctive feature of the glacial flora. It sticks still to the three original leaflets, but its flowers, as is common in mountain types, are far larger and handsomer than those of the wayside weed with which we started our examination of the group. This Old-World

form, however, occurs nowhere in the United States except here on the topmost summits of the White Mountains, and even there it lingers on in scanty numbers, rapidly diminished by the growing warmth and the incursions of botanists. I took but a tiny spray for my own specimen, from a spot not far from Tuckerman's Ravine, and left the remainder of the plant I found there still growing. It would be a pity if these last survivors of the Glacial epoch, pushed up onto these chilly heights by the secular summer of our own day, should be exterminated by the hands of those who above all others are bound by natural piety to preserve and protect them.

All over Canada and the Northern States there grows a third and very common potentilla, the cinque-foil or "five-finger" of popular botany (*P. Canadensis*), a pretty, prostrate, creeping weed, with golden-yellow flowers springing close to the ground, and five leaflets instead of three to each leaf. Ever since the days of Linnæus this plant has been considered distinct from the common European cinque-foil (*P. reptans*), and the differences are certainly sufficient to justify their division as separate species, as systematic botany goes nowadays. Nevertheless, it is quite clear that we have here merely to deal with the American descendants of the same old circumpolar plant. No European naturalist who saw the Canadian cinque-foil for the first time would ever take it for a distinct type; if he found it growing in an English meadow, he would certainly pass it by unnoticed as the familiar cinque-foil of our eastern hemisphere. The differences can only be observed when you look closely into the plant, and they are all of easy adaptive character. In fact, we have here just the same tendency as that which we noticed in the mountain species, only carried, perhaps, one step farther. In that instance, the differences were only sufficient for sytematic botanists to rank the plant as a mere variety; in this case they are sufficient to give it the dignity of a distinct species. But at bottom nobody knows what is a variety and what a species, and it is a mere matter of individual judgment whether a particular form should be regarded as one or the other. It varies "according to the taste and fancy of the speller." Oakes considered the White Mountain potentilla a distinct American species, different from the Alpine kind in Europe, and christened it, accordingly, *P. Robbinsiana*, after the first person who discovered it on these chilly hill-tops. Asa Gray regards it rather as a mere variety, though he hesitates as to whether it comes nearer to the *P. frigida* of the Alps, or to the dwarf form known as *P. minima* (itself a very ill-marked species). It is always so when you come to compare the plants or animals over a large area. However distinct they may seem in particular localities, they shade off into one another by such imperceptible degrees at distant points that the task of drawing hard-and-fast lines, so lightly undertaken by the systematic biologist, becomes at last absolutely impossible.

This very Canadian cinque-foil, for example, runs into two extreme

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forms, which have each been considered by confirmed "splitters" as distinct species. The first (*P. sarmentosa*, of Muhlenberg) grows for the most part on very dry soil, and like most plants of arid situations runs largely to pronounced hairiness; for it is a general rule that water-haunting kinds are smooth and glabrous, while dry or desert types are intensely hirsute (the reason for this wide distinction, though well known, would carry us too far away, this morning, from our main subject). The second form, erected by Michaux into a separate species (*P. simplex*) but reduced to subordinate rank as a variety by Torrey and Gray, belongs to moister soil or to deep meadows, where the lush grass prevents evaporation; and this type grows less hairy and greener, and attains a larger and more luxuriant stature. The two forms differ also in other ways, strictly dependent upon their differences of locality. *Sarmentosa*, the dry type, creeps squat upon the ground, as if to avoid the sun, and sends out long, rooting runners in every direction after the fashion of the strawberry-vine; whereas, *simplex*, the moister kind, has ascending stems, which rise in competition among the grasses around them, seldom if ever creep, and never produce summer runners. Again, *sarmentosa* begins to blossom early, and ends early—April to July in the latitude of New York; while *simplex* comes and stops a month or so later at either end—May to September in the same district. In other words, the dry-type flowers early in spring on its basking banks, but retires from the scorching heat of your American summer; while the moist type begins later in its shady habitat, but is less affected by the droughts of August.

Curiously enough, our common European cinque-foil (*P. reptans*), the exact analogue of your American plant, and fellow-descendant of the self-same pre-glacial ancestor, has also two well-marked forms usually considered as distinct species, but merging into one another by imperceptible gradations. The parent-type (*reptans* proper) grows in rich pastures or meadows, and answers best to your variety *simplex*, though it sends out long, creeping stems which root every now and again at the nodes; it has five large petals to each blossom, and the flowers are identical with those of the Canadian cinque-foil. But on open moors, heaths, and dry places, we have a smaller, closer, and more creeping form, the tormentil (*P. tormentilla*); it is silky-hairy, like your own *sarmentosa*, and its upper leaves have often only three leaflets instead of five, thus reverting to the ancestral type of foliage, when the plant was rather a tre-foil than a cinque-foil. But oddest of all, the small flowers have only four petals, arranged like a Maltese cross; whereas all their congeners have their full complement of five, in accordance with the old central plan of the entire rose family. Still, the first flower of all on each stem, produced when the plant is in its vigorous youth, has occasionally five petals; a reversionary fact of great interest. The tormentil has also an intermediate variety of its

own (*Tormentilla reptans* of the hair-splitters), which sometimes creeps like the true cinque-foil, and frequently breaks out into five-petaled blossoms. Even Mr. Bentham, that minute and conservative botanist, admits that "intermediate forms" sometimes occur which can not probably be referred to either species.

And yet, though the tormentil and the cinque-foil are thus intimately connected with one another, by imperceptible gradations, so great is the love of petty distinctions in the human breast, that Linnæus actually erected this slight, four-petaled variety, not only into a distinct species, but even into a separate genus (*Tormentilla*).

Let us return, however, to our immediate subject, the American potentillas. The next species recognized by Asa Gray is the silvery cinque-foil (*P. argentea*), a pretty little plant, with small, bright-yellow flowers, confined, for the most part, to very dry, barren, or sandy spots, and with thin, wiry, almost woody stems. It is remarkable for the soft, white, silvery down, that clothes the under side of the five-leaved foliage. The use of this down I do not know, though I suspect it to be a protection from some caterpillar or other insect, which attacks leaves on their under surface. At any rate, it is an exaggeration of the usual downiness of dry-soil species. The silvery cinque-foil is common to Europe and America, and I do not notice any perceptible difference between my English and Canadian specimens. It seems, in fact, to be one of the very few plants which have not altered to any recognizable degree on either side of the Atlantic since the end of the great Glacial epoch. As a proof, however, of the narrow way in which this dry-soil species is restricted and limited to the very sandiest or most barren situations, I may mention that it grows on two spots, and two spots only, within reach of my own home here in Surrey, England. Both these spots are knolls of a peculiarly soft and friable sandstone, into which the rain sinks immediately; and they are the only two bits of that particular formation (a subdivision of the Folkestone sands) to be found anywhere in the neighborhood.

I was shown, at Kingston, Canada, a specimen of another more weedy potentilla (*P. paradoxa*), which has hardly, as yet, made good its place in the Eastern States, but which, nevertheless, possesses a certain interest for naturalists of the Atlantic shore, as a member of the flora by which before long they are almost sure to be overrun. The species belongs to the western half of the continent, but it is already well established as an immigrant along the banks of the Ohio and the Mississippi, and it has been observed near Oneida, and elsewhere on the shores of Lake Ontario. My own specimen was gathered on a common at Kingston, where it seemed to have established itself in full vigor. Now the interest of this species centers in the fact that until lately the weeds of the Eastern States and Canada were almost entirely of European origin; they were the cosmopolitan pests of civilization, which have followed agriculture from Western Asia along

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the Mediterranean to the shores of the Atlantic, and, crossing the ocean with seed-corn and fodder crops, have clogged the steps of the intrusive white man through all his colonies and settlements elsewhere. These cosmopolitan weeds succeeded in America to the soil once covered by forest-trees, whose indigenous undergrowth could not stand the garish sunlight of the open clearings. But nowadays, the weedier types of the Western prairie-belt are moving eastward, as farms move west; and being accustomed by nature to open plains, they will probably, in many cases, succeed in establishing themselves side by side with the older plagues of the long-suffering farmer. *Potentilla paradoxa* is one of the first crop of these weedy immigrants, and its appearance already on the shores of Lake Ontario is the signal for its future advance in a formed phalanx against the tilled fields of New York and New England.

This Western immigrant departs widely in one respect from the type of all the potentillas we have yet considered, and that is in the arrangement of its five, seven, or nine leaflets. In the true cinque-foils, and all their like, the leaflets are arranged, as we say, palmately —that is to say, all start together, like the lobes of a horse-chestnut leaf, from one point. In the *P. paradoxa* they are arranged pinnately —that is to say, they start in opposite pairs or singly, from a common midrib, like the barbs of a feather or the leaflets of a locust-leaf. The same arrangement, a more convenient one for long leaves, reappears in *P. Pennsylvanica*, which (in spite of the name incorrectly bestowed upon it by Linnæus) is a Northwestern species. But as I have not seen this last-named plant in the living state, and as I do not like to write about what I have only examined in a dried-up herbarium (a bad habit of the old-fashioned, purely structural botanists), I will say no more at present about it.

On the rocky hills of the North and West there occurs in July a rather pretty, half-shrub-like potentilla (*P. arguta*), which presents several other interesting peculiarities. This plant has brownish, hairy stems, covered with a viscid, clammy exudation, something like that which covers the young branches and buds of the clammy rose acacia (*Robinia viscosa*). As I observed that insects are often caught in this clammy secretion, exactly as in the case of the common catchflies (*Silene noctiflora Virginica, regia*, etc.), I have not the least doubt that the potentilla eats and digests the creatures it entraps, in order to supply it with nitrogenous material for its own pollen, ovules, and seeds. This is the more probable, as the clamminess increases near the flower-buds and blossoms, and is scarcely at all noticeable near the base of the stem. How the potentilla digests its food I do not know, but long observation has fully convinced me that whenever a plant has viscid, glandular hairs or secretions upon its penduncles, pedicels, calyx, and flower-buds, it is invariably an insect-catcher, and an insect-eater too. The flowers are the part that require the

most nitrogenous food, and near the flowers the nitrogen-catchers are situated.

Another peculiarity of *P. arguta* lies in its flowers, which are clustered in large and conspicuous masses, and have petals that vary from pale yellow to primrose or almost white. This is a very interesting fact, because the native color of the potentillas is yellow; but the mountain species, and many other kinds, have varied to snow-white blossoms; and here we get a plant, as it were, in the intermediate or undecided stage between the two colors. Notice, too, that *P. arguta* is an herb of the rocky hill-sides, and therefore half-way toward becoming a mountain species.

Now, on the summit of Mount Willard, just above the Notch of the White Mountains, I found another very beautiful member of this pretty group, the three-toothed cinque-foil (*P. tridentata*). This is one of our most northerly and mountain-loving potentillas, unknown in Europe, inhabiting the coast of New England from Cape Cod northward, and the mountain-tops of the great chains, from the Alleghanies to the Maine ranges, as well as in Canada, Labrador, and the extreme north of the continent. The three-toothed cinque-foil carries a step farther the same characteristic, for its flowers are pure white, as so often happens with mountain blossoms. Just in the same way, while almost all lowland buttercups are golden yellow, some of the Alpine buttercups are white as milk, and among these very potentillas there are a few lovely snow-white mountain species in Europe and Asia. One beautiful kind that I gathered on the Maritime Alps at Mentone (*P. saxifraga*) has a blossom as delicately mountainous in type as the saxifrages themselves, from which it takes its scientific name.

Of course, I don't for a moment mean it to be understood that I think *P. tridentata* is directly derived from *P. arguta*, or that the latter species is now on its way to merge into the former. My Mount Willard plant has palmate leaves of only three leaflets, while the common *P. arguta* of the northern hill-sides has pinnate leaves of from three to nine cut-edged divisions; and in many other technical points they differ widely from one another. All I mean to suggest is merely that the yellowish-white *P. arguta* is now just passing through a stage which the ancestors of *P. tridentata* must have passed through long ago. On the whole, to put it briefly, the potentillas are a yellow lot; but a few advanced members of the race are white; and still fewer, like the ornamental *P. nepalensis* and *P. atropurpurea* of our gardens, are crimson, scarlet, or bright red. So far as I know, no potentilla is ever blue, which is the highest level of floral coloration.

The three-toothed cinque-foil has an almost shrubby and woody root-stock, and displays a tendency to assume the character of a true shrub. But its northern habitat and mountain manners keep it low and tufted, after the common fashion of upland vegetation. There is another of its kind, however (*P. fruticosa*), which really grows into a

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regular shrub, with many branches, terminated by large trusses of bright-yellow flowers. Asa Gray says this plant is "common northward" in wet ground, but I was not lucky enough to hit upon it during my visit to America. However, I have seen living specimens from Teesdale in England, and from them I perceive that, in general habit, the plant greatly approaches the rock-roses (*Helianthemum*), which grow in very similar situations. The leaflets of the shrubby potentilla, long, narrow, and silky beneath, resemble, at first glance, the leaves of the rock-roses, thus showing how similar conditions tend everywhere to produce similar results, even when starting from the most unlike organic forms to begin with.

One other potentilla, the goose-weed or silver-weed (*P. anserina*), I must needs mention for form's sake, though I have nothing special to say about it. It is a creeping species, growing close to the ground, with long pinnate and prostrate leaves, silvery white below, with silky down. Both in Europe and America it is very common as a road-side weed, and in moist ditches; but with us it is a weedier and scurvier plant than with you—evidently a sufferer from our long civilization. In America it grows mostly by river-banks and in brackish marshes; in Europe, it belongs rather to waste places and stony pastures than to streams or mud-banks. Few temperate plants, however, have a wider distribution. It is a circumpolar weed in both great continents, extending through Russia and Siberia to Alaska and British America, and it reappears once more, under like conditions, in the southern hemisphere. Nothing kills it out, and it will bear both inundation and trampling under foot to a greater degree than any other plant of equal importance.

The handsomest of your American potentillas, however, is the marsh five-finger (*P. comarum* or *palustris*), a very bold and elegant water-side plant, bluish-green in stem and leaves, and with loose corymbs of exceedingly pretty though dingy flowers. The calyx, inside, is lurid-red, and the large petals are tinged with a gloomy and peculiar purple. This fine ornamental plant loves cool northern bogs and marshes, being common in Canada and in the Scotch Highlands. But what gives it to me the deepest interest is its exact resemblance in hue and general aspect to a purple avens (*Geum rivale*), also common to either hemisphere. Both are plants of the cold swamps and peaty places; both depend for fertilization upon water-side insects; both have lurid-reddish calyxes, and both have large and dingy purplish petals. The inference seems to me irresistible that the color has been evolved in both cases by the special tastes of the upland water-creatures to whose aid both owe the impregnation of their ovules. Indeed, it is often easy thus to classify flowers functionally by their color and the tastes of the particular insects that habitually visit them. In Europe, at least, I believe the particular insect in this case to be *Rhingia rostrata*, which I have observed in great abundance upon both flowers. American naturalists, please verify, or look out for, the corresponding American species.

On the Alpine summits of the White Mountains, and far to the north again in the Labrador region, there grows abundantly a little matted mountain plant, not recognized by the scientific world at large as a potentilla at all, and known by the name of *Sibbaldia procumbens*. But you may call the plant whatever you like without altering the undeniable fact that it is in all essentials a dwarfed and depressed mountain potentilla, with the flowers so reduced by chilly conditions that very few stamens or carpels remain, and with the usual dense, spreading, tufty habit common to all Alpine vegetation. It is clearly descended from a high hill-side potentilla not unlike the white *P. tridentata* of Mount Willard aforesaid (only with yellow flowers), for it has the same type of tre-foil leaves, with each leaflet three-toothed at the end, and the same general aspect and habit. Both plants, I do not doubt, are common descendants of a single antique Arctic ancestor. But little *Sibbaldia* has grown so very small and degraded in time that its flowers have dwindled away almost to nothing; the green calyx forms its most conspicuous part; the pale-yellowish petals are very tiny, and in many cases are entirely wanting. In the States *Sibbaldia* is confined to the higher summits of the White Mountains; but in the Scotch Highlands, as in the far north of British America, it often constitutes for miles together the main element of the low and matted mountain greensward.

Last among your American potentillas I may mention the wild strawberries. Though these at first sight seem somewhat different from the rest of the group, I have not the slightest hesitation in saying that to the evolutionary botanist they can not but appear as closely related species of one and the same natural genus. For the strawberries are only potentillas in which the receptacle of the fruit, instead of remaining hard and dry, swells out into a colored and pulpy mass, attractive to birds, who thus aid in dispersing the tiny "achenes" or nutlets (commonly, and for all practical purposes correctly enough, described as seeds). To us in Europe, the essential identity of the two types is made all the more evident, because we happen to possess a little three-leafleted white potentilla (*P. fragariastrum*) so exactly like a wild-strawberry vine in foliage and flower that few save botanists or close observers of Nature ever adequately distinguish between them. This white potentilla is, in fact, a strawberry in everything essential except the fruit; and the succulence of the fruit (or rather receptacle) is after all a matter of comparatively little importance except to the men and birds who eat it. I am fully convinced that if the strawberry had not been an edible berry it would always have been classed merely as a potentilla, and considered as very closely analogous to the *P. fragariastrum* or "barren strawberry" of Northern Europe. It is hardly more, indeed, than a mere variety.

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You have in America two slightly divergent forms of the wild strawberry, erected into species by American botanists, for small differences in the appearance of the berry. Had these differences occurred in any other than an edible fruit they would, I am sure, hardly have been noticed: occurring there, they have been suffered to assume a factitious importance in the eyes of systematizers. One of these varieties (*Fragaria vesca*), which grows in fields and open places, is the common wild strawberry of Europe; but it bears somewhat larger berries with you than with us, and has a somewhat more erect and noble habit. Apparently it is proud of its American citizenship. It is distinguished by having the nutlets merely superficial on the outside of the berry, not sunk in pits, as in the second variety. This last-named form (*F. Virginiana* or *F. Canadensis*) is peculiar to America, and differs from the European type in the constricted or bottle-shaped neck of the berry, and in the deep depressions for the nutlets, the ribs between which accordingly give the fruit a distinctly pitted or spiny appearance. It is a woodland plant, native to your forests, and far more forestine in aspect and habit than our English vine. In flavor, also, it differs distinctly, and your cultivated Virginia scarlets are its final product in the gardeners' hands. The Western variety (*Illinoensis*), according to Gray, gives origin to Hovey's seedling, the Boston pine, and many other cultivated strains. No European strawberry can at all equal these native American fruits in delicacy of flavor.

There is a third species of strawberry, undoubtedly distinct, admitted by Gray as a naturalized American, which possesses for me a peculiar interest. This is the *Fragaria Indica*, or *Duchesnea fragarioides*, a Himalayan species, established in copses round Philadelphia and at various places in the Southern States. Some years ago a plant of this curious species was sent to me in a box for identification: I set it out, on the off chance of its living, in my garden at Dorking; and it now overruns the whole place, so that I have had abundant opportunities of observing its growth and development to my heart's content. I am certain that *F. Indica* is not a true strawberry at all; or, in other words, that it is not a common descendant with the other strawberries of any original white-flowered potentilla ancestor, but an independent development of the succulent habit all by itself. It has yellow blossoms, a very different calyx, and a most insipid, pulpy fruit. I have not the slightest doubt that this species has been developed from a yellow Indian potentilla, just as our strawberries have been developed from a white European potentilla, by the unconscious agency of birds in dispersing the nutlets. All that the two plants have in common (beyond their undoubted generic potentilla type) is the mere fact of a succulent receptacle, which might just as easily occur independently in the one case as in the other. If I had to remodel the genus *Potentilla* on my own account, I would certainly put

the common strawberry into the same division as the white-flowered European *P. fragarioides*, while I would put the Indian species into the same division with the yellow-flowered *P. frigida* of your Mount Washington range.

THE RISE OF THE GRANGER MOVEMENT.

By CHARLES W. PIERSON.

SOME wise men of the press are saying that the Knights of Labor are like the Grangers. As the exact points of resemblance are not stated, the assertion serves merely to call up a recollection of the unique secret society, which, a dozen years ago, seemed far more powerful than ever the Knights of Labor were. The Grange still lives, but its glory is departed, and its history is recorded only in the distorted statements of partisans and of misinformed review-writers.

In the latter part of 1868 certain Minnesota farmers received a printed sheet which began as follows: "In response to numerous inquiries in regard to our order, this circular is issued. The order was organized by a number of distinguished agriculturists of various States of the Union at Washington in December, 1867, and since then has met with most encouraging success, giving assurances that it will soon become one of the most useful and powerful organizations in the United States. Its grand object is not only general improvement in husbandry, but to increase the general happiness, wealth, and prosperity of the country." As an aid in accomplishing its author's design, this circular was certainly a success. As a statement of truth it was a conspicuous failure. Instead of having "met with most encouraging success," the order had scarcely been heard of; while the "distinguished agriculturists" who had "organized" it comprised one fruit-grower and six Government clerks, equally distributed among the Post-Office, Treasury, and Agricultural Departments. Of these seven Immortal Founders, as enthusiastic Grangers were calling them a few years later, six are living. Nevertheless, it is difficult to determine just how much of the plan and its execution was due to each. The truth seems to be about as follows: In 1866 one O. H. Kelley, a clerk in the Agricultural Department, was sent by the Commissioner of Agriculture on a tour of inspection through the Southern States. Impressed with the demoralization of the farming population, he hit upon the idea of organization for social and educational purposes, as a means for these people to better their condition. An ardent Mason, he naturally thought of an organization similar to the Masonic, in whose ritual, secrecy, and fraternity he saw the secret of that permanence which all agricultural societies had failed to attain. A niece in Boston, to whom he first mentioned the idea, recommended that women be given membership, thus originating an important feature.

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On returning to Washington, Kelley took the other six immortals into his confidence, and the seven set about developing the plan and constructing a ritual. It would be a long story to tell how, by two years' labor in the intervals of their regular work, they constructed a constitution providing for a national, State, county, and district organization, and a ritual with seven degrees; how the names—Patrons of Husbandry for the body in general and Grangers for the subordinate chapters—were finally hit upon, the latter being taken, not on account of its etymological meaning (Latin *granum*), but from the name of a recent novel. Suffice it to say that on December 4, 1867, a day still celebrated as the birthday of the order, the seven assembled, and, with an assurance almost sublime, solemnly organized themselves as the "National Grange of the Patrons of Husbandry." There was none to dispute the title, and they enjoyed it alone for the next five years. It is hard to tell just what were the expectations of these men. Kelley has been called everything from an unselfish philanthropist to a scheming adventurer. One can not but admire the pluck with which he persevered through great discouragements, and the unselfish spirit in which he and his fellow-workers surrendered control of the movement when it had become a power in the land. Their first step was to organize a mock Grange among their fellow-clerks and their wives, to experiment with the ritual. The experiment proving satisfactory, Kelley resigned his clerkship and started out to proclaim the Grange to the world, armed only with a few dollars and a sort of introductory letter from the other six to mankind at large.

He was not a success as a lecturer. Moreover, he made the mistake of laboring in the larger towns, instead of in the country. The four or five Granges that he coaxed into life at once proceeded to die, and he finally reached Minnesota penniless, but not discouraged. Even while the six at Washington were becoming faint-hearted, and writing to him that the landlady was pressing them grievously for hall-rent, and that it would be wise to give up the whole business, he could issue the circular with which I began, dilating upon the success of the order and the distinguished agriculturists at Washington who founded it. At his home, near Itasca, he worked on furiously, now dodging a creditor, again obliged to postpone answering letters for want of means to buy postage-stamps, till finally signs of success began to appear. He had organized a few Granges in Minnesota, and was able to detect a growing interest in other States. The prime necessity now was to encourage this feeble beginning, and by all means to keep it under the delusion that it was part of a powerful national organization. To this end every cent that could be earned or borrowed was used in distributing photographs of the founders, along with a mass of circulars and documents purporting to come from the national office at Washington. Every important question was ostensibly referred by Kelley to the Executive Committee at the same

WATER-LILIES.

THE inconstant April mornings drop showers or sunbeams over the glistening lake, while far beneath its surface a murky mass disengages itself from the muddy bottom, and rises slowly through the waves. The tasselled alder-branches droop above it; the last year's blackbird's nest swings over it in the grape-

crawled up the water-reeds, and, clinging with heads upward, (not downward, as strangely described in a late "North British Review,") have undergone the change which symbolizes immortality; the world is transformed from spring to summer; the lily-buds are opened into glossy leaf and radiant flower, and we

sunshine with the answering beauty of the Water-Lily.

Days and weeks have passed away; the wild-duck has flown onward, to dive for his luncheon in some remoter lake; the tadpoles have made themselves legs, with which they have vanished; the caddis-worms have sealed themselves up in their cylinders, and emerged again as winged insects; the dragon-flies have

the night,—for it is the worst feature of a night out-doors, that sleeping seems such a waste of time,—we watched the hilly and wooded shores of the lake sink into gloom and glimmer into dawn again, amid the low plash of waters and the noises of the night.

Precisely at half-past three, a song-sparrow above our heads gave one liquid trill, so inexpressibly sudden and delicious,

Monthly Record of Current Events.

POLITICAL.

OUR Record is closed on the 14th of January.—The official declaration of the vote cast for Governor of each of the following States at the November (1889) elections was: Iowa, Boies (Democrat), 180,111; Massachusetts, Brackett (Republican), 127,357; Mississippi, Stone (Democrat), 84,929; New Jersey, Abbett (Democrat), 138,245; Ohio, Campbell (Democrat), 379,423; Virginia, McKinney (Democrat), 162,654.

The Senate, December 18, 1889, confirmed the nomination of David J. Brewer as Associate Justice of the Supreme Court of the United States.

The Legislature of Montana elected (January 1st and 2d) Wilbur F. Sanders and T. C. Power as United States Senators.

Carlos I. was proclaimed King of Portugal at Lisbon December 28th.

Lord Salisbury presented an ultimatum to Portugal January 11th, demanding the withdrawal of all the Portuguese forces and officials of every kind from the African provinces in dispute, saying that a failure on the part of Portugal to answer within the next twenty-four hours would result in the withdrawal of the English legation. Portugal on the following day yielded to the demands, under protest, reserving all rights of the Portuguese Crown in those territories. The Portuguese Cabinet resigned January 13th.

The French Chamber of Deputies, December 17th, refused the proposition of an amnesty to Boulanger, by a vote of 338 to 61.

The provisional Brazilian government issued a decree, December 21st, banishing the ex-Emperor Dom Pedro, together with the royal family. The grant previously offered to the Emperor and his civil allowance were cancelled.

The Spanish ministry resigned January 3d. Señor Sagasta, finding it impossible to constitute a new cabinet, resigned January 7th.

DISASTERS.

December 13, 1889.—Explosion in Belmez mines, Spain. Ten men killed.

December 18th.—Advices received of the wreck of the bark *Tenby Castle* at Holyhead. Eleven persons drowned.

December 20th.—Collision of British steamers *Cleddy* and *Isle of Cyprus* off the Isle of Wight. Thirteen persons drowned.

December 22d.—Sixteen lives lost by a cave-in in the Lane Mine at Angel's Camp, California.

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On returning to Washington, Kelley took the other six immortals into his confidence, and the seven set about developing the plan and constructing a ritual. It would be a long story to tell how, by two years' labor in the intervals of their regular work, they constructed a constitution providing for a national, State, county, and district organization, and a ritual with seven degrees; how the names—Patrons of Husbandry for the body in general and Grangers for the subordinate chapters—were finally hit upon, the latter being taken, not on account of

EDITOR'S DRAWER.

THE Drawer will still bet on the rose. This is not a wager, but only a strong expression of opinion. The rose will win. It does not look so now. To all appearances, this is the age of the chrysanthemum. What this gaudy flower will be, daily expanding and varying to suit the whim of fashion, no one can tell. It may be made to bloom like the cabbage; it may spread out like an umbrella—it can never be large enough nor showy enough to suit us. Undeniably it is very effective, especially in masses of gorgeous color. In its innumerable shades and enlarging proportions, it is a triumph of the gardener. It is a rival to the aniline dyes and to the arabout feathers. It goes along with all conceits and fantastic unrest of the decorative art. Indeed, but for the discovery of the capacities of the chrysanthemum, modern life would have experienced a fatal hitch in its development. It helps out our age of plush with a flame of color. There is nothing shamefaced

dodging a creditor, again obliged to postpone answering letters for want of means to buy postage-stamps, till finally signs of success began to appear. He had organized a few Granges in Minnesota, and was able to detect a growing interest in other States. The prime necessity now was to encourage this feeble beginning, and by all means to keep it under the delusion that it was part of a powerful national organization. To this end every cent that could be earned or borrowed was used in distributing photographs of the founders, along with a mass of circulars and documents purporting to come from the national office at Washington. Every important question was ostensibly referred by Kelley to the Executive Committee at the same

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WATER-LILIES.

THE inconstant April mornings drop showers or sunbeams over the glistening lake, while far beneath its surface a murky mass disengages itself from the muddy bottom, and rises slowly through the waves. The tasselled alder-branches droop above it; the last year's blackbird's nest swings over it in the grapevine; the newly-opened Hepaticas and Epigæas on the neighboring bank peer down modestly to look for it; the water-skater (Gerris) pauses on the surface near it, casting on the shallow bottom the odd shadow of his feet, like three pairs of boxing-gloves; the Notonecta, or water-boatman, rows round and round it, sometimes on his breast, sometimes on his back; queer caddis-worms trail their self-made homesteads of leaves or twigs beside it; the Dytiscus, dorbug of the water, blunders clumsily against it; the tadpole wriggles his stupid way to it, and rests upon it, meditating of future frogdom; the passing wild-duck dives and nibbles at it; the mink and musk-rat brush it with their soft fur; the spotted turtle slides over it; the slow larvæ of gauzy dragon-flies cling sleepily to its sides and await their change: all these fair or uncouth creatures feel, through the dim waves, the blessed longing of spring; and yet not one of them dreams that within that murky mass there lies a treasure too white and beautiful to be yet intrusted to the waves, and that for many a day that bud must yearn toward the surface, before, aspiring above it, as mortals to heaven, it meets the sunshine with the answering beauty of the Water-Lily.

Days and weeks have passed away; the wild-duck has flown onward, to dive for his luncheon in some remoter lake; the tadpoles have made themselves legs, with which they have vanished; the caddis-worms have sealed themselves up in their cylinders, and emerged again as winged insects; the dragon-flies have crawled up the water-reeds, and, clinging with heads upward, (not downward, as strangely described in a late "North British Review,") have undergone the change which symbolizes immortality; the world is transformed from spring to summer; the lily-buds are opened into glossy leaf and radiant flower, and we have come for the harvest.

We lodged, last night, in the old English phrase, "at the sign of the Oak and Star." Wishing, not, indeed, like the ancient magicians, to gather magic berry and bud before sunrise, but at least to see these treasures of the lake in their morning hour, we camped last night on a little island, which one tall tree almost covers with its branches, while a dense undergrowth of young chestnuts and birches fills all the intervening space, touching the water all around the circular, shelving shore. Yesterday was hot, but the night was cool, and we kindled a gypsy fire of twigs, less for warmth than for society. The first gleam made the dark lonely islet into a cheering home, turned the protecting tree to a starlit roof, and the chestnut-sprays to illuminated walls. Lying beneath their shelter, every fresh flickering of the fire kindled the leaves into brightness and banished into dark interstices the lake and sky; then the fire died into embers, the leaves faded into solid darkness in their turn, and water and heavens showed light and close and near, until fresh twigs caught fire and the blaze came up again. Rising to look forth, at intervals, during the night,—for it is the worst feature of a night out-doors, that sleeping seems such a waste of time,—we watched the hilly and wooded shores of the lake sink into gloom and glimmer into dawn again, amid the low plash of waters and the noises of the night.

Precisely at half-past three, a song-sparrow above our heads gave one liquid trill, so inexpressibly sudden and delicious,

that it seemed to set to music every atom of freshness and fragrance that Nature held; then the spell was broken, and the whole shore and lake were vocal with song. Joining in this jubilee of morning, we were early in motion; bathing and breakfast, though they seemed indisputably in accordance with the instincts of the Universe, yet did not detain us long, and we were promptly on our way to Lily Pond. Will the reader join us?

It is one of those summer days when a veil of mist gradually burns away before the intense sunshine, and the sultry morning only plays at coolness, and that with its earliest visitors alone. But we are before the sunrise, and can watch the pretty game of alternating mist and shine. Stray gleams of glory lend their trailing magnificence to the tops of chestnut-trees, floating vapors raise the outlines of the hills and make mystery of the wooded islands, and, as we glide through the placid water, we can sing, with the Chorus in the "Ion" of Euripides, "O immense and brilliant air, resound with our cries of joy!"

Almost every town has its Lily Pond, dear to boys and maidens, and partially equalizing, by its annual delights, the presence or absence of other geographical advantages. Ours is accessible from the larger lake only by taking the skiff over a narrow embankment, which protects our fairyland by its presence, and eight distant factories by its dam. Once beyond it, we are in a realm of dark Lethean water, utterly unlike the sunny depths of the main lake. Hither the water-lilies have retreated, to a domain of their own. Darker than these dark waves, there stand in their bosom hundreds of submerged trees, and dismasted roots still upright, spreading their vast, uncouth limbs like enormous spiders beneath the surface. They are remnants of border wars with the axe, vegetable Witheringtons, still fighting on their stumps, but gradually sinking into the soft ooze, and ready, perhaps, when a score of centuries has piled two more strata of similar remains in mud above them, to furnish foundations for a newer New Orleans; that city having been lately discovered to be thus supported.

The present decline in business is clear revenue to the water-lilies, and these waters are higher than usual because the idle factories do not draw them off. But we may notice, in observing the shores, that peculiar charm of water, that, whether its quantity be greater or less, its grace is the same; it makes its own boundary in lake or river, and where its edge is, there seems the natural and permanent margin. And the same natural fitness, without reference to mere quantity, extends to its children. Before us lie islands and continents of lilies, acres of charms, whole, vast, unbroken surfaces of stainless whiteness. And yet, as we approach them, every islanded cup that floats in lonely dignity, apart from the multitude, appears as perfect in itself, couched in white expanded perfection, its reflection taking a faint glory of pink that is scarcely perceptible in the flower. As we glide gently among them, the air grows fragrant, and a stray breeze flaps the leaves, as if to welcome us. Each floating flower becomes suddenly a ship at anchor, or rather seems beating up against the summer wind, in a regatta of blossoms.

Early as it is, the greater part of the flowers are already expanded. Indeed, that experience of Thoreau's, of watching them open in the first sunbeams, rank by rank, is not easily obtained, unless perhaps in a narrow stream, where the beautiful slumberers are more regularly marshalled. In our lake, at least, they open irregularly, though rapidly. But, this morning, many linger as buds, while others peer up, in half-expanded beauty, beneath the lifted leaves, frolicsome as Pucks or baby-nymphs. As you raise the leaf, in such cases, it is impossible not to imagine that a pair of tiny hands have upheld it, or else that the pretty head will dip down again, and disappear. Others, again, have expanded all but the inmost pair of white petals, and these spring apart at the first touch of the finger on the stem. Some spread vast vases of fragrance, six or seven inches in diameter, while others are small and delicate, with petals like fine lace-work. Smaller still, we sometimes pass a flotilla of infant leaves, an inch in diameter. All these grow from the deep, dark water, —and the blacker it is, the fairer their whiteness shows. But your eye follows the stem often vainly into those sombre depths, and vainly seeks to behold Sabrina fair, sitting with her twisted braids of lilies, beneath the glassy, cool, but not translucent wave. Do not start, when, in such an effort, only your own dreamy face looks back upon you, beyond the gunwale of the reflected boat, and you find that you float double, self and shadow.

Let us rest our paddles, and look round us, while the idle motion sways our light skiff onward, now half-embayed among the lily-pads, now lazily gliding over intervening gulfs. There is a great deal going on in these waters and their fringing woods and meadows. All the summer long, the pond is bordered with successive walls of flowers. In early spring emerge the yellow catkins of the swamp-willow, first; then the long tassels of the graceful alders expand and droop, till they weep their yellow dust upon the water; then come the birch-blossoms, more tardily; then the downy leaves and white clusters of the medlar or shad-bush (*Amelanchier Canadensis* of Gray); these dropping, the roseate chalices of the mountain-laurel open; as they fade into melancholy brown, the sweet Azalea unclosed; and before its last honeyed blossom has trailed down, dying, from the stem, the more fragrant Clethra starts out above, the button-bush thrusts forth its merry face amid wild roses, and the Clematis waves its sprays of beauty. Mingled with these grow, lower, the spiræas, white and pink, yellow touch-me-not, fresh white arrowhead, bright blue vervain and skullcap, dull snakehead, gay monkey-flower, coarse eupatoriums, milk-weeds, golden-rods, asters, thistles, and a host beside. Beneath, the brilliant scarlet cardinal-flower begins to palisade the moist shores; and after its superb reflection has passed away from the waters, the grotesque witch-hazel flares out its narrow yellow petals amidst the October leaves, and so ends the floral year. There is not a week during all these months, when one cannot stand in the boat and wreathe garlands of blossoms from the shores.

These all crowd around the brink, and watch, day and night, the opening and closing of the water-lilies. Meanwhile, upon the waters, our queen keeps her chosen court, nor can one of these mere land-loving blossoms touch the hem of her garment. In truth, she bears no sister near her throne. There is but this one species among us, *Nymphæa odorata*. The beautiful little rose-colored *Nymphæa sanguinea*, which once adorned the Botanic Garden at Cambridge, was merely an occasional variety of costume. She has, indeed, an English half-sister, *Nymphæa alba*, less beautiful, less fragrant, but keeping more fashionable hours,—not opening (according to Linnæus) till seven, nor closing till four. Her humble cousin, the yellow Nuphar, keeps commonly aloof, as becomes a poor relation, though created from the selfsame mud,—a fact which Hawthorne has beautifully moralized. The prouder Nelumbium, a second-cousin, lineal descendant of the sacred bean of Pythagoras, keeps aloof, through pride, not humility, and dwells, like a sturdy democrat, in the Far West.

But, undisturbed, the water-lily keeps her fragrant court, with few attendants. The tall pickerel-weed (Pontederia) is her gentleman-usher, gorgeous in blue and gold through July, somewhat rusty in August. The water-shield (Hydropeltis) is chief maid-of-honor; she is a highborn lady, not without royal blood indeed, but with rather a bend sinister; not precisely beautiful, but very fastidious; encased over her whole person with a gelatinous covering, literally a starched duenna. Sometimes she is suspected of conspiring to drive her mistress

ostensibly referred by Kelley to the Executive Committee at the same

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from the throne; for we have observed certain slow watercourses where the leaves of the water-lily have been almost wholly replaced by the similar, but smaller, leaves of the water-shield. More rarely seen is the slender Utricularia, a dainty maiden, whose light feet scarce touch the water,—with the still more delicate floating white Water-Ranunculus, and the shy Villarsia, whose submerged flowers merely peep one day above the surface and then close again forever. Then there are many humbler attendants, Potamogetons or pond-weeds. And here float little emissaries from the dominions of land; for the fallen florets of the Viburnum drift among the lily-pads, with mast-like stamens erect, sprinkling the water with a strange beauty, and cheating us with the promise of a new aquatic flower.

These are the still life of this sequestered nook; but it is in fact a crowded thoroughfare. No tropic jungle more swarms with busy existence than these midsummer waters and their bushy banks. The warm and humming air is filled with insect sounds, ranging from the murmur of invisible gnats and midges, to the impetuous whirring of the great Libellulæ, large almost as swallows, and hawking high in air for their food. Swift butterflies glance by, moths flutter, flies buzz, grasshoppers and katydids pipe their shrill notes, sharp as the edges of the sunbeams. Busy bees go humming past, straight as arrows, express-freight-trains from one blossoming copse to another. Showy wasps of many species fume uselessly about, in gallant uniforms, wasting an immense deal of unnecessary anger on the sultry universe. Graceful, stingless Sphexes and Ichneumon-flies emulate their bustle, without their weapons. Delicate lady-birds come and go to the milkweeds, spotted almost as regularly as if Nature had decided to number the species, like policemen or hack-drivers, from one to twenty. Elegant little Lepturæ fly with them, so gay and airy, they hardly seem like beetles. Phryganeæ, (*nés* caddisworms,) lacceflies, and long-tailed Ephemeræ flutter more heavily by. On the large alder-flowers clings the superb *Desmocerus palliatus*, beautiful as a tropical insect, with his steel-blue armor and his golden cloak (*pallium*) above his shoulders, grandest knight on this Field of the Cloth of Gold. The countless fireflies which spangled the evening mist now only crawl sleepily, daylight creatures, with the lustre buried in their milky bodies. More wholly children of night, the soft, luxurious Sphinxes (or hawk-moths) come not here; fine ladies of the insect world, their home is among gardens and green-houses, late and languid by day, but all night long upon the wing, dancing in the air with unwearied muscles till long past midnight, and supping on honey at last. They come not here; but the nobler butterflies soar above us, stoop a moment to the water, and then with a few lazy wavings of their sumptuous wings float far over the oak-trees to the woods they love.

All these hover near the water-lily; but its special parasites are an elegant beetle (*Donacia metallica*) which keeps house permanently in the flower, and a few smaller ones which tenant the surface of the leaves,—larva, pupa, and perfect insect, forty feeding like one, and each leading its whole earthly career on this floating island of perishable verdure. The "beautiful blue damsel-flies" alight also in multitudes among them, so fearless that they perch with equal readiness on our boat or paddle, and so various that two adjacent ponds will sometimes be haunted by two distinct sets of species. In the water, among the leaves, little shining whirlwigs wheel round and round, fifty joining in the dance, till, at the slightest alarm, they whirl away to some safer ballroom, and renew the merriment. On every floating log, as we approach it, there is a convention of turtles, sitting in calm debate, like mailed barons, till, as we approach, they plump into the water, and paddle away for some subaqueous Runnymede. Beneath, the shy and stately pickerel vanishes at a glance, shoals of minnows glide, black and bearded pouts frisk aimlessly, soft water-lizards hang poised without motion, and slender pickerel-frogs cease occasionally their submerged croaking, and, darting to the surface with swift vertical strokes, gulp a mouthful of fresh air, and down again to renew the moist soliloquy.

Time would fail us to tell of the feathered life around us,—the blackbirds that build securely in these thickets, the stray swallows that dip their wings in the quiet waters, and the kingfishers that still bring, as the ancients fabled, halcyon days. Yonder stands, against the shore, a bittern, motionless in that wreath of mist which makes his long-legged person almost as dim as his far-off booming by night. There poises a hawk, before sweeping down to some chosen bough in the dense forest; and there fly a pair of blue-jays, screaming, from tree to tree. As for wild quadrupeds, the race is almost passed away. Far to the North, indeed, the great moose still browses on the lily-pads, and the shy beaver nibbles them; but here the few lingering four-footed creatures only haunt, but do not graze upon these floating pastures. Eyes more favored than ours may yet chance to spy an otter in this still place; there by the shore are the small footprints of a mink; that dark thing disappearing in the waters, yonder, a soft mass of drowned fur, is a "musquash." Later in the season, a mound of earth will be his winter dwelling-place; and those myriad muscle-shells at the water's edge are the remnant of his banquets,—once banquets for the Indians, too.

But we must return to our lilies. There is no sense of wealth like floating in this archipelago of white and green. The emotions of avarice become almost demoralizing. Every flower bears a fragrant California in its bosom, and you feel impoverished at the thought of leaving one behind. But after the first half-hour of eager grasping, one becomes fastidious, rather scorns those on which the wasps and flies have alighted, and seeks only the stainless. But handle them tenderly, as if you loved them. Do not grasp at the open flower as if it were a peony or a hollyhock; for then it will come off, stalkless, in your hand, and you will cast it blighted upon the water; but coil your thumb and second finger affectionately around it, press the extended forefinger firmly to the stem below, and with one steady pull you will secure a long and delicate stalk, fit to twine around the graceful head of your beloved, as the Hindoo goddess of beauty encircled with a Lotus the brow of Rama.

Consider the lilies. All over our rural watercourses, at midsummer, float these cups of snow. They are Nature's symbols of coolness. They suggest to us the white garments of their Oriental worshippers. They come with the white roses and prepare the way for the white lilies of the garden. The white doe of Rylstone and Andrew Marvell's fawn might fitly bathe amid their beauties. Yonder steep bank slopes down to the lake-side, one solid mass of pale pink laurel, but, once upon the water, a purer tint prevails. The pink fades into a lingering flush, and the white creature floats peerless, set in green without and gold within. That bright circle of stamens is the very ring with which Doges once wedded the Adriatic, Venice has lost it, but it dropped into the water-lily's bosom, and there it rests forever. So perfect in form, so redundant in beauty, so delicate, so spotless, so fragrant,—what presumptuous lover ever dared, in his most enamored hour, to liken his mistress to a water-lily? No human Blanche or Lilian was ever so fair as that.

The water-lily comes of an ancient and sacred family of white-robed priests. They assisted at the most momentous religious ceremonies, from the beginning of recorded time. The Egyptian Lotus was a sacred plant; it was dedicated to Harpocrates and to the god Nofr Atmoo,—Nofr meaning *good*, whence the name of our yellow lily, Nuphar. But the true Egyptian flower was *Nymphæa Lo-*

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tus, though *Nymphæa cærulea*, Moore's "blue water-lilies," can be traced on the sculptures also. It was cultivated in tanks in the gardens; it was the chief material for festal wreaths; a single bud hung over the forehead of many a queenly dame; and the sculptures represent the weary flowers as dropping from the heated hands of belles, in the later hours of the feast. Rock softly on the waters, fair lilies! your Eastern kindred have rocked on the stormier bosom of Cleopatra. The Egyptian Lotus was, moreover, the emblem of the sacred Nile,—as the Hindoo species, of the sacred Ganges; and both the one and the other was held the symbol of the creation of the world from the waters. The sacred bull Apis was wreathed with its garlands; there were niches for water, to place it among tombs; it was carved in the capitals of columns; it was represented on plates and vases; the sculptures show it in many sacred uses, even as a burnt-offering; Isis holds it; and the god Nilus still binds a wreath of water-lilies around the throne of Mommon.

From Egypt the Lotus was carried to Assyria, and Layard found it among fir-cones and honeysuckles on the later sculptures of Nineveh. The Greeks dedicated it to the nymphs, whence the name *Nymphæa*. Nor did the Romans disregard it, though the Lotus to which Ovid's nymph Lotis was changed, *servato nomine*, was a tree, and not a flower. Still different a thing was the enchanted stem of the Lotus-eaters of Herodotus, which prosaic botanists have reduced to the *Zizyphus Lotus* found by Mungo Park, translating also the yellow Lotus-dust into a mere "farina, tasting like sweet gingerbread."

But in the Lotus of Hindostan we find our flower again, and the Oriental sacred books are cool with water-lilies. Open the Vishnu Purana at any page, and it is a *Sortes Lilianæ*. The orb of the earth is Lotus-shaped, and is upborne by the tusks of Vesava, as if he had been sporting in a lake where the leaves and blossoms float. Brahma, first incarnation of Vishnu, creator of the world, was born from a Lotus; so was Sri or Lakshmu, the Hindoo Venus, goddess of beauty and prosperity, protectress of womanhood, whose worship guards the house from all danger. "Seated on a full-blown Lotus, and holding a Lotus in her hand, the goddess Sri, radiant with beauty, rose from the waves." The Lotus is the chief ornament of the subterranean Eden, Patala, and the holy mountain Meru is thought to be shaped like its seed-vessel, larger at summit than at base. When the heavenly Urvasi fled from her earthly spouse, Purúvavas, he found her sporting with four nymphs of heaven, in a lake beautified with the Lotus. When the virtuous Prahlada was burned at the stake, he cried to his cruel father, "The fire burneth me not, and all around I behold the face of the sky, cool and fragrant with beds of Lotus-flowers!" Above all, the graceful history of the transformations of Krishna is everywhere hung with these fresh chaplets. Every successive maiden whom the deity woos is Lotus-eyed, Lotus-mouthed, or Lotus-cheeked, and the youthful hero wears always a Lotus-wreath. Also "the clear sky was bright with the autumnal moon, and the air fragrant with the perfume of the wild water-lily, in whose buds the clustering bees were murmuring their song."

Elsewhere we find fuller details. "In the primordial state of the world, the rudimental universe, submerged in water, reposed on the bosom of the Eternal. Brahma, the architect of the world, poised on a Lotus-leaf, floated upon the waters, and all that he was able to discern with his eight eyes was water and darkness. Amid scenes so ungenial and dismal, the god sank into a profound reverie, when he thus soliloquized: 'Who am I? Whence am I?' In this state of abstraction Brahma continued during the period of a century and a half of the gods, without apparent benefit or a solution of his inquiries, a circumstance which caused him great uneasiness of mind." It is a comfort, however, to know, that subsequently a voice came to him, on which he rose, "seated himself upon the Lotus in an attitude of contemplation, and reflected upon the Eternal, who soon appeared to him in the form of a man with a thousand heads": a questionable exchange for his Lotus-solitude.

This is Brahminism; but the other great form of Oriental religion has carried the same fair symbol with it. One of the Bibles of the Buddhists is named "The White Lotus of the Good Laer." A pious Nepaulese bowed in reverence before a vase of lilies which perfumed the study of Sir William Jones. At sunset in Thibet, the French missionaries tell us, every inhabitant of every village prostrates himself in the public square, and the holy invocation, "Oh, the gem in the Lotus!" goes murmuring over hill and valley, like the sound of many bees. It is no unmeaning phrase, but an utterance of ardent desire to be absorbed into that Brahma whose emblem is the sacred flower. The mystic formula or "mani" is imprinted on the pavement of the streets, it floats on flags from the temples, and the wealthy Buddhists maintain sculptor-missionaries, Old Mortalities of the water-lily, who, wandering to distant lands, carve the blessed words upon cliff and stone.

Having got thus far into Orientalism, we can hardly expect to get out again without some slight entanglement in philology. Lily-pads. Whence *pads?* No other leaf is identified with that singular monosyllable. Has our floating Lotus-leaf any connection with padding, or with a footpad? with the ambling pad of an abbot, or a paddle, or a paddock, or a padlock? with many-doméd Padua proud, or with St. Patrick? Is the name derived from the Anglo-Saxon *paad* or *petthian*, or the Greek πατέω? All the etymologists are silent; Tooke and Richardson ignore the problem; and of the innumerable pamphlets in the Worcester and Webster Controversy, loading the tables of school-committee-men, not one ventures to grapple with the lily-pad.

But was there ever a philological trouble for which the Sanscrit could not afford at least a conjectural cure? A dictionary of that extremely venerable tongue is an ostrich's stomach, which can crack the hardest etymological nut. The Sanscrit name for the Lotus is simply *Padma*. The learned Brahmins call the Egyptian deities Padma Devi, or Lotus-Gods; the second of the eighteen Hindoo Puranas is styled the Padma Purana, because it treats of the "epoch when the world was a golden Lotus"; and the sacred incantation which goes murmuring through Thibet is "Om mani padme houm." It would be singular, if upon these delicate floating leaves a fragment of our earliest vernacular has been borne down to us, so that here the schoolboy is more learned than the *savans*.

This lets us down easily to the more familiar uses of this plant divine. By the Nile, in early days, the water-lily was good not merely for devotion, but for diet. "From the seeds of the Lotus," said Pliny, "the Egyptians make bread." The Hindoos still eat the seeds, roasted in sand; also the stalks and roots. In South America, from the seeds of the Victoria (*Nymphæa Victoria*, now *Victoria Regia*) a farina is made, preferred to that of the finest wheat,—Bonpland even suggesting to our reluctant imagination Victoria-pies. But the European species are used, so far as we know, only in dyeing, and as food (if the truth be told) of swine. Our own water-lily is rather more powerful in its uses; the root contains tannin and gallic acid, and a decoction of it "gives a black precipitate, with sulphate of iron." It graciously consents to become an astringent, and a styptic, and a poultice, and, banished from all other temples, still lingers in those of Æsculapius.

The botanist also finds his special satisfactions in our flower. It has some strange peculiarities of structure. So loose is the internal distribution of its tissues, that it was for some time held doubtful to which of the two great vegetable divisions, exogenous or endogenous,

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it belonged. Its petals, moreover, furnish the best example of the gradual transition of petals into stamens,—illustrating that wonderful law of identity which is the great discovery of modern science. Every child knows this peculiarity of the water-lily, but the extent of it seems to vary with season and locality, and sometimes one finds a succession of flowers almost entirely free from this confusion of organs.

Our readers may not care to know that the order of Nymphæaceæ "differs from Ranunculaceæ in the consolidation of its carpels, from Papaveraceæ in the placentation not being parietal, and from Nelumbiaceæ in the want of a large truncated disc containing monospermous achenia"; but they may like to know that the water-lily has relations on land, in all gradations of society, from poppy to magnolia, and yet does not conform its habits precisely to those of any of them. Its great black roots, sometimes as large as a man's arm, form a network at the bottom of the water. Its stem floats, an airy four-celled tube, adapting itself to the depth, though never stiff in shallows, like the stalk of the yellow lily: and it contracts and curves when seed-time approaches, though not so ingeniously as the spiral threads of the European Vallisneria, which uncoil to let the flowers rise to the surface, and then cautiously retract, that the seeds may ripen on the very bottom of the lake. The leaves show beneath the magnifier beautiful adaptations of structure. They are not, like those of land-plants, constructed with deep veins to receive the rain and conduct it to the stem, but are smooth and glossy, and of even surface. The leaves of land-vegetation have also thousands of little breathing-pores, principally on the under side: the apple-leaf, for instance, has twenty-four thousand to a square inch. But here they are fewer; they are wholly on the upper side, and, whereas in other cases they open or shut according to the moisture of the atmosphere, here the greedy leaves, secure of moisture, scarcely deign to close them. Nevertheless, even these give some recognition of hygrometric necessities, and, though living on the water, and not merely christened with dewdrops like other leaves, but baptized by immersion all the time, they are yet known to suffer in drought and to take pleasure in the rain.

We have spoken of the various kindred of the water-lily; but we must not leave our fragrant subject without due mention of its most magnificent, most lovely relative, at first claimed even as its twin sister, and classed as a Nymphæa. We once lived near neighbor to a Victoria Regia. Nothing, in the world of vegetable existence, has such a human interest. The charm is not in the mere size of the plant, which disappoints everybody, as Niagara does, when tried by that sole standard. The leaves of the Victoria, indeed, attain a diameter of six feet; the largest flowers, of twenty-three inches,—less than four times the size of the largest of our water-lilies. But it is not the mere looks of the Victoria, it is its life which fascinates. It is not a thing merely of dimensions, nor merely of beauty, but a creature of vitality and motion. Those vast leaves expand and change almost visibly. They have been known to grow half an inch an hour, eight inches a day. Rising one day from the water, a mere clenched mass of yellow prickles, a leaf is transformed the next day to a crimson salver, gorgeously tinted on its upturned rim. Then it spreads into a raft of green, armed with long thorns, and supported by a frame-work of ribs and cross-pieces, an inch thick, and so substantial, that the Brazil Indians, while gathering the seed-vessels, place their young children on the leaves;—*yrupe*, or water-platter, they call the accommodating plant. But even these expanding leaves are not the glory of the Victoria; the glory is in the opening of the flower.

We have sometimes looked in, for a passing moment, at the green-house, its dwelling-place, during the period of flowering,—and then stayed for more than an hour, unable to leave the fascinating scene. After the strange flower-bud has reared its dark head from the placid tank, moving it a little, uneasily, like some imprisoned water-creature, it pauses for a moment in a sort of dumb despair. Then trembling again, and collecting all its powers, it thrusts open, with an indignant jerk, the rough calyx-leaves, and the beautiful disrobing begins. The firm, white, central cone, first so closely infolded, quivers a little, and swiftly, before your eyes, the first of the hundred petals detaches its delicate edges, and springs back, opening towards the water, while its white reflection opens to meet it from below. Many moments of repose follow, —you watch,—another petal trembles, detaches, springs open, and is still. Then another, and another, and another. Each movement is so quiet, yet so decided, so living, so human, that the radiant creature seems a Musidora of the water, and you almost blush with a sense of guilt, in gazing on that peerless privacy. As petal by petal slowly opens, there still stands the central cone of snow, a glacier, an alp, a jungfrau, while each avalanche of whiteness seems the last. Meanwhile, a strange rich odor fills the air, and Nature seems to concentrate all fascinations and claim all senses for this jubilee of her darling.

So pass the enchanted moments of the evening, till the fair thing pauses at last, and remains for hours unchanged. In the morning, one by one, those white petals close again, shutting all their beauty in, and you watch through the short sleep for the period of waking. Can this bright transfigured creature appear again, in the same chaste beauty? Your fancy can scarcely trust it, fearing some disastrous change; and your fancy is too true a prophet. Come again, after the second day's opening, and you start at the transformation which one hour has secretly produced. Can this be the virgin Victoria,—this thing of crimson passion, this pile of pink and yellow, relaxed, expanded, voluptuous, lolling languidly upon the water, never to rise again? In this short time every tint of every petal is transformed; it is gorgeous in beauty, but it is "Hebe turned to Magdalen."

But our rustic water-lily, our innocent Nymphæa, never claiming such a hot-house glory, never drooping into such a blush, blooms on placidly in the quiet waters, till she modestly folds her leaves for the last time, and bows her head beneath the surface forever. Next year she lives for us only in her children, fair and pure as herself.

Nay, not alone in them, but also in memory. The fair vision will not fade from us, though the paddle has dipped its last crystal drop from the waves, and the boat is drawn upon the shore. We may yet visit many lovely and lonely places,—meadows thick with violet, or the homes of the shy Rhodora, or those sloping forest-haunts where the slight Linnæa hangs its twin-born heads,—but no scene will linger on our vision like this annual Feast of the Lilies. On scorching mountains, amid raw prairie-winds, or upon the regal ocean, the white pageant shall come back to us again, with all the luxury of summer heats, and all the fragrant coolness that can relieve them. We shall fancy ourselves again among these fleets of anchored lilies,—again, like Urvasi, sporting amid the Lake of Lotuses.

For that which is remembered is often more vivid than that which is seen. The eye paints better in the presence, the heart in the absence, of the object most dear. "He who longs after beautiful Nature can best describe her," said Bettine; "he who is in the midst of her loveliness can only lie down and enjoy." It enhances the truth of the poet's verses, that he writes them in his study. Absence is the very air of passion, and all the best description is *in memoriam*. As with our human beloved, when the graceful presence is with us, we cannot analyze or describe, but merely possess, and only after its departure can it be portrayed by our yearning desires; so is it with Nature: only in losing her do we gain the power to describe her, and we are introduced to Art, as we are to Eternity, by the dropping away of our companions.

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FIFTY AND FIFTEEN.

With gradual gleam the day was dawning,
Some lingering stars were seen,
When swung the garden-gate behind us,—
He fifty, I fifteen.

The high-topped chaise and old gray pony
Stood waiting in the lane:
Idly my father swayed the whip-lash,
Lightly he held the rein.

The stars went softly back to heaven,
The night-fogs rolled away,
And rims of gold and crowns of crimson
Along the hill-tops lay.

That morn, the fields, they surely never
So fair an aspect wore;
And never from the purple clover
Such perfume rose before.

O'er hills and low romantic valleys
And flowery by-roads through,
I sang my simplest songs, familiar,
That he might sing them too.

Our souls lay open to all pleasure,—
No shadow came between;
Two children, busy with their leisure,—
He fifty, I fifteen.

* * * * *

As on my couch in languor, lonely,
I weave beguiling rhyme,
Comes back with strangely sweet remembrance
That far-removed time.

The slow-paced years have brought sad changes,
That morn and this between;
And now, on earth, my years are fifty,
And his, in heaven, fifteen.

ROSA

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R. lucida, more com. Am. n. of dry soils, Dwarf Rose, varies greatly in wet soil; its forms there having been descr. as diff. sp.; blooms May to July.

R. Carolina, Swamp Rose, blooms June to Sept. Pa. Fla.

R. blanda, Early Rose, nearly unarmed; glaucous calyx not bristly; extends Pa. to Can., & to Br. Columbia.

R. cinnamomea, Cinnamon Rose, closely related to Rub.; fd. in Eu. and nc. Pa. Barren; naturd. in Am. in once plc. fr. old country gardens; brownish red bark, fero. prickles, small double but badly slaped flrs. with cinnamon-like fragrance.

R. setigera, Prairie, Michigan or Climbing Rose, only Am. climbing rose native; makes shoots 15-20' long in one season; stout, nearly straight prickles; 3-5 leaflets; abundant flrs. in July, deep rose changing to white; unlike any other native sp., it has styles united into a column projecting beyond calyx-tube. Common in rich soil cc. n.s. to WNY. Pa. it found Pocono & Bates Co. where fed. nur. made old climbers hardy to Can. or dse. pldt. by covering; best kn. the Queen of the Prairie, will grow in any soil.
Baltimore Belle

R. rubiginosa, Sweetbrier or Eglantine, the last rose applied to it. 6°, may be treated much higher.

R. micrantha.

R. canina, Dogrose of Eu., the common brier of Eng., largely used as stock or vehicle to bud the finer roses; close to sweetbriers but without aromatic glands; fd. naturlzd. Eu. & Rus. to Asia; in Eu. the ripe hips are used in the hairy stems, the pulp part boiled up in water with half its weight of sugar, used as vehicle for medicines.

R. alba, White Rose, fr. central Eu., very near the dogrose; gives rise to seml. white & blush varieties of gardens.

R. eglanteria, Yellow Briar, closely related to the sweetbriers; produces double yel., or buff varieties, best the
Harrisons Yellow R.

R. pimpinellifol'a, ~~Burnet~~ Rose, st. temp. Eu. & Asia, parent of the prized Scotch Roses, little removed fr. the parent, 1-2°, exceedingly prickly; small, roundish, smooth leaflets; mal. flrs. abt. all along the stem, 2 wks. earlier than other garden roses; 1st double var. cult. fd. near Perth Sc., & has given rise by seed to 150-300 named white, pink & yel. varieties; as:
Countess of Glasgow R., pink
Mars R., pure white
Yellow Scotch

R. sulphurea, Yellow Rose, st. Persia & the Far East, dry, called the Yellow Provence Rose; large full double yel. flrs., tr. transparent; rarely cult., little hardy, buds spoiling bef. opening.

R. Gallica, Provence Rose, Fr. Rose, source of many com. hardy garden varieties; "rev. leaves of drooping buds" ~~not developed, fr. unexpanded flrs.~~ this may be written opinion when I was a schoolmarm and Bunsen is asleep. Covered Stock Rose, R. G. centifolia, calyx-lobes fringed by a branch, whatever over, rather than by the fine mossiness of true moss-rose.

R. centifolia, Hundred-leaved Rose; sometimes used as source of rose-water, 8 lb petals to 2 gallons water placed in a still; 1 pt. rose-water distilled off.
Cabbage Rose dev. fr. it

Pompone or Butter Roses also; dwarf, small-fred.

R. damascena, Damask Rose

R. muscosa, Moss Rose; orig. var. introd. fr. Hol. to Eng. 1596; only 1 ka. till this cy, & not surpassed by any of the 100 since. Good varis. are
Celina MR
Laneo MR

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R. Sinica *Chinese Rose*, Chinese, introd 1789 Gard. bot. Rev; desc as indigenous by Lin as R. lævigata; the com. wild R. of Ch; a vigorous climber, to top of tall trees, having in shoots a tendency 20-40°, stems smooth, but w. very sharp curved prickles; lvs of 2 lflets, glossy, even-green; flts singlr, white, early July, large, single, pecdle clear & pure white. One of more vel (Smithers, Indica, etc) Indica, Noisette? q. are sub-vtl vigorous. Fave c. the pcdls & fo.

R. bracteata *Macartney Rose*, also Chinese, preferred in two vicls, rails as a hedge pt to the Chinese; evergreen, sometimes naturalized; barely hardy in Eng; stems downy & prickly; calyx covered by leafy bracts; introd. into Eng by Ld Macartney, 1793

R. sempervirens *Evergreen*, the wild R. of Eu; ev. there & in the warmer climates; not so N; very bri. gn. lvs, & abt. single wht flrs; some vars hardy, sm. tender; bear double var.

Eglicté perpétuelle

Synthie roses are var. of this; some are pink; vigorous shoots 20-30°; useful for covering walls, trellis &c.

R. moschata *Musk Rose*, grows wild & to great size in Asia; cult. vars sometimes as climbers by training up their shoots; flrs latest of all, in large clusters, wht. or yel-wht, very fragrant; cng in cong;

"*White Musk Cluster*" the best kn var

R. multiflora *Se Eng* & Ch; large clusters of small, scentless, wht & pale purple flrs; vars are climbers not hardy. Not mid. sts

Seven Sisters or *Grevillei* is best

Brunswick Roses are said to be of this, crossed w. a hardier; hardy, vigorous, long red stems; abt. blush or cream colour, odorless flrs

R. Indica *Bengal Rose* or *Indian Rose*, or *Chinese Rose*, or *Monthly Rose*, or *Chinese Monthly Rose*; flowers abundantly in June, again in Aut; crossed w. damask &c; [illegible] pot size, are bush flrs, expire Sept, pcdls hardy; the pot shrub roses, & of rose fancies, derived here largely supersede the old June roses fr. R. gallica, centifolia & damascena. Hundreds of vars, & new ones yly to Fr & Lancing pioneers;

Bacon Bouquet, fine examples
Rose Jacqueminot
Giant of Battles
Jules Margottin
La Reine

Bourbon Roses be Ind on I. of B, crosses betw the China & a damask vars sm. compact tendes abt. thorns vars, useful for bedding; classed as ever-blooming or monthly.

Souvenir de Malmaison, perhaps a standard of perfection

Hermosa, much valued for bedding

China Roses, vars of R. I. prized for abt & bulb flrs, tender, readily multiplied & cheapest of roses; kn. as *Monthly R.* or *Bengal R.*; more constant than Bourbons

Agrippina, *Daily Blush*, *Daily White*, *Blue Bouquet*

var. *odorata*, *Tea Rose*; long bud, semi-double flrs, fragrance nearly that of green tea

Blush, *Yellow* vars "both of Ch; early in this cy, source of present vars

Bon Silene, *Gloire de Dijon*, *Isabella Sprunt*, *Pearle*, *Safano*, *White Tea*, *Mareschal Niel*

Noisette Roses, cross of musk & tea, c. 1817, by M. Noisette, a florist of Charleston, S.C.; climbers; flowers like the musk rose; usually tender

Lamarque, *ovular buds* as a quick climber; *sulphureyl* flr, very abt

Chromatella, *darker yel than their parent*

Solfaterre " " " "

ROSE; known as a splendid flower of the E, to the Gr. of t. of Homer; kn. at 1st by perfect, then by their scented oils, then by plants, *Helen*; appears in Homer & Hesiod, who call *Aurora* *rosy-fingered*; Venus anoints the body of Hector w. *rose*-scented oil; in a Homeric Hymn Aurora & the Nereids are called *rosy-armed*. Did H. know the rose itself? An anc. critic asks why Iris Helen rose-oil but not the rose? Hymns to Demeter, venerable record of the anc. Eleusinian worship of that goddess, mentions the rose, "but still in strangle fantastic guise, Persephone plays with her companions in a meadow, plucking roses ... crocuses, violets, irises, Narcissus; tells her mother latter how she played in the charming meadow, & plucked 'cups of roses & lilies too, a marvel to look at'". Some of her companions nymphs are named fr. their *Rhodeia*, *Rhodope* (rosy-face) *Oeyroe* *Kalykopis* (O. with a face like a rose-cup); & *kalykopis* is also appellative for a nymph in the Hymn to Aphrodite. Rhodope was a tenth. Rhodope was a tenth. Lines Mt. in Thrace.

Hymn to Demeter; the rose is called *ῥόδεα κάλυξ*, "rosy cup" κάλυξ after; κ. to distinguish the improved full rose from the wild; common until κ. by itself came to mean "rose, & καλυκῶπις Νύμφη "rosy-cheeked Nymph" Helm. supposes popular speech referred to the flower as ἡ ῥόδεα "the rosy" [as Dick Swiveller in the O. Curiosity Shop, 'I will never more taste the rosy'] and hence came the lat. Rosa. Pott thinks Rosa fr. ῥόδεα "rose-bush" as Fr. popular lang. made *Clausus* out of *Claudius*. Macedonia was the fatherland of the cultd R, as regards Eur. Theophrastus says the M. had a diff. name for the R. & called it ὀξάγγια. "Modern Gr. have abandoned the word ῥόδον & say 'the thirty-leaved' τριακοντάφυλλη (Fraas), & so lately lately did the ancient Gr. [*Langkavel*]. This word has passed into Albanian, Slavonic in Old Slavonic, into Welsh, Cornish, Irish & Gaelic; into Arabic, Persian, Turkish.

In Greece, Archilochus, perhaps earlier than Homer, Hymns, mentions the "rose-bush, whose blossoms, with sprays of myrtle," adorn a maiden, Neobule, the beloved of the poet. "100 yr later it is Sappho's favorite flower; in her poems she sings its praise, & uses it as a simile for beautiful girls". Thus that time we find the rose fully installed among the festive decorations of the ipnous Gr, & evidently intimately connected w. their life & custom.

Hdt. says in the garden of Midas in Phrygia [son of Gordius, at foot of Mt. Bermion] grew spontaneously the 60 fold rose, whose scent was more delicious than that of any.

Nicander, an Alex. poet, says Midas of Odonia [Edonia, a district in Thrace] after leaving Asia [in Asia Minor] was the 1st to plant in Emathian gardens [E. a district in Macedonia] the 60 fold rose." Indicates origin from Babylonia (they from Media); using the Old Babylonian no. 60. *Helm.*

Theophrastus mentions the introd of Philippi, towds Macedonia, as home of the full rose, wh. he also calls "60 fold," *R. centifolia*; the inhabs are said to have ed. it on "along Mt Pangaeus, rich in silver & gold.

Myths of the Rose in Gr; "show trace of the Phrygian love of nature" *Helm.* Dedicated to Aphrodite; is the flower of Dionysus; the symbol both of love & death; came into being when Attis [the Phrygian Adonis] died; V. created it out of Adonis' blood; or V, hearing of A's death, came running thru' the thorn-bushes & wounded her foot, & her blood turned the white rose red; or [true Phrygian form] the R. springs of itself from A's blood, (as pomegranate & almond in similar cases) Bion sc, "Ere each bed drop the shed a tear; fall to the ground, both turn to flowers; — his blood to roses, to anemones her tears."

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Ingd. qu by Blechman; Elves, believed at the loss of a sweet myrtle added Jove to clip the baby to 'lop the of morgay beauty'; Apollo, Bacchus, Proserpina & Venus gave to it rank attributes of the non-pareil.

Olympian messengers the one bolt it see to create & warm over the R, the rose.
"The zephyr sylphs that cause the air Vascoo, in voluge that twilt weaves
Around the opening rose repair, And breathe sweet incense o'er its leaves."

In Origin. "The Gr. ῥόδον is an older form ἐρόδον, & the ἀνέρσον, both are originally Iratic words; both names & plants thus came to Gr. thru' Armenia & Phrygia from Media." Hehn, Media, to this the name is traced; to Armenia; to Phrygia; to Thrace, indicated by Proserpine's rose plucking there, & her cave Rhodope transfd there; to Macedonia, where Sappho & subsequent, allude to it; & the myths of the R give an echo of the Phrygian worship of nature. Boulin, 15"; rapellu tance says ἀγλωνοῦν ἀνθ means ἀφανεν, or some disappearance.

In the Bible. Hosea, xiv, 5, 8th cy, - "I will be as the dew unto Israel; he shall blom like the rose" Luther's vers; "he shall grow as the lily" K James; Hebr, susan, susannah = κρίνον = fire-lily. Rabbinical inter, = rose is wrong; was followed by Luther equivocally. Hehn,

Sol. Song, ii, 1, 2, "I am a flower in Sharon, & a rose in the valley" Luther's v; lily of the valley, Eng, = fire-lily. "Rose of Sharon" a blunder Hehn,

Thus no true reference to the Rose in the Bible until the Apocrypha, of Grecian age. Gr. were then early acq. w. the R. than the Hebr. were; hence it is not a Semitic plant.

In Egypt, Absent in anc. painting & sculpture; hence not Eg. or Semit. "Cleopatra caused the floor of the hall at Tarsus, where she feasted Antony, to be covered 30 deep w. R." Hehn, Eg. R. were brt to sell in Rome in winter, Martial,

In Persia, its home. Of Tehran, Ritter, "The rose flourishes here in a perfection unknown elsewhere in the world. Nowhere is it so extensively planted & so highly valued. Gardens & courts are filled with R; rooms are crowded with R pots, & R are strewn in the baths & constantly renewed, for the ever blossoming bushes. Even the kalium [kind of hookah] of the poorest smoker in P is decorated with the 100 lid R, & the odor of R pervades."

In Herod. Babylonians had then the use of the R. for the Mede-P. ques; "Sv B" says H., "has on his staff the figure of either an apple, a rose, a κρίνον, an eagle or some other object".

In Syria "Antiochus the Gr, a true Greco-Oriental despot," after beginning w. Rome, calls the isles, had tents of silk embroidered w. gold put up on the Eurripus, wh is a flowing water; & there enjoyed ev luxury, even R in winter; the Romans soon drove him home again; also cpd by his cook lux; adds the Rom. au." Hehn,

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[illegible] Persian [illegible] Rose [illegible] Jerusalem [illegible] Jericho [illegible] Jericho rose of the East] into it by Gr colonists, with it pob. the lily; from there both have spread without further change over the world. In it new varieties were prod, succeeding each in flr, that of Campania first, of Praeneste last, thus keeping in blom nly all the year; C. produced the *Roseifolia*; Paestum R were fam-ed for blooming 2 t. a y.

Plautus' Comedies, in them *Rosa, mea Rosa*, occurs as a term of endearm.

Cicero associates the rose with luxury, saying "The fortitude of Regulus made him happier than Pl. Thorius swilling amid roses."

Virgil uses the rose by which to frame his highest compliments for the beauty of Juno & Venus.

Verres, prefector of Sicily, in imitation of Bithynian kings, rode in a litter, the cushions of wh were stuffed w roses, & held to his nose a net of fine lace filled with roses."

Elegiac poets & lyrics throw the rose in to co, concrd w love & pleas-ure; "the festive board is hidden under roses; lovers lie on roses; the floor is strewn with R; dancers, flute player, boy who serves the wine, all are wreathed w R; drinker crowns himself & wine cup both wh; R & the revel of the senses are inseparable.

R also the flr of the tomb; R & tears sprinkled on the dead; proved to be com-mon by mos, epitaphs. "For the rose that issued fr the blood of the dying god of nature is as fleeting as it is fair" (Moore); "If thou hast passed by a rose, scell it not again", Gr poet; In "There is no rose of 100 d." "The R rep the [illegible] & transcendent culture of life & for the sake of the [illegible] quality, [illegible] chilled the life value & flood, by the [illegible] shadows in the [illegible] of the dead."

Used in indg essences, & sweet water ointments; R oil & R water in pharmacy & epicure's kitchens; R gardens abounded, as did Lily beds; prod uce of both sold by "flowersellers." Ref. full Report, Varro advises suburban culture of R & violets as profitable; extensive Prepdns as far away as Campania & Paestum sent in the R for the rich & luxurious capital.

Luxury of Emp.; Seneca complains "Do not those who desire R in winter live contrary to nature?" Macrobius mentions as parallel re-quirements of luxury, "snow in summer & roses in winter." Martial reports winter R were brt in ships to Eg, & that R allies were grn und glass in Rome. Emp L. Aelius Verus invented a new kind of bed, stuffed w R leaves, fr wh the white parts had been taken away, covered w a carpet of Lily leaves, the whole enclosed in a fine net. He lay at table on cushions stuffed w trashed R and Lilies. Still more extravagant was Heliogabalus; emperor of Syrian origin; caused all the palace rooms to be carpeted w R, Lilies, Violets, Hyacinths, Narcissus; his guests were so deep imbedded in the wbl reclining at table, that some of them, being prob hvy w wine, were unable to rise, & suffocated." The recent pty, *Roses of Hell*, exhibited Feb. 88 in NY, shows some of the revellers lying bewildered amid rose leaves deep as a snowdrift, on wh a jolting attendant improved by the Emp while dis near, is showering more R by the bushel-basket.

In Mid Ages R & Lily continued to be cult.; mediaeval poets make abundt use of R & Li in descr; both adopted for the Virgin, her beauty & graciousness symbolized by the R, her heavenly purity the L. Gothic ch's adorned w mystic R of stone. Used in heraldry; as the Red & White R of Eng;

The Golden Rose of the Popes; on 4th Sun in Lent the Pope in wht, would consecrate on the altar of a chapel adorned with R, bet the adjacent Cardinals, a golden R; this was afwds presnt as a blessing to princes & princesses, even to chs & ctns. Pope dipped the R in balsam, sprinkled it w holy wtr & incense, & prayed to Christ as the Flr of the field & the lily of the Valley. Shtly bef Refn, Frede the Wise, elector of Sax, recvd the Gol-den Rose; mr lately, to the illfated Carlotta of Mex & Isabella II of Sp. Cus-tom traceable to time of Leo IX, 11th cy; due to anc Rom conception of the R as symbol of life & perishableness, wh in the hand of a cqr ex-pressed both his glory & joy, & his mortality & humility.

The Rusalka, female fairies or nymphs of the fields & woods in spring, among the White & some of the Little Russians, were explained 1864 by Miklosich to owe origin & name to the Roman Rosalia, Rosavia, or R festivals, still celebr, shortly bef. the Fall, in May & June; when the tombs were decord w R, & social banqts in wh R, product of the season, were pre-sented to the guests. Sir John Rumbold full of flying poems, & in his Paradise, with spry & smart festivals were held, under name Rosalia; there no doubt in contin. of Dionysiac sum, festivals treated amid the Thracian peoples, & the enjoyment of R inseparable to them. In Chr. era, Whitsuntide orig in May & inherited the Rosalia; was called *pasche rosata* or *rosarum*; to this day is called by Roman populace *pasqua rosa* or by mistake, *p. rugiada*; & on W-day, the so called *Domenica de rosa*, R were let down to the people fr the roofs of chs. Att, when in 6th cy, Slavs crossed into the Mid & Lw Danube cts, halting betw heathenism & Chr'y, the Chr W-tide, or Rose-feast, naturally fused w the heathen Springtime of the Slavic barbarians; and was called *Rusaliya* among the Slovens, Serbs, White & Little Russians, & Slovaks. The Gay & wing Slav maidens ~~who~~ bound wreaths & interrogated self-invented oracles at this feast; & out of this feast was developed the Rusalkas, their mythic counterpart.

In Ger too the Teutn R & Italo R festival became mingled w the Old German notion of a fight betw Winter & Summer; & Ger recvd the festival & Ru-salka myth thru' the Celtic Roman Bpcol & Italy.

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In Turkey it is old superstition [illegible] Constantinople, that the Turks wd not let a Rose lie on the grd, belop the R springs to the dogs of sweet that spring fr Mahommed's brow.

Vambery the traveler saw on the so-called grave of Ali near Messes, near mid Balkh, ancient Bactra, the wonder wondrous Red Roses, gili sunshi, wh really seemed to him to excel all dis in color & scent, & wd have not been planted elsewhr, as the local Islamite legd says they wd thrive nowhere else.

The Rose of Eden

Arabic Legend

Fair Eve knelt by the guarded pass, in the glow of the Eastern spring,
She saw the flash of the Angel's sword & the sheen of the Angel's wings;
Else that as she held her sobbing breath, she could hear the happy sighs
Of the tiny violets that fed the mosses of Paradise.
She knew how the birds were fluttering among the clustered flowers,
And gorgeous blooms and arching trees that shadow Eden's bowers,
And she cried aloud in an agony of wild remorseful prayer,
'Give me one bud, but one, from the thousands that bloom there.'
He turned as he heard her piteous voice, in his grave angel's grace,
And he looked with a wistful tenderness on the beautiful woman's face;
And because it was so beautiful, & because she could not see
How fair were the pure white cyclamen, crushed dying at her knee,
And because he knew this punishment thro' the weary years must burn,
That thro' all things sweet & good on earth her heart would for Eden yearn,
He gathered a rich, red rose that grew where the four great rivers met,
And thrust in the frail & fatal hands that clasped imploring yet.
And the Rose meanwhile, a spell [illegible] with her who wore it on her breast when she passed from life and pain
There is never a daughter of Eve, but once, ere the tale of her day is done,
She will know the scent of the Eden rose, just once beneath the sun!
And whatever else she may win or lose, endure or do, or dare,
She will never forget the enchantment it gave to the common air,
Ere the world may give her content or joy, fame, sorrow or sacrifice,
But the hour that brought the scent of the rose, she lived it in Paradise!

Songs of Roland

O Eginhard, disclose The meaning & the mystery of the Rose!
And trembling he made answer, In good troth, Its mystery is love, its meaning, truth!

The odors from the censers white
Of wave-swung Lilies and of wind-swung Roses! from

Love comes like flowers in the night from
Scatter upon me ROSE leaves, They cool me after my sleep.
My cockatoo, creamy white, With ROSES under his feathers;

W.W. Story, "Cleopatra"

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The Queen of Flowers.

The lily is all in white, like a saint,
And so is no mate for me;
And the daisy's cheek is tipped with a blush,
She is of such low degree.

Jasmine is sweet and has many lovers,
And the broom's betrothed to the bee:
But I will plight with the dainty rose,
For fairest of all is she.

THOMAS HOOD.

NOWADAYS we are gathering much information as to the manners of our far-distant ancestor, the paleolithic man. He defaced the paleolithic landscape with untidy heaps of bones and oyster-shells, but it does not therefore follow that he had no soul for the beautiful. Perhaps the first flint-chippers had gardens, though they had neither

as roses growing beside the brook." The sacred writer takes the flower as an emblem of beauty and gladness when he says that "the desert shall rejoice, and blossom as the rose."*

Classic poets, Anacreon and Sappho, have sung the praise of roses, though they knew the flowers before their evolution, when they were not so large, so fragrant, nor so beautiful, as culture has made them nowadays.

Many legends of many lands account for the birth and for the glowing color of "the queen of flowers." According to one classic story, the rose sprang from the blood of Adonis. It was white and odorless till golden Venus trod on one of its thorns and with her petals blood gave it color and perfume.

Spenserre-fers to this tradition in the lines,

Boards of
Health nor

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The Rose.

Written for THE EVENING STAR.

June claims the rose,
But the May-month knows
Who warmed its heart to blushes;—
Who kissed it soft
With sunbeams soft
In depths of its green bushes.

May's silvery rain,
With low refrain,
Its tender petals parted;
May's zephyrs coy
To wanton joy
Wooed roses crimson-hearted.

May's madrigal
(The sky-lark's call)
Thrilled virgin rose-buds sleeping;
Pure, white as snow,
Like vestals, grow
Such roses, vigil keeping.

May's moon-light glanced
Through leaves entranced
And flushed, like maiden dreaming,
June's favorite flower,
In May's dusk bower,
Oped to love's tender seeming.

June claims the rose;
But the May month knows,
And vows it o'er and over
To sun and moon,
To stars of June,
That May's the rose's lover.

—MARIE LE BARON.

A DEAD ROSE.

BY MRS. ELIZABETH BARRETT BROWNING.

O ROSE! who dares to name thee?
No longer roseate now, nor soft, nor sweet;
But barren and hard and dry as stubble-wheat
Kept seven years in a drawer—thy titles shame thee.

The breeze that used to blow thee
Between the hedge-thorns, and thence take away
An odor up the lane to last all day—
If breathing now—unsweetened would forego thee.

The sun that used to light thee,
And mix his glory in thy gorgeous urn,
Till beam appear to bloom and flower to burn—
If shining now—with not a hue would dight thee.

The dew that used to wet thee,
And, white first, grew incarnadined, because
It lay upon thee where the crimson was—
If dropping now—would darken where it met thee.

The fly that lit upon thee,
To stretch the tendrils of its tiny feet
Along the leaf's pure edges after heat—
If lighting now—would coldly overrun thee.

The bee that once did suck thee,
And build thy perfumed ambers up his hive,
And swoon in thee for joy, till scarce alive—
If passing now—would blindly overlook thee.

The heart doth recognize thee,
Alone, alone! The heart doth smell the sweet,
Doth view the fair, doth judge thee most complete—
Though seeing now these changes that disguise thee.

Yes, and the heart doth owe thee
More love, dead rose, than to such roses bold
As Julia wears at dances, smiling cold!
Lie still upon this heart, which breaks below thee!

The Queen of Flowers.

The lily is all in white, like a saint,
And so is no mate for me;
And the daisy's cheek is tipped with a blush,
She is of such low degree.

Jasmine is sweet and has many loves,
And the broom's betrothed to the bee;
But I will plight with the dainty rose,
For fairest of all is she.

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Per[illegible] br[illegible]

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OFFICE, Assistant
POSTER &
Attorneys and Coun
69 WALL
P. O. BOX
CITIES CURTISS, Esq.,
President WASHINGTON LIFE
Dear Sir:—While examining the results of a policy in
[illegible] and also the advantages of the extra
[illegible] holders in your Company to be $10,000, upon which
[illegible] return dividends $2,001.35, leaving only
[illegible] YOUR TOT ONLY.

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THOMAS HOOD.

NOWADAYS we are gathering much information as to the manners of our far-distant ancestor, the paleolithic man. He defaced the paleolithic landscape with untidy heaps of bones and oyster-shells, but it does not therefore follow that he had no soul for the beautiful.

Perhaps the first flint-chippers had gardens, though they had neither Boards of Health nor Street-Cleaning Bureaus; and the next plowing may unearth a fragment of pottery graven with a rude picture of the first horticulturist at his work. We can be certain that if he had a garden he raised roses,—pallid little ancestresses of the great glowing Jacqueminots of today. Wherever he lived roses must have bloomed, for they gladden every region, from the equator to the frozen seas; and in all lands and in all times they have been cherished since

"High in Paradise,
By the four rivers,
the first roses
blew."

Even the etymology of the name shows how universally the blossom has been loved, for "rose" is originally an Arabic word, which passed into Greek, thence into Latin, thence into English.

The oldest literature in the world is full of allusions to the flower. The sacred books of India, written centuries before our era, say that Vishnu, lord of the world and god of life, found his wife, Pagoda Siri, in the heart of a rose. In the apocryphal Book of Wisdom, Solomon says, "Let us crown ourselves with roses e'er they be withered;" and in Ecclesiasticus occurs the passage, "Hearken to me, ye holy children, and bud forth as roses growing beside the brook." The sacred writer takes the flower as an emblem of beauty and gladness when he says that "the desert shall rejoice, and blossom as the rose." *

Classic poets, Anacreon and Sappho, have sung the praise of roses, though they knew the flowers before their evolution, when they were not so large, so fragrant, nor so beautiful, as culture has made them nowadays.

Many legends of many lands account for the birth and for the glowing color of "the queen of flowers." According to one classic story, the rose sprang from the blood of Adonis. It was white and odorless till Venus trod on one of its thorns and with her blood gave it color and perfume. Spenser refers to this tradition in the lines,

"White as the native rose before the change
Which Venus' blood did on her leaves impress."

THE "AMERICAN BEAUTY."

The "blush" rose was once white, also, till Cupid gave it color by holding it up to Psyche's cheek. Anacreon tells a different tale, and says that the flower was dyed with nectar by the gods, when it was created. Yet another myth says that Cupid, while leading the dance (could it have been the German?) in Olympus, overturned a vase of nectar, and the contents, falling to earth, bedewed the white roses and dyed them red. Herrick inclines to this story:

"'Tis said as Cupid danced among
The gods, he down the nectar flung,
Which on the white rose being shed
Made it ever after red."

The Turks believe that the red rose sprang from the blood of the great prophet Mahomet, and they reverence it accordingly. If a Turk sees a rose lying on the ground he picks it up, raises it to his lips, and carefully lays it in a place of safety.

"The Voyage and Travaile of Sir John Manndeville," a famous book of the fourteenth century, gives yet another account of the rose's birth: A Jewish maiden was brought to the stake by the slanders of an incensed—because rejected—suitor. As the flames began to crackle about her, she prayed that, as she was not guilty of the crimes whereof she was accused, Heaven would make her innocence

* The "rose of Sharon" was not, botanically speaking, a rose at all. It was either a sort of mallow, or, more probably, the wild red anemone of Eastern lands.

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known unto all men. Immediately the fagots about her became a bed of roses,—the burning ones red, and those that were not yet kindled, white; and those were the first roses that ever "ony man saugh." Thus the rose became the flower of the martyrs.

In his "Travaile" Sir John seems to have met some Persian fire-worshipers, and to have utilized one of their legends as literary material. They believe that when the infant prophet Abraham was thrown into the fire, by order of Nimrod, the flames and the glowing embers instantly turned to red roses, amid which the child slept sweetly. In "Lalla Rookh" (which now reposes peacefully on the library top-shelf, powdered with dust) our mothers used to read,

> "The pitying heavens to roses turned
> The death-flames that beneath him burned;"

so among the many legends of the birth of the rose, Moore inclines to the Persian story.

An old Christian tradition says that a white rose bloomed at the foot of the cross, and the blood of the Redeemer, falling upon it, changed its petals to crimson. Oriental legend says that before sin and sorrow entered the world roses had no thorns. According to St. Ambrose and St. Basil, the roses of Eden were thornless; and Milton refers to this belief when he says that in the first and fairest garden there grew

> "Flowers of all hues, and without thorn, the rose.

Christian art and story pay little heed to the rose, comparatively speaking. Classic art and story do it far more homage, and it played such an important part in classic life that one wonders how the Greeks and Romans could have worshiped, or held gala-day, or dressed, or dined, without it. It was dedicated to a number of divinities, who, it seems, possessed the queenly blossom in common, in a sort of Olympic socialism. Flora, goddess of flowers, was portrayed crowned with roses, and so was Comus, god of feasts. The flowers were regarded as symbols of love and beauty, and so they wreathed the brows of Venus, queen of beauty, and of Cupid, god of love, while Aglaia, youngest, and presumably most charming, of the Graces, held roses in her hand.

The rose was dedicated to Aurora, goddess of the morning; the altars of Bacchus were wreathed with roses. They were also sacred to Harpocrates, god of silence, whom classic art portrays with his finger on his lips, so the flower became a symbol of silence, and hence, by an obvious association of ideas, a symbol of discretion. Even in those long-ago days there were many times when "the least said" was "the soonest mended;" so at Roman feasts a rose, or a garland of roses, was hung from the ceiling, in token that what transpired at table, among friends, was to go no further.

This custom extended to other lands and into modern times; for in 1587 the hanging of roses over the tables in parlors and dining-rooms is spoken of as "a common country custom" in England. In the succeeding century the rose was a "make-believe one," painted on the ceiling; and some ingenious person suggests that the plaster ornament called "a rose," which doubtfully adorns the center of the modern ceiling, is a reminiscence of "the flower of silence" of Roman dining-halls.

It is probably on account of its association with Harpocrates, the secret-keeper, that the rose has become one of the symbols of the Order of Free Masons; and we have a reminiscence of the suspended blossom above the feast-table, in the phrase "*sub rosa*,"—"under the rose," or, "in confidence."

In what is called "the classical period," roses seem to have been required for every occasion, from birth to death, and to have made a part of every ceremony, public or private, joyous or somber. There were shops in Rome where nothing else was sold, and they were filled with fragrance and bloom every month of the year. The island of Rhodes obtained its name from the profusion of roses raised there, and most of them went to the Roman market.

Then there were the famous roses of Samos and Paestum, happy localities where the bushes flowered twice every year; and when the last autumn blossoms had faded, even in these sunny Mediterranean islands, ships came from Alexandria, laden with more roses, from countries nearer the equator. Many more of the favorite blossoms were raised at home, in the long Italian summers; and in the short, mild winters, roses were forced to bloom under cover, stimulated by hot water, which, it seems, was carried to them in pipes, much as it is in modern conservatories. In the time of Horace, just before our era, glass houses came into use. So Lucius was poor, indeed, if he could not buy Cornelia a rose for her hair, whatever the season.

Even in the comparatively simple days of the republic, revelers had their festive cups crowned with floating roses; and in the times of the empire, when Rome was pampering every sensuous appetite with the wealth of a vanquished world, the paths of her rich and noble citizens were literally strewn with roses. Gardeners and importers seem to have been wonderfully successful in keeping pace with the voracious demand for the flowers. In the reign of Domitian, the last of the Cæsars, the Egyptians offered the emperor's court roses in winter, as a princely gift; but the Romans smiled at the offer. "In every street," says Martial, "the odor of spring is breathed, and garlands of fresh-blown flowers are hanging. Send us corn, Egyptians, and we will send you roses."

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On gala days the statues of gods and heroes, which adorned the streets of imperial Rome, were crowned with roses. The arches through which triumphing generals passed were adorned with the flowers, and wreaths of them were flung into the chariots. When Scipio came through the city in triumph, after the conquest of Carthage, the soldiers of the Eighth Legion, who had been the first to penetrate the enemy's camp, were ordered to carry bunches of roses in their hands, and thenceforward every soldier of that troop had a rose graven on his shield.

The Roman bride wore a wreath of roses and myrtle beneath her purple veil. The guests at feasts had crowns of roses on their heads, and chains of them about their necks. The making of these garlands, so much in demand, became a fine art; and though most of the Roman painters are forgotten, the name of Glycera of Lycium, a famous weaver of wreaths, has come down to us through a score of centuries. How must her artistic soul have been tried when she saw the blossoms and buds, so skillfully entwined by her deft fingers, surmounting the brows of a stout and elderly gentleman of bibulous complexion!

Couleur de rose pervaded the classic feasts at which that stout gentleman was a guest. In Empire days the company at great dinners reclined upon pillows stuffed with rose-leaves; more rose leaves and blossoms strewed the floor beneath them. When Antony was Cleopatra's guest she entertained him with daily feasts. On the last day, as a climax of hospitality, she gave him a feast of roses. The flowers, fresh and fragrant, covered the floor to the depth of eighteen inches, and a strong netting was stretched above them, so that people might walk on them without crushing them.

But even this entertainment was outdone by Nero's feast, at which he spent a sum equivalent to $150,000 for roses,—a fine order for his nurseryman. They not only garlanded

the walls, wreathed the guests, filled the cushions, and covered the floor, but a rose-leaf pudding tempted the appetites of the revelers, while roses showered down on them from a hole in the ceiling.

Heliogabalus also invited some friends to dine under a rose-shower, but, through the malice prepense of the host, or the stupidity of his servants, the shower became a storm: the flowers rained down so heavily that several persons were suffocated under their fragrant abundance. This dinner is the subject of a painting by the great colorist Alma-Tadema. While the artist was at work his daughters took turns in showering rose-leaves before him, that he might catch the effect of light shining through them as they fell. This he has done with such success as to delight the critics. Heliogabalus bathed in an extract of roses, and he even had the public swimming baths filled with it. When a Roman noble entertained Nero, perhaps in social return for an invitation to the $150,000 dinner, the host went to enormous expense to have all his fountains flinging up rose-water.

To encourage digestion after these extravagant feasts the Romans drank a beverage made of roses. If, notwithstanding, dyspepsia claimed them for its own, the doctor when he came, was wont to prescribe a rose-draught,—a classical example of the proverbial "hair of the dog that bit him." If the patient died, his cold brow was encircled with a crown of roses, for though a Roman law forbade all ornamental show at funerals, an exception was made in favor of rose-garlands; and it is highly probable that his sorrowing relatives planted a memorial rose-tree on his grave.

1. "BARONESS ROTHSCHILD."
2. "CATHERINE MERMET."
3 AND 4. "GENERAL JACQUEMINOT."

In Oriental poetry the rose is mentioned again, and with it is associated the bulbul, or nightingale. The flower and the bird are lovers. She wakens at his voice, and all his melody is for her delight; and in her praise, Jami, the last great poet of Persia, says, "When the nightingales warble their enchanting notes, the veils of the rosebuds are rent." This may have suggested to Byron the pretty fancy in the "Giaour":

> "For there the rose, o'er crag and vale,
> Sultana of the nightingale,
> The maid for whom his melody,
> His thousand songs are heard on high,
> Blooms, blushing, to her lover's tale."

The flower was much loved by the Arabs, and a book on agriculture, written in the twelfth century, by Ewn el Awan, gives many directions as to its care. But in Europe, after the downfall of the Roman empire, the cultivation of the rose perished in the same grave with other refinements of ancient civilization.

When the power of papal Rome arose out of the ruins of imperial Rome, the Fathers did not encourage the use of flowers for ecclesiastical or personal adornment, and the rose was

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rticularly out of favor, because it had been so closely nnected with pagan rites. The Benedictine monks were e stanch and only ecclesiastical friends of the dethroned wer-queen, and wherever there was a cloister of this Order ere was a rose-garden near by. In the times of chivalry d the Crusades, the flower seems to have been taken back to public favor. When the soldiers of the cross returned om the East, they brought with them roses hitherto known in western Europe, and some of these were anted and naturalized in France and Germany.

The beauty of these blushing immigrants seems to have ade a great impression upon the Troubadours, for in the Romaunt of the Rose," one of their most famous poems, e flower is given a lover. He does not even see the object his devotion, only her mirrored face in glassy water, yet burns and yearns and sighs for the rose till he gets it (at e end of twenty thousand verses), only to discover that he oes not care for it, after all.

Knights in the Middle Ages wore a rose embroidered on eir sleeves, in token that gentleness should accompany ourage, and that beauty was the reward of valor.

The flower plays an important part in heraldry; and it he national blossom of England, probably because it has een for five centuries the badge of he reigning family. Once there vere two families, both esiring to reign, nd both having the rose mblazoned n their eraldic

hield. The trouble began n the time of Henry VI., a nan of good heart, weak vill, and feeble inellect. His distant ousin, the Duke f York, claimed o be true heir to the crown, nd, by the rights of primogeniture, this claim was just, as the king was descended from the fourth son of Edward III., while the duke traced his ancestry back to the third son of that monarch. The duke was powerful, bold, and popular, and in 1454, on occasion of the king's dim mind being altogether eclipsed, he got himself appointed Protector of England. When the king recovered, the duke declined to give up his power, and levied an army to support his claim. Then was fought the first battle of a dreadful civil war which embroiled England for thirty years. The badge of the House of Lancaster, to which Henry VI. belonged, was a red rose; while on the escutcheon of the House of York, a white rose was blazoned: and, like the lion and the unicorn, the roses "fought for the crown."

Out of that cruel War of the Roses, which cost so many lives, there has come to us a dainty verse, like a flower growing out of the grim walls of a fortress. It expresses the admiration, perhaps the love, of a forgotten gallant for a forgotten lady. The attachment was a Montagu-and-Capulet affair, for he was a Yorkist, and her family sympathized with the House of Lancaster; so he sent her a white rose with these verses:

"If this fair rose offend thy sight,
Placed in thy bosom fair
'Twill blush to find itself less white,
And turn Lancastrian there.
But if thy ruby lip it spy,
As kiss it thou mayst deign,
With envy pale 'twill lose its dye,
And Yorkist turn again."

Meantime the relatives of these young people kept on fighting. Now one side was successful, and now the other, and the white rose triumphed so long that there were three Yorkist kings.

On Bosworth Field, in 1485, the roses had their last fight, and the red rose won. When twilight fell on the day of the battle, Richard III., the last Yorkist king, lay dead on the trampled and blood-stained ground, under a heap of slain. Then they set his crown upon the head of the Lancastrian heir, Henry Tudor, Earl of Richmond, who became King Henry VII. Henry married the niece of dead King Richard, beautiful Elizabeth of York, and it is more than rumored that he was not very kind to her. After the wedding he blended the white rose and the red one into what is called the "Tudor rose." In the wonderful chapel of Henry VII., at Westminster, this Tudor rose is everywhere, —in relief

1. "ULRICH BRUNER."
2. "GLOIRE DE PARIS."

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in stained glass, and in mosaic. It is made up of alternate rings of red and white petals, and sometimes it is surmounted by a crown.

Two interesting mediæval customs connected with the rose have come down to our own days. In the sixth century, Medard, Bishop of Noyon, instituted the festival of "La Rosiè which used to be celebrated annually at the village of lency, not far from Paris. A crown of roses was publi bestowed upon the girl generally acknowledged to be sweetest and best in the village. To meet the expen of this pretty festival, the bishop set apart a portion his own domain, and the land thus donated was cal the "Manor of the Rose." Louis XIII. happened to h of the yearly ceremony at Salency, and was so much terested that he wished to attend in person. When t plan was frustrated by a fit of sickness, he sen ring for the chosen maiden, saying: "This has lo been the prize of honor: let it now beco the reward of virtue."

After that time a ring, as well as a wrea was bestowed upon some favored maid every year. Madame de Genlis has tak this village ceremony as the subject of charming little drama, called "La Rosi de Salency." When Salency dropped the cu tom it was taken up by the village of Nanter

1. "PAPA GONTIER."
2 & 4. "LA FRANCE."
3. "MADAME CUSIN."

eight mil from Pari and the this hoa relic of t Middle Ag was flou ishing on twenty-fi years ago, the excessiv practical epo of steam an daily paper At Nanterr the happy dan sel received n only a wreat of rose but

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stantial purse of five hundred francs. The honors were towed upon her by the Lady Mayoress, and before all her sfolk and acquaintance, in the village church, at Whitride.

The fourth Sunday in Lent is known in Rome as "Rose nday." On this day the pope consecrates a rose of gold, ich is sent either to a church, to a crowned head, or to ne person who has rendered Catholicism an important vice. The first golden rose was given to Queen Jeanne, Sicily, in the year 1366. In more recent times one was sented to the press Eu- ie, and it is long since newspapers corded the towal of a e honor upon wealthy and rout Chicago ly, who gave quarter of a llion to build college for iests. The edge of pal favor in the rm of a rose, to intimate at human life is as evanes- nt as a flower; it is wrought gold, the indestructible etal, to remind beholders at the soul is immortal.

It has been said that roses, ke the sunlight, are diffused l over the earth. "The squimaux," says Boitard, adorn their hair and their esses of fur with the beauti- l *rosa nitida*, which grows undantly under their stunted shrubs." In Iceland, where vegetation is at times so scarce that the natives are compelled to feed their horses and sheep on dried fish, we find *rosa rubiginosa*, with pale, cup-shaped flowers; and natives of Lapland, seeking mosses for their reindeer, find the pretty fragrant May-rose, which enlivens the bleak northern regions of Europe, blooming almost underneath the snow.

All northern roses have five petals; but those which grow in the warm sunshine of southern lands "double" of their own accord. So the ancients do not deserve much credit for raising the "rose of sixty leaves" mentioned by Herodotus. This is supposed to be the familiar "hundred-leaved," or "cabbage," rose, originally a native of the Caucasus.

Early in the twelfth century, the Crusaders brought the beautiful "summer," or June, rose from the Holy Land, and with it traveled a fair sister, the "Damascus," or "damask," rose. Tea-roses come from China, and get their name because the leaves, which have a fine fragrance, are supposed to be used by the Celestials for flavoring tea. We have another Chinese immigrant which must not go, in the "Cherokee" rose. This favorite hedge-row shrub was brought from Asia to the Southern States, just before the Revolution. So the roses which our grandmothers used to cherish had their "claims of long descent;" but most of the darlings of modern hot-houses are upstarts, whose ancestors are unknown, and whose family history is lost in a labyrinth of confusion. We have now

1. "MADAME DE WATTEVILLE." 2. "PERLE DU JARDIN." 3. THE "BRIDE."

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about three thousand sorts, shading into one another so that the most expert florist can scarcely disentangle them. Next year there will be more, for new varieties come into the market every season.

Sometimes these strangers surprise the florist himself by appearing as "sports." A plant sends up a shoot, which, as it grows and blossoms, develops individual peculiarities. The first "moss" rose branched out from a Provence rose-bush, in this unexpected manner. The lovely white "Bride" rose made its first appearance as an offshoot of "Catherine Mermet;" and fashion's favorite, the "Duchess of Albany," is a "sport" from "La France." The snowy "Niphetos" blooms used to grow only upon dwarf bushes of compact build; but one of the plants, fired with ambition, threw out a branch which grew like the bean-stalk of fairy lore. Slips taken from it retained the same aspiring habits, so that the "climbing Niphetos" will sometimes grow twenty feet in a season.

"Sports" may change either the habit of growth or the color of the flower. They are constantly being produced, but there is much uncertainty as to the future behavior of the varieties which make their début after this fashion. "You can never be sure," says an experienced rose-culturist, "that they will not hark back again." Even the moss-rose, which has been in cultivation for three hundred years, now and then reverts to the habits of its ancestress the Provence rose, and sends out a cluster of flowers unprovided with the green lace mantle which they are wont to wear.

When bushes grow close together, pollen is carried from flower to flower by insects, and thus natural crossing takes place; so by simply sowing the seeds of one fine variety, like the "General Jacqueminot," it has been possible to produce many distinct kinds of great value. Insects must have carried the pollen of some unknown rose to the pistils of "Paul Neyron," for, behold! one of the seedlings, when it burst into bloom, proved to be a beautiful stranger, the "Ulrich Bruner" rose, with deep carmine petals. The "American Beauty," that darling of fashion, did not even give any one the trouble of sowing her. She came up of her own accord, from seed which sowed itself in the rose-garden of Mr. Bancroft, the historian, at Washington. Fortune and the bees seldom work such pleasant miracles as this.

Artificial crossing is mainly relied on nowadays for new roses. A bud of some favorite sort is selected to be a parent of the new species, and, as soon as it blows, its stamens are cut away to prevent it from forming seed with its own pollen. Then pollen from another choice variety is carefully conveyed to its pistils with a fine camels'-hair brush, and the mutilated flower is covered with gauze to prevent the interference of insects. The seed which is the result of the union is saved and sown, and developments are awaited.

Many of the seedlings die, as they are delicate and subject to mildew. Many more, by a strange law well known to naturalists, are single roses, like their remote ancestors in the garden of Eden. Some prove mere repetitions of established favorites; and even if there be a new rose among them all, there may be no reason why we should admire or desire it. So the business of "manual hybridizing," as it is called, is fraught with uncertainty. Moreover, it is very expensive. The delicate little hybrids must have warmth, care, and greenhouse room, which means outlay for fuel, wages, and rent,—and four-fifths of them "up and die," after all. Uncle Sam's practical nephews generally prefer to raise the old favorites, which are sure to bring the florist a return for his time, pains, and capital.

The climate of Uncle Sam's domains is almost too dry for roses, which cannot be grown very successfully except in the seaboard States. New roses are generally raised in England or in France. They are introduced, or condemned, as they may deserve, after the propagated plants have blossomed from cuttings. One can never rely upon the behavior of a seedling.

Yet, despite the difficulties besetting the rose-grower, so many new varieties have been introduced within forty years that our grandmothers' roses have been almost improved off the face of the earth. We will find them only in old-fashioned gardens, in rural spots where times and fashions change slowly. Where, for instance, are the once admired "York and Lancaster" roses, streaked with white and carmine? Most of grandmothers' roses had two or three rows of petals, and within them a broad ring of delicate golden stamens. Then "double" flowers came into vogue, and the gardeners aimed to produce an immense mass of petals, no matter how crowded or how shapeless. Now they are turning their attention to the production of "artistic" roses with fewer petals, but with delicacy of texture, grace of form, and richness of tint. "Catherine Mermet" is admired for the exquisite outline of its buds; and the "American Beauty" for its size, its stiff, long stems, and the shapeliness of its thorns. Many of the new roses are described in the horticultural catalogues as "Hybrid Teas," that is to say, they had an old-fashioned tea-rose for their great-grandmother, and these please by the peculiar tea-rose fragrance, which is like nothing else in the floral world.

The French are the most successful rose-growers, and hence many of fashion's favorites have French names. The name of a new rose is generally the choice of the florist who introduces it. He may wish to compliment a member of his own family, or some person who is at the time prominently before the public,—a painter, an actor, a general, a politician, a professor, or a famous beauty. Sometimes the blossom's name commemorates a public event occurring at the time of its first appearance.

"Niphetos" is a Greek word, and means "the snowy one."

"Madame Cusin" is just now the favorite rose for bouquets and is largely used for dinner and tea-table decorations, and is so greatly admired that florists find it difficult to supply the demand. The flowers shade from white to shell pink, with deeper shadings of rose pink on the edge and in rays down the petals. These roses keep fresh for a long time after they are cut.

"La France" is one of the sweetest and loveliest of the tea-roses, and is a prime favorite for decorations of all kinds. Its blossoms are large and graceful, and the backward-curving petals are rich pink with a peculiar silvery luster. It was raised by a well-known French rose-grower, from the seed of a tea-rose.

"Papa Goutier" is a deep red rose, much admired for the graceful form of its pointed buds, which are very popular for corsage bouquets. It is said that these buds will grow if placed in water in a dark room.

The glowing "Jacques" are old favorites, too well known to need description. Their rich color is repeated in the "Ulrich Bruner" rose, but the petals of the newcomer have not the rich, velvety bloom which beautifies those of the "Jacqueminot." The "Ulrich Bruner" has a stiff stem, and lends itself readily to the present fashion of using very long-stalked flowers for decoration; and the "Perle du Jardin" has ingratiated itself with the "four hundred" by a like ability to hold up its head in all companies. Its sturdy stalks uphold great canary-colored flowers, which would be more appropriately called the "topazes," than the "pearls," of the garden. The petals are prettily curled at the edges, and from among them comes the "tea-rose" fragrance which is at once so delicate and so characteristic.

The flowers of the "Catherine Mermet" rose are shell pink in color, shading from a "tea" tint at the bottom of

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the petals, which have the silvery luster and the backward curl so admired in "La France."

The pink, cup-shaped blossoms of the "Baroness Rothschild" are prized for their symmetry of form and beautiful foliage. They have but little fragrance. The "Gloire de Paris" is another choice pink rose, deeper in tint than the "Baroness Rothschild." The favorite white rose in the spring is the "Mabel Morrison," a "sport" from the "Baroness Rothschild."

The most popular variety for decoration is the "American Beauty." It is a lovely rosy red, its buds have the taper form which is considered so highly desirable, and the stems are very stiff and long, sometimes measuring four feet. But among all fashion's favorites none is dearer than the rose called "Madame de Watteville." Its cream-white petals curl gracefully backward, and their edges look as if a painter's brush had splashed them with deep pink. The blossoms are very fragrant, they have the popular long, strong stems, and they last a long time after being cut.

Having produced flowers so excellent in all points, florists might rest content; but still they are unsatisfied. Prominent growers are now asking for a yellow rose of the size and form of the "Bride," and whoever succeeds in raising it may fill his purse and set the floral fashion.

But does not one rather resent the idea of a fashion in roses? It is fitting that there should be a fashion in orchids: they are upstarts, of which our grandmothers never heard, soulless exotics, without history or traditions. But are not roses, like the angels' robes, too blessed and too dear to be subject to the caprices of the fickle goddess? They have been so long bound up with the memories of the race, they have been loved by so many generations, and they have bloomed in every cottage garden, gladdening the hearts of the poor. They were hymned by the first poets, the writers of the Vedas, who sang like birds in the morning twilight of the world; and so faithful are the poets to their first love, that the most modern and daintiest of rhymesters, Austin Dobson, has chosen the rose for the theme of the charming verses with which I close:

THE "MABEL MORRISON."

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"The Rose in the garden slipped her bud,
And she laughed, in the pride of her youthful blood,
As she thought of the gardener standing by,—
'He is old,—so old,—and he soon must die.'

"The full Rose waxed in the warm June air,
And she spread and spread till her breast lay bare,
And she laughed once more as she heard his tread,—
'He is older now; he will soon be dead.'

"But the breeze in the morning blew, and found
That the leaves of the blown rose strewed the ground;
And he came at noon, the gardener old,
And he raked them softly under the mold.
And I wove the thing to a random rhyme,—
For the rose is Beauty; the gardener, Time."

E. M. HARDINGE.

AFTER THE COFFEE.—Drawn by Albert E. Sterner.

Bronson. "I overheard Count Impecune proposing to Allee last night. He said, 'Mees Hendterson, I hear you haf a big heart. Ees eet larch and chenerous enough to accomodate one so unworthy as myself?'"

Withers. "And what did Allee say?"

Bronson. "She asked him how much he wanted."

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Another suborder of the Rose Family is the Pear Suborder, distinguished by its fruit which is a pome, as the apple. Over 200 species of this suborder are known. The most valuable are the Apple and Pear; other cultivated fruits are the Siberian Crab-apples, the Quince, and in the old world the Sorb, the Medlar and the Service-berry. Among those valued for beauty are the Rowan-tree ~~and~~ Mountain Ash, the Shad-bush, the Hawthorn. Those found growing in the District are 10 in number, 2 kinds of Shadbush, 5 of Thornpear, and 3 of Chokeberry and Crab-apples.

The remaining suborder is the Rose Family Proper. Among its useful plants are the Strawberry, Blackberry, Dewberry, Raspberry, Thimbleberry, and many medicinal plants. There are among common wild plants here, belonging to this suborder, the Five-finger, the Avens, and the Indian Physic or Gillenia. There are 6 species of Rose growing here native or introduced, of which the Swamp Rose and the Dwarf Rose are the principal. From 18 or 20 species of Rose from Europe and Asia are in cultivation, in endless varieties. Among the principal cultivated species are the Monthly Rose (Rosa bengalensis), the Tea Rose (Rosa thea) (including the Hermosa), (including the Bon Silene, Cornelia Cook, Perle des Jardins, the Maréchal Niel and the Niphetos) and the Hybrid Roses (Rosa hybrida) (including the Jacqueminot, La France, the American Beauty), the Hundred leaved Rose (Rosa centifolia), the Dog-rose (Rosa canina) (abundant in the English gardens and hedgerows and found here on High Island), the Moss-rose (Rosa muscosa): the Climbing Roses (as the Baltimore Belle, the Prairie Queen, the Climbing Hermosa &c). The largest rose in cultivation is the new Hybrid Rose called "Her Majesty" pink, deeper toward the center, and 6 inches broad.

Rose References
Briar, Ellac. 30, 29
Rose, Ellac. 535-6, 538-640

ENDORSING A NEW ROSE.

The Horticultural Society Lends Its Influence to a New Candidate for Public Favor.

At a meeting of the Horticultural society Wednesday night, Mr. T. W. Fowler called attention to a statement in THE STAR of Monday last that crocuses were in bloom in the gardens, and asked if the members knew of any blooming.

Messrs. Saul and Clark and Mrs. Quinn each answered that they had some. Mr. Fowler remarked if such were the case his ground must be too hard for them.

Mr. Fields brought in a basket of roses of the new species called the "American Beauty," stating this was the third crop this winter, that about January 1st having been superior to those.

Mr. Clark said this rose originated with a Mr. Grady, of 26th street, who claimed it to be an accidental seedling. It was a cross of La France and one of Mr. Bancroft's imported roses. Mr. Grady at that time was in the employ of Mr. Bancroft. He did not know the value of it, for he had sold cuttings at fifty cents.

Mr. Fields said that they had grown it under glass, and found that it could be forced as easily as any of the tea roses. They believed that it could be raised easily outdoors, but had not yet put it out.

Mr. Clark said he thought the society had done good service in recommending good plants and flowers when there was so much fraud perpetrated by salesmen. He offered a resolution recommending to the community the new and beautiful rose, a seedling raised in this city called the American Beauty.

Mr. Saunders said that fraud was not always perpetrated knowingly, for some plants will grow in some places and not in others, as is the case with certain grapes. He moved that the words "to be grown out of doors or under glass" be added to the resolution, and in this form it was adopted.

It was decided that each member should furnish a list of roses grown out doors for the June meeting.

...rose uncultivated; some with dark green leaves. Contrast their flowers of pure unsullied white, in their symmetry, ... Each brimmed to overflowing, the most lovely rose ... delight... Such perfect analogy, invested with a wreath of ... equivalent of $1000.00 for the adornment of a room with ... roses of rose leaves for people of rank in Egypt are cited.

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One of the most remarkable new roses of 1885 was "the American Beauty", which is supposed to be a seedling originally produced by the historian, Mr. Geo. Bancroft, in the city of Washington.

Among the oldest of the species of Rose in common cultivation in America are the Damask, the Cinnamon, the Blush and Cabbage Roses. The last, and the Musk rose are among the most fragrant. Of recent varieties, the American Beauty is remarkable for its fragrance. Many cultivated roses, like the Lacqueminot, are nearly or quite without fragrance. The sweet-brier rose is remarkable for the agreeable fragrance of its leaves especially perceptible after a shower.

Roses can be propagated either by seed, layers, cuttings, or budding. In raising from seed, it requires a year to vegetate, and flowers are not usually produced until the fourth summer. This method is valuable chiefly for the production of new varieties. Budding is valuable in raising the more delicate greenhouse varieties; but the plants do from lack durability. Buds of any or all varieties can be inserted on the stock of a strong stemmed species. The application to roses is a modern invention, introduced from Holland into Paris, and thence into Britain about 1700.

Roses have been considered the chief of flowers from the earliest times, and by all civilized nations. They vary from white, yellow, and variegated, pink, purple to scarlet and crimson.

The perfume of the Rose has been long used as the highest type of the fragrance; so that the compliment, as sweet as a Rose, or that
Sweet is my love, or sweet The leaves that fold on fold, So the wife of the odors of the rose hers sweetness holds.

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Leguminous Plants.

a. Characteristics

Leguminous plants are recognized at once if you have the fruit, by its being a legume, i.e. a pod opening by both sutures (receiving two long grooves called valves); the legume is transient from a single, simple, some pistil.

Leguminous plants are to be recognized when in flower, by papilionaceous corolla, of 5 petals, (the banner, 2 wings & 2 forming a keel).

Leguminous plants are also peculiar in foliage; their leaves are almost always compound, and with entire leaflets; they are alternate, and have stipules.

Leguminous plants are also peculiar in their stamens, which are regularly always diadelphous, or 10 united in a column, & yet with separate stamens.

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From the various nature of these characteristics, a glance at any plant of the family will usually serve to show that it is of this family; but to distinguish members of the family from each other more care requires.

Bind 3104

b. Related Families

The Polygalaceae or Milkwort family has flowers which sometimes resemble at first glance the papilionaceous form, and has, frequently, diadelphous stamens. The latter however are 4 to 8, never 10, the petals are but 3, and the pod is 2 celled. Examples are the various Polygalas, as the Seneca Snake-root or Flowering Fringed Wintergreen.

The Rose Family is also closely related but perfectly easy to distinguish.

POLYGALACEÆ, cos 19 § 495 sp. Ly. Polygala is nr widely diffused than the [illegible] in ev kind of soil, dry plns, [illegible] dr in woods, mins, cults or barren soils. Bitter, Roots milky. P. amara, Eur, pered, all thoroughly much extolled in pulmon complts & cyclip [illegible] bid. P. vulgaris & major similarly used in Eur; weaker. P. rubella, of Nilus, all + bitter; infusion in small doses valuable tonic & digestive stim [illegible] lent. P. Senega, rem acrid & acid; sudorific & expectorant in small doses; emetic & cathartic in larger; used in pneumonia, asthma, croup, dropsy [illegible] course, rheumatism & some chronic complts. Chemists refer acts. to presc of Polygalic or Senegin. P. sanguinea, P. purpurea, of NA, sam [illegible] P. paniculata very common, annual; P. senegaeformis & cap; P. cornibrachiata of Mtnds, some weaker. All the genus comp [illegible] & [illegible] for cough, croup & asthma, with the flowers of brighty seen in Sum colors. 3 Amare mem contract & diuretic. 1 of dry, mem [illegible]

PULSE, the Eng generic or rather ordinal name; Skeat defines as "grain or seed of beans, pease, &c." ; he. M.E. puls, ["All manner puls is goode, the fitche excepte." i.e. ev kind of pulse is good exc the vetch, Palladius on Husbandry, b. i. 1,723.] Lat. puls, a thick pap or pottage made of meal, pulse &c, the primitive food of the Romans bef they became acqd to bread (White). Cf Gr πάλτος porridge, πολτός. [Wedgwood takes it to be ph of pull, husk, a supposed word, supposed to O.Du. peule, a husk of pulse; husks of oats, Hrdlomness Glossary.

Leguminous see Dictionary see Lib, p 546 & stamp Equinoctial Zone 1602, beyond, to S, 524 N. 1312

POLYGALA vulgaris, type of genus, known eys as P, poison over-dose of Eur; to bovine milk of sources, Gossamy of cattle, sup most, & by [illegible]; some the bitter obs, 50d in milling pulse are the roots. Com. a. DILLENIUS 2 vol of 1813 of opp. Had valg assumes. Shinee hermits carefully gled it also and the homes; the 3d bef. Easter Sunday and Roses did Rogation days, associated by public religious ceremonies. Mrs Paterson, Wallace, says in pre cons on these da [illegible] at [illegible] carried, & hence its vi ROGATION-FLR. Rogation da, among in Eastern wky, wd it also sdt for the Easter week, cons [illegible] Fridays, & ha as FASTING-FLOWER.

P. lutea L, Gpd by Bachus; Yellow Barbelo's Button of the Sq fd NJ-Flg, or [illegible]

c. Importance.

The Leguminous family included in 1845, 4678 (Bentham) 6500 species; is everywhere distributed; produces important food and timber products, also dye-stuffs & important medicines & gums; and is an order conspicuous "as says Lindley, "for its beauty, containing some of the gayest-colored and most graceful plants of every region".

d. Species of importance.

Among the wholesome plants of the order are, 1st, those valued for their seeds, known collectively as Pulse, including the Pea and Bean, together with those in which the whole pod is eaten, such as the Tamarind & the Karob in which the pulp of the pod is eaten, the Lentil, Pigeon-pea, Flowering Bean, Kidney-bean, Peanut. 2d, those valued for their foliage, as Clover, Medick, Lucerne. 3d, those valuable medicinally, either as purgatives, as Senna and the Scotch Broom, or as tonics, astringents. 4th, those valuable for dyes, as Indigo, Logwood from the W. Indies, from the East Indies, Wild Indigo, from an American country, used by the Indians. 5th, those valuable for gums, Gum Tragacanth being produced from various plants of the Mediterranean region of this family; and Gum Arabic and Gum Senegal (Acacias) so named from the countries where produced. 6th, those valuable for timber, as the Locust tree, Laburnum wood (green); and Rosewood from Brazil, or Brazilwood: and some of the Acacias. 7th, among those valuable for beauty of their flowers are the various Sweet Pea, Everlasting Pea, Wisteria, the various Vetches, Locust, Rose Acacia, Scarlet Bean, Cassia, Furze and Broom: in Turkey and also here, the Red-bud, 8th, The Acacias and Mimosas are remarkable for beauty of their pinnate foliage, which in one of them, the Sensitive-plant, and in others of the family also, shrinks at the touch. 9th, The largest trees of the American forests are of this family, some Brazilian species of Locust-trees being reported 84 feet in girth and 270 feet in height.

is in giving a preference to "listed" securities. Many persons seem to think stocks and bonds must have a value if they are quoted at some stock exchange. On the contrary, such a position is likely to expose them to manipulation for purely speculative purposes. Stock-exchange quotations, as a rule, are unsafe guides to buyers. Every security must stand on its own merits, and purchasers have merely to follow business principles as taught by the canons of common sense.

CONCERNING CLOVER.

By GRANT ALLEN.

EVERY group of organisms, every genus and every species of plant or animal, has certain strong points which enable it to hold its own in the struggle for existence against its competitors of every kind. Most groups have also their weak points, which lay them open to attack or extinction at the hands of their various enemies. And these weak points are exactly the ones which give rise most of all to further modifications. A species may be regarded in its normal state as an equilibrium between structure and environing conditions. But the equilibrium is never quite complete; and the points of incompleteness are just those where natural selection has a fair chance of establishing still higher equilibrations. These are somewhat abstract statements in their naked form: let us see how far definiteness and concreteness can be given to them by applying them in detail to the case of a familiar group of agricultural plants—the clovers.

To most people clover is the name of a single thing, or, at most, of two things, purple clover and Dutch clover; but to the botanist it is the name of a vast group of little flowering plants, all closely resembling one another in their main essentials, yet all differing infinitely from one another in two or three strongly marked peculiarities of minor importance, which nevertheless give them great distinctness of habit and appearance. In England alone we have no less than twenty-one recognized species of clover, of which at least seventeen are really distinguished among themselves by true and unmistakable differences, though the other four appear to me to be mere botanist's species, of no genuine structural value. If we were to take in the whole world, instead of England alone, the number of clovers must be increased to several hundreds. The question for our present consideration, then, is twofold: first, what gives the clovers, as a class, their great success in the struggle for existence, as evidenced by their numerous species and individuals; and, secondly, what has caused them to break up into so large a number of closely allied but divergent groups, each possessing

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some special peculiarity of its own, which has insured for it an advantage in certain situations over all its nearest congeners?

Clover is, of course, by family, a pea-flower, one of the great group of the *Papilionaceæ*, a tribe of the vast leguminous race. Now, everybody knows the general appearance of the pea-blossom, a form of flower which reappears throughout the whole group, in such different plants as gorse, laburnum, peas, beans, vetches, wistaria, lupine, and acacia; and it is clearly this form of flower which gave the original ancestor of the papilionaceous plants its main advantage in the struggle for existence over almost all its compeers. In other respects, the various members of the pea-flower tribe differ widely from one another. Some of them are tall, woody trees, like the laburnum; some are bushy shrubs, like the broom; some are low, creeping herbs, like the clover; and some are lithe, trailing climbers, like the pea and the scarlet-runner. So again with their foliage: some have hard, spiky leaves, like furze; some have regular trefoils, like medic; some have long sprays of many leaflets, like the sainfoin; and some have clinging tendrils, like the peas and vetches. Once more, in the pod and seed there are infinite varieties of shape, size, and arrangement, as one may see by comparing peas with horse-beans, or the short, hairy pod of gorse with the long, smooth capsule of the vetch, the inflated globe of the bladder senna, and the twisted, snail-like spiral of the medic. In fact, there is hardly a single particular in which the papilionaceous plants do not differ from one another immensely, except only their peculiar flower. Clearly, then, it is the flower almost alone which has given them their fair start in the struggle for life. I say almost—not quite—alone, because, as we shall see hereafter, they owe much also to their relatively large and richly stored seeds. In this one point they early reached a state of equilibrium; in other points, they went on varying and adapting themselves to an infinite variety of external circumstances.

Though it is not my intention to deal at any length here with any of the papilionaceous tribe except the clovers, a few words must first be premised about this peculiar and successful type of flower. It consists, like most other blossoms of the dicotyledonous race, of five petals, inclosing ten stamens, and with a single ovary, or embryo pod, in its very center. But anybody who has ever looked at a pea-blossom knows very well that it is not regular and radially symmetrical like a dog-rose; it has its parts bilaterally arranged, so that an insect lighting upon the flower in search of honey necessarily brushes his breast against the stamens and pistil, and therefore cross-fertilizes the embryo pods by carrying pollen from one blossom to the sensitive surface of the next. The five petals have undergone special modification so as to suit this special mode of impregnation. The upper petal, known as the standard, is usually broad and expanded, serving as an advertisement to attract insects; and in many advanced species it is

variegated with convergent lines of different colors, which guide the bee toward the exact spot where the nectaries are engaged in elaborating honey for his benefit. The two next in order, called the wings, are generally shorter and smaller, and in most advanced types they possess two little indentations, one on each side, specially adapted to afford a foothold for the legs of the visiting bee, in the exact position that will enable him at once to reach the honey and to brush off the pollen against the sensitive surface. The two lowest petals of all are usually united by their under edge, so as to form a single organ, known as the keel, and closely inclosing the stamens and pistil. As a rule, too, all ten stamens are united into a single tube or sheath; or else the nine lower ones are so united, while the upper one is free. In spite of the general uniformity of floral type, however, many special modes of insect fertilization prevail among the various pea-flowers. Sometimes the blossom bursts open elastically when the bee lights upon it, dusting him all over with the ripe pollen; sometimes a small quantity is pumped out from the sharpened point of the keel by the weight of the insect's body; sometimes the pollen is deposited from his breast on the spirally curled summit of the pistil; sometimes it is swept off by a little brush of hairs, situated close beside the sensitive surface of the embryo pod. All that it is here necessary to bear in mind, however, is the general fact that the papilionaceous type of flower has gained its present high position as a dominant floral pattern by its beautiful and varied adaptation to insect fertilization.

Such being the general nature of the pea-flowers as a whole, we have next to inquire what are the special peculiarities which have enabled the clovers in particular to fill their peculiar niche in the existing economy of Nature. Clearly, the positions which clovers are adapted to adorn are not the high places in the hierarchy of vegetal life. They are not tall forest-trees or bushy shrubs; they are not long, creeping trailers or climbers; they are herbs of low and procumbent character, best fitted for filling up the interspaces of taller vegetation, and for vying with the grasses as elements of the close, tender, delicate greensward. The points which have enabled them to survive, therefore, are just those which allow a plant to thrive under such special conditions; and we must ask briefly what those points may be before we proceed to consider the specific characteristics of the various individual clovers.

In foliage the clovers are distinguished by their graceful trefoil leaves which are an adaptation of the typical papilionaceous pattern to the special necessities of their humble situation. For the common form of pea-leaf consists of a long leaf-stalk, with one terminal leaflet, and with several pairs of lateral leaflets, arranged opposite each other along a central line. In the clovers, however, and in most other small field forms of papilionaceous plants, only one pair of lateral leaflets is developed; and this arrangement allows the leaf-stalk to be elevated

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among the surrounding grasses in such a way as to get freely at the sun and air, which are necessary for the nutrition of the plant. But the chief peculiarity of the clovers is the arrangement of their flowers in dense heads. Instead of the blossoms growing separately or in pairs, as with most peas and vetches, or in long, loose bunches, as with laburnum and sainfoin, the flowers of the clovers, much reduced in size, are crowded into compact little bundles, for the most part at the end of a long stalk. What we ordinarily call the flower of a purple clover is, in fact, such a head of clustered flowers. This dense clustering of the flowers makes them, though individually small, very conspicuous in the mass to bees and other insects, and so largely increases their chance of cross-fertilization. For the same purpose they usually secrete abundant honey, and they possess in many cases the familiar fragrant clover perfume. Moreover, in most though not in all species the bases of the five petals have grown together into a narrow tube, inclosing the honey; and in the common purple clover this tube is so deep that no British insect except the humble-bee has a proboscis long enough to reach the nectaries. Such peculiarities are quite sufficient to give the clovers an immense advantage in the struggle for existence; and it is not surprising that they should have become exceptionally numerous in species and individuals, even among the richly endowed and dominant papilionaceous family.

Every race, however, has its weak as well as its strong points; and the weak point of the highly successful clovers lies in the unprotected position of their seeds and pods. Hence, in accordance with the general principles above laid down, it is in these particulars that we might expect to find the various species differ most from one another, since this is just the part on which natural selection of favorable varieties is most likely to be exerted. As in the papilionaceous family as a whole, the flower is the organ which remains almost identical throughout, because it is the organ which gives the family its true importance; so in the restricted clover group the trefoil leaflets and the clustered heads of flowers remain almost identical throughout, and for the like reason. But in any classification of the various species of clover, it will be seen by anybody who looks into the matter that all the distinctive characters are drawn from differences in the pod and calyx after flowering, because this is the weak point of the genus, and the one in which alone diversities of habit have been likely to arise and to be perpetuated by survival of the fittest. The other organs have long since reached their equilibrium; these organs alone remain in need of further equilibration.

And why is the pod a weak point? For this reason. The seeds of clover, though small, are very richly stored with starches and other food-stuffs for the growth of the young plant. Such richness is, of course, in itself an advantage to the race, because it allows the seedlings to start well equipped on the path of life, with some accumulated

capital handed on to them by the mother-plant. But what will feed a seedling will feed an animal as well; and it is just these rich little beans in the clover-pod which give it all its dangerous value as a fodder for cattle. Hence, in the wild state those clovers which have their seeds least protected are most likely to be eaten off and killed down by birds or animals, while those which have them most protected are most likely to survive and become the parents of future generations. Here, then, we have the basis upon which natural selection can act in differentiating the primitive ancestral clover into various divergent species. Whatever accidental variation happens to give any particular clover protection for its seeds in any special habitat will certainly be preserved and increased, while all opposite variations will be cut off and demolished at once. So far as their foliage and their flowers are concerned, the clovers as a body are practically in a state of stable equilibrium; so far as their fruit and seeds are concerned, they are still undergoing modification by natural selection.

Clearly to illustrate this fundamental point, let us first look at some neighboring and closely allied plants, which are not exactly clovers, but which resemble them in almost all important particulars. These also show the same devices for specially protecting their seeds and pods from birds or animals. Take, for example, the genus of the medics. These are mostly small greensward plants, with trefoil leaflets like the clovers, but with the flowers in rather tall, one-sided spikes or loose bunches. Their pods are usually long and many-seeded, but they have this curious peculiarity, that instead of growing straight like that of a pea or bean, they coil up spirally like a snail-shell. When ripe they fall off the plant entire, and thus defeat the hopes of birds and other creatures which wait patiently for the opening of the pods. The simpler medics, such as the agricultural lucern, have smooth, spiral pods alone, and therefore they can be employed successfully as fodder for cattle. But this, which proves an advantage from the point of view of the farmer, is naturally a disadvantage from the point of view of the plant in a wild state, because it insures the seeds being eaten; and hence the more developed and weedy medics have acquired stout protective prickles, fringing their globular spirals, and making them very distasteful morsels to cows or horses. We have two such prickly medics in England, one closely coiled and rolled round like a ball, and thickly set with curved hooks; the other loose like a corkscrew, with two rows of sharp bristles at the adjacent edges; and both these, as I learn from farmers, are extremely objectionable weeds in meadows, rendering the hay almost uneatable. Indeed, I am assured that cattle will never touch even fresh meadow-grass containing them except when absolutely driven by hunger. It is noteworthy that our two doubtfully native smooth medics (lucern and nonesuch) both grow naturally in rough, dry places, and are only largely found as "artificial grasses"—that is to say, were introduced and maintained

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by human agency; while our two more truly wild species are meadow and pasture weeds, and are therefore amply protected by prickles against herbivorous animals. Again, bird's-foot trefoil, whose pretty yellow flowers form such ornaments to our sunny banks in summer, has a long, hard, dry pod, too stringy to be edible, and filled with pith between the beans; while lady's-fingers, a somewhat similar type, has an inflated hairy calyx completely inclosing the short pod in its protective and inedible capsule. Strangest of all, however, is the small, matted bird's-foot, whose pod never opens to shed the seeds, but divides between them into little joints or "articles," each inclosing a single bean, and so cheating the expectant birds of their promised food. These examples, which might be multiplied indefinitely, will sufficiently serve to show the importance of protection for the seeds as a basis of differentiation among the papilionaceous flowers.

With the restricted tribe of clovers the need for such protection has almost alone produced all the species into which the genus has long since split up. Originally, of course, we must suppose that there existed one united type of ancestral clover, differing from the other papilionaceous plants in the points which now distinguish the whole clover genus, but possessing none of the special distinctive marks which specifically divide one kind of clover from another. This hypothetical ancestor had probably rather large, purplish flowers, collected in compact heads on a common foot-stalk, with the five petals separate, and with a small three or four-seeded pod completely inclosed within the faded brown petals. From some such form the existing clovers have sprung by differentiations almost entirely affecting the pods and seeds, though they have also varied a little in color, according to the individual tastes of their particular insect visitors, as well as in the degree of union effected between their petals. Without going beyond the limits of our own native clovers, we will look first at those types in which the arrangement of the pod is simplest, and then pass on gradually to those in which it is more and more complex, till we arrive at last at that most marvelous English species which actually buries its own pods entire in the ground by a wonderful series of apparently purposive movements and gyrations.

Our common English purple clover (for convenience' sake I adopt throughout Mr. Bentham's vernacular names) may be taken as a good specimen of the simpler and less-protected kinds. The mere fact that it is grown extensively for fodder shows that it has no deterrent prickles or bristles to ward off the attacks of herbivorous animals; and indeed, throughout the clover group, it may be noted that birds and insects, rather than large mammals, seem to be the enemies especially guarded against by the majority of plants. Purple clover is a perennial, with long, hairy stems, the hairs serving to prevent ants from creeping up to the blossoms and uselessly rifling the honey

intended to attract the fertilizing bees. The young flower-heads are also inclosed in two papery wings or stipules, which effectually protect them from injury before they open. The petals are united into a very long tube, accessible only (as before noted) to the humble-bee; and in New Zealand, where our European humble-bee is unknown, it has been found necessary to import several nestfuls, in order to make the acclimatized clover set its seed for agricultural purposes. But the devices for the protection of the pod are here comparatively slight. Each pod contains, as a rule, only a single seed, and it is externally guarded simply by the wire-like calyx-teeth, which are long, thin, and awl-shaped, and fringed on either side by a row of thick-set hairs. The two lowest are longer than the others, apparently as a protection against crawling insects. After flowering, the petals remain upon the heads, turn brown, and inclose the ripening pod. These brown heads of overblown flowers have such a dead, withered appearance that they seem sufficiently to deceive all intending depredators. As a whole, the species seems to survive mainly because of its protected young flower-heads, its special attractions for fertilization, and its habit of inclosing the pods in the dry petal-tube. It should be noticed, however, that, though artificially propagated in meadows and pastures, it would not probably be a very successful plant if left entirely to its own devices. Man has intervened to give it his powerful aid by sowing its seed, and by fencing it off from cattle, so that it has now become, in spite of itself, one of our most abundant and ubiquitous clovers.

Next in order we may take a series of small, wild, purplish clovers, closely allied to this cultivated type, but more specially adapted for protection against animal foes. Of these the little knotted clover, which grows in our dry pastures and banks, is an excellent simple example. It is a small, tufted annual, often growing in very closely cropped, sheep-eaten crofts, and therefore with an acquired habit of creeping close to the ground, and spreading its foliage flat against the earth. Its calyx-teeth are short and almost prickly, and its little knotted heads grow so close in the angles of the leaves that even a sheep has hard work to bite them off with his nipping front teeth. The rough clover is another of these dwarf creepers, much like knotted clover in general appearance, but even more prostrate, and with its flower-heads still more closely wrapped up in the angles of the leaves, whose wings or stipules almost completely inclose them. The greatest difference, however, resides in the calyx, whose teeth here, after flowering, become broader and stiffer, curve backward, and give the whole plant a stringy, dry, innutritious look. This species or variety also grows mostly on sheep-bitten banks, and manages wonderfully to set its seed in spite of the manifold dangers to which it is exposed. Boccone's clover, confined in Britain to the Lizard Promontory in Cornwall, is a larger southern form of the same central type, closely

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allied to the knotted clover. It grows much taller, but has an equally forbidding type of pods; and I notice in Southern France, where it is very abundant, that the dry stalks and oblong heads of fruit are always left uncropped on bare banks and road-sides where goats and sheep have been browsing—a fact which clearly shows that even those omnivorous grazers consider it an unpalatable morsel.

To the same group, I think, but in a more developed degree, belong three or four other British species, whose protections are somewhat less easy to understand. Of these, clustered clover appears like a still higher type of rough clover. It is a slender, creeping annual, with very small, globular flower-heads, almost buried in the angles of the stem and leaves; and it has short, broad calyx-teeth, rigidly curved backward after flowering, and with hard, sharp points. This, I take it, is a protection against browsing animals. The sea clover, on the other hand, seems rather to guard against birds or insects. In the flowering state, it looks almost exactly like a small purple clover; but as the seeds ripen it assumes a very different aspect. First of all, the calyx-teeth grow out into rather broad green leaves, so that the whole head looks more like a mass of foliage than a bunch of ripening fruit. The lower tooth, especially, becomes very long and leaf-like; and it may be remarked that, as a rule, the two lower teeth in clovers differ more or less conspicuously from the upper ones, pointing apparently to some special danger of attack from below. As the pod slowly ripens, two lips grow out on either side of the calyx, and finally meet on the top of the pod, so as to hermetically seal it, leaving only a tightly closed aperture in the very middle. Thus the calyx has, as it were, a false bottom, appearing to be empty when it is not really so, and by this means deceiving would-be intruders. It must be noticed, however, that such a deceptive device would be useless against a herbivorous animal, which could crop off the entire head; it would only serve against birds or insects, which might pick out the seeds one by one. That it does effectually protect the tiny beans is certain, for in no case will you find a calyx without a pod inside it. At the same time, so thoroughly has the calyx with its outgrowth of lips usurped the place of the primitive pod-covering that the real pod is reduced to a mere papery envelope, and can only be detected as inclosing the seed by a somewhat careful dissection. In this sea clover, too, the entire head, when ripe and dry, has a very forbidding aspect, the mass looking decidedly prickly and stringy, like a teazle; and I observe that it generally remains uncropped until the calyx and seeds fall of themselves, especially in Southern Europe, where it grows very tall. Why it should be confined to the neighborhood of the sea and of a few tidal rivers, more especially to salt-marshes, it would be hard to say; probably the special danger against which it defends itself is one found only under these circumstances, in which case it would there alone have any advantage over its competitors. Indeed, it must not be supposed that all these questions are yet by any means finally solved. The sole object of the present paper is to point out the common principle running through the variations of the clover pattern, and to suggest such partial explanations of their causes as have yet occurred to a single observer.

Suffocated clover is another of the tiny creeping types, apparently protected for the most part against browsing quadrupeds. It is a wee tufted form, with minute flowers stuck close in small dense heads, as if gummed to the short stems, and very crowded along their course. We may regard it as the last effort of a very degraded race to keep up its existence in the most closely gnawed pastures, on sand or gravel, where only very dwarfed and scrubby plants can escape destruction. The reader will notice that under such circumstances two types of clover succeed, each in its own way. If the heads become very small, close, and inconspicuous, or tightly pressed against the wiry trailing stems, they escape the observation of browsing animals. If, on the other hand, though tall and noticeable, they develop prickly or stiffened teeth, they are rejected as unfit for food by the creatures which devour the surrounding herbage.

Reversed clover takes its name from a peculiarity which seems to be connected with its mode of fertilization, for it has its standard petal turned outward, instead of inward as in all other clovers. The meaning and object of this change I do not know; but its most marked feature is still one bearing upon preservation of the seed, for, after flowering, the upper part of the calyx becomes much inflated, and is traversed by large membranous veins. At the same time it arches over the lower half, leaving three small teeth below, and two swollen ones at the top, so as to form a sort of bladder-like capsule over the concealed pod. In this case, again, the protection is obviously designed against birds or insects. In the curious strawberry clover, common among dry meadows and road-sides in Southern Britain, the same device has been carried a step further. Each flower in the head is here surrounded by a long involucre of lobed bracts, and, after flowering, the calyx swells immensely, so as to transform the entire head into a compact globular ball of little bladders, each inclosing a single pod. This arrangement has been popularly compared to a strawberry, but it is much more like a raspberry, being a delicate pink in hue, and composed of twenty or thirty small round capsules. The upper half of the bladder is likewise thickly covered with fine down, doubtless very objectionable to the skin of the tongue, and the whole is netted and veined in the most delicate and beautiful fashion. Hardly any other clover possesses so advanced a plan for protecting its little pod.

Another type is presented to us by the large crimson clover, not truly indigenous in Britain, but commonly cultivated for fodder in the south of England. It is a soft, hairy plant, and, like other fodder-clovers, it does not possess any very advanced protective device. Still,

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even here, the calyx has extremely long, narrow teeth, thickly covered with smooth hairs, which serve to keep its beans safe. The analogy of a prickly pear or a rose-hip will show how very unpleasant such hairs feel in the mouth. The beautiful, small harefoot clover derives its expressive name from a further development of the same principle. The long teeth of the calyx project beyond the flowers, and are enveloped in soft, downy hair, which gives the whole head a very dainty, feathery appearance. As soon as the flowers are faded, the head looks like a mere mass of soft fluff, unenticing to herbivorous animals, and effectually concealing the seeds from birds or insects. The starry clover of Southern Europe, naturalized in England at Shoreham and a few other spots, starts from much the same point, but has specialized itself both against large and small depredators. On the one hand, its smooth, woolly calyx, much like that of crimson clover during the flowering stage, spreads out after blossoming into a star-shaped pattern, and forms with its neighbors a dry, bristly, interlacing head, thickly studded with sharp hairs; and this suffices to protect it from cattle and goats. On the other hand, the mouth of the calyx, being thus exposed by the spreading of the teeth, is closed by a perfect *cheval-de-frise* of convergent tufted hairs, all meeting in the center of the throat; and this barrier answers the same purpose as that of the sea clover, though in a different manner, by forming a false bottom to exclude insects. I notice on the dry Mediterranean hills that these bristly heads are rejected by the goats and sheep, like those of Boccone's clover, and even donkeys refuse to eat them.

Turning to a somewhat different class, there are some clovers which protect their seeds in a quite distinct manner, by merely turning them out of sight. Common Dutch clover does this in a simple yet very noticeable fashion. It bears its pretty white flowers in tall globular heads on a lengthened footstalk, which renders them extremely conspicuous objects to the fertilizing bees. But each flower is stalked within the head, and, as soon as it has been fertilized, it turns downward, and fades brown against the common footstalk. Every head of Dutch clover thus habitually consists of two parts—an upper part, containing erect open flowers or flower-buds, not yet fertilized; and a lower part, containing overblown flowers, already fertilized, and now engaged in setting their seed. This plan combines two distinct advantages at once. In the first place, the bees lose no time in discriminating between the mature honey-bearing blossoms and those already rifled, which insures more frequent visits and a larger general average of seed-setting. In the second place, the fruiting pedicels and pods, being turned down and concealed, are less likely to be visited by small animal foes, such as flying insects, which might lay their eggs within, and let the grub feed (as often happens) on the growing seed. Dutch clover is a fodder-plant, and therefore, probably, in its native state does not grow much in places exposed to the ravages of large herbivores. At the same time, the pod is many-seeded, and the plant spreads largely as well by creeping and rooting at the joints.

That the object of the turning down after flowering is distinctly to protect the pod, as well as to save time for the bees, may be seen, I think, from the analogous instance of the pretty little yellow hop clover. This common and graceful English plant has primrose-colored flowers, and (as usual with yellow blossoms) depends mainly for fertilization upon a smaller class of insects than Dutch or purple clover. But after the blossoms are fertilized, they turn down in the same manner as in Dutch clover, only far more markedly, giving the head a considerable resemblance to the hop-cones from which the species takes its name. After being thus reflexed, the faded but persistent petals close over the pod, and the standard becomes furrowed with deep marks, which seem to me intended to give a crumpled, withered appearance to the head. Simple as is this device, it nevertheless effectually conceals the pod within a closely imbricated set of scales or shields, each one folding over the next like tiles on a house, and entirely preventing the access of birds or insects to the seeds. The lesser clover and slender clover seem to me to be successively dwarfed and degraded states of the same plant, due apparently in part to bad soil, and in part to diminished need for special protection.

Last of all we come to the most advanced and developed type of any, the subterranean clover. In general appearance this plant closely resembles Dutch clover, from which, in all probability, it is a remote descendant. But, growing, as a rule, on dry, sandy, or gravelly pastures closely nipped by sheep or other herbivores, it has acquired a very remarkable and ingenious mode of escaping their depredations. Like the other species similarly circumstanced, it grows close to the ground, in small tufts; and it bears a few rather large white flowers, two or three together in a starved-looking head. Looked at closely in this stage, a number of small central knobs may be distinguished at the end of the common flower-stalk. These knobs are really the calyxes of undeveloped blossoms, completing the head. After flowering, the stalks lengthen and bend down to the ground, carrying the fertilized pods with them. Then the minor pod-stalks bend back, and the undeveloped central flowers grow out into short, thick awls or gimlets, with five finger-like lobes at their extremity, representing the five spreading teeth of the original calyx. These awls next begin digging their way into the earth by a slow, gyrating motion, and at last wear out a hole in which they bury the pod and bean entire. Thus the plant actually sows and manures its own seed, and so escapes all danger from the grazing animals. This extraordinary action may be considered as the high-water mark of ingenuity and foresight in the unconscious outcomes of natural selection among the clover kind.

In conclusion, it may be added that many of these clovers are very difficult to discriminate from one another in the flowering stage; it is

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only when the fruit begins to ripen and the calyx to assume its characteristic shape, that they can be readily identified by safe specific marks. Throughout, in short, all the clover traits remain almost the same, except in the matter of the fruiting pods. This is the one weak point of the genus, and this is therefore the place where natural selection has been able to produce fresh differentiating effects. Such a brief consideration of one small group of plants may serve to bring the general principle with which we started into the definite relief of concrete application; and it may also serve to show the vast variety of detail with which Nature effects the self-same object, even within the narrow limits of a single family or genus.—*Gentleman's Magazine.*

THE PROBLEM OF HIGHER EDUCATION.

By C. A. EGGERT,

PROFESSOR OF MODERN LANGUAGES IN THE UNIVERSITY OF IOWA.

FEW subjects have of late engaged the attention of the most thoughtful people of this country in a higher degree than the question prominently brought before the public by the recent attempt of the Harvard faculty to open the doors of that famous institution to applicants who might come prepared in all the branches hitherto required for admission, except Greek, for which study they would have had to offer an equivalent in scientific and mathematical work. It has been generally admitted that this work would have been more severe than that required for the Greek, but the opponents of the measure have, nevertheless, assured the public that to omit the Greek would be detrimental to American scholarship, and equivalent to building the educational structure on an unstable foundation. Some of these opponents have gone so far as to assert that the customary college degree, Bachelor of Arts, stands as definitely for Latin and Greek as the degree M. D. stands for the study of medicine. Now, inasmuch as the college is the school in which, according to the best authorities, our young people are expected to gain a higher degree of education than the lower schools, academies, and high-schools can give them, the question, What constitutes the basis of higher education? is answered by the opponents of the Harvard measure in favor of the traditional Latin and Greek course, and that only. But the very fact that men of such high standing in the domain of education as President Eliot and his associates hold a different view should be sufficient to entitle this view to respectful attention. It is, of course, easier to fall back on well-known authorities, and the usage of the past, than to examine carefully into a subject that evidently has at least two very characteristic sides: but if the subject is one that so greatly affects the rising gen-

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LENTIL.

Early cultivation of Pulses natural near that of the flour-yielding Grasses; beca almost equal in value, either for nourishment for man or animals, or seed for fallow-ground; like them the better for the seeds can be kept long & carried far. Beans, Lentils & Pear where wild would be early noticed by shepherds on account of the edible seeds; a step more to artificial culture.

Lentils were product of pre-Indo-Germanic culture, & came to the Eur. nations fr the SE.

Peas were of Central Asia, & thence came past the Pontus into Eur.

Lentils grow in Eg; esp in the half-Semitic borderland of Pelusium & elsewhere in the Delta, wh was Phacussa, the lentil-town. Strabo saw tiny fragments of hom stone in heaps at the foot of the pyramids, in shape of lentils; pebbles? were said by the people to be the petrified remains of the meals eaten by the builders; he, the sa most indent of reasons were the'e as lentil-eaters. In the Bible, lentils occur, for a dish of wb, Esau sold his birthright; David's friends brot him in the desert wheat & barley & flour & parched corn & beans & lentils & parched pulse!? Old Heb name for L, adashim, is still used by Arabs, & adopted by Persians. Homer does not mention L; but it was custom of common people at Athens to eat L in the middle 5th cy. BC; Aristophanes writes; "Now can he in wish he will no longer eat lentils!" Gr. called the lentil-bean & its pottage, φακη; the plant & its seed φακος; an obscure word, without an analogy in angrk, & wh not reached Ir. In Italy, Romans served lentils & salt at funeral banquets; calling L, lens, lentis, a word of no kn source. Fr It. it went over the Alps to Gaul & to the kitchen gardens & labs; the word producing the Gaul. linsi, linse, Cathal. lenteja, Span lenta. Slavs also have for it, le·socio, Russian сочевица, Polish soczewica; to be compared co, Old Prussian licutickers lentils, & kockers, peas; these last to being an echo of Lat. cicer, Gr. kichee, It. cece, Fr. ciche.

Ervum Jens, the genus of L; sml climbg plt, w weak stalks, abt 1½ ft high; lvs unpd, each ends in a tendril; flrs pale purple; pods sht, flat, seeds 2-3, rd, flat.

Fr. lentil larger, better plt. Neither cr raised in Eng & only as food for cattle; but in most of Contnt culed for man; seeds used in soups &c; easily softened by & mixed w water, mkg w it a chocolate-colored pottage. In RC cos the kidney-bean & lentil are mre culed than dse, on acct of their presumbl use, w vegtbl oils, as the diet of the many meagre ds.

DC p 321-3 Schmid 316

ERVILIA, fodder plt of Mdd Gr, Ervum Ervilia, L.
DC, p 107-8

PEA; origin, in Central Asia; came past the Pontus into Eur.
ἐρεβίνθος one of most interesting names for it, because one of the oldest, & still existing. In Homer, side by side with the bean; Helenus has chart an arrow at Menelaus, which rebounds from his armor "as on some wide threshing floor the dark beans & erebinths leap from the winnower's fan in a violent wind." Theophrastus uses ερ, of the chickpea, for speaks of it as a pulse. βόρβορος seems same word without suffix νθ.
vicia " the oldest form of the word, & to have come from A Mid, the Pontus
ervum Ital. name for it when the Gr. introd. it into It.; whence A.S. earfe;
but other Teutonics elongated the word as Low G, erver, High G, wurmle, wurmer, erbse.
Perhaps ἐρεβίνθος the real source of arawis, ἐρεβίνθ; and Gothic derived plt. fr. Gr.!
πίσος, πίσον, was another very old Gr. name for the pea: of root wh. gives L. pinsere, pisere, to pound, to stamp. ; applied to the bits resulting from pounding; might let mean gravel &c.; Lithu. péska, sand, O Slav, pěsŭkŭ, sand, pebble, Russian pesŏk, Polish piasek, &c. "So a long existing word was applied to the pea & has stuck to it!" whence L. pisum, passing to Romance langs, Celts & Eng. who naturally thew peas for plural & dropped the s.

Chickpeas among the fragal in Rome replaced the lentils of Athens; during the festival of the Floralia, beans & chick-peas were scattered among the people, who laughingly picked them up." Cicero received name from cicer, the chickpea; Faba, faba, the bean; Pisa, pisum, the pea; Lentulus, lens, the lentil; such popular nicknames and only have been taken from things long known & familiar. Many names both old & modern show the different ways in which the meaning of trifling or probitesto peas!" Sutherland, p. 315.
DC p 323 Rhind 315 Name, Cicer arietinum in Eg & Barbary, GARAVANCE

Vetch, only cult. in later times, as green fodder for the pigeons, & fowls &c, the transition to the Gr. βίκος, βίκιον, to L. vicia, Eng. vetch, Ger. wicke, is quite normal."; Vicia sativa, the Winter & Summer
p 314 Tare "cal. apc plt; not diff sp; the'ino that ss; Marcyn prod by cultg both, they are not even very distinct vars. W. var. sown Sep or Oct, sum at diff ts to Feb to June for succ cutgs. On good soil yield 10-15 tons an acre. Left or given seeds only for sowing for feedg poultry or pigeons. In Shpr. ince, Iris in Tempest, "Ceres-tears, Venus's lettuce, Sec. DC. p 108 Ellac. p 237 Rhind 318

Bean of Eng, & cultip, Vicia Faba, BROAD BEAN κυαμος Ελληνικός
Rhind p 313-4 DC, 316-
Ellac, p 29-
Shkspr 2 vets, Luch "When I a fat & Bean-fed horse beprite"; "Beans are as dank here as a dog," Cymbeline in 1 1-4.

Vicia Narbonensis, DC 321 most only of utility as the Faba.
Vicia cracca & V. sylvatica, Tares of V, freq in hedgerows, yield a prebulk of fodder that dry nutrients; has to prepared to cut them slaselvit and pick chalke themselves.

PEA Pisum to Celtic pis & pea,
Rhind p 311-3
FIELD PEA Pisum arvense, L, DC 327 Rhind 312.

GARDEN PEA P. sativum, L, DC p 328
Ellacombe, p 155-6. Shpr + refers; makes Peaseed, Pease Blossom, and Squash (yet Ver-pod bet seeds are formed) dramatic persons in M N Sn Dr.
Rhind, 311

SEA PEA P. maritimum Rhind 313

PEA-NUT, MONKEY-NUT, MANDUBI, Arachis hypogaea, L DC 411

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BEAN, Lam, Phaseolus vulgaris, KIDNEY-BEAN, CAN-HARICOT, DC. p 338-344 Rhind 314. Caesar says crop grown by the "Bucciae" to be sec'd to cattle by Southern ancient; Columella notes the Phaseolus crop called lupinus of that age & Pliny: Dioscorides calls it Phaselon. N = little boat; from ray & pod; or fr beans.

SCARLET RUNNER P. multiflorus, Rhind 314

SUGAR BEAN, P. lunatus, including LIMA B, P. inamoenus, L. DC p 344-5

MOTH BEAN P. acontifolius Willd. DC p 345

THREE-LOBED KIDNEY BEAN, P. trilobus, Wild. DC p 345

GREEN GRAM, MUNG, P. Mungo, L. DC p 346

SNAIL-FLOWER P. Caracalla, Rhind 315 fr S Am in Eur gardens, boat by the cup

WILD BEAN, P. diversifolius Pursh, fed by Dl as the Diverse-leaved Kidney Beans; sp fr vari forms on simple; sm pltes hr abn or lf deply lbd, sm'o, some both. The lbd lobes reg lin nr subtrn to mr rhom opl; the deciles grow hr these dist fixed in cur lines of descent as 2 sp. P. trilobus is allied, sup by Dr Gray to be a mere pubescent form of the latter, and P. [illegible] is allied to the latter, but with [illegible] pinnately compound leaves. [illegible] Keel curved, as in or Pl. Most Pl are tropical, this the only one fd in Mo; Wide range, all All trop Pla; of Texas; Mich, Nebr, Ia, Carolina, &c. In sandy fields & banks, nr lake shores, Pho June & Oct.

LUPINE Lupinus, sd to be fr lupus a wolf fr its devouring the fertility of the soil; sd sp & vars; are border flrs in much extn in Eng gardens for velvet lvs & fine large flrs: vipes grows; cultd in fields and affd agric consdbl hedge. What L is cupd the one cultd for this Pj by Rom; tho Yet L is the one now grn in It fields for hum food; & in S of Fr in extensive plns of dry poor soil as a ameliorating crop to be ploughed in when as fertiler when clover and not grow. All seed freely; the perennials woody & can be rooted by pieces of the root.

Lupinus albus, L. DC p 325-6 Rhind 316

Lupinus termis, F. DC p 327, EGYPTIAN LUPINE

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SWEET PEA *Lathyrus odoratus* "one of the most esteemed of garden annuals" for "sweet scent & beauty of its flrs" Rh.

EVERLASTING PEA *Lathyrus*

OCHROS, of Crete & wood Gr; TARISOTS of Catalonia; L. ochrus DC, DC p 111.

CHICKLING VETCH, *Lathyrus sativus*
Rhind p 317 DC p 110

FLAT-PODDED PEA, *Lathyrus Cicera*, L; MOCHI in It.
DC, p 109

BITTER VETCH *Orobus tuberosus*
Rhind p 316-7

Orobus luteus Haller talks (of the odour of blossoms)

BAMBARRA GROUNDNUT, *Glycine subterranea* L.
DC p 349-8

SAINFOIN, *Hedysarum onobrychis*
Rhind p 317 DC 104-5

SOY *Dolichos soja* L; D & Gale dolixer, Theophrastus' mihe Phaseolus; kiel sit'k,
DC p 330-2

LABLAB, WALL., *Dolichos Lablab*, L.
DC p 346

LUBIA, *Dolichos Lubia*, Forskal, DC 347

MELILOT, SWEET CLOVER, *Melilotus*, honey-lotus, "being like the lotus; *M. officinalis* (of the Eng plts) wh gives the yorkshire cheese to bay is dist flavoring ingredt of the Swiss cheeses called Gruyere.

LUCERN *Medicago sativa*
Rhind p 318-9 DC 102-4

YELLOW LUCERN *Medicago falcata*
Rhind p 319

HOP-TREFOIL *Medicago lupulina*, common dale is the Irish Shamrock, perennial; larger than the yel clover on it rem

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VIOLA, M. excelsa, towering tree in Guiana forests; raised on dry top the lower reach of the Cuyuni, at short at its view to the height; The wild fig tree, wild apple, also, raises itself to a table be of the M, only to see well-jested seed-pasp thro' body of a dead parent on the M; sap of the M let raised it into full leaf; now in turn it contributes of its own sap to vines the seeds of our birds drops on itself; the vines so bear qus of fruit, until the mova loaps sedies and its branches. Waterton, Raises its diapon cup to a high the tooth takes a verde hill bet him; wood made finner than fir; is so will be inept in days; Schomburgk tel us the Barima alone, this great tree so one as to sch timber for the navigest fleet. Hancock.

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CORAL PLANT, *Bowiechia volubilis* family of gardens, to bras.

E. herbacea L, Dwarf C, so bgd by Dlechay has brower fldd above Ar, so as to call it "a sword fleth to the battlefield". Darwin says in E is construe its own pollen out cellfld; a NWs convey wot bees it pollds seeds when flow are mod by hand or an insect cod more than; *Bl* says he tries insects to pollinate E, e.g. & that x this good no seed in gardens, tho' this does wild; here? Name be the beauc bot thing coral seeds; a sy in Brac is used as subst for coral, in c-necklaces, *Coralloideum* was to fine it bet L; *Ie* cond is too tod, the flowers "*Bulbus*, seeds, *Bl* Rafs made this sy a new g, *Lypharnthus*, Scored-flowers. He Fla 12° high, in Bar-tramd gardens 4°, ally 15°. Nate S & Q 2 x 5C, Miss to Atl.

E. coralloideum, CORAL-TREE of W.I., 20° high; wood hard; of prec, corky, lt.

Am, 18 adv into US, more as C. coralloides ornamental.
Bot sy: repes cv exc Bus; chiefly tropical; temps prob limits be tropics ages bad; items as in
CASSIA L. a gen by Theophr. also recorded x Pliny, prob akin to the Sandalwood; Tarnaqui this
SENNA, cassol to C, lanceolata x C. senna L., it Bbc; Bbac, 218 Ochr, Cassia, Rhind, 541

PURGING SENNA C. fistula, Rhind 541
ALEXANDRINE SENNA, med, purging, Mn, so in pharmacy; C. acutifolia.

PARTRIDGE PEA, *Cassia Chamaecrista*, bgd by Dlechan as the *Large-Flowered Sensitive Pea*; closing moves when carchdvery faint; partially closed aft. sol; ainutos; it bor be plucked, Hlas rapidly dose. Ch was generic n. gen it by Riviaer, bot, 1680, bef. binomial; *Grass of the Ground*. P. fea bdgs co ons bottes, says Al. It has in cv pt K & Rodrigs, tf lovat Mo. Ed lately at Pennsy pods adversive the mac-more. Bl quotes Willis of the Shumanite aptly descr. this;

It was a sultry d. of summer time, The sun poured down upon the ripened grain,
With quivering leaf, & the wind-wooed leaves Hung motionless.

In S it is bushy & traily, uprous as dry sandy hill, used for soil-improving in as poor worn'd'n barren soils, & thus qu famous. Tiers in erect, bushy, trailing small, habit; and spotted flowers or not; hairy leaves or not; do seed-pods. Gaisly cy smooth in Pa x Nd; more hairy in Ill x Mo. Shape of seed-vessel uniform. Bold that this pervades of the purging-class of C. acutifolia.

WILD SENSITIVE PLANT, C. nictitans, L, bgd by Dlechan as the *Small-Flowered Sensitive*; his outlet had to draw it growing in the open air. Fauve Ecos 2-bor dry RR conjoint; lvs ofs pdly closed aft pay rain, as it to vibrate; not lvs on t aft. lifes bussy; some aft. ampl; cy arm, if gathered. Jmae bots call it *Dwindling Cassia*, as ver. n; I in imp it remain one all but when seemed more desirc adj by Bluecser to ... "Cassia ... Bodies ... Bl ... Bots ... Bots ... Bots

LOGWOOD *Haematoxylon campechianum*
Rhind p 494-7 Harcourt, stately tree, lt disc in Yuc, Campeachy; because in prot demanded 1861, cause Eng logwood-cutters to settle there, ejected by Sp 1880 but orna there agn.

INDIGO *Indigofera*, var sp
Rhind p 498-9-506 Haurcourt p192+, of I tinctoria the most oft cultd, knotty, slenderly 12° high, lvs reliqd, smooth sdt, dk abv, smal rectla flcs, grow in cluss fr cavils, O edg, pods lg-reflexed, tess, w smal gel seeds. Regs a rich rich soil, well tilled, not too dry nor moist; must have av temp + 60° Seed sown in summer 1° apart, 2-3' dp, up in 3-4 d, gathered in 2 mo, cut w sickle a two 'ago ctc on flag; rate 6 or 8 oks a 2d cmp.

RED SAUNDERS WOOD *Pterocarpus Santalious*
Rhind p 508

DYER'S BROOM *Genista tinctoria*
Rhind p 519

SUNN, INDIAN HEMP, *Crotalaria juncea*, Rhind 420

CÆSALPINIAS a genus nate to trop bounding p. rich mat of the Red dye woods
C. echinata furnishes best dye; kn as BRAZIL-WOOD, p brunst in Braz, forests; prefs dry pls, rarely grd; trunk large, crkd, full of knots; nr the grd + lrs spry out, x straggle out in ev directn; brs are armd w snl short upwt thorns, lvs are snl, nev in luxuriant foliage; flrs beaut red, fragr; thk sarlk x not pithy pt of trunk usels; the hard close-grnd heartwood alone contns colog mtr; smts used in turnery, takes a gd polish; chf use as a red dye; gvs a vy fleety crimson tint; addy acids it produces a lasty orge or gel tint. Haurcourt.
Rhind p 497 Most of the red dye wods are of genus C, Haeto,

C. vesicaria, BRAZILETTO
Rhind p 498

C. sapan SAPAN-WOOD
Rhind p 498

C ——— NICARAGUA or PEACH WOOD
Rhind p 498

C ——— CAM WOOD
Rhind p 498

MIMOSA SENSITIVE PLANT Rhind 602
Longfellow
As at the camp of a horseshoe on the turf of the prairies,
Fac in advance are closed the leaves of the shrinking Mimosa.
Whittier Like the Mimosa shrinking fr the blight of some familiar finger

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ACACIAS; "the delicately feathered Mimosas, marvellous amp. the ch. of Flora fm in the mazdle elegance of the foliage!" "In more the fns exclusively or umbelle-shaped, smooth lk the of the Fe Pine, & the dp blue sky ling thro the regm filig. wks delicacy rivals the finest embroidery, has an extremely pleasing effect."

Sensitive Pts; large tracts of Brazil are also cov. co thems; the transp. of a leaf acts the nat. one in morn. & as if by magic the contents of one sml propgns thes spots in quicker circles over the field, mostly ? also belv to Darwin & Dutrochet. Tissue pts by touch.

Catechu, Acacia catechu, Rhind 530; an astringt to a sml tree in Ind. mtns.
Gum Arabic, A. vera, Rhind 556, EGYPTIAN THORN

Thorny Acacias; A latronum Buffalo Thorn, a low shrub abdg in N Ceylon, with twigs, beset at every jt by a pair of thorns set opposite each ot, lk the horns of an ox, sharp as a needle, 2-3' lg, thicker at the base than the stem they protect.

A. tomentosa, has thorns so large as to be called Jungle Nail by Eur, & Elephant Thorn by natives.

RANUNCULACEÆ

Characteristics Some of the most conspicuous of Dep Eqdi; simply diff. in some orders, as Aconitum, Thalictrum, Xanthorhiza; even in same genus, as Ranunculus.

Herbs rarely shrubs
Lvs gently much div, w petiole dilated & forming sheath, half clasping stem
Fls usually conspicuous; if spectabs, the sepals petaloid
S 3-6 P 3-16 St + C+ Stamens on the receptacle
Fruit of dry achenia; or a berry; or a follicle
Juice acrid, watery not milky

Related Families

Rose Fam, very, the genl appr, the st & pistils; the true achenes or berry or follicle; the lvs divided; diff, in Rose the st. on calyx, watery juice not acrid, lvs not sheathing, true stipules present.

Saxifrage Fam, like the Rose exc. w. definite stamens.

Small Closely Allied Families; the Rosales of Ly incl Magnol, Anonae, Dilleniae, Rasuae, Nymphaeaceae, Papaveraceae; see fully, conclus of the Ranuncs. Also allied more distantly see Droseraceae, Ly p 433) Berberidaceae (Ly p 457); also links to Barberry & thus Fumitory, Violet & Mignonette Fams, and on other hand to Water Lily Fam.

Importance 1000 sp at 41 gens, Ly; no fruits are edible; pts; many medicl, as Aconite; many of ornamental culture as Peony, Clematis, Larkspur, Columbine, " of literary fame, as Anemone, Columbine.

Order suspicious, avoiding, caustic, sp. poisons are not of the sp; some are harmless. The caustic prin, PC to Ranken, in Ly) is so very elephlex, as to be volatile, gently dissipated by simple dryg. infusion in water or boiling; it is not acid nor alkaline; is incrd by acids, sugar, honey, oil, glycerin, &c; is effectually destd only by water & vegetl acids.

Distribn; largest impacts in Eur; wh has nor than 1/5 ; NA 1/7, Ind 1/25, S Am 1/10 Ly, vy few in Afr exc on Medit shores; 15 sp, DC, in Aust.

Climate, cept is cool, damp; nor in lowlands; in tropics are on extra sides & summits.

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CLEMATIS

C. erecta & flammula has used by Eng horses to from acrid ulcers; one C is used by N Am Inds says Geyer as a substitute to horses wh drop dn in the races; the scrapped end of the cort, held to the nostrils of the fallen horse, instantly pocks revive; the am. syrup up, is fed to voiter to rotorate his limbs" by.

Clematis was called Vitiella by Dillenius, little Vine; Viorna by Pers: or Woodbine, Wooden-bine, in AS ccrd. of 11th cy: (the small sweet-scented Clematis C. flammula, is still ofe called Woodbine in Eng) Rhind 601

There stray Clematis, Of all wayside weeds dearest & best. In wave-washed estate, Mrs H H Jackson.
—Where the woodland streamlets flow, Gushing down a rocky bed, Where the tasselled alders grow, Lightly meeting overhead; When the hottest August days Give the richness that they know, Then the Wild Clematis comes, With her wreaths of tangled blooms, Reaching up & drooping down, Rich and fair, Rich and rare, Rich in every shade and tint, Rich in every form and hue, Rich in every hue and shade, Rich in every form and tint, Rich in every form and hue, Rich in every form and tint, Rich in every form and hue, Rich in every form and tint, Rich in every form and hue

ANEMONE.

BY W. W. DAILEY.

AWAKE, Anemone! awake again!
The sunshine sparkles on the dripping rain;
The sky is azure, and the storm is o'er.
Awake, Anemone! awake once more!

Awake, Anemone! awake from sleep!
Thy sister beauties from the mosses peep;
The tasseled alders dust me o'er with gold.
Awake, Anemone! the day is old!

Awake, Anemone! Dost slumber still?
I hear the music of the lapsing rill;
I see the willow's silky tufts appear.
Awake, Anemone! the Spring is here!

Awake, Anemone! Why sleepest yet?
Thy tinted sepals by the rain are wet;
A dew-drop lingers on thy trembling leaf.
Awake, Anemone! the time is brief!

Awake, Anemone! in beauty rise!
Reveal thy wonders to my longing eyes;
For thee, my darling, I expectant wait.
Awake, Anemone! ere yet too late!

HAMADRYAS Commers.

HYDRASTIS, L. the Warnera of Mill.
H. Canadensis, root has strong & smooth nauseatic smell, & is exedly bitter used in Nam as a tonic and in Yellow fever, Lyn

ADONIS Dillenius, the Sarpedonia of Adanson, Adonanthe of Spach.
The perennial sp are cosmopolitan, Pallas

CALLIANTHEMUM, C. A. M.

MYOSURUS, Dill.

APHANOSTEMMA Sch. H.

CASALEA St. H.

ISOPYRUM, L. Thalictrella of A. Rich.

FICARIA Dillenius

CALTHA L., "COWSLIP" of Am, MARSH MARIGOLD of Eng; last is a doublet if of Ellac. says Marigold = "golden flr of the marsh"; is its Engl;
Tennyson, The wild Marsh Marigold shines like fire in swamps & hollows grey
Ice the verbs lapp; I need it opens w be nice & cultivs. Poirx finds it n. is simply b. Sax meaning marsh-gallia, "marsh-horse gold"; Earlier gives old it "gold flr" "marsh-gold flr" Theophr, who fgs it.
Caltha occs in Virgil & Pliny, who is bold to mean a white violet. Its story was that Clymene, a Sicilian boy, goddess of Nature, was in love w the Sun; disappointed at set; up bef sunrise; and at pass a moment in the shade. Once sun was sad & slept 8 d. Cly-cot by aid of a fen to get a vellum of the Sun bef fairly pined away w. the Sun, overjoyed dive its true love & slept, rhpd him into a bower, thr in the spot; the ceiling Cupbeth for Amphord fl the sun-loving pt, when sinking w. the sun & afford. — May Blks a sense in regrets of Eng for sum. Lady Eyre has ink pick cotted; call Ia Bs ots a "cowslip, bigelow; rare Ia sy aurid; so call pt much them; birds sy bity; used as salent for sagers; the cowslips are aged, nearly, cotton, if boiled, S. E. Nickson would suppose Indian ancient Sofia & modern Eg Fo. Mrs Chevrier of Glove: wall, much; b. colon-ex in SC Nickson in Calif

TROLLIUS L

TRAUTVETTERIA

HEGEMONE Bunge

ERANTHIS Salisb.

HELLEBORUS Johnson. the only evergreen still in use in the farm, Lily.
H. niger, BLACK H, CHRISTMAS ROSE, Rhind 596 Bacchus-rose, of some Ger. localities,
H. trifolius, BGARS ROSE, " 596
H. niger, Christ Rose, is only of Baumbach's early blooms to appear at Christmas by Trans. hobbies to the mothers of a dark lady girl who had a dream of a beautiful lady fairy, her dress dress in the rotation. The child dreamed also fulfilled, she recovered. From this plant come at these times. "Do you know the CA? in that cot is nothing poor, but only the water? it is too to enchant. To see yet it is old the old, Sacrovere, is also Helleborus, it is old the CA but it hung the Valentine, Let your eyes what is yet as large as the Wild Rose, is sacro-rosa, yours is exposed on a delicate stalk, it is more sacred as nurses, some unexpected to the blooms same his red, the is for the child of an far-off zone, so wonderfully because it is. "The the old pieces up in the legends of the lady queen — we was in about all, From Bayeux — time seeds transfigled in the land, & acc. to transversely where that is have is crowded many a miracle."

CORTIS Salisb. GOLDTHREAD
C. trifolia, root a pure petal bitter, not any astringency; popular cerm. in US for afterthaw affections in mo of ch, lily

NIGELLA Tournef.
Nisativa, seeds not all used instd of pepper; it is said the pungent SHAHDANA & seed used by Alphans to flavor curries is a N, x the Black CUMIN of Scr.

AQUILEGIA Tournefort. Seeds toxic.
Blue 45 Stolp 3
Chapman in play of 1600 refers to it as emblem of improvidence;
What? that — a C? pho, that doubtless dower grows not in my garden.
A-pon, quoth Harvey, Blue C, by loads, wonderous taken
Is then ascribed to such as are forsaken.
Drayton, Make her a goodly chaplet of azure Ca
And wreathe about her coronet of with sweetest eglantine.
Ophelia, There's fennel for you, & columbines
As name Culver-cote, for As culvre a dove & wine; Harvey; for petals rep, a circle of doves drinking for the same dish? or each petal a dove? Harvey.
Last name, some say for Aquila for clusters of beak spurs res. talons; or aqua eligo to collect, for petals as if water reservoirs; but petals hang down, & seed-pods only upward
Fine decorative design; a border to an illum. MS in 14th; once was combined w the red rose as badge of Lancs.; & long bds. that, for Bloom as badge of Plantagenet house.

DELPHINIUM Tournef. (the Staphisagria LDC.
D. Staphisagria is vermifugal, caustic, drastic, emetic, in seeds.

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ACONITUM *Tournef.*

A. *Napellus*, diuretic; shown by Dr Pereira to be the only one of g. wh has any values: very acid *Rhind 555*

A. *Cammarum* is great sequite but feeble compared co-prec.

A. *ferox* very acid

A. of India, Bitch or Bitch, a violent poison; see *Ainslie p 427*

See Ellac, 1

Shley 100, Pochin, 9/1, x 2H/4/4/4 ; Tho'ie do work as strong
A: Aconitum or rich g-powder

Kunc, A: thus, 10 ellth cy, mean: primarily anything poisonous
Gr, ἀκόνιτον ὄφεων, Wittstein, to belg aconitized co juice, or baits dipd in it, wd k wolves.
Gr & Lat, ἀκόνιτον, Aconite; now survivg in Eng nomenclature in the Winter Aconite, Eranthis hiemalis, a pretty, early flg-vete.
Eng Monkshood & Helmet Flower.

KNUVLTONIA *Salisb.* K. vesicatoria, used as vesicatories in SAfr.

MOUTAN *Lindley*

PÆONIA *L.* Peony seeds are emetic & cathartic; root is said to be anti-spasmodic. Genus is resemble for pellucy in its sp Moutan the largest form of disk has in veg kdg.

Ellac. 163 Shkp, Temp. M 4, Thy trunks with Pionied & Lilied brims
Rhind 578 While conny Acil or thy bless tresses Trunks adi-spangles dense corone

Wild Peony of Cal, T. Brewer Proc, in rec plain of SCal to mnn lac, in wet & dry soils; E M Thayer fd a bush here & there at Pasadena, "he's lying on the grass; cut P in growth; flow doubles, but vy rich clay colours; The is smth abt the blossom of a wild P that reminds me of a human face, & to this me w its face turned toward me I felt th apology for disturbg it."

ACTÆA *L*, Christophoriana of Tourn.

A. *racemosa* a simple astringent; nauseous bitter roots held in US remedy for bite of rattlesnake.

A. *spicata*, its blk berries, BANEBERRY, are poisonous, roots anti-spasmodic, expectorant, astringent; reported to go no relief relief to catarrh., Same qualities are possessed by A. r.

EUROPHIS of Bat.

CIMICIFUGA *L*

XANTHORRHIZA *Marshall* — X. apiifolia, wood & bark a dy juice bitter, tonic, Shrub; con both a gum & resin, each of wh is intensely bitter,

CEPHALOTUS, see P.

RANUNCULUS *L.* (the "meadow-or ice Ranunculus" sitting for a bee yel. marigold and at one of Bangbridge, interrupt only bright & shining hyp to Christ the Rc called Bear Cup) wh thus at sunrise, fan than

R. *glacialis* a potent & sudorific

R. *flammula* (one petal epispastics; are used as such in Hebrides, poultices

R. *sceleratus* Ling a blister in 1½ hours.

R. *Thora* not easily a cold & poisonous; juice was once used by Swiss hunters of beasts to envenom the javelins, the wound thus proop fatal.

R. *acris*, BUTTERCUP; in Eng BACHELOR'S BUTTONS, the double; see Ellac. p. 20: and p 51, Crowflowers, the modern R. of name for it, or CROWFOOT; Cuckoo-buds of yellow hue" of Shkp, & Cuckow-flowers of Mac 7, 1, is not by Ellac to mean this; so I; but by Jorvis to be the poisonous. *Rhind 573*
Ellac 78 and Cuckoo-buds.

R. *Asiaticus* RANUNCULUS, *Rhind 572*

R. *aquatilis*, WATER RANUNCULUS, *Rhind 573*

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MAGNOLIA FAM.

So constituted by Jussieu 1789, DC, 1818: as Winteraceæ, 1818 by R. Brown.

Fine trees or shrubs. Leaf-bud scales not of stipules face to face as colled up. Ins dt, w/ut pellucid dotted, coriaceous, distinctly jointed w the stem; usually w decid stipules, rch, if yg, are rolled up like those of Ficus & mk the bks w ringed scars whe they fall off. S_{3-6} $P_{3\,or+}$ St_{+} C_{+} Anthers adnate, long. Fruit dry or succul, of mk carpels, often a cone, sometz winged. Seeds solit or sol, often in an aril

Close upon Dilleniads rch lw no stipules, & sce in Sp; & Anonads, rch are not stipes & in Sp: Div into M proper & Winteraceæ, the Wintera's Bark trees, rch hv dc no stipules.

Order focus at Nam, where woods, swamps & sides of hills abd w the sy; struggling thence into VI, & into Ind, China, Japan. None in Afr or Mdg is.

Plants bitter, tonic, hav, frgnt, fragr, w decided acrid or resinous Gen II, sp 65.

Talauma, Juss (or Blume's, Mex)

Aromadendron, Blume. One of the mt remkbl of the tonic & intensely aromatic sp: M. elegans of Java has a gnt local repute as a stomachic, antihysteric, carminative: is a valuable timber tree.

MAGNOLIA glauca L; was called Glaucomia Rottl: Spach divs it into Liriopsis, Talauma, Tulipastrum, Liriodendron,

M. glauca so stimulant as to produce paroxs of fever & even an attack of inflam, gnt. Bark intensely bitter but wt tannin & gallic ac; aromatic; not as tonic, resembling w w nicotiana the Cinchona" exp useful in chronic rheum, &c in bark, seeds or cones. Kinds SWAMP SASSAFRAS or BEAVER-TREE, or LAUREL M, SWAMP BAY, LAUREL BAY, Rhind 152

M. conspicua, YULAN, unusually imp north trees for the surpassing brilliancy of its large & snow wht flrs on gray & naked brs, hy.

M. tripetala. Sr indicus sides Alabaho, DC UMBRELLA-TREE. Rhind 198

M. grandiflora one of subtrop of europe; Rhind 151

M. pumila when in genhse for its beautiful flrs

M. excelsa has a vol timber called CHAMP at 1st prob, some chgs to pale yel; fine texture

M. Fraseri (auriculata of Buchanan) "CUCUMBER-TREE" hy.

M. acuminata CUCUMBER-TREE. Bitter & mucilaginous aromatic infusion of the pro cones in whisky or brandy is extensly used apt intermitt fevers & in rheum. affections, Fbe Rhind 152

Burpecia

Manglietia Blume. M glauca has a white solid wood, largely used in Java, rubed to prevt decay of corpses in coffins of it,

Michelia, L; the Champaca of Rheed, the Sampaca of Rumph. Among the mt fragrant of the order is the TSJAMPAC or CHAMPACA, the delight of the people of Hindostan; profusly strewed in all pts; sp M. Tsjampaca,

M. montana, bark ced for efficacy w Cinchona; less bitter.

M. gracilis bk smells strongly of Camphor

M. Doltsopa one of finest trees in Nipal; yielding an excell fragrt wood; much used there for house-bldg

Liriodendron, L, called Tulipifera by Flora, well adapted as specific nm, Rhind 153

Tasmannia, RBr, polygams, tend to be dioec; quite anomalous; close rel of Drimys. T. aromatica of Aust is used, its fruit, as pepper, by Pers.

Drimys Winteri, WINTER'S BARK; called Wintera Blum, Winteranea Sol, Magellana, Commers, Canella, Pomb. Boique Molin. Bark lks fr its as to Cinnamon,

Dr. granatensis, CASCA D'ANTA of Brazil, bk much used apt colic; is tonic, aromatic, stimulant,

Dr. axillaris of NZ, similar to prec.

Illicium, L,

I. anisatum, whl plt exp fot, has least aromatic flavor of Anise, sweetish, rather pungent; among the Chinese hold a stomachic & carminative; used as a spice in the cookery; fot aromatic, by distly yields an oil, of most of props of oil of anise, for wh it is the substit; chfly used in fabricating liqrs,

I. floridanum & or sp lw similar spicy qualt.

I. religiosum, seeds so fragrt, Chin, burn them in the temples

Drimys Lanceolata (Cynanthus of Jungh); has Sp mille uses.

Tonus, Mello

ANONACEAE

Constituted 1789 by Jussieu. Trees or shrubs; flys pro or bow, of tropics, both worlds; few S & N of them. Gent char is petal aromatic taste & smell in all pts. 26 g. 300 sp.

UVARIA L. or ASIMINA Adanson, the PAPAW Rhind 379

U. triparvoides; bk yields being tapped a viscid mte, orb hardens in the form of a fragrant gum.

U. rufiflora; seeds emetic; lvs used to reglanguid abscesses to a head.

U. febrifuga, fruit old Frutto de Burro; the Indians or Orinoco use it as an ante febrifuge.

ANONA L. Rhind 376

A. squamosa lvs hv a heavy disagreeable char; seeds con a highly acid juice fatal to insects; so Hindoos powder them & make them to drive off. Grown in Cincr varietiums tree easily raised from seed. SWEET SOP; SUGAR APPLE, DC 168 CUSTARD APPLE of Br Ind.

A. sylvatica has th wht wood, fit for turners, called Arabico Araticu do mato in Brazil; fruit good for dessert.

A. palustris, wood in Brazil used for mills.

A. longiflora, Ethiopians toll out in acrylic chain.

A. reticulata, Chicimoya of Mexico; fet a no asteepiece of Humboldt & Bonpland; its taste qu incomparable, Schmidt. Detected at Huasuco, or 14-16 ft heart sop, broad base on stem; vied pro, so most subordes; cors a non-fat, juicy pulp, wonly the kernels. Delful char to bet & fr. 20° high; broad dull crown.

A. muricata, SOUR SOP; CUSTARD APPLE of Am; DC 173

A. reticulata, CUSTARD APPLE of W.I. BULLOCKS HEART of E.I.; DC 174

A. Cherimolia, CHIRIMOYA; DC 174

XYLOPIA species, large tree nr Rio, PINDAIBA; highly aromatic fruit, so flower of pepper, see Lily p 421

X. glabra, BITTER-WOOD in WI, see Lily 421.

DURINTIA guianensis, LANCE-WOOD of coasts of Guiana; strong, elastic

MONODORA myristica, CALABASH NUTMEG, rind of true N for aromatics,

LANCEWOOD, Guatteria virgata, Rhind 447

DILLENIA FAM.

Constit by DC, 1818. Trees, shrubs, or under-shrubs; widely herbs. Plant by Lily no forms a complete transition fr Rosal to Erical alliance. Most in Australasia, India & equinoctial Am; a few in equinoctial Afr, Gulp Guinea. 26 g. 200 sp.

Dillenia L. not or see large trees, mile hard, durable, esl. timber, Ind. sp. are also also of gat beauty; remkb for grandeur of foliage & magnificence of flos. Yg calyces of 2 sp are pleasant, acid used in Ind curries. Ann is acid; added to syrup makes a cough mixture; ripe fots laxative, even produce diarrhoea.

Davilla elliptica, serrifolia, furnishes the substitute old SAMBAIBINHA in Brazil; D. rugosa used in Brazil in swellings of the legs.

Tetracera used as D. rugosa; ann is LIANE ROUGE, diuretic &c.

Curatella 3 species used by tanners in Brazil.

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PAPAVERACEÆ.

Consist. by Juss. 1789. 18 g, 300 sp. 130. Herbs; or shrubs; often milky,
Leaves alt; 0 stipules. Peduncles lf, 1 flwd, Petals crumpled in bud.
S 2 Pl ~~or multiple~~ $S_{\infty}+C_{\infty}$ Fruit pod or capsular. Seeds +,

Affinities Ranunc in Paeonia w crowded Thalictrum-like flrs, wt petals
" Cruciff. in siliquose fruit of Eschscholtzia & Glaucium,
" Malacoidlies in Papaver
" Cistaceæ in Dendromecon

Seat. Eur; ⅔ of order in it; sol in N Am, 6 species in trop Am, 3 to China & Japan,
2 to Siberia, 1 to Cape, 1 to Australia. Most are annual, the perenials on mtns.

Bocconia Plum; B. frutescens, TREE CELANDINE, PARROT WEED, JAUNE; Hernandez calls it CHIAU-CHILLI says it cures by sinc Mex mandes in the pandemic; also in gel acid milk, detergent, exhaustd, for sins to open, & to heal ulcers, by removing fungous flesh & inducing healthy granulation.
Mucilages RBc

Sanguinaria L. Canadensis, PUCCOON Ly, BLOOD-ROOT, emetic & purgative in large doses; in smaller, stimulant, diaphoretic, expectorant.

Chelidonium, Tournef CELANDINE juice a bitter acrid poison, stimulating, aperient, diuretic, sudorific; a gentl deobstruent; popular remd for warts; employed successfully in opacities of the cornea.

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Stylophorum Nutt

Argemone Tourn A. Mexicana, FICO DEL INFERNO (See Ly p 431) of Sy, of Bra, the CARDO SANTO

Meconopsis Vipuier (M. Napaleensis vy poisons exp cows

Papaver Tournef P. somniferum the OPIUM POPPY; native co unknown; unclear range, esp its culti in gardens of Dang Superbus. See Ly p 431, Othello 3 3
Ellac 171-2; old Engrs, Cocoa-rose, Cheese-roses, Jane Silvaggio Rhind 547 pc 357

There was never [illegible] But the figured in the flower "

Composite Plantes.

a. Characteristics.

Composite Plants are peculiar, 1st, in having their flowers composite or compound, i.e. in a head, with an involucre beneath. 2d, they may be known by their stamens, for they have their 5 anthers united in a tube surrounding the single pistil, like a cylinder, from which their two stigmas project. 3d, they may often be recognized by their fruit, which is an achene, often prickly, most of our "burs" belonging here. 4th, they may often be known by their calyx, which is reduced to a fringe of hairs or other projections called a pappus, surrounding the base of the flower, and standing on the ovary, often forming an aid to the wind in blowing the seeds about, and finding familiar examples in Dandelion-down, Thistle-down, &c. 5th, often their heads of blossoms contained 2 sorts of flowers, the outer called Rays, or Marginal or Strap-shaped or Ligulate Flowers, the central called the Disk, or the Tubular Flowers. 6th, they often possess bracts between the flowers called "Chaff." 7th, the receptacle is necessarily much enlarged to afford basis to attach the flowers; often broad and flat, sometimes conical; and often pitted or honey-combed with sockets for the flowers. 8th, the involucre, composed of ~~scales~~ bracts called "scales," usually resembles the calyx of ordinary flowers. 9, there are no stipules, no poisonous plants, and in our climate no herbs and but 3 or 4 shrubs, in this order.

Condition of order was a chaos till in 1830 an sergent of merit was proposed by the Gen but Lessing; & at a later period DC the older system, his scale & logics tended to the elucid. of the Order; & in 1844 DC's work, founded on Lessing's, is essentially followed: 8 3 suborders, Tubuliflorae, & Ligulifloras, & 2d, Labiatiflorae, (where the perf. flos are 2 lipped; also all fr. 2 ANA bad tropics)

Jussieu made the Cyrsaceae a sept suborder; Juy follows him.

Milky fluid of Cichoraceae is of same nat. as in the allied Lobelias & Bellflowers.

Pedicey of order is poro at a marginal vein to each petal.

Diseib in all pts of world; or many more less as of all pts of Linn; Humboldt computed they are 1/7 of the phaenogs of Tr, 1/8 of Gen, 1/15 of Hogh. 1/6 of NA, 1/2 of Trop Am; Brown rates them 1/16 of Not Nat, 1/26 1/23 of Cryps. +1/2, Sicily, Pacific same, Balearics, Canaries

Cichoraceae are ~~x~~ + in cold & Cucurbitaceae in hot regions.

Habit: Also herbs in the N, tarticest tend equator, even arborescent; in Chili they are chiefly bushes; in St Helena trees. DC says of 8523 be known, 1229 annls, 293 bien, 2491 perens, 2264 undershrubs 1/3, 366 shrubs 1/9, 72 mst trees, 4 large trees +25°, 126 twiners or climbers.

DC ks 3590 Ann sp, 2224 Ang, 1827 As, 1042 Eur, 397 Oc; C Bd. Hom 1540, Mex 925, Brae 722, US & Can 678, India 681 ks.

No centres abt 1/10 of ks pts; In ks 785 Cs, out of 8500 sp; 1838 DC bad 8523 are of 8500; 1845, Lasègue estimd 9500 out of 95000.

Tubuliflorae, Stem acid resin, no oberal, if any, pos. Leaves contained 2 tases, sulphur, [illegible] Cynaraceae, inconsiderably bitter, sm stimulant, diaphoretic, diuretic; its hr flos also useful in dyeing; some hr root + no gum; in many the seeds are only & propative wt a trace of the aroma observable in perfect flos. the order.

Labiatiflorae, tons of insptcs; as CGH, Patatais has used for tea. Marchantia pinnatifida smells of musk

Ligulifloras, insept. all abound in a milky bitter, aromatic juice.

Chicory the most useful bitter

Nabalus serpentarius & albus, of NA, bitter milky juices in repute as a remedy for rattlesnake bites

Malpedium floridanum GALL OF THE EARTH to its bitterness

Chondrilla juncea yields in Lemnos Kodax, a drug like lactucarium

Crepis lacera bela venosa in Naples, so Hieracium pilosum

& abundance

There was never much flat, figured in the flower

b. Distinctions from Related Families.

The Teasel Family has the compound flowers and the involucre of the Composite Family, but with distinct stamens. Examples are the Teasel, the Scabious and Mourning Bride of gardens; they have always opposite leaves.

Some of the Leguminosae, as the Red and White Clover, are often at first mistaken for members of the Composite Family by those who take these flowers for an involucre.

Some of the Valerian Family have a feathery pappus, and a little tendency to form heads. Examples are the Mountain Heliotrope or Balm of a Thousand Flowers of old gardens; the Greek Valerian, and the Early Valerian of High Island.

c. Importance.

The Composite Family is important principally, 1st, from its numbers, over 10,000 species, being the largest family of flowering plants; and 2d, from its beauty, as the Chrysanthemum, Daisy, Dahlia, Zinnia, Dandelion, Everlasting, Edelweiss; but besides ornament, it has the production of lettuce, salsify, chicory, artichokes, arnica and wormwood. The order is however of less use to man than ought be thought from its numbers, and it contains a great many troublesome weeds, as the Thistles, Horseweed, Stick-tight, Cocklebur, Burdock, Ragweed, Mayweed, etc.

d. Particular Species.

Our largest genera in the Composite Family are Aster, 41 native and 129 American species, and Solidago or Golden-rod, 32 native and 28 American species, and Helianthus or Sunflower, 20 native and 40 American species. The largest genus, Senecio or Groundsel, contains nearly 900 species, only 57 American, represented here by the Golden-ragwort.

Against her ankles as she trod The lady buttercups did nod
I leaned against upon the gate to see;
The sweet thing looked but did not speak; a dimple came in either cheek,
And all my heart was gone from me,
Jean Ingelow

Sweet are the lanes and the hedges —
The fields made red with the clover,
With tall field-sorrel and daisies
and golden buttercups glowing;
Sweet to the way through the woods
where at sundown maiden and lover
Linger by stile and by bank
where wild clematis is growing;
Fair is our world when the dew & the dawn
thrill the half-opened roses,
Fair when the corn fields grow warm
with poppies in moonlight gleaming
Fair thro' the long afternoon,
when hedges & hayfields the dreaming
Fair as in departing light the last convolvulus closes.
Scent of geranium and musk That in cottage windows run riot,
Breath from the grass that is down In the meadows each side the highway;
Murmuring wind thro' the leaves Bent over the meadows by-way;
Deeps of cool shadow & gleams of light In high elm-tops shining,
Such peace in the dim green aisle As the town save in dreams knows never!
E. Nesbit.

O my heart, my heart, to be out in the sunshine! &c
O birds, sing loud in the sky; &c There are none so glad as I. Ina D. Colbrith

Oh happy day, refuse to go! Hang in the heavens forever so!
Forever in mid afternoon — Ah happy day, happy June!
Pour out thy sunshine on the hill, The piney wood with perfume fill,
And breathe across the singing sea Land-scented breezes that shall be
Sweet as the gardens that they pass, Where children tumble in the grass!
Ah happy day, refuse to go! Hang, &c.
And long not for thy flutting rest In the soft bosom of the west;
But bid gray evening get her back With all the stars upon her track!
Forget the dark, forget the dew, The mystery of the midnight blue,
And only spread thy wide warmings While summer lies enchantment flings!
Harriet R. Spofford

Dear Daisies that shine like silver gilt
In meadow and grassy lane,
Now I've picked as many as hands can hold,
I'm with you once going again
E. Nesbit

A garden So rich colors on green, And like that you could it prize 3 to be alive
Every Actt in my hand Goes home laden w. chief Andrew Marvell
Love was never wanting But he gathered in the flowers

Digitized by Hunt Institute for Botanical Documentation

IANTHE, *D. linariifolius* of Hooker, *Aster* L. of Sims bots & apo. nearly Gray's Syn Fl: perh. he appea
1640 in Ray's Catalogue, as *Aster lin.*; the narrow rosemary-leaved Aster of Dill", Ray perh. nearly it to his c
Fu. In Bauhinus. Was the *A. lin.*; *A. rigidus* Mx; *Chrysopsis* bdd by Nuttall who in it this as C. /
Diplopappus bdd by Cassini 1816 in a Paris paper. Name strictly shd be *linariifolius*, Meehan.

"Affds a very pretty bd. lean in dev of its axial bds into bos & those agn into flos," rudn. sweet of growth in mn stem
"a delicate that of bos," fog & praded impalse deved, showy the axial bds; "some effect by prodigal terminal bds of
ugly pl"; "I wos wh in duce these rhythmic growths are not understd!" Meehan,
"Beaut pl; highly esteemed in gardens"; "one of the last of the floral charms to leave us; seeds & dys in Pa when severe
frosts come; begins to flr the Sept, height of flrgt, bos In dry hilly rather open woods, Can to Fla, alg Atl coast;
less Wood, W; not hyd Miss. Rather abdt in SC & there used as subst for olympic in polishg knives, its leg,
rchence M for as a name for ig SANDPAPER SPARROW; bgs it p 13 vol 2

Digitized by Hunt Institute for Botanical Documentation

E. RIGERON bellidifolium, Muhlenberg, Egd by Meehan and a FLEA-ROBIN'S PLANTAIN, n. hm. for it is NE only yet
so where it grows in US, to NC to Can," Sims in Bot Mag, bgd it; wh. n. appears in Gray as Robin's P, W and
Robias' P, Darlington as Rare Robert's Plantain origin unkn. Or as gen by aut are Daisy-leaved
Early Flowering Fleabane; to Blue Fleabane the Blue, bots for the Blue, *B. acre*, to its bos very to of
Cony as the true fleabane. Badly so called. By *bellidifolium* also ill, hog name, but lit, as to bos of
Genus, spring groun (or old man) or senecio (Sn. from of g). to cognous wh. poetus stalking "Disrgd for it
E. Philadelphicum by hog cogg numerous, P hip-tubed rootstocks; P laters due to Aug in Pa, wh. b opens end of
Apr & M. gath'd it sung the snows. Ofe 6" from thk patches t yds in ext, hog do not ie vrgn by its over
grows, & then its blush-purple flos gr a pole taste or the spg vgn. even when seen 6 ly distinct." M. Ref. calls it "the Daisy
the snow, a Vernal Vernal!"
E. Philadelphicum Ref. has a spcl chapt. on its med virtues; says "they were lus to the Nhm buds by the n of
O cash or Squaw-weed, as nemagogue & diuretics;" as styptics "they hv saved t lives"! Vy useful applied to
wounds & rumors. Ref. mentd. a decoctn.

E. acre, Blue Fleabane of Eur, abo, of wh celebr ple Mey says
Bue this bold Arvonce climbs the hill, Hides in the forest, haunts the glen,
Plays on the margin of the rill, Peeps round the fox's den.

E. macrophyllum, UC, bgd by Meehan, in Mex; widely in US; pretty (lo. g) in Eng. gardens as as Pteradenia tetlola. Ref. mentd. a decoctn.
not interested bcno flos of Pa & bd - 1 daily flowers bos, suited very, ents pity cover.

TOWNSENDIA scapigera, Hooker, Egd by Meehan, in Arctic voyage of Sir John Franklin, discovered 1823; then not an Aster in now plants to Arctic
Ocean; Mott Complutes Sum to bots Ar bgg pinnacles of bds; this in Fall; Arnott collect'd in BLACK HILLS 1834 & Gambel 1841; & Ar bg flos in Rocky Mountains, N of
Cream of the WOLVES of wh celebr Darlington was Pres, Ud 22 Ap 1863 ac 80, 12 Dec 6 1858 ac 70, 12 1st bot bots of the 49 exp in Arctic regions.

JOHN ALBEE'S POEMS.

EMS. By JOHN ALBEE. 18mo. pp. 213. G. P. Putnam's Sons.

However the verse contained in this volume may affect readers of opposing tastes, it is as far removed from commonplace as from the fastidious modelling to which our younger verse-makers—British or American—seem devoted. It is written mostly in familiar metrical forms. Some of it is poetry of a delicate and penetrative order, and all is plainly the work of a true, if somewhat uneven, poet. There are technical faults here and there which the finish and melody of certain pieces forbid us to attribute to any defect of Mr. Albee's ear or voice. Taken together, his poems have the air of verse composed at different stages in the life of an imaginative, sympathetic thinker. Their inequality may be the result of a disinclination to revise the outgivings of former moods, lest the honest expression of those moods should be lost in the process.

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"Rose-Gerardia" is another attractive poem in blank verse, and a good illustration—as are "The Swallows," "Arbutus," and other lyrics in lighter measures—of the author's close acquaintance with mother Nature. This, it may be added, is a manifest quality in his work; he is one of Nature's lovers, and his sense of out-door life and beauty does not come at second-hand. His treatment of a simple theme is often perfect in its way:

DANDELIONS.

Now dandelions in the short, new grass,
Through all their rapid stages daily pass;
No bee yet visits them; each has its place,
Still near enough to see the other's face;
Unkenned the bud, so like the grass and ground
In our old country yards where thickest found.
Some morn it opes a little golden sun,
And sets in its own west when day is done.
In few days more 'tis old and silvery gray,
And though so close to earth it made its stay,
Lo! now it findeth wings and lightly flies,
A spirit form, till on the sight it dies.

The lines in italics are very charming and original. The image which ensues may be compared with Miss Ellen Hutchinson's exquisite and still more subtile rendering of the same fancy, in her poem of "Harvest":

In the meadow grass
The innocent white daisies blow,
The dandelion plume doth pass
Vaguely to and fro—
The unquiet spirit of a flower
That hath too brief an hour.

It is perhaps more strange that Mr. Lowell's poem to the Dandelion should have stopped short of the migration of the flower's soul than that his two successors should have thus conceived it.

FLOWERS IN THE GRASS.

By Mary Gardiner.

After dandelions, buttercups;
After buttercups, clover;
One blossom follows another one,
Over, and over, and over.

And the sweet satisfying green
Is round about them all;
First to be here in Spring-time,
Staying last in the Fall.

Just as God's love is first and last,
With human loves between,
Successive blossoms which He sends
Through His all-present green.

Only when cometh the clover,
Lifting her honeyed crest,
Always within our heart's choice,
We like the dandelions best.

So here and there in Autumn time,
Their lonely faces smile,
Like likenesses of vanished things,
Which we had lost awhile.

After dandelions, buttercups;
Then daisies and clover;
One blessing touches another one,
Over, and over, and over.

But O, behind, beyond, around,
Between them and above,
Rises the satisfying green,
The Everlasting Love.

Taraxacum Dens-Leonis the Dandelion, (Dent de Lion) of coastal resident use as anodyne, deobstruent, aperient, & diuretic; very useful in chronic diseases, Halleria. Taraxacine is bitter in an oblong fusiform or star-shaped capsule, by M. Pelletier

Rhind 556
Percival, Poe to Eng.
The yellow buds are breaking, The bee in vain are blowing;
And gentle winds are playing Along the grassy vale,
Around the airy mountain, And down the pretty dale
Not native, Ed.

Digitized by Harvard University Herbaria & Botanical Documentation

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Mr. Albee's poetry, in fact, seems less the product of a life occupied with song than the overflow of a finely poetic nature, usually at its best with the best occasion—successful, also, with the best form, inasmuch as a marked excellence of handling appears in his blank verse and the kindred rhymed measures. Few poems have lovelier thought and movement than "The Perfect Gift," which opens this volume. "Chauncy Creek," another and longer piece of blank verse, is a serene idyl, the musing of one keenly alive to Nature and to all human associations, as his wherry drifts with the tide far up an estuary upon the historic New-Hampshire coast. Here is a realistic picture of a worn-out fishing village, occupying ground once the domain of the Chauncys and Champernownes, and now passing away in turn:

Here now the squalid fisher lands his boat,
Calls wife and children from yon little cot,
Perched on the rocks and imaged in the stream,
His scanty fare upon the flakes to spread,
Too small to sell, too little for his hoard.
Where once men canvassed oft of Church and State,
And ladies, stiff in low, laced bodices,
Gossiped of men and merry wedding days,
Seated in porch or window's embrasure,
Pricking their samplers with some much loved name,
Which gallants, o'er their shoulders looking down,
Saw well-pleased; now rough speech is only heard,
Of fares of fish, and boats and winds and tides;
And housewives lean and sluttish, hair unkempt,
And dress undone for tugging baby lips,
Show limp and hungry breasts of leathery hue
Which starve each year the yearly boy or girl.

From this scene, "homeward turned beside the forest pines," the poet hears

—That voice of ocean feminine,
The softer seas which murmur in their tops;
And soon the old familiar beat far off.
And soon the dark blue, clear and always pure,
Bathing the world, each day itself twice bathed,
Led by the tiring maiden moon at eve
And morn to crystal chambers of the deep.

"Rose-Gerardia" is another attractive poem in blank verse, and a good illustration—as are "The Swallows," "Arbutus," and other lyrics in lighter measures—of the author's close acquaintance with mother Nature. This, it may be added, is a manifest quality in his work; he is one of Nature's lovers, and his sense of out-door life and beauty does not come at second-hand. His treatment of a simple theme is often perfect in its way:

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Around the sky mountain, And down the grassy dale
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Harvard University Herbaria for Botanical Documentation

JEFFERSONIA Harrison

13, 1886—DOUBLE

JEFFERSON AS A NATURALIST.

What His Influence Did for Science in America.

HIS CONTROVERSY WITH AND VICTORY OVER BUFFON—BRINGING FOSSIL BONES TO THE CAPITAL—WHAT MR. GOODE SAID IN HIS ADDRESS.

Mr. G. Brownе Goode, president of the Biological society, in his annual address in "The Beginnings of American Natural History" before that body last Saturday night, referring to Thomas Jefferson, said: "Had he not been a master in statecraft he would have been a master of science. It is probable that no two men have done so much for science in America as Jefferson and Agassiz—not so much by their direct contributions to knowledge as by the immense weight which they gave to scientific interests by their advocacy. Many pages of Jefferson's "Notes on Virginia" are devoted to the discussion of Buffon's statements (1) that the animals common to both continents are smaller in the new world, (2) that those which are peculiar to the new are on a smaller scale, (3) that those which have been demonstrated in both have degenerated in America, and (4) that on the whole America exhibits fewer species. His successfully overthrows the specious and superficial arguments of the eloquent French naturalist, who, it must be remembered was at this time considered the highest authority living in such matters.

HOW HE CONVINCED BUFFON.

"Not content with this," continued Mr. Goode, "when minister plenipotentiary to Europe, a few years later, he forced Buffon himself to admit his error. The circumstances shall be related in the words of Daniel Webster, who was very fond of relating this anecdote: 'It was a dispute in relation to the moose, and in one of the circles of the *beaux-esprits* in Paris, Mr. Jefferson contended for some characteristics in the formation of the animal which Buffon stoutly denied. Whereupon Mr. Jefferson wrote from Paris to General John Sullivan, then residing in Durham, New Hampshire, to procure and send him the whole frame of a moose. The general was no little astonished at a request he deemed so extraordinary, but well acquainted with Mr. Jefferson, he knew he must have sufficient reason for it; so he made a hunting party of his neighbors, and took the field. They captured a moose of unusual proportions, stuffed it to the bone and sent the skeleton to Mr. Jefferson, at a cost of fifty pound sterling. On its arrival Mr. Jefferson invited Buffon and some other savans to a supper at his house and exhibited his dear-bought specimen. Buffon immediately acknowledged his error. 'I should have consulted you, monsieur,' he said, 'before publishing my book on natural history, and then I should have been sure of my facts.'"

JEFFERSON'S SCIENTIFIC FORESIGHT.

"In still another matter in which he was at variance in with Buffon he was manifestly in the right. In a letter to Mr. Madison, of William and Mary college he wrote: "Speaking one day with M. de Buffon on the present ardor of chemical inquiry, he affected to consider chemistry but as cookery and to place the toils of the laboratory on a footing with those of the kitchen. I think it on the contrary, among the most useful of sciences, and big with future discoveries for the utility and safety of the human race."

It was the scientific foresight of Jefferson, so manifest in such letters, which led him to advocate so vigorously the idea that science must be the corner-stone of our republic.

In 1789 he wrote from Paris to Dr. Willard, president of Harvard college:

"What a field have we at our doors to signalize ourselves in! The botany of America is far from being exhausted, its mineralogy is untouched and its zoology totally mistaken and misrepresented. * * * It is for such institutions as that over which you preside so worthily, sir, to do justice to our country, its productions and its genius. It is the work to which the young men you are forming should lay their hands. We have spent the prime of our lives in procuring them the precious blessing of liberty. Let them spend theirs in showing that it is the great parent of science and of virtue, and that a nation will be great in both always in proportion as it is free."

To Jefferson's influence was due the organization of the first government exploring expedition. As early as 1780 we find him anxious to promote an expedition to the upper portion of the Mississippi valley, and offering to raise 1,000 guineas for the purpose from private sources, and while he was President, he dispatched Lewis and Clark upon their famous expedition into the dark west—the precursor of all the similar enterprises carried on by the general government, which have culminated in our magnificent geological survey.

Jefferson's personal influence in favor of science was of uncalculable value. Transferred from the presidency of the principal American scientific society to the Presidency of the nation, he carried with him to the Executive Mansion the tastes and habits of a scientific investigator.

Mr. Luther, in his recent essay upon Jefferson as a Naturalist, has shown that during his residence in Paris, he kept the four principal colleges, Harvard, Yale, William and Mary, and the college of Philadelphia, informed of all that happened in the scientific circles in Europe. He wrote to one correspondent: "Nature intended me for the tranquil pursuits of science by rendering them my supreme delight." To another he said: "Our first gives me information in the line of natural history, and the second promises political needs. The first is my passion, the last my duty, and therefore, both desirable."

CARRYING BONES TO PHILADELPHIA.

"When Jefferson went to Philadelphia to be inaugurated Vice President he carried with him a collection of fossil bones which he had obtained in Green Brier county, Virginia, together with a paper in which were formulated the results of his studies upon them. This was published in the Transactions of the American Philosophical society, and the species is still known as *megalonyx Jeffersoni*.

"'The spectacle,' remarks Luther, 'of an American statesman, coming to take part as a central figure in the greatest political ceremony of our country, and bringing with him an original contribution to science, is certainly one we shall not soon see repeated.'

"When Jefferson became President, his scientific tastes were the subject of much ridicule as well as of bitter opposition among the people in whose eyes, even in that day, science was considered synonymous with atheism. William Cullen Bryant wrote a satirical poem, since suppressed, in which the popular feeling seems to have been voiced.

"'Go, wretch, resign the presidential chair,
Disclose thy secret measures, foul or fair,
Go search with curious eyes for horned frogs,
'Mid the wild wastes of Louisianian bogs.
Or where the Ohio rolls his turbid stream
Dig for huge bones, thy glory and thy theme.'"

H. L. E. WILD MANDRAKE; Lady Root called

morrow (Sunday) night, Rev. E. D. BAILEY; Monday night, Rev. J. W. CHICKERING, of the Deaf and Dumb asylum (Cong.); Tuesday night, Rev. N. G. WHEELER, of the North Baptist church; Wednesday night, Rev. JOB ALLEN, of the Hamline M. E. church; Thursday night, Rev. S. K. COX, of the Mt. Vernon M. E. church south; Friday night, Rev. EUGENE FECK, of the Eastern Presbyterian church; Saturday night, Rev. D. W. FAUNCE, of the F-street Baptist church. Short gospel talks, brief testimonies, Moody and Sankey songs. This series of services, now closing up the third week, has been blessed of God in the conversion of a number of persons, many of whom have led lives of dissipation, vice and crime. You are cordially invited. Daily noonday prayer service at 12 o'clock. Ladies' meeting at 3 p.m. Sundays. 11*

ALL SOULS (UNITARIAN) CHURCH, corner 11th and L sts., Rev. JOSHUA YOUNG of Groton, Mass., will preach to-morrow morning and evening.—Sunday school at 9:30 a. m. Morning service at 11. Vespers at 7:30. 11

HAMLINE METHODIST EPISCOPAL CHURCH, 9th and F sts., Rev. J. A. PRICE, pastor.—Preaching 11 a. m. and 7:30 p.m., by the pastor; Sunday School, 9:15 a. m. and 3:30 p.m.; Tuesday, 7:30 p. m., consecration meeting; Thursday, 7:30 p. m., prayer meeting. 11*

WAUGH M. E. CHURCH, 3D AND A sts. n.e. (Capitol Hill,)—The pastor, Rev. N. BAER, D. D., at 11 a.m. and 7:30 p.m. Music led by Dr. Woodman. Regular Sunday school at 9 a. m. Seats free at all services. Members will please return their financial cards and "coupons" as early as possible. 11*

FLETCHER METHODIST EPISCOPAL Church, cor. N. Y. ave and 4th st.—Preaching 11 a. m., by the pastor, Rev. W. H. LAWRY; 7:30 p. m., song, praise and revival services conducted by Mrs. Clara L. Roach. Good singing from the Epworth Hymnal led by Wm. F. Reed. Sunday school 9:30 a. m. and 3 p. m. Teachers urgently needed. Prayer-meeting Thursday. 11*

SPIRITUALISM.—J. FRANK BAXTER, one of the most prominent lecturers, inspirational singers and test mediums, will occupy the platform at G. A. R. Hall, corner L and 7th sts. n. w., on every Sunday this month at 11 a. m. and 7:30 p. m. sharp. Morning: spiritualism and morality. Evening: spiritualism, its facts, philosophy and fancies. 10c. Door collection. 11*

FOURTH PRESBYTERIAN CHURCH, 9th st., bet. G and H sts. n.w., Rev. JOSEPH T. KELLY, pastor.—Sabbath School at 9:30 a. m. Preaching at 11 a. m. Praise and Gospel service at 7:30 p.m. Strangers are cordially welcome. 11*

RYLAND M. E. CHURCH, SOUTH Washington, D. C.

SPECIAL NOTICES.

WASHI

L. MAY APPLE, WILD MANDRAKE; Lay says called WILD LEMON fr its acid fruit; fr its cathartic; Ivy poisonous; whole plt narcotic.

MANDRAKE of old world, Mandragora, Schlep 6 Ellarc 117

Digitized by Hunt Institute for Botanical Documentation

ASTER of Dioscorides was prob. Inula Dubonium.

Of Pliny prob. the Aster Amellus, grows in It, Sic, & ? abt Athens.

L, 1037, desc. but 19 ap; WMd 1886, 103; DC, 1836, 150; Sims, M, 200 in Ann. Auth; &c.

A. patens Cult by Meehan; Roots 12-18 hes are short, nalp a slender panicle; st ere, no slender branches 2-6' lg, rob. push out horizontally & at rt angles to ma stem; potent or sprawly; finally few-fled cpd to a Ax; robes in much-branch cymes, a do or one fls may oft be fd expdd at once, fig a crowd bunch of Ars by beaut indd... "Tof the ylw nilt a very effective feature in our beaut. autc. scenery."

Habitat, Deep, shady rds & sandy prairies in Arch, Gray, dry gd; Wilk, dry soil NJ; Wood, moist gd; Darlington, moist woodds. Unsure, when cult. in open sunny borders.

A. longifolius Cult by Sprague, desc by Hervey, is A. Novi-Belgii?

Digitized by Hunt Institute for Botanical Documentation

Earl Marble

O ever-blooms! ye cluster so In quaint lance-corners & in nitts;
Of bodies, that a dream of snow To seem; soft, dainty circlets
Of shining snow, from dirt are cleed; Of snow that sun shall pattern there,
When winds shall prove more stern & rude, And skies in azure tints less fair.

Dove Dead Goodale

Walled in with trees on either hand I walk the lovely wood-maid thro';
The maples have above my head, And spaces where the wind has shed
About my feet the living red Are filled with heaven blue.

And crowding close along the way The purple Asters blossom free;
In full profusion, far & wide, They fill the path on every side,
In loose confusion multiplied To endless harmony!

And still beside the shadowy glen She holds the colors of the skies;
Along the purling wayside steep She hangs her fringes passing deep,
And meadows drenched in happy sleep Are lit by starry eyes!

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GOLDEN-ROD & ASTER.

Bryant, Death of the Flowers

The Wind flower & the Violet, they perished long ago,
And the Briar Rose & the Orchis died amid the summer glow;
But on the hill the Goldenrod, & the Aster in the wood,
And the yellow Sunflower by the brook in autumn beauty stood,
till Frost, the Spoiler, came.

MacFarlane, "Asters & Goldenrod," in "Poems"

I know the lands are lit
With all the autumnal blaze of Goldenrod;
And everywhere the Purple Asters nod
And bend & wave & flit.

But when the names I hear
I never picture how their pageant lies
Spread out in tender stateliness of grace
The fairest of the year.

I only see one nook
A wooded nook half sun half shade—
Where one I love his footsteps sudden stayed,
And whispered, "Darling, look!"

Two pale leaves, vivid green
Hung low between the trees, & parted wide
While purple Aster stars, close side by side
Like faces peered between.

I like maiden faces set
In vine-wreathed window, waiting shy & glad
For joys whose dim, mysterious promise bad
But promise been, as yet

And purple Asters for fashions
Of High Priests, robes & leading stars
Like sunlit tresses (very long) braid,
Great branching stalks of Golden-Rod.

Holden, Mss.

The goldenrod is yellow, &c.
In every meadow nook;
And asters by the roadside
Make stars in the brook.

Hill on Sage

Whittier, Hall (with) in autumn
Along the river's summer wall
The withered stalk of Asters nod,
And trembles on its aged stalk
The hoar plume of the goldenrod.

And like proud lovers bent
In regal courtesy, as kings might woo,
Tall Golden Rods, bareheaded in the dew,
Above the Asters leant.

Ah me! Lands will be lit
With every autumn's blaze of Goldenrod,
And purple Asters everywhere will nod
And bend and wave and flit;

Until like sightless seed,
This little earth itself, some morn, shall float
Off into space, a tiny shining mote,
Which none but God will heed.

But never more will be
Sweet Asters peering thro' that branch of oak
To bear such precious words as dear lips spoke
That sunny day to me.

Like a music of triumph & joy
Sounds the roll of the wheels; "
I lean out of the window & nod
To the left & the right,
To my friends in the fields & roadside woods,
Not forgetting I trust;
The sweet Asters and towering golden-rod,
And that wild-wood clematis.

Recess of the Hills, Mss. J.T.

All is lost for Summer! Quickly are the showers
By brooks & pool have white & purple stars,
And lifts in all the fields have Golden-Rod

"Sage", Ms.

GOLDEN-ROD

Says Mechan "No picture or dose of Ann actual like wd be complete wot the G as an exact! print thereof. ... The rich yel. flow of the G mind to the daily hr do much tend the reign for unsurpassd beauty wh Ann 'aut so enjoys.".

In Old W, only 1 sp, S. Digitaurea, which has a vinegrette chang, & has been there as Golden Rod; it is also nativ in our N. Our Ast portn has near 50 sp, only 7 in Cal. Gunno' Flora Virginica 1762 n's 3 sp; Muhlenbg in his catalg 1813 ns 43; for all NAm Nuttall ns 19, 1818; Wood's Class Bk descrs 48 B of Miss.

N Solidago pun by L & by him credited to Vaillant a got bot. of the gen, bel. ed to be to L solidus, which sotily & needl repn. Salmon, herbalist of 1710, "Is 1 of the most noble Wound-Herbs; cures Wounds & Ulcers." Also quite famous as a dye. Says Culpepper, "Venus rules this herb. It is a balsamic vulnerary herb, & famous for inward bruises & bruises. Its prepn is better than a tea of this herb for this service; & the oil, for ev day, for the most Virtue." Linn puts it in Materia Medica as a vulnerary & diuretic.

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S. ulmifolia Nutt. figd by Meehan.; loves to grow in half shaded woods. Ala Wood: m's strikg chara is its large open branchg stalks. Nutt. seems the diff. specimens and this so, x Willdenow, publ. it. Dr. ale in ELM-LVD G.

GOLDEN ROD.

BY MARY CLEMMER AMES.

I've reached the land of Golden Rod,
Afar I see it wave and nod.
But yesterday in fiery street
I heard the tramp of tired feet;
Now on the heart of August noon
Wood waters lapse in rippling tune,
The curtains of the mossy burn
Wear fringes deep of fragrant fern,
The arches of its shining sluice
Are slender spirals of the spruice,
While far above I see them stir
The lances of the stately fir,
And on the down I see it nod
And beckon me, the Golden Rod.

But yesterday it seemed to me
That I could never turn and flee,
Or ever find that quiet spot
Where greed and gain and noise are not.
Now far away the vexing strife,
The turmoil sad men misname life.
Now here I wait till sunset dyes
Steal through the azure of the skies,
And soaring hill and circling plain
Flush radiant with their rosy stain.

I wait till twilight, brooding deep,
Takes earth within her arms asleep,
And only low half-tones are heard:
The flutter of the dreaming bird,
The brooklet's rune below the pine;
Low-leaping trout that spring and shine;
The squirrel's rustle by the road,
The farm-horse bearing home his load;
The patter of the dropping burr,
Grasshoppers in their holes astir;
The cricket and the catydid
Calling, in leafy houses hid;
The bleat of lambs upon the hill,
The cow-boy calling, keen and shrill,
The cow-bells' answering, tinkling trill—
The murmurs of a world at peace
That stir and thrill and softly cease.

O, peaceful realm of Golden Rod!
O, kingdom of the clovery sod!
Thy tiny people of the ground
Do reign devoid of jarring sound.
Thy murmuring nations of the air
Fulfill their fate, all free of care;
They carry into God's good plan
None of the loud ado of man.

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Rhind 588

SUNFLOWERS FOR FUEL.

A correspondent of the Dakota Farmer, after having tried "turf," coal, wood, and sunflowers, has settled upon the last named as the cheapest and best fuel for treeless Dakota. He says: "I grow one acre of them every year, and have plenty of fuel for one stove the whole year round, and use some in the other stove besides. I plant them in hills the same as corn (only three seeds to the hill), and cultivate the same as corn. I cut them when the leader or top flower is ripe, and let them lay on the ground two or three days. In that time I cut off all the seed-heads, which are put into an open shed with a floor in it, the same as a corn-crib. The stalks are then hauled home and packed in a common shed with a good roof on it. If cut at the right time, the stalks when dry are as hard as oak, and make a good hot fire, while the seed-heads with the seeds in, make a better fire than the best hard coal. The seed being very rich in oil, will burn better and longer, bushel for bushel, than hard coal. The sunflower is very hard on land. The ground selected to plant on, should be highly enriched with manures. In the great steppes (prairie) region in the interior of Russia and Tartary, where the winters are more severe than here in Dakota, the sunflowers are, and have been for centuries past, the only kind of fuel used."

The Use of Sunflowers.

From the Germantown Telegraph.

This plant is a vigorous grower and has been extolled as a preventive of malaria diseases. The seed affords excellent food for hens and also for horses. It is said that there is no kind of feed that will keep horses in health, give them sleek appearance and make them lively and spirted like the seed of a sunflower, feeding half a pint night and morning. It is particularly recommended for giving a horse power of endurance, being half a pint night and morning with other feed. The stalks and heads, after the seed is worked out, also make good material for fires, and are especially convenient in summer, when a quick fire is desired and an enduring heat is not wanted. In their growth they make a showy appearance about dwellings and give an agreeable fragrance to the air. The latest direction in the line of utilization of the sunflower is the planting of a seed in a place at the proper distances, so that the stalks as they grow will serve as bean-poles. We have seen them started in that way this season, and as they grow the leaves are removed, thus forming an excellent stalk for the beans; but what the effect will be upon them remains to be seen. The roots must tax the feeding capacity of the soil quite heavily.

Heliantheus selenia [illegible] to be vested the disc of the sun, [illegible] [illegible] Q. is Ann. Single d. [illegible] was Clytie, a [illegible] to Rhodes, [illegible] "The 2 turnes-e have [illegible] The same look [illegible] Gerarde's Herbal, [illegible] "the flye of this plt [illegible] the sun, [illegible]

FINE JAPANESE CHRYSANTHEMUMS.

The Mikado at a Chrysanthemum Party in the Park of the Palace.

From the Globe-Democrat.

TOKIO, Nov. 9.—The chrysanthemums in the palace grounds having reached their perfect unfolding, the Emperor and Empress held yesterday their autumn garden party. The invitations were issued five days in advance, and the square envelopes with the chrysanthemum crest of the empire held a card bordered with golden chrysanthemums which commanded one's attendance on Monday afternoon at 3 o'clock. There was a consolatory foot-note about the party taking place on the following day should it rain on the 8th, and an admonitory one indicating that civilians should wear frock coats and high hats.

In form one chrysanthemum party differs, but little from another, the place always being the large park of the temporary palace, and the flowers being always such miracles of the gardener's art that no comparisons can be made. The guests passed through a wing of the palace and stepped immediately into the gardens, and whiled through them to the marquees on a hill top, where the ceremonies took place. The palace which the Emperor now occupies was the yashiki of a great daimio in the old days, and when the Shognus Palace was burned a few years ago the imperial household moved to this yashiki until a new palace could be built. Necessary additions have been made to it, but nothing extensive, as the new palace was slowly rising and is now receiving its finishing touches, including the setting of Edison electric lights throughout.

We walked at least a half mile through the gardens to reach the imperial tents, with palace guards in their new uniforms standing like statues, holding the hilts of their silver-mounted swords, and putting their fingers up in rigid salute at the side of their silver-mounted helmets. The grand old trees, the high camellia hedges, and the dwarfed and trained pines of the old yashiki remain, with fancy pavilions and toy tea houses beside tiny lakes, where nisteria trellises reach over the water.

Half way from the palace were two long tents filled with superb chrysanthemums, bamboo screens forming a roof and sides to shelter the precious flowers, and curtains of red brocade looped up over the open fronts. The imperial flowers seemed to have a consciousness of their perfections, and were ranged in five rows as regularly and evenly as if they had been picked soldiers of the guard. The plants stood four feet high and more, with a dozen or twenty fully opened blossoms spreading out like a huge bouquet of long-stemmed flowers. Each stem was fastened to a supporting stick that held a spidery wheel of bamboo splint that supported the heavy petals of the great blossoms. Without such aid the flowers must have broken the stems with their great weight. Figurative speech has it that there is one gardener to each plant in the Emperor's garden, and that each chrysanthemum is counted, named, known, and coddled like so many children. Curtains shield them from rough winds, pelting rains are shut off, and only gentle breezes, warm suns, and soft showers touch the pet plants when the flowering time comes.

By some of that necromancy by which they do what they wish with growing things, the gardeners keep them all at an even height, an even spread of stems and flowers, and all the blossoms at the same stage of unfolding. The white and the pure golden yellow with which the primeval chrysanthemum began have passed on and been merged into soft ecrus, shading into brown and red, into lilac and pale pink and bluish pink, into dull red, with the under side of the petals dull orange; into pale yellow, with crimson on the under side of the petals and a heart of the deepest gold, and into

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all the shades that red can claim. There were chrysanthemums with petals rolled up in a wool like a bird's nest, with petals spread wide and straight, and with petals curling at the tips like grape tendrils; and then there was a tent full of chrysanthemums whose white, yellow, and pale purple blossoms were like so many thin-petaled but giant thistles, or like bunches of willow plumes.

These chrysanthemum tents were only a foretaste of what followed after one had walked on through a grove, where dwarf maples were waving branches of the deepest crimson, across a riding court, along the shore of an old lotus pond and up a low hill to the chrysanthemum garden proper. In that garden there was one tent over sixty feet long, where the tall chrysanthemum bushes bore bouquets of huge flowers of every possible shade. Adjoining it was a smaller tent where three full spreading bushes of chrysanthemums were enthroned by themselves. These were the pieces de resistance, the ultimate triumphs of the imperial gardens, the one stalk that came from the ground as the root of each bush spreading out until one bore 173 flowers, another 252, and the third 338 full and evenly blown blossoms of a pale dull red, half shading into yellow. No one knows how it is done, the living bouquets stand there, the 252 blossoms of one plant being pure white, and as thickly set as if it were one great snowy mound. On another side of the chrysanthemum garden was a long tent where the gardener had tried a different plan. Each plant had but the one stalk and a single flower, but that flower was a miracle and perfection, large, full, and spreading 6, 8, and 10 inches or more in diameter, and exhibiting such wonderful colors, shades, and combinations that the end seemed reached. But on a third side of this high garden was a tent filled with bushes 5 and 6 feet high, upon which had been grafted chrysanthemums of different colors. One huge bouquet had white, yellow, and deep red flowers springing from the one root. Another had white, deep red, and three of the variegated flowers all together.

Fascinating as these floral wonders were, one could not look at them half enough when all the celebrities of Japan were strolling about the garden. The chamberlains ran to and fro, the members of the diplomatic corps ranged themselves in line facing the first flower tent, Japanese officials drew up in another long line, the band in a grove beyond struck the chords of the Japanese national hymn, and the Ministers of the Household appeared in the gateway preceding the Emperor, the Empress, and the suite of the latter. The Emperor wore his usual uniform, and greeting first the Chinese Minister, who is the dean of the diplomatic corps at Tokio, shook hands with and received salutations from the other foreign Ministers.

The Empress, who walked alone a few steps behind the Emperor, wore a gown of pearl-gray silk, the front in plaits with duchesse lace laid between each plait, and a full back drapery of gold brocade. Bright and warm as the sun was, the autumn air had an edge to it, and the Empress wore a mantle of brown striped plush. Her bonnet was black velvet, with a cluster of shrimp pink ostrich tips, and her gloves matched the delicate gray tones of her dress. The Empress stands the change from Japanese to Parisian dress better than any of the Princesses who accompanied her, and is as delicate, as high-bred, and refined in appearance as when the special hair dressing and the imperial brocades marked her out as the foremost woman in Japan. Her hair is cut in a straight bang across her forehead, and in bonnet and bonnet strings her face is that of a delicate little woman with a pale olive complexion, thin aquiline nose, well-cut mouth, and calm, quiet eyes. The Empress is too little a woman to be called stately, but she has a great seriousness and dignity that impress one in that way. An English army officer, who has been in the Japanese service for some years, and is now returning to England, was presented to the Emperor and to the Empress by Gen. Saigo. She accepted his reverences with a graceful little bow, and the imperial party then passed on to admire the flowers and receive the salutations of a line of higher officers of the army, whose uniforms, modelled after those of the French army, have even improved upon them and are among the handsomest of military uniforms.

The American Minister was not present, a lameness preventing him from attempting the long walk through the palace grounds, and the American Consul-General was absent, but there was a representation of the great country in the Secretaries of the Legation, the Vice Consul-General and a group of naval officers with their families. The Chinese Minister's wife, in her native dress, was the dazzling figure of the day, and her blue satin gown with its borders of embroidered butterflies, and her two rich slippers of embroidered satin were distanced by a tight cap of gold filigree set with pearls that fitted closely over one-half of her head. The Korean Secretary of Legation added another bright touch to the diplomatic group with his flowing blue gown with its bright red sleeves, and his black horse-hair hat was tied under his chin with a glittering string of amber beads.

"The Queen of Autumn."

SOMETHING ABOUT THE POPULAR FAVORITE, THE CHRYSANTHEMUM.

From the Providence Journal.

The increased attention which is being given to the cultivation of this exquisite flower cannot have escaped the notice of the least observant of our readers. No florist's collection is complete without it, and in most of our gardens its blooms light up the gloom which is caused by the absence of the favorites of the summer and early autumn. When the seed at the root is ripened and the flower and leaves withered on its stalk, the "queen of autumn" displays her bright colors in banks of blazing blossoms and in defiance of the early frosts. From all parts of the world we get the news of progress in the growing of this plant; France, Belgium and other European countries are rivals in the race for perfection in its culture; and to those whose memories of the chrysanthemum go back a generation it must seem little less than miraculous to behold the wonderful improvement which has been made in the form, size and color of its blooms and their prolificness. Despite all that has been done for the rose and the lily, they have not shown their gratitude as the chrysanthemum has, which excels the rose in the variety and delicacy of its shades, and surpasses the lily in the purity of its whiteness. In fact, all colors but blue may be found in a collection of these flowers, so that one does not know which to admire the most, the cream white, ivory white, snow white or the yellow, buff, sulphur, crimson, cherry, carmine, pink, peach, purple, scarlet, bronze and a score of others; the sight is simply bewildering. The cultivation of this flower in England began, we are told, in 1754, the plant having been brought over from China; but the loss of the plant through some accident soon followed its introduction, and it was not until near the beginning of this century that any more attempts were made to introduce it, we do not know when the plant began to be known in our own country. In 1808 there were some nine or ten varieties of the flower, produced by cultivation, until now the number is almost countless. In the descriptive catalogues of the growers, where the different shapes of the blooms are classified, we read of the incurved flowers, whose flat floras curve in towards the center of the bloom; the recurved or reflexed, which bend backward from the center; the quilled, the edges of whose flowers are involute and coherent, looking like small tubes; and the anemone flowered, which have a center like a small cushion, or button, surrounded by a ray of flat florets. It seems almost wonderful when we remember that most of the superb chrysanthemums which our florists cultivate should have come from a simple daisy-like flower, first brought from Chusan, an island on the east coast of China. It is an illustration of what an enthusiastic love for flowers, combined with patience in their cultivation and close observation of their habits of growth, is able to do in the production of new forms of floral beauty. It were worth the study of years to have produced a flower like the "Mrs. G. Rundle," that splendid white bloom so well known to most of our readers, or the "Mrs. Halliburton," with its florets slightly quilled, beautifully incurved, and its deep bloom of a primrose-white color, or the "James Salter" with its rose-lilac, curled florets, the admiration of all frequenters of the famous London chrysanthemum shows.

The Japanese variety of this flower is of a much later introduction than the Chinese, and, to our mind, not half so lovely, though the present fashion has decreed that it should prove more attractive to the general public. The first specimens which were sent to England struck everybody by their oddity; some were spotted and striped; others were fantastically formed and called dragons, while one was an exquisitely fringed white bloom, looking more like a Japanese pink than a chrysanthemum. The petals of one were like long, thick hairs of a red color, tipped with yellow, like the fringe of a shawl, while others were remarkable for their immense size and brilliant coloring. The distinctive attraction of the Japanese sorts is claimed by the growers to be their endless diversity of form and color. One writer speaks of seeing the anemone-flowered Japanese as large as saucers, and of all colors from white to crimson-scarlet and purple through all the shades of sulphur, primrose, yellow, buff and red. One recommendation of this variety is, in addition to their large size, peculiarity of form or strangeness of color, that they bloom later and remain longer in bloom than the Chinese kinds, so that it is possible to have their flowers up to almost midwinter. For decorative purposes they are invaluable, and this is, perhaps, one of the reasons why they are being cultivated more and more by our florists. Chrysanthemum exhibitions are as popular abroad and in Boston, New York and Philadelphia as are the spring and summer rose shows, while our American growers of the plant are not excelled by their foreign brethren in quality of blooms, however it may be as to the quantity.

It is not necessary, however, that one should be a professional florist in order to be a successful grower of the chrysanthemum. Any one who has a small conservatory, or even a large, well-lighted window or two, may find room for a few plants which have been allowed to grow out-of-doors during the summer and moved inside after the buds are tipped with color and before the sharp frost can touch them. After that, with ordinary care, they will do well and prove a source of great delight when other flowers are faded and gone. The growing of this flower, in its improved forms, has really but just begun in this country, yet a great degree of success has been reached.

Chrysanthemums. Seeds of the Japanese are excited as a novel and unprecedented [illegible] and appear to [illegible] on a [illegible] 1754.

Chrysanthemum, COMMON MARIGOLD. [illegible]

A TALK ABOUT CHRYSANTHEMUMS

The Discussions of the Horticultural Society—Rare Plants from China.

A regular meeting of the District of Columbia Horticultural society was held at German hall, 11th, near F street, Wednesday evening; Mr. John Saul president, and Mr. W. J. Cogan secretary. There were on the tables, from Dr. W. Lee White, plates of Lawrence, Baronne De Mello and Josephine De Molines pears, wine apples, walnuts (American) and persimmons.

Dr. Basil Norris, U. S. A., (second vice president of the society) now in California, through Mr. J. T. C. Clark, presented the society with some forty specimens of Chinese vegetables and garden seeds. These vegetables were regarded with much curiosity, most of them being unlike anything ever seen here before; but there being no Chinaman present little could be learned of their quality or uses.

Votes of thanks were passed to Dr. Norris for this exhibit, and to Dr. White for his fruits.

Col. S. T. Suit, of Suitland, Md.; Dr. D. J. Hussey, of Fairfax county, Va., and Mr. James Beall, of Uniontown, D. C., were, on the recommendation of Dr. White, elected members.

Mr. Clark offered a resolution, which was adopted, expressing sympathy with Mrs. Mary A. Quinor, one of the oldest members, who is ill.

Mr. Saul, referring to the Clinton grape exhibited at the preceding meeting by Dr. White, said that it had a tuberous root, and came from Cochin, China. It dies down to the root and puts out again in the spring, but this climate was rather too cold for it. He had, however, had some success with it by taking up the roots and keeping them in the hot house during the freezing weather and setting them out in the spring.

Mr. J. T. C. Clark remarked on the chrysanthemum bloom this season as being better and fuller than he had ever before seen. It, too, was in great demand, so much so that he had seen recently a two horse wagon load delivered at one of our hotels.

Mr. Saul said that the bloom this year was excellent, and there had been much improvement. The Chinese and Japanese varieties were beautiful. The chrysanthemum was easily protected and easily spoiled. Any loose straw or leaves thrown over the plant would protect it. Strewing it with rotted manure is apt to rot the suckers.

Mr. Clark remarked that the chrysanthemum was probably the most neglected of all the plants, and generally it was left to take care of itself. It was really a handsome flower, and he hoped that more attention would be paid to it.

Mr. Fowler said that while he liked the color, form and scent of the flower, he certainly did not like the straggling growth of the plant. His favorites were the bulbous and tuberous plants, and with most of these he had been successful. He desired to ask if there was any possible way to grow to perfection the tuberous begonia. He had read of some with flowers six inches in diameter, but he would be satisfied if he could get flowers one-third that size.

Mr. Saul answered that they could be grown to produce flowers of six inches; that it was a native of the Andes, the climate being humid. They needed shade and all the rain possible, and could not be kept in the house under glass. He would recommend the use of slats to break the rays of the sun.

Mr. Clark said that he had noticed that when he dried off his cyclamers he lost many and was troubled with the black ants, but having forgotten to dry them off last year he now found them doing well. He had lost but few and had no trouble with the ants.

Mr. Fowler remarked that the bulbs planted near the surface of the soil did well.

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JERUSALEM ARTICHOKE *Helianthus tuberosus*, nat. of Brazil, cult. Eur. 1617
Rhind 283 DC 42

ARTICHOKE *Cynara scolymus*; flr. eaten in Calif.
Rhind p 305-6 The Jerusalem A, see under Sunflr
Skeat p 35 who traces it only to It. *articiocco* an artichoke.
DC p 93-94; concludes it is nowhere wild; & is by culn to Cardoon,

CARDOON *Cynara cardunculus*; leafstalks eaten
Rhind p 306

SCORZONERA *Scorzonera hispanica*; root eaten; & not to be
Rhind p 306-7 DC 44

HELMINTHIA Bohicides, leaves boiled pickled in Gr

CHICORY *Cichorium Intybus*, L. Succory is a propn. of its
DC p 96 blanched leaves; C, its roots, roasted & ground, largely used as Coffee adm. tinctures & sold in Wrapper
Leaves dye blue when prepared in same way as Woad.

ENDIVE *Cichorium Endivia* L; blanched lvs eaten
DC p 97

RAMTIL, India, the extensively cultd, for its seeds, crs, a blond oil; *Guizotia Oleifera*

LETTUCE *Lactuca sativa*
DC p 95 considers it for the wild sp *L. Scariola*
Rhind p 302-3 Ellac 106 Sahly Oudin, 13
[illegible] Garden L; L. sativa, the working *Lactucarium* which is bitter and narcotic to L. atlassicum, L. virosum Rhind, 539

MADIA PLANT, *M. sativa*, fr Chili, lately intrd, cultd, in Eur. ago, 1895, its oil, expressed w/out heat, is tgt. yellow, sweet, fit for salads, its cake fd to cattle; prods in dry climes as much oil per acre as Rape; 2 t. that of Flax; ½ more than Linseed. DC 418

SAFFLOWER *Carthamus tinctorius* CARTHAMINE
Rhind p 511-3 An oil in wood fr its seeds in Abyssinia; pl. cd SCHUF Ly.
DC p 164

ECLIPTA *purpurea* erecta stns lth the hair of Beagle women Ly
Dabbs does not yield S. beaut. carmine.

SALSIFY *Tragopogon porrifolius*
DC p 44

WORMWOOD (incldg Southernwd, Tarragon, Mexa,
Ly p 765
Ellac. p 259 Sahly
Rhind 526-7

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YARROW
Liy p 706 Rhind 556
Sheatip— Yarow, that wh makes yarre, so A.S. name; a healer

FLEA-BANE, the true, Conyza squarrosa, of Bot; "the juice of the whole pt. converts the inch by cat action, & the sy smell of the leaves is so to drive flies" Fl. Herbalist.

TANSY Tanacetum vulgaris Rhind 494

COSTMARY, ALECOST, Costus of Mary, Balsamita vulgaris, Rhind 493

CHAMOMILE,
Liy p 706 Ellac 35 Stuart p 114, 2₂ Rhind 526

ARNICA,
Liy p 707

ELECAMPANE, Inula helenium
Liy p 707, Rhind 533

EUPATORIUM, BONE-SET, THOROUGH-WORT,
Liy, p 707

DAHLIA, tubers eaten, but the strong turpentine taste renders them unfit for food "Liy;" A beaux connisse dope to its roots, Liy, Rhind 529

RUDBECKIA L, bot named Obeliscotheca by Sebastian Vaillant, for the cell-like floets being on a cone; hence bot's Eng is, CONE-FLR; but L, referring bot nomencl, ruled that generic ns of 2 distct nomns were not to be interested, & kept this in 1737 by dedicating it to Claus R the f & Claus R the son, professors of Le in chair of Bot at Upsala, of high regd. & by L, I of them an it a bot. ville Campos Elysius. Distinctly Am, none in old World. Chaff or floral scales sy pean, concealy disk floret-buds. Sem of fem vol complete the growth bef any flos expd, then blooms fr top dn; ofs blm fr below up as fr shortest pedns; so in single heads, some more actiu in ray pace on circumf, in R-eves in centre, leaving rays barren, rarely so vestige of a pistil.

Disk flos appr forced open by growth of pistil wh pushes up inner qu of bract yel pollen; apex of pollen thus dirns of corolla the lat sign of expl; sy ovic to t ins & is collected at once. So complly its pkgs can be reached only by perforg the flo. Why so much pollen? M. suggests for the pltn compared in an way not understd; "or may be the result of a for-reachg energy making the plt work for the good of an unremembered creation; or even for the future of its own race beyd its own immediate intst".

R. fulgida Aiton, bot by Mechan; distg fr hirta by smooth, not hairy-tipped chaff; f in mdns of Fla; not N of there; in Central O, & 300 to Ark, its W limit; and SE to Fla; keeps distg to the more ceded divisions, Wood,

GYMNOLOMIA PORTERI, bot by M. as STAR-MAN STAR, the Rudbeckia? Rocket of Chapman; & certd in New Grenada; a "wonderful wonder" "for the big as pizza"; Eaton, 20, 1896 by Prof. Thos Chas Porter, Gill. Scales & Geo. covered. Not the closeness, the difficulty overcome. Remnant of all old Fam!

LIATRIS Schreber 1791, Eng it of the smooth corrected -ris of Rubria or Sonnerata as bot ica; & rip his n so dear, smooth, empty receptacle; Aiton, fr cone form Cassini fr early cusp of bot lic 88?; fr li, caressing, appeal, [illegible]

Inflorescence [illegible] BEAR-BEATING STAR of the Lilacs Bot; so bot by Mechan; in dry soil, Ma Dlas to NE Minn; low & dense from at base of Buckles; 18 high, 6 heads; in E 3-4 high, some heads cutled!) "Button Snake-root, Backache-root, Devil's Bite, Rattlesnake's Master, Prairie Plant, Rough Root;" are its gen for Bs by Rat. Pline in Can, fr hardly ever big stg-slice of wasp when bra "Ky & Carolina call it S-a-l-s-a-p-a-r-i-l-l-a Rooms, & when bitn, they bruise the bulbs of the plt & apply to the sd, & so rub & drink a decoctn of them in milk & take inwardly." Pecans 1871 Am Herbal "The dish of the R-ma, dried & powdered, has to fam in contumptn, but I see lit to do any good."

SILPHIUM; "Disc called Σ ρίζα σίλφιον, gum resny, of wh Barbia "the asafoetida & ass-dubie." Pline called laser; hence L laserpitium for some plt. Meds call the l, Ferula asafoetida of E; the by Thapsia garganica, also of Umbel. Anc Rules pr them also miraculous virtues; pr it to blind; made the old ff spn; grew in Libyan co, & the dis. there wr wholly extnd; pr of tyrone had the plt rpd on the reverse of their coins; dang sold by weight in pally the ns may "sweet, bitter pound." In pr. S tag, fr also the "Asafoet."

Silphiastrum, L, PLAK or COMPASS PLANT, bot by Mechan; yr has tum edges N & S; less appr on E gen heavy on them by wind; ins prob lat to Gent Alma 1848; rec'd to in Evangelical 1847; referred to as the C. the 1852 1853, Gell. Sunset Diffusion, Reason? Empedocles 1898 there even tal struggle of both sides tend to a side dec to both bag-dromia. Large dicky seed: fr, tired w all w bees there; "horses fed calmy w it work, now have bloated; cattle, pigs, mules, horses, a tool of heads when green. Rue wh reviews gives the they are performs radical cures in all household cases" Nebr. Farm Dyn Apr. 1866. Lupe yel says close in disk as ut begin to expand at 4 am, bees begin work at 6:20 a.m. At 6 to 8 of the 15 spicul coil of the disc begin to peep; complete the growth by 8:20 Bees a false pistil for power to ass may 9:45, p. 8:10. By 9 am bees active; the flowers are bees and used "milk & honey, by milk fertilizing the pistil & only wh done yields seed. Intend to give pers by Bergman; L, 1775 Bergman, the [illegible] "Cons being pecul & Bergman [illegible] but I fr [illegible]

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HELENIUM. L, since that times Inula Helenium, Elecampane, & hence to be it; b n II be Helen at Troy, id to be bl a cultivator of flrs, & had in her collectn a pt wh wd destroy serpents; sup'd to be used to Hind the a of the pt H, noted by Plny. Ots say H pg be tears shed by Helen: hence pt is emblem of tears. Sneezewort, bec it reduced to a dry powder it induces sneeze, lk Blue Achillea. Poisonous to horses & mules, indug trembling & spasms until d, or relvd by oils. 25 species in Texas in a lot where it grows, ll d.

H. tenuifolium Nuttall, who disc it in Arkly, bgd by Meehan; Ga to Tex & Ks. Makes a beautiful wd cutg in Eng borders.

H. autumnale L, bgd by Meehan; Nat. "a blue-pt weather resistnt, & adorning in the fall the indoors w its golden blossms, appeg fr Sept to Nov." In Meehan, & B.&B. Dedicated to St Helen the Catholic, cobsted d wks Cthlgr. Widely distributed over US, but [illegible] in the [illegible] Jacobaea, where name of Ragwort, bgd in Eng & Ger, & [illegible] 1635; rdescribed H. aur as a sort of yellow Aster: Dalechamp, 1715, as a Chrysanth. Is cultd in Chelsea garden, 1729, Altm. + Bitter; cattle do not touch it; odor of chamomile; is tonic, febrifuge, & causes sweat: recom as a med in + diseases of the head for wh blocks of wood are dedicated. Sneez called Swamp Sunflower.

VERNONIA Schreber 1791 to commemorate labors of Eng bot William Vernon, who crossed w Bring, a Gen, & was called one in Md, 1880; V not honor specly coadd to this genus. Nuttall disc it colored or thistles thing. Senecio; & Liatris; ka 20 sp, all Am; 1886, 10 sp later, DC ku 290 sp, many fr all pts of world.

V. Noveboracensis L fr pt being Ny sent Linn fr NY, gnd by Dr Colden; Le that it a Senecio, bgd by Meehan as IRON-WEED and FLAT-TOP; lve n fr one cross trip seems bn eaten; abdt in NY, Md, Ste, Fla, Miss; (+ in Arkly) Miss, Jn, Nebr. Vars see V gracilis, Lettingi, V remotiflora, Elliott; "Whole gracile is so long as to defy all rule" Nd; has alt; sedly opp as upr pt of stem; occ fasciated w his erghly buriqued, a whole stag of this being on each upr st, eqly wdl as Flat-top. Mrs E S Cox w of Lind Sc Geol, fd a cobt one; to G C Bradbead did: fr crimsons, occ dk purple. "Grows weed in indoors" Darlington; "destroy the wot by plowg or poultry" Michaux; "large & vigorous in Eng gardens, 5-8° high; many tallest perennials; in any soil," Robinson.

GAILLARDIA Foug 1796; Lsche 1803; 1st specimens bot to Fr 1876 Lib, by Monin, a proter of agric at Paris: n fr M Gaillardet, "a national hero": Orig sp was G. pulchella, G. amblyodon, Gray, 1890; fgd bgd as blanket-flower, name for g in sense of Texas: to cha, wolly texture of rays, or caps: "a sp coming gra in Eng gardens is called Golden Fleece. Annual sp by seeds cultd by wh same in Eng may be rewd hardy.

G. aristata, in plas & open dry fld, fr to Saskatch; TIDY-TIPS, says E B Thayer she had bot her by a Santa Barbara Chinaman, the chambermaid, says "Do likee?" "Where did you get them?" "Wook, pickee!" & using her timber sketch, "Me likee much, me like big fl growing on I foot cane.

ANTENNARIA fr the shape of pappus of male flrs; sepd to Gnaph-wood Mooney, nice rag in Conversat.

A plantaginifolia Hook; fgd by Meehan as the Mouse-ear Everlasting or Pussy-toes of children; winter lvs are those wh are glaucous-lk; fem heads fg-cyl male ∇; oft sm c apart in Mong; how form? Com E of Miss; lit bgd, In Pa flrs in Apr & warm blue windows.

IMMORTELLE,

"O bees, sweet bees, Heaid, that nearest held
Ely swiftly there & drain these honey cells"

Is shining white with fragrant immortelles.
Mrs Jackson, "My Bees".

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CYNTHIA Don. David Don in 1823 in Se, Eld the f.

C. Dandelion, type sp, hd to that a Tragopogon a Pterionna, a Helvia, a Hypochoeris; was named Trox. Dn by Pursh 1807; Gaertner, noted its res, to Dandelion. Fig 1 by Meehan as the DANDELION CYNTHIA. Cynthius = Cynthia = Apollo = Diana, to McCyathus dedic. to them. Add to Rs, w. to Dec? March, Var. novatana branches slthly.

STOKESIA

S. cyanea L'Heritier, Mem. pl. of SC, Ga, La; intrd into Eng. to SC 1766 by Fatherden the Lon. nurseryman, to whom Gordonia was named; "Have a beauty would flee? this auto. heralded the chief supply of blue dies bot to Covent Garden mkt in a cut state. Hit and the appice in Sept. till Novdate." Ele 3½ diam. Hit there 2 cauthamus; for Dr Jonathan Stokes, Eng. bot; fgd by Meehan as the Blue Stokesia; ico in Bag. as Stokes Aster.

Centaur Lat. Centaurus of Greek a goddess of Thessaly, half woman half horse, in giving for the wise Centaurus. Centaurea of Dioscorides, the pit by wh. Chiron healed himself after Hercules, wdd him) of the Chironia of Linnaeus, 1678, adopted by L. as Ch. Centaurium.

CENTAURY Centaurea Calcitrapa has been used as a febrifuge, to get sud's it is sd, the new herbal 1875 to gal pirate.

C. Americana fgd by Meehan, tere (re by Nuttall, only thorny plt of seaside Sea-hole-hide

C. Centaurium is the sp referred to as Centaurea by Theophrastus (Cobo d 287 BC) Lucretius & Virgil. No medical value at all. But by Boy called this the Gerty, Chironia the Lesser, Centaury.

BLESSED THISTLE Cnicus Benedictus, do

Ellac. 34 Shkpr cdt. to Much Ado 3q as B.

BURDOCK Lappa major Gaertner; root tonic, aperient sudorific, diuretic; used in rheum, skin diseases as depurative; Rich Walpole praised it as a great remed; res as excit subst for Sarsap; for Peter, slthly acrid, has been used as a diuretic.

Ellac 39, 83 Shkpr 6: pub the Burdock at Kingsbeat's garland was integrine for Burdock a nuisance Burdock, Peter; but Drayton's assoc. of Burdock w. Arbuthnot & Lily appears not.

CARLINE THISTLE

See Lily, p 708

THISTLE Imperial,

Shkpr 2 Ellac. 229

SENECIO

S. scandens, GERMAN IVY

IVY of ENG, Hedera Helix

Ellac. 80 Shkpr 2

VIRGINIA CREEPER, AM. IVY, Ampelopsis quinquefolia

JAPANESE IVY, A. Veitchii

CALENDULA officinalis

Shkpr

Ellac 122, 419

Rhind 589

MARIGOLD, MARYBUDS, Golds of Chaucer, Goold of Spenser &c, Heliotrope, Sunflower, Turnsol, Solsequium of our fathers, Ruddes of Engl. now.

ENGELMANNIA pinnatifida, (only kn sp) DC, fgd. by Meehan vlg, p 9, dedic by DC 1840; hitherto hence Silphium & Parthenium; E. a Gill in peace in Sc L, 1.2 Feldt on Magna, 1809, d 1888; sold at Sd. 1939; (dg authority in would in Ann Oaks, Conifers, Agaves, Ferns, Cactus, Aquis, Cacti, &c. Ele cell by Nuttall as a Silphium; fd Texas & Ark.

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"Marguerite" "Ye can spring flo", Gloucestershire, "pretchers as Bell's in May," the poetry are.

DAISY *Bellis perennis* L. Eng. Bot. Bot. Gardener, Bot. Cicerone, Flora Metropolitana, Fairmaner, Marguerite,

Stalks 5 → *Ellacombe*, 2:8 9-303 *Rhind* 589

Origin; Alcestis turned into a D, lest in chase, left of Gods Women.

Beldis, a Royal maid of Dunsing, the lord of Religious; dancing on the grass so time, cried daisy she, revealed the sins of Vocemonus, who, sad, her in her extreme, to find her transformed into a D. "Ellacombe.

The Celtic infant, and Bildeina gave it in dying," a sure die on the hills of Canada"; name comes by the dis of blossom so intensely "it is" say they "the die of innocence", "the die of the earth born".

Legal connects as St Marguerite, Whose constant real so red, sermons cross cent While on her penitence kind Fro did turn; The white of purity surpassing snows.

Poetry; also deified by Chaucer; so mented by Sp, Milt, Burg, the Burns & Wordsw, "see old poet bard, need homage to all long poets.

Traditions Eng. has 22 Bear chickens, Children Daisies, so Jackanapes on Horseback,

Grows on, in Sun, on S.S; bren in meadows by Schools fair his so Magpie; by pers Magpie of Nobility, fair of Women; by Thief of Baghdad, so of Eliz; x by Magpie, Cit of Richmond, so of B.P, side of the Magpie Inn, so Cit y of Christ College in Cambr.

She is a Daisy-fair as a rock, x I'm a Daisy body for pudding are particulars connected in this

All manner she scattered the D leaves,
They only needed her as they tell;
She said, 'The D. too deceives;
There is no virtue in its spell.
'He loves me not,' 'he loves me well,'
One sorry no, one dis sick tell;
Ah, foolish hence, which waits spleen
Under the daisy's mocking spell;
"The daisies whitened every hill
Here heart of love had had its fill,
The daisies stood untouched x still;
Nor escape in that sorry rain
To one, a hope have had its fill.
Some one the daisy sweet ign deceives.
The no one will one sorry tell;
The pink heart, sow the daisy leaves,
But the [illegible]
Mr Daisy [illegible]
The [illegible]
The Spa of the Daisy, Mr Milbourn.

VACCINIEÆ

Shrubs, 13 g, (+16), 200 sp, of everyon; acc. epiphytes. Leaves alt, simple, Ovary, 1 or glandular-notched. Flos 1 or racemes. Sepals 4-6 Petals 4-6 Stamens, C 4-10 Berry crowned by calyx-teeth; cells 1-many seeded. Seeds minute.

Lig classes as a tribe in Cinchonales, allied to Escallonieæ, x to Caprifoliaceæ.

Abd in temp; esp sub-tropic & subalpine. Sim in manners or weathers of Eus, ones to native central As, + to N Am, x one to Peru, of wh one of 2 to be parasites. Clothing as garden shrubs; the barks & leaves astringent, slightly toxic & stimulant; the berries subacid & pleasant.

Gaylussacia *HBK* the Lussacia of Spreng!

Sphagnum cymbifolium *Pal.*

CRANBERRY, *Oxycoccus* Schollera of Bath; Schreb (Spreng) Ding to Vac [illegible] (the species of genus Vaccinium) [illegible]

Old particular, bearing tons of [illegible] the [illegible]

Common name CRANBERRY, [illegible] Rhinal, [illegible] Dice time; clips [illegible] in autu; his fires are at time, his fat is 160, rope under snow, Invites Tremulous, of [illegible]

"The Cranberry bloom dwelleth there Amid those mountains cold,
Seeming like a fairy site Set in the dreary wold
'Tis such a wee, fair dainty thing You's take a greenhouse warm
Would be its proper dwelling place Kept close to wind & storm.
But on the moors it dwelleth free Like a fearless mountain child,
With a rosy cheek, a lightsome look, And a spirit strong & wild;
"Endurance", wet pls in N, at high altitudes & low levels; oft caps over dry seeds in place of [illegible] "N to have had of Crane or cranes to Hel shrieks in [illegible] say; one to the res bed, neck of crane, to slender stalk & shaky tube of anthers, Zice this an late," too Lyte a vy old Eng note calls the pt Marish Whorts (Cranberries) and Fenberries, & says the is none so nice for them 160, The apples no dt the n fruit intred to Hel 1811. Sd to occur in dis, but Gray this that diffs. Red-bird var yields a juice used to tin paper or linen purple, Eerbes. If the cultivated impro a nat Cranb-bed be cons the soil wl int dp so sand, x the carrier wd excluded to lt, die, wht C pusher to wet, sandy out its hair-like roots as it grows, till pts is in also undisturbed pots of the sand, x bears a dice of hope fruit," 123, Cit of home, NE of US; S to NC, the 3 they those the NW divn.

O palustris, of Bu, x US in mows & high N sts; distgd fr O-m-by "bearers" no lept of pedicel, instd of cups; by fat smile but higher Barnard; berries best to Eng to Rusby, Dra.

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VACCINIUM L., the VITIS-IDÆA of Bauhin, Virgil of the mons Idæa - ipse dicitur.

V. Vitis Idæa, the CRANBERRY of Eur. includes this; this is especially kn. as the COW-BERRY; but of study, type; see V. Vac-ba-tum post to the cranberry; bears a hat Vaccinium.

V. Myrtillus, the BILBERRY of Eur. Shlor. MWes 55; BLUEBERRY
Bllac 26 Rhind 346

V. uliginosum the WHORTLEBERRY of Eur. fruit rd. or benacetic, when fermented yields an intox liq. fruit is sorts put into beer or other liquors to make them heady. Rhind 347

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THIBAUDIA Ruiz, the Cranberrie of Dunal,
T. macrophylla, people of Pasto, fruit use wine or fruits
T. Guaccane in somatic tincture is rd. in Peru tr. for, as remedy for diarrhœa.

CAVENDISHIA, Lindl.

ERICACEÆ.

Characters: 2 celled anthers opening by pores. Shrubs. Evergreen: les rigid, entire, whorled or opposite; 0 stipules. S_{4-5}, P_{4-5} 3∞ $C_{do\ or\ united}$, do Seeds minute. Fruit a capsule, w central placentae, loculicidal or septicidal.

Related Families. EPACRID? of the S. & RUTACEÆ: & GENTIAN?.

ERICAL alliance of Lily assists of Fumariaceae, Francoaceae, Epacridaceae; besides Pyrolaceae & Monotropaceae are included in Ericaceae. see end of Ericaceae. Cf. Crenaceae, Caprifoliaceae, Ericaceae.

Importance 42 g 850 sp "Con sm of the most beaut pts of wh ok bo may be" Ly Dist. West + at C Gd IF, over imm tracts; cmn in Eur, N Asia, in & out of trop; less com in NAs & Ind; when in trop at Jaiv, only on highlds; alm 0 in Austr, wh rep'd by Epac. Properties diff in the two sections as dis by dehiscence, made 2 orders by Juszieu, tuves Erica and Rhododendron: lat 2 ve inert, 2d dangerous, narcotic.

Important: the heaths in covering & beautifying barren lands & moors

" the Rhododendrons, Azaleas, tuguer Erica, Calluna, Epacris, as objects of culture; hence, style

" the Trailing Arbutus as object of sale

" many other wild species, as the Rhodora, objects of beauty & eagerly sought.

" the Wintergreen, for aromatic leaves, essence & oil, flavoring extract; coll. & cold

" medicinal value, as Uva Ursi

" in Whortleberry section, for berries for human & other food, sauce & preserves

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SALAXIS Salisb.

ERICA L., incls Evanthe Salisb, Stoellanthe Benth, Mylnea Salisb, Thamnea, Lemnia, Antiana, Salisb, "In the whole of the extensive genus there is no medicinal sp. for E. arborea, was their alexipharmic, vox but a superstitious medicine Lily.

Elec 89-91 Stalge 1, Pomp 1, Rhind 606

CALLUNA Salisb, vulgaris the common HEATHER, "astringent, used by fullers & dyers. Its tough twigs are the commonest of wh. the besoms are made; the ashes are peculiarly grateful to bees" Lily, LING is the name it bears in S of Eng, a name found in N of Eng to the Alpine forms, Erica cinerea (vaginatum); some read Ling, Heath, brown Bruise, &c, for Longitude, in Pomp 1,

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MENZIESIA Smith, Bryanthus Sweet, Phyllodoce, Salisb, Cassiloes Lamy, Bucetta, Nock,

ANDROMEDA L. the Polifolia of Bot, Lyonia of Baldwin, Baumannia DC, Chamaedaphne Bork, Cassandra Don, Cassiphone Robb, Maria DC, Pieris Don. Mich. an Amf.

A. polifolia wild in bogs, NEng, NBos; acid narcotic; fatal to sheep in Eur; much cut for the Ovariesof bouquets at Randolph Fly, Cheat. Co NY.

A. ovalifolia poisons goats in Nepaul; yg shoots

A. Mariana. Similar qualities to A. polifolia. In U.S. Syd by Mrs [illegible] (A. was thought at the time, & this plt. is to the present time, the principal of the sort of poisonous honey, which mean "honey from a little wooly manna".) Dr. Pinckney says, "Sapid, more sickly, quality, in Md. Mr Bent says; Study in the experiment of the Common Bees (A. Calyx is much 2/3 of the corolla) but bees are not benefited, inferior to 2d sort, crude, sparse, very bad. Bees spin left near but don't swarm, deserts, yet the whole of the space of a good stack left unfinished." "A MS through by of [illegible] & Amf. from Mr Pinckney, Mr Bent & others."

A. [illegible] Tartarica used to prepare very valuable beautiful oil of cypress, also used in rheumatics.

A. Mariana was the intoxicating Honey, Dr. Pinckney, Aiton. Clayton sent it to Linnaeus. Farmers in Md. dislike it, poisons sheep, it scours, the staggers. Barton says the honey and leaves is stinking poison. Pickford says "is a cure for the ground or tot-itch", who says it is also her as Moonwort & Wicke; the last is her common for all Leguminos.

EXOCHORDON DC

CLETHRA L, the Cuellaria & Ruiz et Pav, Tinus et L, Volkameria, R Br, Tunia, Adanson.

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EPIGAEA L. the Memecylon of Mitchell, said to "Shew the lov floral tribes by wch kindly Nature pave the Pilgrims treading in the sunny days of their life spring, Harvey, who continues Whittier's poem, he knows that they inbreed a little feeling of assurance & hope from the sweet breath of this earliest vernal flora.

Percie Benjamin

Thine comest when spring bee comal woures
And thine hidest thyself & thid beld strewn leaves;
Where the young grass lifts its tender blade,
Thy home & thy resting place is made;
And in the spot of thy lowly birth
Dareen, thine Harmest —

Rose Terry

Fairest & sweetest lovely Form the world apart
Mate the beauty rich, Velled form Nature's heart
With such unassuming grace it makes the diversion
of sex. (Tribune)

MENNH Harmony of Dawson

In Apr when the days were bright, ...
Our way along the fields we took,
Climbed broken fence & loosened wall,
And crossed the shallow sliding brook,
We reached the hills beneath whose base
The vine dress with a sickle sound,
And learning the enchanted spot
Knelt with one knee to the ground.
Has those who come with lofty mood
And courting, and discerning eyes,
May close you into empty hands
Nor find the treasure where it lies.
We brushed the coldwood leaves away,
Old remnants of a woven out years
And shouted with ecstatic glee
"The flower is here! the flower is here!"

WH Gibson in Pastoral Days

"Pill so last the sweet Arbutus
Nestling close on Nature's breast,
Felt a thrill as woman palpitation
Rouse it from its dreamy rest,
Throwing aside its little portals
From the corner of stone
Ye peeped from the [illegible] lowly shelter
Into a valley white below.
"Am I dreaming? Shall the winter
Still & freeze my early breath?
Nay! Hark, I hear the blue bird singing,
"Spring has come" the answer saith.
"Ah, heat flower in thy pretty wonder
Crystal sweet, white & clear,
They reign must cease when I awaken;
Farewell, pale blossom, thy fate draw near.
Blest Winter is thine,
Loved Springtime is mine."

GAULTHERIA L. the Gaultheria, Kalm, Glycophylla, Raf, Amphicalyx, Blume &c.

BERNETTIA Gaudich

ARBOTUS Tournef, the Unedo of L, Kouiapoc of Dioscorides, STRAWBERRY TREE, Rhind 530, 606
A tree of the type of the genus, resembling [illegible] with white bark, native in Corsica and [illegible]
Ilex in [illegible], the [illegible] [illegible]

A Andrachne id to be scarce quals. to A. U.

ENKYANTHUS Lour, the Menziesia Salisb.

ARCTOSTAPHYLOS Adans, the Uva Ursi of Tournef, Diplarania of Nuttall
A. Uva Ursi, lvs used by Nootkas to mix w tobacco, in proportn of 1/4 to.

COMAROSTAPHYLIS, Succ.

Rhododendreae; septicidal; scaly buds lk cones

AZALEA L, the Loiseleuria Desv, Chamaecistus Gray, Chamaeledon Link Rhind 606
A pontica, Pallas this was that wh poisoned the 10000 Greek [illegible] when the is no Rhodody effects of honey and be it the lk bitters taste. Nates well has its deleterious effects; id that sheep & cattle do be it, & goats wh browse on the fur bet the pastures except nitr in consq.
A. nudiflora, Rpd by Sprague, desc by Torrey, with qu poem on "Rhodora" Azalea by Dorr Bond Greenslet, in wh
All the broken woodland earth, Little light no flow'rs bath, Save the proy breaking in Thro' the depth of tender green - We are here alone!
... A sudden presence stirs the solemn wood, A secret nature was, A youthful light, an presence; and, for up the [illegible] [illegible] Warmth and quick desire are lost Where we walt alone! ... The summer light, the [illegible] song, the [illegible] [illegible] [illegible] but we are not alone.

OSMOTHALAMNUS DC

KALMIA L, Newark Gaz, Nov 26, 1748, mentg a live ship Bulbs G Wister NJ, wrt "Be Lignum, unfortunate to the peole bitter & poison wh the has also knowed use by bees be pleased to call this tree Kalmia latifolia"
K. latifolia, lvs poisons to mag ani; tho' be narcotic but of feeble acts; flesh of pheasts wh ho fed on yg shoots to be poison to man, Elphos. Flrs exude a not honey lk juice, id when avail to bees is to exc of placenitic kind, fr and lk to spontaneous & lengthened abs, Lily. Darlington that Is it a homnd it fr Bonsom, N Gaz & Bonsed & Ly; aft, Gaertner rd for him so BI pl allied to the Linden, aft id not 2 of genus, & how has as Dalumfiera Barcenania. Bud of ty Hedwig id the mess Barcenania. Kalm was for bd of the Chr B & B in Phil 1748, fetch for ch live bearg letters by L, ass to deuce his wbt like to wat hist; was Prof. of "Economy" at Uniy Abo Was sent by Rpl Sure Acad to inverty N pt Am, bely shortly of chos to Swe, rd wth remts val; reaches Phil 1748, 26 Sept; 1749 thru NJ, up thru to Alby, across Champln & Geo to Can; ret'd to Phil, rd pr chiefly plts & seeds to Swe; accy expld W Penn, Blue Mts, coast NJ; agn thru NY to Niag Fs; setg Oct to Phil, for Sg 13 Feb 1751, die away. D at Abo, ae 64, 1779. Bet K, Bonnier made Reg acquire the pts; Phil cent Rpl Sweden, early 1[illegible] K. Bonnier

K. angustifolia, L, Clayton scarp plts to Gronov, 1720, remkd "an opinion is prevalent that the spirit of the inflorescence is sheep"; opinion still Mechan Tiberius or poisl, Raf, that "a few drops lk a nettle sting" Notes of SC used a wash for its lvs to cure minute parasites on dogs Ellios. Lvs exude a not honey lk juice, wh if mol boed bed to figure a mental intoxn both formidable in its symptoms & ly in its duration" Torrey.

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RHODOTHAMNUS Reichb. the Addendum of Nock, Chamaecistus, Dec. Lodon. Michel.

RHODORA

RHODODENDRON L., Azalodendron Reichb., Thelis, Salisb., Hymenanthes, Blume, sec. Rhind 605

R. chrysanthum, L. Alpine Rosebay, [illegible] to appear on [illegible] in the gorges in south Europe, [illegible] in [illegible] aesthetic quality; [illegible] poetic [illegible] by [illegible] as the sp. not [illegible] to [illegible] distance, [illegible] a fluid of [illegible] concentrated intoxicant perd. Pallas.

R. ponticum = the Common Everyreen Shrub; ed which in the plt to which Xen the bees of Pontus collected the honey that produced the extraordinary symptoms of poisoning desc as attacking the Gr during the famed Retreat of the 10000. Xen says after eating it the men fell stupefied in all directions, as if they had been defeated in a battle field. Well, perhaps, Pallas thinks Azalea pontica was cause.

R. maximum ed by some to be certainly a poison, by others a more astringent.

R. ferrugineum, Swiss sp., some narcotic; an oil fr its buds is sold in Piedmont under Olio di Marmotta, used in pains of the joints.

R. arboreum, fruit eaten by hill people of India; formed into a jelly by Europeans

R. campanulatum, its ferruginous bs used as snuff by Indians; so, DC, in US is the Arcana dust adhering to particles of R. by Kalmia.

R. occidentale, in the Rest the Marigoldy Azalea, 4-6', flr large, Y, rich pink or white, red or crimson. W. Thayer

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MONOTROPACEÆ

MONOTROPA

BY MARY E. ATKINSON.

The woods are wet with dew,
It hangs upon the leaves in glittering tears;
And see, the damp dead oak-leaves pushing through,
A group of flowers appears.

Flowers cold and deathly pale,
No flush upon their alabaster cheek;
They feel no sun nor bend to any gale,
No bees their white bells seek.

They do not smile and glow,
Or wave green leaves upon the summer air;
Their bended heads are still and white as snow,
And exquisitely fair.

They seem not real, live flowers,
But phantoms of last summer's lily-bells—
Pale ghosts, revisiting the forest-bowers,
Haunting the lonely dells.

Where are the leaves that played
High over them in fresh and breezy air,
The green delight of that last summer's shade?
Behold them lying there.

Brown, dark, decaying fast;
And these wan spirit-blossoms chilly grow
Where those dead leaves were scattered by the blast
And trampled by the snow.

Do you wild-roses thrill
And shudder, think you, when they see their white
And ghostly faces, and with inward chill
Turn to the sun's warm light?

Rather, they bend and say,
With love and pity: "Ah! dear souls of flowers,
Ye bloomed so fair your fleeting summer day,
Come ye and look on ours!

"And if ye come to call
Us where our heaven, the rainbow, spans the skies,
Joyous we seek, while rosy petals fall,
The Flower's Paradise!"

Shortia Torr. & Gr.

Romance of a Little Flower.

EPISODE IN THE LIFE OF A BOTANIST—THE "SHORTIA GALACIFOLIA."

A Boston special to the New York *Tribune* says: Prof. Gray, the veteran botanist of Harvard college recently received from friends a beautiful vase in commemoration of his 75th birthday. Last Thursday morning each of the persons who gave toward the vase received a charming note of recognition from Prof. Gray, who alludes in the letter to the flowers associated with his name or with his special studies, which were embossed on the vase. Connected with one of these, the *Shortia Galacifolia*, there is a romance from a botanist's point of view.

A good many years ago the doctor was studying in Paris, and in a herbarium there came across a small, broken and imperfect specimen marked simply "From America," which interested him much. From the fragments before him he reconstructed the whole plant. His work was approved by the botanists about him and he named the little plant *Shortia Galacifolia* in honor of Dr. Charles W. Short the distinguished botanist. But no live specimen of the plant could be found. Years passed on and it had never been seen. At last a botanist at work in Japan found and named a plant which seemed to be of a genus closely allied to the *Shortia*. Dr. Gray corresponded with the botanist and it was concluded that the doctor had been in error and had mistaken a specimen of the Japanese genus. So the *Shortia* was generally left out of lists of plants by systematic botanists.

But twenty years after this, as Dr. Goodale and Prof. Watson were one day in the library at the university, they heard a shout of triumph from the herbarium and rushed in to find Dr. Gray waving a small plant about in the wildest enthusiasm.

"Look at it! What is it?" he cried.

The two botanists examined it as directed and recognized the characteristics of the much discussed plant.

"It is the *Shortia*!" they exclaimed.

The specimen had been sent by a house in the south which made a business of putting up medicinal herbs. It had been brought in from some hitherto unexplored nook in the mountains by one of their collectors and sent to the professor for identification. It proved indeed to be the *Shortia*, which was therefore once more reinstated in the floral family, greatly to Dr. Gray's delight.

Pyrola Tourey, the Beryphiladinus of Wimmer by the lower, on sec of the ov "of the lower of the pore ov"; obvious" (this Orivius, ESB, he obliqu surface and pores ov. Fr. Ed) At, slyd to obliqu, [illegible] Wimmer [illegible] Ovary into the lower depths by pressure in this way by the [illegible] Where Corolla with the coldwalk bright view leds of Whitepoon, A N. Scientof he lus being's pressure apple to [illegible] bodies, com. Amp Eng. peasantry, that this was only the Aint pa

E. elliptica, Nuttall, Gen by Dy, sept. to P. secunda by N, 1848, "com A. obtu. diagn in my cabi pla being take, Ass mainly obt, obovate, Ovule [illegible] calyx (the sentence unfinished); scapes acutely triquetrous, nearly [illegible] than 2 ov.; petals pearly white than Hedge; in 2 rel. also lpe. Sm. [illegible] of P. rel. also he ally lus. Sm. bots this nearly distin in acute Calyx-lobes of P. ellip; not mutant, At. Fd NB so Bryanus, W to Mw Ba.

Meneses, Salish.

Galax by the Bryphuchiza of L. Chich, Sylenandria, Polin. Blandfordii, Rooks, Viticella Mich. Belvedere, Pennsylvania

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MONTROPACEAE parasites on roots of pines & oaks; stems bra. or clad; scaly; lvs 0; flrs in terminal spike or rac or 1; S_{4-5} P_{4-5} St_{8-10} C_{4-5} Separate distinct, in a spiral. Stig. funnel-shpd, succulent. Ov. 4-5 celled at base, 1 at apex, 5 parietal placentas. Capsule dry, loculicidal. Seeds +. Sepd to Pyrolae by dehiscence of anthers; the curious bra scaly leafless Pyrola aphylla connects them.

In Eur, As, N Am, in cool pl, esp Fir woods. Sd small of Violets or Orchids.
6 g, 10 sp.

Corallophyllum Kunth
Photinus, Nuttall

Schweinitzia 1821, the Monotropis of Schweinitz

Pterospora Nutt. N Am leafs are ad to use Pr, and recommended as anthelmintic & diaphoretic.

Hypopitys = Dill, the Orobanchoides of Linnaeus.

Monotropa, Nutt.
M. Hypopitys, powder of its flrs fed to sheep when affected by cough.

PANCHOACEAE, 5 g, 2 sp, plants of Mexico, & Lyndle replies, shrubs or herbs, w. lifted c. pun nate; racemes or scapes; petals 4 persistent; C_4 L_4 St_{16}, alt rarely radiants; C_4 stig 4 lobed. Seeds Affinity to Dionaea, Ly. All Chilian.

Franseria, Cav. juice sd to be held in Chilian esteem & sold as a dye-stuff. Root dyes black.
Tetilla DC, called CULANTRILLO & TETA DE CABRA; used to Peppis, if the are very serious, & are used for.

PYROLACEAE 5 g 20 sp. herbs, rarely undershrubs; rd naked stems; simple, entire or toothed lvs; flrs 1 or in terminal racemes; S_5 C_5 St_{10} C_5. Seeds minute. Differ fr Bric in minute seeds & declinate styles. In Eng, N Am, N Asia, in Fir woods &c.

Chlorobanchus Bung. C. tuberosus is closely link to Erica.

Chimaphila Pursh. C. umbellata not acto diuretic; cal trade preps. Lvs are bitter & astrin applied to skin as aft vesicatories.

Cimicifuga, pon Am det say is actually inert; sd to be palliative in strangury & nephritis, & to alleviate the order urinac sing narcotic. But Pursh says is active; hence Wood & Bache this same quale as Cimicifuga.

Shortia Torr. & Gr.

Pyrola Tourn, the Bergia tenuinervis of B/Meyer; Salisbury the Bog herbalist says it was called P. by the Indians, on acc of the ere "of the lvs & flrs of the pear tree"; Gray, "from some fancied res in foliage only is not obvious;" "this is obvious" DSB, in dubio, surface and ye green & red ed end. N Winterpeen generally to P rotundifolia (Bigel) M, already by Colonies, [illegible] Indians [illegible] and the leaf Am P the [illegible]; [illegible] the leaf; [illegible] Away into the breast depths by pleasant gathering, they go, to the side in hollows, the lady to bee bow,
Where Cornell and the cuckoo laughs low beds of Winterpeen, And never a bis to drive aph was Alot seen;
N, Shinleaf, be lvs being 2 regular apple to shoes; Darling says stop skin-plaster for any plaster for any pt of bodge, com sing Eng peasantry, tho' skin was only the Ant part of tibia).

Elliptica, Nuttall, Lpd by Dd, sept to P rotundifolia by N, 1848, "was and Phil & the rods of NJ col, rec-, Bro in Bunk M, also diagr it by cobl pt being tube, flrs mostly solit, odorous, pecule dlg ovl, esp in length to stamens, ch bean tubrous; calyx thes semicrace pattered; scapes acutely triquetrous, nearly cylindric; stigma simulate, 5 lobed. Lvs also thicker than P rot; petioles gently thicker than blades; in P rot also lgr. Sm vars of P rot also be ellip lvs. Sm-bract this rarely differ in acute calyx-lobes of P ellip; not constant, At. Fl NB to Europe, 20 to Ala B.

Monesses, Salisb.

Galax by the Bryphuchiza of L Rich, Sylenandria, Falia. Blandfordia, Andr., Uticolla Mich. Belvedera, Torr.

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EPACRIDACEÆ 30 g, 320 sp, shrubs or sml trees; lvs alt, entire, stalked. Flos wht or pnk, seldom blue, in spikes or terminal racemes, rel; $S_5 P_5 A_{5+5} C_{5\infty 1}$

Diff fr Heaths chfly in anther body called, (sp eq) longitdy; in lvs hasp-oft endogen-like veins; in stems cons adhesg to sides of axilla. Infloresc often dilated, circullate, inclosing over the stem.

All in Austl, Polynesia, or Indian archipl; and the most of Heaths dwst CAdtly, only for 2 weeks who measure Chfly considd for simplicity of structure; & fgt beauty of flos. All the fits of the bony-bgr sects are excellent, but seeds are too large & pulp too thin to make them very availablr for food.

Astroloma humifusum Tasmanian Cranberry fd all over that clmy; fgt pnk or cobalt, ovate stly red, 3, 4th cuneate; consisty of a vivid, sph-flavored pulp inclsg 2 lrge seeds; grows chefly on the rocky stems of the plc, with ves Juniper, & bears bright scarlet flos in winter.

Styphelia adscendens a sml prostrate shrub, ves pnc in spce.

Leucopogon Richei, Native Currant, large dense shrub, only on coast, 4-7° high; berries sml, white, of hardy flavor. In D'Entrecasteaux's voy in search of Lapérouse, 2 Fr nattl nmd Riche was lost 3 d on S coast Austl, & fed chfly on these berries, whence specific name.

Lissanthe RBr, Dracophyllum Lab, &c Cosmelia, RBr Prionotes, RBr, Epacris Smith, Richea RBr

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HUMIRIACEÆ, lvs 2 celld anthers solg monthecus connecte, trees or shrubs w balsamic juice, tropics, 18 sp 2 gen.

ADDANDRACEÆ, fdd on a sp of A, fd on Amazon by Spruce, a tree

RUTACEÆ, trees or shrubs, few herbs, 17 g, 100 sp, $S_{4-5} P_{4-5} n_{0,8} A_{eq, 2+n3+n} C_{eq}$ Bchl odor; bitter, Pl in S Eur, As, rare in tropics; centr secrtn sbd in Equinoctl Amr, rcc in Austr; CAd ill is cns w sort of Diosma.

Ruta, Common RUE ed rl be emmenagogue, anthelmintic, rubefac. Rumiana of Sp so acrid that it blisters the hands of who gather it thro 3 pair gloves, produces erysip. & ulcerous pustules when applied to naked hand.

Bloc. 203-8 Stokes 3 Rhind 527

GENTIANACEÆ 60 g 450 sp, constitd by Jussieu 1789; herbs, smooth, alternate lvs, Bicter

See Lily p 68 for gen'l results

Gentiana Tourn, the Vicomante of Gaul Cyanea of Rem. Coelantha, Bond, Asterias, Rem, Coilantha, Beckh, Dasystephana, Rem Dasycephala, Bordh 150 sp, Mtn chfly Alpine.

G. lutea furnishs root of the com G. cort of the drugts, lvy, a pure kintonic bitter; heals w axillary yel whorls, com on Alps; pins as tonic, mitt relaxes bowels, w nausea & a kind of intoxn, Rhind 524 Constituts of Gen's dic tonic viscous in 0.8 by wh be assrtd malarial fever precisly is his array. Pliny calls it Gentiana.

G. compessa; ff com as heaths & hills of Eur, pt of Eng,
G. Amarella ll are domestic substitutes for G. lutea.
G. Catesbæi, do in US
G. Burnee in Himalayas, do,
G. quadrata of W Cont, "
G. pannonica, " " "
G. purpurea; " " " Rhind 525

G. cruciata has ba superstly belvd to be dep of victue bec its lvs are in form of a cross; 1 of the 1000 panaceas for hydrophobia 44. Ofr substitutes for G in diff cs are Cicendia hyssopifolia a com Indn, Agathotes Chirayta in Himalayas, Erythræa Centaurium, Chiora perfoliata, Lisianthus sp, Tachia sp, Sabbatia sp, Coutoubea sp, &c

G. Andrewsii Gelesbach, CLOSED GENTIAN, fgd by Meehan; rarely opens; fd in moist gnd, NE & Can to Sasktw & to upcds. Meehan rcents sensitives of ov & Alps sp to sun; sees a bdd of them open in a warm sun, close in a few minutes when cld, by sudn snow storm, agn open on fnt when wtd the sun, comp out a few min, later. The lvs in cultp are darker, mr open plc than wild; pcefd by McKeburn as mr beaut than G. Saponaria. Dr G. clausa, Raf, 1818, sec's It to G Sap; hvy, Ann bts pcrly fallow Gr Close backly mr cmplc of the GS, 1843; G. nmd in for Henry W Andrews, edr Bot Repository, pub Lon 1800, who fgd is supp it she named, Close fecilled, stigmas being pushed up thrd the mature anthers, MW Conventry 1875 Am Hort; confirmed by Dr Kunze, Proc Bostn Soc 1879. Cross fertilized bec bumble bees force their way in, they go bec mr of Gentian & of Gentiana Saxifraga. Calyx blue in shd, brownr purple in open.

G. crinita FRINGED GENTIAN; Mrs Jackson, "How fringes clos, The gentian opens them out in sunny days."

Frasera, Water Wahoo, biennial N Am, root & pure petal & exceed bitter not aromatic, fully equal to Gentian. When bruised it is said to be emetic & cathartic. Roots bitter imparted into Blue as a sub of Calumba; introduced in comp the am of Am Calumba.

Menyanthes trifoliata, a common hog-pla BUCK BEAN (quasi Bach or Beck, in Brook Bean, leaf for 3 leaflets, shaped like bean leaf,) is intensely bitter. Rhiz one of most est of the tonics; large doses prod vomiting, & deeply petal diaphoresis. It is recom in intermittent & remittent fevers, gout, herpetic complts, chorea, dropsy, scurvy, pecrime. Withering says it may be used as a subst for hops in ales beer. Rhind 525

Villarsia Vent also Nymphoanthe of Rchb; V. nymphoides acts like Menyanthes, but weaker.

Limnanthemum Gmel, the Nymphoides, Dumort.

SAPHANIA Adans.

Erythraea Rich, the Anthea of Reichenb. Fr Centaurium, Centaury, a beautiful little with pk corpide flowers.

Chironia, Cr Centaurium, CENTAURY, Rhind 525; see Centaurea in Compositae.

Centaurella & Rich BARTONIA Mühlenb, the Andrewsia of Spreng, Centaurium Pers.

Halenia Borkh, the Tetragonanthus

Obolaria

Ophelia Ra, the Monobothrium, Hoffm.

Stellera, Gurg. Chironia, Cr (Roxburgia Mohr) Orphium E Mey (Calorandria Neck) Bazzallidinae Grisb; Lagotbrosia, Nyssanthes (Humboldtia, Neck) Hippion, Spreng Lixanthus, Grisb. Cicendia Adans (Hippocrateanea Lodd.) Chiraita (Xanthoxylum Gerard) Irvingia Mirb, Hellia M.C., Bustrania, Eustoma, Prepusa, Belmonta

PINK FAM.

CARYOPHYLLACEÆ Juss, 1789, Silineae, DC, 1824.

Herbs, stems swollen at jts, lvs opp, entire, st connate, S 4-5 P 4-5, pet 2 dig st tw C 2-5 Ovary stalked on a gynophore Seeds +, Albumen mealy Free central placenta. Inconspic Diff fr Purslanes in symmetrical flrs; fr Geraniums in free central placenta.

Natives prin of temp & frigid pts of the world, there on mts, hedges, rocks, waste places. Un the tropics are on high elevns & mtn tracts, also on beaches to the eternal snow, on Himits of veg are grown exclusively. Some Silenaceae wide & cattered. Humboldt find: Cs with 1/22 of the flog pts of Fr, 1/20 Gras 1/124 apl, 1/92 N Am. G. 53, Sp 1055

Remarkell for insipidity. Dianthus & Lychnis are handsome; not mere weeds

SAGINA L the Alsinella of Dill, Ebaloë of Dumort.

BUFFONIA Sauvag. the Bufonia of L.

QUERIA Löffl. type of Queriaceae, DC, 1828.

RHODALSINE Gay

ALSINE Wahlenb; see Synonyms Ly p 497; among them Psammophila, Fenzl.

TRIFLATELA Rafi, the Hymenella of MAS

HONKENYA Ehrh. the Holianthus Fries, Hallia, Dumort, Ammoralia, Rafi.

ARENARIA L. con no Saponine.

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HOLOSTEUM L. con. no Saponine

STELLARIA L. con. no Saponine

CERASTIUM Levy Old g. name, fr κερας a horn, alludg to horn-like seedvessels when only ripe. tsp. are Arctic.
C. arvense L. fgd by Bd as Field Mouse-ear Chickweed; spike of dew "along it w its chase fro" let him, & surprised by body it spn camp fm" (el; "Pale white blossoms of the wood. In groups beside the pathway stood;" it is Arctic, on l of Frn Franklin; exp'd it was fd. alms up to the regn of perpt ice; is when hot of Siberia; is in alm. all N Amer; US, Sc. Ro & Cal. C. Wildenovii of Caucasian Alps, C. tomentosum of Fr nitro, C. Blaschenii & Rus mtns, C. Boryanum & Gr, in chrodes, selected; 2 & 3 are cult'd in gardens; C arvense blossom, who called by end of April in Mass, perhaps, first among earliest as soon as hot weather comes; shows its Arctic origin when a nice gem in north parts, in autumn only it all wilted. Tsp. used all for cat & ly in Germ in winter. N. M. exp. fm Bd by Magnes; but has do not as much; B & C & these & cope C. belong, are all shared with [illegible] C. arvense & Walkers B C and C. Nemorum fgd in Eng on Spain, in marsh or partially a nor-rounded surface, in Fr. Fr. and C. C. Boryanum & C. tomentosum are [illegible] Recently proposed for publing, by family the Caryophyllaceae.

LEUCOSPERMUM Benth.

VELEZIA L.

TUNICA Scop

GYPSOPHILA L; G. Struthium is mucilaginous acrid; con. Saponine, wh is in its roots, kn as the ROSEPINK SOAPROOT

VACCARIA Medik. V. vulgaris 'ed to incr the milk of cows fed on it; con. Saponine; seeds diuretic

SAPONARIA L, the Ronis, Neck, Porcelaria, Pee, Sengmaathe Fenal. Has been used in syphilis. SOAPWORT, BOUNCING BETS. Poisonous; con. Saponine.

SILENE L. the Rupifraga of Oth.; S. conica, Alkey tides for station, colin, [illegible] "viscous is each as if you hd touch hot lime".
S. nutans con. at least as much Saponine as vaccaria; but hence diffused thro' whole plant, exc. the seed.
S. inflata con. Saponin, Gp Parvin "The fall Silene a bee sisters fair, Skilled in deceiveth, speed the alcoss nase".
S. Virginica; decoctn of root is fd. to be to used in Nam as a anthelmintic; FIRE-PINK of Gray; not poplytica, but viscid.
S. Otites, bitter, aromatic, has been used in dropsy.
S. Virginica fgd by Bledsoe as Virga Caroliny; sp. n. for Clayton of Va. seeds is bet. [illegible] but Wa also its S. bloy; to Ed. W. N. Y. & Wis.
S. stellata Ailon; bet. kn as Cucubalus stellatus, fr stellate whorls upr leaf, in fr, Nuttall, cose and C a "ruby of Silene;
S. inflata root Cucu-Beken thread (both by Bes open chally in early; fd in hot shaded cold c; n C. mas "a very bad tree of weed" [illegible] in symptoms) N. Silene Sm say fr Silenus; but his mas fr Sradon's fr Emmus Darwin says "Sir Silver on stalled is to prove ins, fr plan-dering the hives or devouring the seed. CAMPION; fr being a bell-weed, Ang; fr & campion, a battle-field, fr in being used in charles w w h champions in pit period the cross Pilon; "Sine wives say a this growing bed pla of this fam. was used x used by Britons in the field for time wicks for lamps; hence C. and Lychnis, fr Λυχνος a lamp." Meehan, who fgs this gn 1 of 1st Am. plants to accpts in Eng gardening was in by a Mr Walker 1656, Alcoma. Wild Con-ha, sp. to Indian-ely.

DIANTHUS L, the Caryophyllum Bod. Saponine is fd (chiefly in roots, less in leg not [illegible] all in the flos & seeds) in D. Caryophyllus, D. cæsius, D. carthusianorum, D. prolifferus.

Carnation, D. Caryophyllus; con. Flakes, 2 colors, Bizarres, 3 not colors, in spots, Plicates, spotted w/ [illegible]
Ellis 35 Ellis 2 Rhind 583

Pink D. hortensis
Ellis 101 Ellis 2 Rhind 585

Cob Pink, a large P. intermixed betw pink & Nicotee, Rhind
British Pink, D. deltoides
Pheasant-eye Pink, supd to be derived fr D. plumarium.

CARNATIONS IN WINTER.

Your carmine flakes of bloom to-night
The fire of wintry sunsets hold;
Again in dreams you burn to light
A far Canadian garden old.

The blue north summer over it
Is bland with long ethereal days;
The gleaming martins wheel and flit
Where breaks your sun down orient ways.

There, when the gradual twilight falls,
Though quietudes of dusk afar,
Hermit antiphonal hermit calls
From hills below the first pale star.

Then in your passionate love's foredoom
Once more your spirit stirs the air.
And you are lifted through the gloom
To warm the coils of her dark hair!

—*The Atlantic.* BLISS CARMAN.

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VICARIA Rchb the Hymenanthe Fenzl.

CORONARIA L.

AGROSTEMMA L. dec Gitbag, Dec. CORN-COCKLE. Shown to be poisonous by Malapeda & MBonnet [illegible] to their coming vapouring. Saponine here only in roots, ovules & seeds.
Stbg 4 Ellac 48

UEBELINA Hochst.
LYCHNIS Tournefort CROW-FLOWER of Gthpe (Ellac, 51) RAGGED ROBIN and INBag.
L. dioica con Saponina; as do L. chalcedonica, & flos-cuculi. L. dioica & L. chal. are saponaceous.

CUCUBALUS Tournef. C. Behen con Saponine

DRYPIS Michel
ACANTHOPHYLLUM CAM
MOLLUGO L.

SCLERANTHACEÆ; constituted 1821 by Link; 4 g, 14 sp; small, inconspic herbs; diff fr Illecebr, by abs. of petals & stipules; lily this than, rather, gorgeous Chenopods. In Bawen fields, Bus; As, NAm; in sandy pl. in Chem; beyd the tropics: 1 sp in Peru. "All uninteresting weeds of no kn use."
Scleranthus L., KNAWEL.

Habrocia Fenzl, and Guillemimia HBK and Dilatarina Forst. (Ditoca, Banks).

LILLECEBRACEÆ: constituted 1799 in Gt. Garden of Paris, as Herniariae; as Illecebraceæ, 1810; by R. Brown; as Paronychieæ, by St Hilaire, 1815? made an order by Lindley, as KNOTWORTS.
Herbs, or half-shrubby; lvs sessile, entire, aft fascicled; scarious stipules; minute flrs on scarious bracts; S5 P5 St5 C1 Seeds 1 erect. Distd fr Caryoph. by stipules; fr. Paronychieæ by position of the stamens bef the sepals not before the petals; fr Houdecha by no discrete carpels; often agree in habit; Spergularia is link to Finks. 24 g, 100 sp.
S of Eur & N of Af are the home; there pcrop in most barren pls, covering on the vegn veil which is incapable of anything else. A few at Cape GH; N Am & Mex have sol. Only sensible property is a trace of astringency.

Herniaria Tournef.

Illecebrum Gärtner, 1. Paronychia was cmdd by Sibthorp to be prob the P. of Hippocrates, aft spl study of plts of Gr & the sept history.
Dim. sequelæ, of Alp, ARABNITES, much used in Fr. used as beverage & be tonic for weak digestion.
Paronychia Juss, (the Anychia of L. C. Rich) Hippocrates, f. of med, d 377 B.C. at Larissa, fr. wrote Paronychia as gd remedy for felons &c. vesicles on nails or jts of fingers & toes; hence Nail-wort, Whitlow-wort for P; Sm. sus belief to be hair P; mfg. beetles to be stars (crops); ass. Brake, weeds, hence its Whitlow-Grass; &c. Illecebrum. Sh. astringency the only medical qual now kn in this?. Cited and by Pliny only one in type of Flos order Paronychiaceæ, dissd fr Caryo- by stacking stipules. Sepals green, petals minute, Rarely sp. is ones. Hairy-grass, Rarely fr. named fr silvery leaves of hair in the ground; hence Sc. call it SILVER-HEAD; in White Mtns, in people, called Whitlow-Grass; Allage Gnaddle Bit; probs of PO Brazil.
Telephium Tournefort

Ortegia Linn. (the Ortega of DC, Juncaria of Clus)
Aphanecia Mart.
Degenaria Willd.
Stipulicida, Schlt, and Polycarpon Linn., and Polycarpon, Lam. and Pollichia, Ehrhard, and Loeflingia, L.
Spergularia Pers. the Lepigonum, Fries, Stipularia, Haw, Delile, Dumort, Balardia, Cambess.

Spergula L. S. arvensis, SPURREY, was cultd as food for sheep.

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PORTULACACEÆ so constit, Juss, 1789; succulent, herbs or shrubs; lvs entire, alt, ∥ stipules; oft on bundles of hairs in axils. Flws ephemeral, expand only in bre sun; S2 P5 St variable C1
Not easily distg fr Finks exc by the sepals 2; for the pay flrs in two becm inconspic; the succulence ~~was~~ increased in some. Also in dry, parched pls; esp at C of GdH & SAm; 1 sp in Guinea, 2 in Busy, 1 in Eur; ds elsewhere. Usual qualities are insipidity, want of smell, dull green foliage. 12 g, 181 sp. 4 gt.
"Many of the sp are beautiful objects on account of their large pay dec" Ly.
Portulacaria Jacq (Hamilea, Salisb) Anacampseros L (Telephiastrum Dill, Rulingia, Ehrh, Aiznia, Mey.)
Grahamia Gill (Xerosanthus Miers) Monocosmia Fenzl. Montia Mich. (Montioides, Vaill.) Talinopsis Gray
Talinum Adans (Phemeranthus, Raf. Talinastrum, DC, Talinellum, DC, Lutnoca, Bat). T. patens in Brazil is of similar qualities to Purslane. Fld 1787 by Adanson; 1 g, 24 sp; As, Am, Af; all tropic & trop. T. sesquilaxum name for the gt. reg Efeliffor:
T. teretifolium, Fld by Blocha as Fame-de, Ta to Cel, Ta to Bs; ases the in colonial, my opinion Eng has no potato in let than Ta, Ca, Bs, 6, then S. Int ases 1691 in Fld.
Calandrinia HBK, (Cosmia, Denb, Cistanthe, Spach, Tegneria, Lily, Rhodopsis, Lily, &c). Some have prop. of Purslane.
T. [illegible] Fr. goes to regard [illegible] Ta, Ca, Bs, 6, then S. Int ases 1691 in Fld.
Portulaca, Tourn. (Mexidiana, L, Mexida, Neck, Lassia, Va
P. oleracea L, PURSLANE, the avipogyn of the Gnks; the antiq as a pot-herb, & in salads, in sort of its cooling & anesis co stewed in wine, to be an emmenagogue.
pc, 187

Claytonia L (Limnia, L); the tuberous root of C. tuberosa C. perfoliata in NAm. has similar qualities to Purslane.

—A botanist has attempted to estimate the number of seeds found upon a single specimen of some of the most obnoxious weeds of this country. For shepard's purse he makes the number 37,500 per plant; dandelion, 12,108; wild pepper grass. 18,400; wheat thief, 8,000; common thistle, 65,366; chamomile, 15,920; butter weed, 8,587; rag weed, 4,336; common purslane 388,800; common plantain, 42,200; burdock, 38,069.

CRASSULACEÆ, HOUSE-LEEKS. So emetic by DC, 1801; but by Juss, as Sempervivæ 1789, and by Vent. as Succulentæ, 1799: the Sedeæ of Syrempel.

Succulent; hearts or shrubs; lvs entire (or pinnatifid). 0 stipules. Flrs in cymes, sessile. S_{4-20} P_{4-20} St_{eq} or two C_{4-20}

DC suggests the real affinity is w Saxifrages then Penthorum, & w Ribesiæ, thro' Tillæa. Both these orders lack the hypogynous scales of Rosæ, I at base of each corpel; DC thro' the analogy to structure w Rosæ.

Ly puts them in Violets; his people remain on the material, p. 345.

Distichia, see Ly, p. 345. 28 g. 450 sp; esp at C&H, where DC ed out of 672 he knew 133 are perennial at C&H

Tillæa Mich. [Bulliarda DC]

Crassula Haw, (Petrogeton, Sarcolipes, Petrophyle, Purgores, Pyrgores, Gomara, of authors)

C. tetragona, heritage boiled in milk, used as C of C&H sp dysentery

Rochea DC, Cyrtogyne, DC Pistocinia, DC Procrassula Gris Aithales, Web.

Bryophyllum Salisb, B. calycinum is that a vulnerary.

Kalanchoe brasiliensis smarts from an excn to the gal acid & similar prepn of oxalic, but not to the refrigerancy, the Brazilos say it so.

Cotyledon DC

Umbilicus DC, (Cotyle, DC, Cotylephyllum, Link, Rosularia, DC ex)

Echeveria, DC (Pachyphytum Kl)

Sedum L. (Sedulula, Anacampseros, Tovia) acc pen, cimpsl

S. telephium, the "orpiment to purgers" "the little Sweetling" of Dioscorides, certainly partake of refrigerancy

S. Telephium, ate pigeons; lvs boiled in milk are used by co-ple in diarrhœa; " " "

S. acre, named for its acridity; a rubefacient emetic & purgative.

S. rupestre, so esculent, its lvs, among Greek dishes.

S. dasyphyllum, lvs of in leel, rubd ang-cats that a excn cure for worms in horses.

Sempervivum L. (Jovibarba DC, Macrantha, DC, Chromanthum DC; Aichryson, Euaeium, Greenovia, Petrophye, of H&H)

S. glutinosum, the Erisão, fishrone of Madeira rub for nets w its stick lvs, by wh they are rendered as durable as if tanned, provided they are steeped in some alkaline liquor.

S. tectorum, HOUSELEEK; malic acid in it combd w lime; exhibits also constantly the singular phenom of natures healing wounds in vegtbls. Medullary cays & woody structure, Ly p. 345.

PRIMROSES

Consist as Lysimachiæ 1789 by Juss; Primulaceæ, 1799, Vent.

Herbs, anl or peren, lvs radical 0 stipules flrs umbelled scapes, S_5 P_5 St_5 C_1 Pyxis

Diff to disg to Androsaceæ, Myrsinaceæ a woody fruit, wh are dicotyledons; wh ho stam oppos petals.

Relationship held by Ly w Nightshades and Diospyraceæ: he puts P in Contusales, p. 644.

Impetes, nos, 29 g, 215 sp: chiefly as pretty pets, of impetes for accorns in case of Pn.

Structure w 5 oppos stam I engl as due to suppression of those 5 wh are alternate [and wh are at first in an outer circle]; still ed, however, in Samolus, Lysimachia ciliata, hybrida,

Cosm, in N w alder gts; in marshes, hedges, groves, by fens & rivulets, even among the moss of cloud-capd mtns; unions ang-tropics, & these usually on sea-shores or summits of lofty hills.

Cultures as beaut. Mjs of culture, these rarely cultivated wh are not highly prized, both on acct of their bce but modest lig flrs, the earliest harbingers of spr, & also for sake of the frags. "Ly,

DOUGLASIA Ly, ed by the trawbs D, blooms wdel cov w snow, on the Rocky Mtns of Asia.

ANDROSACE Tournef (Androspis, Duby, Aretia, L.)

MACROSYPHONIA Duby. GREGORIA Duby (Aretia, to Gaudin, Vitaliana, Sessl) DIONYSIA, Fenzl PELLETIERA CORTUSA fr gus n to Lily alliance Contusales: next p, to Pn.

ASTERULINUM Link et Hfs. LUBINIA Link et Otto. COXIA, Endl.

CORIS, Tournef. C. monspeliensis was used in molen of Sp monastic vedore as a more efficacious vulnerary, when dried & reduced to powder; also he prescrbd in syphilis.

DODECATHEON L, (Mediola, Cortusa, Jacquin, the SHOOTING STAR, grows the first of the flr gds, flows 10° fr Pendleton, Idaho City, Oregon, Boise City, Idaho, Salmon City, Idaho, Virginia City, Nevada, Sacramento, Cal, Portland, Or; only varies in taking off by usually slender, blunter anthers than Ath. E. Dodecander Gr, on Riverside, that is the finest of their well flrs; the scapes in a molten bore closely, a lie, bent back at base, allowing straight up as if to hold its head above its neighbors bed, unconcerning its handsome face to the gaze of its companions, & their blushes & looks down, never again daring to raise its pretty face. — Some of them open slowly & quietly spread out its lavender-lilacs.

SULDANELLIA Tournef. Sp. acc slightly purgative.

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PRIMULA L (Auricula, Endl, Alcuritia, Endl, Auganthus, Link)

P. veris, COWSLIP, flrs pozous ovl mled sedato & diaphoretic properties, & yield a pleasant aspecific voice.
Fresh root has a smell resembling anise; formerly used as a tonic nervine, also as diuretic.

Shkp 6 Ellac 49, 53 and Cuckoo-bud, Fervis-thlip Shkp meant the C by Cobbold, but the Evening, Ellac.

Day's Harbinger Cowsip dancing to the Zephyr's breath with her
Pale flowery Ray, who from her green lap throws
The yellow Cowslip & the pale primrose blows.
Rhind 581 500 varieties.

P. auricula, AURICULA, lvs used in Ales as a remedy for coughs

P. officinalis PRIMROSE, early called Fraxyouckle when that name was applied to many sweet scented flrs,
Ellac 175-180 Shkp 8 Rhind 580-1

Her modest locks the cottage maiden adorn,
Sweet as the PRIMROSE peep beneath the thorn
Thee, whom my Spring here quaffed Wordsworth
And daed the purple flowers to the sight.
Thee, on this brink, he threw
Triumph his victory. To an Early Primrose
Henry Kirke White
With offerings of a dark & subtle juice
Where modest Grace, in delicately true,
With succest in unbridled storms,
And revelled in the wilds. Jo.

P. elatior, OXLIP, Shkp 2 Ellac 148 Rhind 581

P. vulgaris, POLYANTHUS, Rhind 580, cult of + vars, w scape bearing an umbel, unlike Primrose its one, wh bears its flrs on nds peduncles from any lvs.

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CYCLAMEN Pourret. Sp are called SOWBREADS bec. they are the favrite food of the wild boars in Italy; yet they are very acid. plts, esp the root, wh acrimony is not much perceived at the 1st taste, but soon becomes intolerable. Used medicinally; acts, a drastic purgative; formerly was much esteemed as an emmenagogue; whether vegetn was ever fit to actual powers or placentiform root is uncertain.

Capsicum; mod Gacks use the bruised root as a wash to drive the Sepia vesicatoria from its holes; roots, alcoholic acids, are eatable & inocuous when dried & roasted.
Rhind 590

GLAUX Tournef. vendell as Agatalowa.

NAUMBURGIA Willd. (Thyrsanthus, Schrank)
N. thyrsiflora. pendulous on its petals the brown linear spots of an Aeolidia, Lily.

LYSIMACHIA Mench (Bucegale, Nedlycia, Bernardia, Alapa, et Baudo, Palladia, Ephemerum, Rafe)
Rom. lind. "pl. they liv as Lysimachia, and rev be Lutewela of Tf." "Lysimachus's rival receiver of cultivers." Name "in dir. Aeryngion" to Lu, kind Illyria who wore the fire bracelet it me". Sylvium 1910. Pliny says same n. was given to a press same w. veins of gold shine" 1c. Meechan says he gold coin like dis[illegible] n. to rec. the jewel. Pliny says it bro. other pl. are sold on a spike of quivering reen in wl quiet. theent; alude to ch. Sir Wm. Hooker says the pl. is to Aeolis release from, pain & strife; adopted by Paxton & Johnson x all Anthos, philologists.
In quadrifidella, Lu, tyd. by Meechan, has concep. nonsense; "urinary acuptic; the distilled water is cosmetic, & its smoke drives away mosquitoes". (R. decor by Plukenet, as Anagallis lutea; var. w. dotted wr, (L. punctata, Mx) x w. hairy stems, (L. hirsuta, Mx), w. lvs in 2s, 3s, or verts in same plt; x petals may be 6 instd of 5. Scotia Atl. to SC; W to Mich.
L. nummularia, Eur. moneywort; lvs steeped in oil destroy insects x worms infesting granaries" Archer.

STEIRONEMA Raf.

TRIENTALIS L.

ANAGALLIS Tournef
A. arvensis (A. coccinea) MOURON of the Es, had reputn in cases of madness; hv cucegetic pr; Dr Gala lo a dg w. 3 drachms of extract, wh inflamed the mucous membr. of stomach; Grenier did same. Used in epilepsy & dropsy.

HOTTONIA L. (Stratiotes, Vaill)

SAMOLUS Tourn. (Shefheldia, Fore) Common in Australia.
S. Valerandi à Europe.

PLUMBAGINACEÆ, is pl. nr. Primroses by Lily; 11 g. 231 sp: largely of Medit. sale-marshes, of Affghan, x S. Russia.
Statice, MARSH RUBEMARY (Limonium Tourn); the Ko-shi-i-Buzurch, large pt. of Cabul trad, con. of vars. sp of this, Nearly whole order is priced for healing, esp. the Sp, any of wh. we say she not lovely, author pay we ken Ocrs.
Armeria, Fr. ZERIPP, A. vulgaris is an over diuretic herb. S. Carolinianum is an astringent petal astringents.

Plumbago, Mawu, LEADWORT, P. zeylanica, fd. for Ceylon & Mr Jackson. P. europea is used by beggars or raise blisters as the tridy root used in Arkansas as a vesicant. P. scandens is the Herbe du diable of the Bonapartists wh. blister. Rosea root, blad, applied to blind blisters. P. zeylanica, bruised fresh bark of root applied

VIOLETS

Constit as Violariae, DC, 1803, Juss, 1811, &c; as Violaceae, Ly. 1829.
Herbs or shrubs. Lvs simple, alt, stipulate, involute in bud. S5 P5 St5 C1
Sepals persistent, imbricate in bud, usually elongate at base
Petals hypog., withers, slightly convolute in bud
Stamens on a hypog disk, oft unequl. Anthers close on ovary, bursting inward, connecting as sepet, 2 celled.
Filaments dilated, lengthened by the anthers; 2, in the longl Fs, appendaged at base
Ovary 1 seeded, (rarely 1) or 3 parietal placentae opp the 3 outer sepals.

Relas; Rock Roses, (Cistaceae) diff in indef stamens; Sundews by O stig, 1 styles, circinate lvs; Passion-flowers by adnexe of petals to tube of calyx x the lg stalk of ovary. Ly classes them in Violales, w Passifloraceae, Frankeniaceae, x 6 con. fam[illegible], diffg by parietal placentae to be Hypogynous Fams; to wh. allies he adds (badly) the confessedly defal fams Cucurbiac-, Tamarisc-, Moringac-.

Importce; a no of medcnl uses; but prin. value for beauty & assocn w. thft.
Distrbn; 2 suborders; Alsodeae are in S Am & Afc, exc Pentaloba Lour. wh is of Malayan Flora.
Violeae chfly Eur Sib, Am; few only in Asia, there in tropics. Many in S Am., there being many shrubs, whl in the N, herbs.
Nu's, 11 g, 300 sp; + 4 g.
Properties, roots emetic, S Am. strongly so, Eur somewhat less; hence they form part of the barks &c as Ipecacuanha

VIOLA L. (Erpetion, DC, Mnemion, Spach, Cittarocium, Rchb, Hybanthus, Jacq. Solea, Spreng, Pigea P
Eliza Enzy, 151 (Ably 3)
" Violets 244 " " 18

IONIDIUM Vent (Solea, Pombalia Vand)
I. parviflorum x Afs, called CUCHUNCHULLY in Peru, are oilent purgative & emetics; hv a pot reputn for curing the disease ill Cocobay in Jamaica, Mal de Chapare in S Am, the Elephantiasis tuberculata. Dr Clark says Jam. is subtitle for Ipecacuanha. (the true is the root of the creeping Cephaëlis Ipecacuanha, et Braz damp forests, of Cinchonaceae)

I. Poaya used by Braz. as subst. for Ip., the POAYA

I. Itubu Kunch, POAYA de ERAM, POAYA BRANCA, root com. sold as true Ip; vy nc it in grips; at Barnaul bruc thft the cy best remedy apt dysentery; inhabs of Rio Grande del Norte talk it a specific apt gout.

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NOISETTIA Kunth (Bigelovia, DC, Violacoides, Mitchx)

ANCHIETEA StHil. (Noisettia, M & Z) A. salutaris, a crep bush, w smell of Cabbage, & nauseous taste, that in Bras a purgative & remedy apt skin dis. Same prop's ascr to it as to V. cornuta, arnica, in appc.

SCHWEIGGERIA Sprengl. (Glossanchen, M & Z)

CORYNOSTYLIS M & Z. (Calyptrion, Gingl) Twining stem; pend's a berry; the link to Passiflora. the singular spurred & perianth Bras fig'd Bot Ly, p. 338. of C. Hybanthus.

AMPHIRRHOX, Spreng, (Amphirrhoge, Rchb, Spathularia, StHil, Bradleia, Fl. Flum.)

ALSODEIA Thouars (Alsodea, M & Z, Conchoria Kunth, Ardl, Dripax, Nimah, Physiphora, Sflord, Riana, Amst Passoura, Ardl, Rinorea, Ardl, Cerasthera, Palis, Passalia, Rotond, Rhoesthesia, Flum.
A. (Conchoria) Lilbotbo, lvs used in Bras as Spinach w us; boiled, becomes mucilpus.

TETRATHYLACIUM, Pöpp.

PENTALOBA Lour. (Vareca, Rxdt)

HYMENANTHERA, R Br.

NECKIA, Mitchx.

EYELICYPUS Kocker

LEUNIA RP. (Steudelia, Mart)

PAPAYBULA Aub. (Periclistis, Benth)

VIOLA. Rodriss rip. the sides embrace) ech the seeds some distance; the cuple in Eng tbk these tche pl breeds flows.
V. cornuta that a gratful apt to cosmo skin dis. [so its distinctiar lkg bdy, Anchietea, in Bras,] in Eur.

V. ovata sd to be rem for rattlesnk bite
V. hirsuta, HAIRY V, Rhind 586

V. tricolor; bruised lvs smell lk Peach kernels; supd to cos Prussic acid hence; once thot useful to cure skin disease; stl used in It in tinea capitis
Rhind 589.7

V. odorata, petals used as laxativ for chd, I drachm operately qu freely; seeds hv similar powers; root emetic, purgtv. Aqueous tincture of lvs is a useful chem test; uncombined acids chng the tint red, & alkalies to grn. Romans had a wine made of V flos: they asc sd to be stl used in preparing the Grand Signor's Sherbet. Some thk the flos an anodyne; they certainly produce faintness & giddiness in ten constitution, as Lily had witnsd: & Trillier mentns a case in wh they produced apoplexy. SWEET VIOLET Rhind 586

V. pedunculata "the (Wild V. of Cal) Wilt Phayer" I first saw it belonging to Almond Rock G. San Jose; growing in a pasture where cows were feeding! but yet, states turned to the sun covered nearly ½ acre of ground." Flrs large 2: V. pedatifida, bra. centres, & upr petals bronzed beneath. Stemless, lvs cordate, vs S. V. ascendens.

VIOLETS

Ancient History; Rand Rosa's oft mention the Violet tog w the Rose & Lily, as an ornament to the garden & the person. Varro, bef the fall of the Repub, advised those having land near Rome to plant V and roses as a profitable speculation, & names the best season for doing so; Heliogabalus had his palace rooms carpeted with violets, amongst other flowers.

Origin in cultn, was from A Minor; ie, as a garden flower & in its imported forms; Gr. Ἴον originally viox, L. viola dentless from it; hence conclusn that its cultivation came from Asia to Gr, thence to It,

Homer uses ἴον in describing the woodness scenery round Calypso's cave, where it grows in moist meadows with the parsley "bad-company for it", Theas; "but even here it means any dark-colored flower, whether scented or not" Helm. He uses ἴον also in descriptive adjectives, io-eidas, io-dnephes, io-eis, but no reference to dark color, nor scent. When later, the variegated light-edged violet was distinguished from the dark, the light generally meant both the gillyflower or Matthiola incana, & the wallflower, Cheiranthus cheiri.

Parkie says Horace with the poets ever since Homer wrote of it, as he had seen it many a time in the far off isle, on the "rushy banks" of the Meles. "Ev' who appeared
Meadows of sweet violets pimpled o'er With violets, it was or scene so fair,
A god from heaven with wonder and delight.

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NOISETTIA

ANCHIETEA

SCHWEIGGERI

CORYNOSTYLIS

AMPHIRHOX

ALSODEIA

TETRATHYLACI

PENTALOEA

HYMENANTHERA

NECRIA

DIELICTOR

LEUNIA

PAEVAYRULA

VIOLA.

V. ovata

V. hirsuta, HAIRY

V. odorata, petal

V. pedunculata

Violets.

Written for THE EVENING STAR.

Sweeter flowers were never shaped
Than violets, that blow
In tenderest azure, just escaped
From prison 'neath the snow.

They smile, like babes on mother-breast,
And breathe an odor fine,
As if they were but lately pressed
To lips of the Divine.

The boisterous winds, that sway the trees
'Tween earth and sky, it seems
Touch with the lightest touches these
That are but shaped for dreams;

And grasses cross, like sabers bright,
Above each little head,
As though to guard them, small and slight,
From careless human tread.

Ah, frail, pure flowers! the angels know
What thy brief mission is;
They melt with love the winter snow
To greet thee with glad kiss;

And human hearts are blessed by thee,
Thou harbingers of Spring,
Born from a year's sweet mystery—
God's floral offering!

April 16, '88. —MARIE LEBARON.

HUMILITY.

BY J. WILSON WARD, JR.

THE violet bows its lowly head
And bends its pliant form,
While overhead high-towering oaks
Defy the embattled storm.

The tempest o'er, while shattered oaks
Their desolations mourn,
The violet lifts its smiling face,
Without a petal torn!

Her hands are cold; her face is white;
No more her pulses come and go;
Her eyes are shut to life and light:
Fold the white vesture, snow on snow,
Bat lay her where the violets blow.

Put not beneath a graven stone,
To plead for tears with alien eyes,
A slender cross of wood alone
Shall say that here a maiden lies,
In peace, beneath the peaceful skies.

And gray old trees of kugest limb
Shall wheel their circling shadow round,
To make the scorching sunlight dim
That drinks the greenness from the ground,
And drop the dead leaves on her mound.

When o'er their boughs the squirrels run,
And through their leaves the robins call,
And ripening in the autumn's sun
The acorns and the chestnuts fall,
Doubt not that she will heed them all.

For her the morning choir shall sing
Its matins from the branches high;
And every minstrel voice of spring
That thrills beneath the April sky,
Shall greet her with its earliest cry.

At last the rootlets of the trees
Shall find the prison where she lies,
And bear the buried dust they seize
In leaves and blossoms to the skies;
So may the soul that warmed it rise!

If any, born of kindlier blood,
Should ask: What maiden sleeps below?
Say only this: A tender bud,
That tried to blossom in the snow,
Lies withered where the violets blow!

Digitized by Hunt Institute for Botanical Documentation

Silver Medal,
St. Petersburgh 1884.

Gold Medal
from his Maj. Emperor William I.

Silver Medal,
Paris 1887.

Diploma of Prize,
Vienna 1873.

Silver Medal,
Cologn 1875.

Great Silver Medal,
Berlin 1885.

Royal Prussian State's Medal,
the first premium at Berlin 1885.

Silver Medal,
Cologn 1888.

1889.

Special Cultivation

of

Viola tricolor maxima,

Heart's-ease or Pansy (Pensée).

H. Wrede,

Pansy Specialist,

Lüneburg

(Germany), near **Hamburgh.**

Silver Medal,
Dresden 1887.

Digitized by Leibniz-Institut für Sozialwissenschaften und Sozialdokumentation

Gold Medal,
Hamburgh 1887.

Gold Medal,
Leipsic 1884.

Silver State's Medal,
Hannover 1883.

Great Silver Medal,
Frankfort on the Main 1884.

Bronze Medal,
Berlin 1878.

Silver Medal,
Hamburgh 1869.

22 great Silver Medals,
Hamburgh.

Silver Medal,
Bremen 1874.

Silver Medal,
Erford 1876.

Gold Medal,
Antwerp 1885.

Bronze Medal,
Prague 1884.

For many years I have cultivated this lovely flower which, on account of its endless variety and the charming shades of its colors, is generally prized as one of the most beautiful flowers and is a great favorite with many people.

By the most careful selection and treatment of those plants which are set aside for seed-bearing, every Variety is being constantly improved, and beautiful Novelties are produced every season.

The extraordinary perfection of my flowers is attested by the highest prizes which were awarded to me at all the great Exhibitions held at **Hamburgh, Berlin, Vienna, Paris, St. Petersburgh, Antwerp, Bremen, Stuttgart, Cologn, Erford, Dresden, Leipsic, Prague, Stettin, Breslaw, Frankfort on the Main, Lubeck, Kiel, Cassel, Hannover, Lüneburg** etc., so that since 1869 I have received 85 first prizes for the beauty of my Pansies, among these at Berlin 1885 the Royal Prussian State's Medal, at Hamburg 1886 a silver goblet, at Paris 1887 the Silver Medal, at Hamburg 1887 the Gold Medal and at Cologn 1888 the Gold Medal of his Majesty Emperor William I.

Pansy Seeds.

Those marked with * are adapted for carpet bedding and arabesques.

Brown with gold bronze.
Black with gold bronze.
Black with violet.
Dark Fine sorts.
***Dr. Faust, jetblack.**
Five-spotted on white ground.
Five-spotted on yellow ground.
Five-spotted on red ground.
Five-spotted colored.
Five-spotted mixed.
Large-spotted on white ground.
Large-spotted on yellow ground.
Large-spotted on red ground.
***Large-spotted white.**
Large-spotted white with blue edge.
***Large-spotted yellow.**
Large-spotted yellow with blue edge.
Large-spotted mixed.
***Light blue.**
***Emperor William, ultramarine blue.**
Dark blue, favorite sort for bouquets and garlands.
***Blue black shaded.**
***Purple violet shaded (Lord Beaconsfield).**
***Purple violet.**
Rosa lilac.
Striped on lilac ground.
Striped on bronze ground.
Striped mixed.
Bronze.
Bronze with yellow centre.
Velvet brown.
Havanna brown.
Havanna brown with yellow centre.
***Deep yellow.**
***Goldelse, clear yellow.**
***Pale yellow.**
***Snow-white.**
***White.**
White spotted with violet.
Silver-seam.
Purple with yellow edge (fiery colored).
Purple with white edge.
***Purple-mantle.**
Marbled, dark.
Marbled, white ground (White edge).
Marbled, yellow ground (Gold edge).
Marbled colored.
Marbled mixed.
Gloriosa perfecta (Quadricolor), steelblue with red and white edge.
Black with red and white edge.
Black with red and yellow edge.
Little Red Riding-Hood.
Trimardeau, large-spotted Giant.
Cassier, three- and five-spotted Giant.

Digitized by Hunt Institute for Botanical Documentation

Each sort separately:	Per ounce (30 Grammes)	30 ℳ.	= Doll. 7,50.
	» 10 Grammes	10 »	= » 2,50.
	» 1000 seeds	2 »	= » 0,50.
	» pkt.	50 ₰	= » 0,12½.

An assortment of 40 Fine sorts of each 1 pkt. selected by myself		12 ℳ.	= Doll. 3,00
" " " 30 " " " " 1 " " " "		9 "	= " 2,25
" " " 20 " " " " 1 " " " "		6 "	= " 1,50
" " " 10 " " " " 1 " " " "		3 "	= " 0,75

A mixture of all sorts of Sample flowers.

(Nearly all these produce only the finest flowers.)

Per pound = 16⅔ ounces (500 Grammes)	240 Marks	=	Doll. 60,00.
» ounce (30 Grammes)	15 »	=	» 3,75.
» 10 Grammes	5 »	=	» 1,25.
» 1000 seeds	1 »	=	» 0,25.

A mixture of Exhibition flowers.

(This seed is only taken from the most splendid flowers.)

Per 1000 seeds	10 Marks	=	Doll. 2,50.
» 100 »	1 »	=	» 0,25.

The prices are quoted in Dollars and cents or Marks and ₰. (1 Dollar = 4 Mark, 1 Mark = 100 ₰.)

Amateurs of Pansies are kindly invited to visit my establishment and inspect the cultivation of these plants.

Lily of the Valley, Novemb. and Decemb. delivery,
1000 strong Pips incl. Emb. 6¾ Doll. = 27 Marks.

Ordres are only attended to on receipt of cash.

Lüneburg (Germany), 1889.

Heinrich Wrede.

Digitized by Hunt Institute for Botanical Documentation

German Pansies.
H. Wrede, Lüneburg (Germany),
near Hamburgh.

W. Stern'sche Buchdruckerei, Lüneburg.

NUISETTIA A

ANCHUSEA

SCHWEIGGE

CORYNOSTYL
the singular opu

AMPHIRRHOX

ALSODEIA TE
Passerina, Aust, 1
A. (Coatanoda

TETRATHYLA

PENTALOEA L.

HYMENANTHERA

NECKIA

MELICYTUS

LEONIA RR.

PAYPAYRULA

VIOLA. Rodri
V. canina that a

V. ovata sd to b
V. hirsuta, HAIRY

V. tricolor; beauti
skin distinctive; set
Rhind 580.)

V. odorata, pet
Aqueous tincture of
Romans had a wine
Some this the Rs an
ments a case in wh

V. pedunculata
where corns cover
from centres, & upr

Pansies

They put in his hands as his bosom bore Pansies and Goldenrod,
And kissed him, praying softly, & left him alone with God.
They made him a grave in the garden where the Pansies bud & blow
And the Angels when she sees them that they are her baby's eyes,
Smiling in winsome beauty out of her Paradise.

E E Rexford

Color of Flo — Pansy Strawberry

1 Epid cator of epid papillae
4 below Stoly rdd "
2 Und use epid is a layer of ~~rounded~~ compact cells
3 " this last use sol rows of some cells w conspic intercellr spaces
1 & 4 contain pigments
2 " air in spaces
3 " air in spaces

Where chr is violet, due to 1
yellow 1 w O sap
or shades 1 w varied sap
(cn may be also any chr in diff pts of flo)
wht 3 air, refracts
tint 3 if air sup'd out
Wht, pale yel & yel not com the colors

Digitized by Hunt Institute for Botanical Documentation

NOISETTIA

ANCHIETEA

SCHWEIGGE

CORYNOSTYL
the singular spu

AMPHIRRHOX

ALSODEIA
Passerina, Mutt,
A. (Cordocia

TETRATHYLA

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PAYPAYROLA

VIOLA.
V. canina that a

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Rhind 589.)

V. odorata, pe
Aqueous tincture of
Romans had a wine
Some thk the flos an
ments a case in wh

V. pedunculata
where corolla
from centres, & upp

From Irene E. Jerome's "A Bunch of Violets"

Look at us, said the violets,
All last winter we slept in seeming death, as your
dead are sleeping now, but at the right time God
awakened us, and here we are to comfort you.
E.P. Roe

Once more full fetiape crowns the Spring, & by her magic spell
The shadows dark are charmed away which o'er my spirit fell.
I hear her low voice as she lulls the violets on her breast,
Or combs the pine-trees flowing hair upon the hilltops crest:
I know her haunts in glade & glen, for where her footsteps pass
Springs up in Eden loveliness, the radiance of the grass.
Each tree she kindles by her touch bursts into leafy flames
And the desert burning bush, God's presence there proclaims.

Hark! upon the east-wind piping, creeping
Comes a voice all clamorous with despair;
It is April, crying, sore and weeping
On the chilly earth so barren and bare.

"When I went away, the mummers, siblings,
All my violet tables were crowed with blue;
Who, O who has been so basely robbing
Blooms and odor from the fragrant crew?"

Thus she plaineth. Then ten million voices
Tiny, murmurous like the drops of rain,
Raised in song as when the wind rejoices,
Ring the answer, "We are here again!"

"We were hiding, April; did you miss us?
None of us were really gone away.
Stoop thy pretty head and gently kiss us
Once before we all come out to play."

Little points of green push out to greet her,
Little creepers grasp her garments hem;
Hidden sweetnesses grow even sweeter,
As she bends and brightly smiles at them.

Every tear is answered by a blossom,
Every sigh with songs and laughter blent,
Apple-blooms upon the breezes toss them,
April knows her own and is content.

Susan Coolidge.

Digitized by Hunt Institute for Botanical Documentation

NOISETTIA

ANCHIETEA

SCHWRIGGE

CORYNOSTYL

the singular cyan

AMPHIRRHOX

ALSODEIA

Passerina, Auct.

TETRATHYLA

PENTALOSA

HYMENANTHERA

NECKERA

VELLEYTUS

LEONIA

PAYPAYRULA

VIOLA. Rodo

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Rhind 589.)

V. odorata, pe

Aqueous tincture of

Romans had a wine

Some this the flos a

ments a case in wh

V. pedunculata

where corn cockle

from centres, 2 upp

The violet gleams thro' the golden sunbeams,
And whispers, Come look for me here
In the beautiful spring of the year.
O wonders of God! O Bounteous Good!
We feel that thy presence is here,
That thy audible voice is abroad in this wood,
In the bountiful spring of the year,
And we know that our Father is here. Jas T. Fields.

Violets, violets, sweet April violets,
Sure as the Spring comes, they'll come too
First the white & then the blue — Pretty violets.
White, with just a pinky dye;
Blue as little baby's eye! — So like violets

Springing up among the grass,
Saying, "Pluck me", as we pass, — Scented violets.
Dinah Maloch Craik.

It seems a consecrated thing,
This early blossom of the spring; ...
A grace of soul within it lives,
A charm too deep to understand. Irene E. Jerome

Take of my violets! I found them where
The liquid water stole over them as a lake
Over lovely & admiring nature. There's to me
A daintiness about these early flowers,
That touches me like poetry. They blow
With such a simple loveliness among
The common herbs of pasture, & breathe out
Their lives so unobtrusively, like hearts
Whose beatings are too gentle for this world.
N.P. Willis.

I have found violets. April hath come on;
And the cool winds feel softer, & the rain
Falls in the beaded drops of summer-time;
You may hear birds at morning and at eve. ...
And from the hills
A murmur like the hoarseness of the sea
Tells the release of waters, and the earth
Sends up a pleasant smell, and the dry leaves
Are lifted by the grass: and so I know
That Nature with her delicate ear, hath heard
The droppings of the velvet foot of Spring.
N.P. Willis.

Leaf-hidden violets! fragrant young violets!
Meadows and brooks have been lonesome for you!
Thro' Winter's darkness, sweet-hearted violets,
Have you been dreaming of heaven's own blue?
Is April fitful, more shrewish than tender?
Still you smile on in your violet way,
Roses are waiting June's passion and splendor
But you are like true-love this cold rainy day.
F.B. Calloway.

I found a shy little violet root
Half hid in the woods, on a day in Spring;
And a bird flew over and looked at it too
And for joy as he looked, began to sing. Irene E. Jerome.

The sky was the tenderest blue above,
And the flower like a bit of the sky above below, —
And between them the wonderful winds of God
On heavenly errands went to and fro.

Away from the Summer, and out of the south
The bird had followed an instinct true
As out from the brown and desolate sod
Stepped the shy blossom with eyes of blue.

And he sang to me in the voice of Spring
Of all the joy the world could bring,
And how beauty and fragrance answered him
While the Spring and he bent over her,
Louise Chandler Moulton.

What will the violets be,
There in the Spring of Springs?
What will the bird-song be
Where the very tree-tops sings?
What will the Easter be,
Where never are dead to mourn,
And brightly the faces ask
O when will they all be born?

Brighter the Easter shines
On the faces here below
That our dear ones are behind the flowers
Shut in the living glow.

They know the secret now
And by and by shall we,
How in the Spring of springs
The violets came to be!
G.

Digitized by Hunt Institute for Botanical Documentation

PASSIFLORACEE; consit by Juss, 1805; 12 g, 210 sp. climbers; lvs alt; stipules foliaceous. 3 5 P 5 St 5 monadelphous, rarely +, C 1 styles 3 ovules + ; 3 parietal placenae. Fruit stalked; berrate. Seeds in svl rows on placenta, w a brittle sculptured testa surrd by pulpy aril. Cotyledons flat, leafy.

Qua as to val nature of petals, disc'd by Liy, p. 332-3.

"The pride of S Am & WI, whr the woods are fill'd to their top, wh climb abt the tree to tree, scarce at one time flrs of the rite sticky beauty & of so sing, appr thro the zealots who disc them; adapted Chrstn trains to these inhabs of the S Am wilds, & at dr to fruit, tempts to the eye & refresh to the palate. One or 2 extd N into NAm. Svl in Afr, near is; a few in E I."

Fruit eatable; pop's drouse acty & rather dangerous. Rhind 375-6

Paropsia Noroh P. edulis of Madagascar, shrub, has eaten fruit.

Muracuja ocellata, W climber, ol to be anthelmintic, diaphoretic & antiphthisic

Smeathmannia, Sol.

Deidamia, Thouas

Dysomia, DC

Tacsonia, Juss (*Distephana*, Juss, *Distephia*, Salisb) 3 sp hv bite eaten.

Crossostemma, Planch.

Passiflora, Juss. (*Granadilla*, Tournef, *Cieca*, Medik, *Astephanantheo*, Bory, *Monachincirma*, Bory, *Anthactinia* Bory)

P. quadrangularis for the sce GRANADILLA sweet seed in our hot hs; root emetic; pr fully narcotic tog for wh called in svl Fr settlmts; activ, ed to be due to con. a poelr princ, Passiflorine, Rhind 608

P. rubra, tinctrse of Arr, mnd by infusn in wine or spirits, und n. of DUTCHMAN'S LAUDANUM, is used in Jamaica as a safe narcotic.

P. lutea, & S dis hv impt edl fruits; see uses of svl sp, Liy p. 333.

P. coerulea, ○ Cons Bfla Rhind 611

P. [illegible] = [illegible] Rhind 612

CRUCIFERS

Consit by Juss in 1789. Liy calls them Brassicaceae; plz them aing Cistales, next afr Violales.

Herbs, lvs alt, flrs yel or whs, seld purple; racemed; wt bracts. $\varnothing$ ↯ P_4 St_{4+2} $\bar{F}C_2$

Fruit a silique or silicle, & called by false partition, wh remains after valves fall away. St. Tetradym.

Relnship to Papaveraceae, by the siliquose genera Glaucium, Chelidonium

" " Fumariaceae, " " " " Seed structure diffr,

" Liy puts it in Cistales, alliance cgnd of Cistaceae, C, Resedaceae, Capparidaceae.

Imptce; its coating the genus Sinapis, Mustard, Cabbage, Turnip, Cauliflower, Broccoli, Kale, Savoy; and many flrs of ornamtl cultn.

Nos, p 173, sp 1600 Distribution, Rhind 652

Distrbn: "eminently Eur." 166 in N world Eur; 178 on the N shore or ields of Med; 45 peculr to Afr coast; 184 to Syria, Afm, Tauria, Persia; 99 to Siberia; 20 to Cashmir; 48 to N Am 41 to S Am; &c, goes in Liy p. 353. About 800 peculr to N, 100 to S hemi; DC, 1821; N Am much inc since.

Props, antiscorbutic, stimulant, no acrid Barre. Con + nitrogen, to wh due pcrb the animal odor when cutting.

MATTHIOLA RBr (Leucojum, Mönch, Lunaria, DC, Pinaria, DC, &c) STOCK
Rhind 589

PARONINIA, Webb, fruit figured Liy p 352.

CHEIRANTHUS RBr, WALL-FLOWER
Rhind 590

Mrs Jackson, The Wall Flower of the Ruins of Rome, in Vocelli

O Golden-winged, on-fused at crumbled gate
And fallen wall of emperors and kings,
Whose very names are now forgotten things,
Thou standest here, in faithfulness to wait
The centuries-thro, & of the ancient state
Keep up the semblance. Never fortress rings
Across the stones; & yet, if sun, but flings
One ray, a gleam, like gleam of burnished plate
On mailed arm, thy hands have lit, & sent
Along the gray & crumbling battlement,
And flung out yellow banners, pricked in red,
Which need not shame a royal house to spread,
Ah golden-winged, the whole of thy dear spell
I cannot fathom, & there will not tell.

Rome, Italy, May 7, 1869.

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IODANTHUS Ph.

NASTURTIUM Abr (Cardamineae, Mönch; Cardi-Gnaeliae M, Wettst; etc)
N. officinale Water-cress Rhind 28.9

BARBAREA Abr
B. vulgaris, Winter Cress (Rhind 300) bitter, subaromatic, whole plant so; used as a cognate salad in Eng. well ha. fed of these, cons in shady moist pls. Vel Hts Apr in Eng. Double cons; lea as Yellow Rocket.
B. praecox, American Cress, (Rhind 310) called also French Cress (native of Eu, annual, but hardy, ripens the seed in Sept.

ARABIS L (Cardamineae, CAMx)
A. Chinensis Rocket, pods pressed by Ind. des as stomachic, apently stimulant; imprudent use they thk lys on abortion

CARDAMINE L
C. pratensis, CUCKOO-FLOWER; dried flrs ha been a popular remedy for epilepsy in ch. Elt ol to be stimulant, diaphoretic, diuretic. Not the Cuckoo-Bud of Shkspr Ltr. bec not so yellow but white bud; not his Cuckoo-Flower, bec, not growing amp corn; his, says Ellis, in the Buttercup; but the name is now in Eng also given to this Bitter Cress. Called LADY-SMOCK; PINK, SPINK, SPG-SPINK, MAYFLOWER, & in Norfolk like, CANTERBURY BELLS"
Shkspr Lr 2 Ellis 102
The honeysuckle round the porch has woven its wavy boxes,
And by the window taches thro the fair sweet cuckoo flowers;
And the wild marsh-marigold shines like fire in swamps & hollows gray.
Tennyson

DENTARIA Tournefort root; prev aus had applied it to t of toothache, while the "s cales of the root rec teeth
1 D. bulbifera, CORAL-ROOT of the woods of mr S ers of Eng. Culpeper the quaint old herbalist, "It is under Mars, & is a good vulnerary. It is serous to top all kds of fluxes & humrs; helps to consolidate wounds & fractures; eat the root." Salmon, Lr, & Ruby, "they are dedic. to the cure of wounds."

2 D. laciniata, Muhl, TOOTH-WORT; Muhl sent spec & expressed name to Willd; who so denom, 1800. Mr desc is UNS as D. consatenata. Nowhere abt; "has tress for 14 mt latin cpns" diversor seed freely; depdr mainly on root for propag. Across contin N, & thro' most of Atl US.

3 D. multifida
4 D. maxima
5 D. heterophylla, these 4 last "undoubtedly was tog in this locality" Coulter, ad for 1 year! S Watson remks this sp unites Nos. 2, 3, & 3.
6 D. diphylla, MIN PEPPERWORT, Root has a pungent mustard-like taste, used by natvs of states for Pa to Can, instead of mustard, used in of Pn" Treasury of Bot.
LUNARIA L, HONESTY

ALYSSUM L

DRABA L

COCHLEARIA L (Armoracia, Rupp, Raphanis, Mönch.) SCURVY-GRASS
C. officinalis, once ho fet vogue as antiscorbutic; stimulant & diuretic if eaten fresh; in ext when dried. Rhind 300, 53R.
C. armoracia, HORSE RADISH, Rhind 300 DC, 33-36

THLASPI Allen.

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CAPSELLA Vent. (Bursa, Gull.)

IBERIS L. CANDY-TUFT

ANASTATICA, Gärtn. (Hierocontia, Adans.). ROSE OF JERICHO, A. hierochuntina, and, voild in E. & deserts; full grn, contracts its rigid bs into a ball, caught & lfs by wind; relaxed & flattened on exposure to moisture. Superstitious tales told of it; sd. to bur. lse. blossomed on Christmas eve; saluting the birth of the Redeemer; paid homage to his Return, till Eastern by wrong expld. Fig. Liy, p 353,

CAKILE Tournef SEA-KALE; herbage is a wholesome food

MALCOLMIA RBr

HESPERIS L (Hesperis, Tourn.)

SISYMBRIUM L (Sophia, Hall. Alliaria, Adans)

ERYSIMUM L

SYRENIA Andrz.

CAMELINA Crantz. C. sativa, GOLD OF PLEASURE; an oil plant; its cake sd. to be too acid for cattle; bruises sce and f. the dry stalks

LUNARIDIUM, Nutt.

IBERIDELLA, Boiss.

LEPIDIUM, RBr. (Cardamon, DC)
L. sativum, Garden Cress, Rhind 299 DC 86

ISATIS L. I. tinctoria, WOAD, formerly a fav. blue dye in the co. Rhind 4 506

SINAPIS DENDROS Lowe.

BRASSICA L (B, Tournef, Rapa, Tournef, Napus, Tournef)

Cabbage, Brassica oleracea
Ellac 31 Sblge, MWr!, Rhind 295 DC 83

Turnip, Brassica rapa
Ellac. 236 MWr. f. W 31 Rhind 292-3-4 DC 36-38

Cauliflower Brassica oleracea botrytis
Rhind 298

Broccoli Brassica oleracea botrytis broccoli
Rhind 298

Brussels sprouts Brassica oleracea gemmifera var.
Rhind 296

Savoy Brassica oleracea sabauda
Rhind 295

Kale Brassica oleracea sabellica, or Borecole,
Rhind 297

Rape Brassica rapa
Rhind 299

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SINAPIS Tournef.
S. chinensis, seeds that by Hindoos & Mahomedans to be stimulant, stomachic, laxative.
MUSTARD, S
Lilac 182-4 Rhapsodies 15

ALL ABOUT MUSTARD. Ev, Sept 19

"Where does mustard come from?" responded a wholesale spice dealer to a Mail and Express reporter's inquiry. "Most everywhere. It is of two varieties. One is white and the other is black. The first is called English, and the other masquerades under a score of other titles. The English is full of flour, lacks pungency, and is seldom used alone. The other kind contains a large amount of oil, said to average 25 to 30 per cent. The best variety comes from Italy and is known as Trieste. There are many varieties of this kind grown in California, of every shade of quality; also in other States. That known as Kentucky is very pungent."

"Do farmers generally raise it?"

"If they don't it is their own fault. They can. It requires little or no cultivation, but most of it is not worth handling."

"How is it prepared?"

"Usually by compressing the seed to extract the oil because the seed is much more easily worked when the oil is out, and because there is now a ready market for the oil as salad oil, it being in many respects equal to the best olive oil. To extract the oil requires very powerful hydraulic pressure, and a suitable press would cost from $1500 to $2000. Large dealers in the principal cities operate in the seed or crude stock and press it and supply the trade with what is know as mustard cake, formed by the process of extracting the oil, and which contains everything except the oil—the same precisely as linseed cake. After this the pressed seed is separated from the bran to extract the flour. Pure mustard cannot be ground in mills, and unless it is very much adulterated it cannot be ground at all, on account of the oil retained in the cake. The usual process, therefore, is to take say 100 pounds and put a quantity of the broken cake in a pot of mortar and pound and sift it so as to extract about 50 per cent. The machinery used for pounding the mustard is a simple contrivance, called sometimes a stamp mill, being a battery of pounders ranging in number from two up to sixteen. The process is slow, but very simple. After passing through the pounders the mustard cake—now reduced to the consistency of soft middlings—is transferred to a series of sieves, the fine falling into a receptacle below. This bolted flour of mustard is strictly pure, and is as pure as it is possible to make it from the stock you have used, whether it is good or bad.

ERUCASTRUM Prest.

ERUCA, Tournef, UELLA DC, VILLA, Fock, SAVIGNYA
CRAMBE Tournef. C. tataica, TARTAR BREAD, eaten when boiled.
C. maritimum, SEA KALE, Rhind 289.

RAPISTRUM Bolotty RAPHANISTRUM, Tournef
RAPHANUS, Tournef.
RADIX, Rhind 260 DC

SENEBIERA Poir

SUBULARIA, DC.

CAPPARIDACEÆ constit by Juss, 1789, 28 g, 340 sp. Herbs, shrubs or trees, $S_4 P_4 \infty 8^{St}$ ovary a high multiple of 4 C_1 Not tetradyn; diff to Cr also in hyp seeds resid. Only in tropics & borders; these strucly; capsular or fleshy-fruited, i.e. a pod or bacca; of capsules, 1, Cleome oldacea, in Fortg; 1, Idoneitia prawellens, to Canada; 1 or 2 dcs in S Sts of baccate, Cron Capers, natr of most S pts Eur, is what approx nearest thereto; Africa to Indian Bayr ees Cr; pungent.

Capparis L (Cynophalla, DC, Ulecveria, Bert, &c) CAPER. Fl-buds of this, C. spinosa, of S Eur; C. cuvertis, Gr; C. Fontanesii Barbary, C. Aegyptiaca in Eg.) are stimulant, antiscorbutic, specieus, & form a well-kn pickle. Bark of root a vermifuge diuretic, Rhind 491
C. cynophallophora, amygdaline, ferruginea, bark of root blisters like Cantharides.
C. Sodada, narcotic odor; its acid, stimulate hairs are used by women to promote fecundity" Ly.
C. pulcherrima
C. — nr rel of proc, FRUTA DE BURRO, fl vy poiens, fl nr Cambayana, p 5 m

Crateva L, C. gynandra GARLIC PEAR, bark of root blisters like Cantharides.

C. excelsa, old VOUEN POUEN by Madag, who cut pths & ie 4" broad.

C. Tapia bitter root used in Brazil as inflam, bark bitter, tonic
C. Marcelii, pulp of vessels [illegible]

Colicodendron Mart, C. Yeo dangerous to mules & horses.
Polanisia Raf. P. icosandra in US is used as vermifuge, in Cochin C as sinapism, Ly.
P. sm & sp hv pungent taste like mustd.

Cleome, DC, (Atalanta, Nutt, Roridia, Rafs, Roridula Fock) S m hv pungent taste like mustd.

CISTACEÆ, constit by Juss, 1789; 9 g, 185 sp; hoo ofc viscid; lus entr; flos vy fugacy; what, yel or red. $S_{3-5} P_{\infty} \infty^{St}$ or def C_1 or 4. Flow Cruc, in curved embryo & parietal placentae. Dec cvatid w Vitis. S Eur & N Afr esp; cace in N Am, vy in S Am, & ka in As. No marked qualy.
Cochlospermum Kunth (Maximiliana Schk) fd in As, Afr, S Am; rankl pt; not highly deval of its color; by many pat with Theads; C. Gossypium, trunk yields the gum Katera, in N India used instead of tragacanth. C. indicum roots, decoch of, fd in Bay. Butua do carro, used in int pain, & to heal abscesses; C. tinctorium, a yel dye, & for cases of amenorrhea.
Helianthemum vulgare, Frostweed, annual (H. was Pseudoristus of Dun, Crocanthemum Spach, &c)
" nudiflorum, raised from seeds as rubscenry; now forgotn.
Lechea L.

Cistus Tourn (Cadarium, Spach, Rhodocistus, Spach, Cytinocistus Dunal, Ledonia Spach, Stephanocarpus, Spach)
C. Creticus & sp yield the resinous balsam old Ladanum; much extol as stimulant & carminative; recom for chronic catarrh.
C. Bentheloianus, fd by Ly, p 349.

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SINAPIS Tournef.

S. chinensis, seeds that by Hindoo & Mahom. dyes [illegible]

MUSTARD, S.

Blue 132-4 Shape 15

The exquisite bouquet, TOILET No. 6 Colonge, made by HAZARD, HAZARD & Co., UNDER FIFTH AVENUE HOTEL, New York, is sold by perfumers known. It is equalled in permanence of odor by no other. Be that EVERY BOTTLE has [illegible] HAZARD, HAZARD & Co.

ERUCASTRUM Presl.

ERUCA, Tournef, DELILA DC, DILLA, Fock, SAVIGNYA DC, ERUCARIA, Gilibert, SCHIMPERA [illegible], HELIGNIA [illegible]

CRAMBE Tournef. C. Tataria, TARTAR BREAD, eaten in Hung, the fat fleshy roots, peeled & sliced in olive oil & pepper when boiled.

C. maritima, SEA KALE, Khind 239

KARGANA Fock. RAPHANISTRUM Gaertn.

RAPHANUS [illegible] Khind 240 DC 25 [illegible]

BERBERIS Rich

SOBULARIA, DC.

CAPPARIDACEÆ constit by Juss, 1789, 28 g, 340 sp. Herbs, shrubs or trees. S 4 P 4 or 8 St usually a high multiple of 4. C 1 Not tetradym; diff to Cr also in hog seeds rank. Chiefly in tropics & borders; these already; capsular or fleshy-fruited, ie. a pod or baccate; of capsules, 1, Cleome oldiana, in Prairies; 1, Morisia prorelens, to Canada; 1 or 2 dos in S Sta, of baccate, Cron Capers, nativ of most S pts Eur, is what appears nearest the N; Africa & Indian Bays res Cr.; pungent.

Capparis L. (Cynophalla, DC, Utenovia, Rich, &c) CAPER. Flo-buds of this, C. spinosa, of Sicily; C. corymbosa, Gr, C. Fontanesii Barbary, C. Ægypteiaca in Eg.) are stimulant, anti-scorbutic, specifics, & form a well-like pickle. Bark of root a vermifuge diuretic, Rhind 491

C. cynophallophora, annus dolina, fœtida, bark of root blisters like Cantharides.

C. Sodada, narcotic odor; its acid, stimulate, hairs are used by women to promote fecundity" Cy.

C. pulcherrima

C. — no rev of prop, FRUTA DE BURRO, fr very poisonous, fl n. Cattayana, 2 Am

Crataeva L, C. gynandra GARLIC PEAR, bark of root blisters like Cantharides.

C. excelsa, old VOUEN PEUEN by Madag, who cut pilks for ie 4" broad.

C. Tapia, bruised leaves used in Brazil age inflam; bark bitter, tonic.

C. religiosa, [illegible] Khind 241

Cleodendron Mach. C. Yoo dangerous to mules & horses.

Petalolis Raf. P. Teresandra in US is used as vermifuge, in Cochin C as sinapism, Cy.

P. [illegible] sp hv pungent taste as mustd.

Cleome, DC, (Atalanta, Nutt, Roridea, Rafi, Roridula Fock) 3 sp hv pungent taste like mustd.

CISTACEÆ, constit by Juss, 1789; 9 g, 183 sp; hes abs oxicid; lus astr; flos vy fugac; what, yet no cod. S 3-5 P 5 St + or dec C 1 or 4. Flow Cons, in curved embryo x parietal placenta. Dec cystid or Vitis. Shrub x N Afr esp; cone in N Am, vy in S Am, esten in Ar. No marked prop.

Cochlospermum Kunth (Maximiliana Fisch) fl in Ar, Mex, S Am, rankl pl; not highly deval of the relev; by many pat with Threads; C. Gossypium, trunk yields the gum Katteera, in N India used instead of Tragacanth. C. incarnatum, decoch of, fl in Bay. Bixa de carro, used in int pain, & to heal abrasions; C. tinctorium, a yel dye, also cures of amenorrhea.

Helianthemum Tournef, Fumaria, Fumitered, omo (H. was Pseudocistus of Dun, Crocanthemum Spach, &c) :

" vulgare, raised from seeds 22 vulnerary; now forgotn.

Lechea L.

Cistus Tournf (Ladanium, Spach, Rhodocistus, Spach, Orthocistus Dun, Ledonia Spach, Stephanocarpus, Spach)

C. Creticus yields the resinous balsam old Ladanum; much esteemed as stimulant & carminative; form for diuretic extracts.

C. Bourchelerianus, fr by Liy p 349.

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RESEDACEÆ. Constit by DC, 1813; gE, 2941. Sub herbs, a few ext shrubs, alt lvs, entire or pinnately div; stipules minute, glandlk; racemes or spikes; C4 P unc 3-6 on a disk Cpl 1 lbed, sc closed. Basis, dry membrany, or succulent pc.
Various views on fr structure, Lp 188.
Weeds of Eur, n pts of Asia, Med basin, adjac is. vy few in N of India, C Gd H, Calif.
Uses; were mu regdd as sedatives, hence Reseda. Gently subacid.

Ochradenus Bell
Oligomeris Cambess (Resedella, W & I; Ellimia, Nutt)
Holopetalum, Turcz.
Astrocarpus, Neck. (Sesamella, Rchb, Sesamoides, Tournf.)
Caylusea, Scop.
Reseda, L (Luteola, Tournf; Ereda, Prsl) MIGNONETTES
R. mediterranea, Bot Lvy p 365
R. Phyteuma, the ὀξέφυρον of the mod Greks, is eaten as a kitchen excdent in Gdk Archlp.

R. Luteola, WELD, yields a yellow dye

R. odorata, MIGNONETTE, sompthe nat fragrnt of plts Rhind 591
[illegible] 47

LABIATES

Constit by Juss, 1789 as Labiatæ.
Chars, Diagn stem, Sq stems, 4 seed-like ovules, Labiate flrs
Lvs opp, ext stip, regular. [illegible] Capsules, usly sessile, ovules, anthrops
Relationships; closest to Verbena Fam, wh diff in ovule outlets;
Borage " " " " Stem; ovules not labiate
Figwort " " " " ext stem, 2 called god
Other Labiate flrs see Labiatiflorae of Congestiva
Lobeliae-
Verbenaceae, Lentibular-
Orchanche

Inspice; wo, 12.5 g, 185 2.350 oz. No determinate secretor; fragrant, aromatic, resin.
Ditcho; not abdt in temp; maximum prds below 40°-50° N. Abdt in hot, dry, exposed plc, in sandy hedgerows, grows not in marshes.
Prop; many are ed as kitchen herbs, for sauces, & flavg cooked dishes; some empl by perfumers; many cult for beauty, esp Rapes; some tuns a subst res Camphor; some are astrngt; a very few are eatable, the rest prds worth esp, as sorts of Starkey's [illegible] pulchrissima, the Lunar Cloud of old writers; and sm sp colored as Coqueum; wha tubers are repdd to be con excellt in Ahdp. Rhind 591

PLECTRANTHUS, Herit, (Germanea, Jum, Lodoa, Schand) PATCHOULI helps here are to Colous; sp unc; also called PUCHA PAT; plc empl in hope que to fensup to staff mattresses & pillows; its sup sneftly lvs supd to be oth contagion, Patchouli perfume made fr it. Northam make the plt Patchouli tribe his Dogesteemed Patchouly.

COLEUS: Lours

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LAVANDULA L.
L. spica DC, FR. LAVENDER, less frequt, not of medical use; yields what is called Oil of Spike; wh is used by painters on porcelain, & in preps of varnishes for artists.
L. vera, DC, LAVENDER; flrs con a volatile oil super ablc, tof so a bitter principle; are carminative, stimulant, tonic; but more used in perfumery than medicn. Lvs & flrs hv bn used as sternutatories. Oil of L is dtd by distilly, ents pm in hysteria & nervous headaches; extensively cpn of Eau de Cologne & Vinaigre [illegible] quite valuers. Pkgr VI Talegs Ellw. 102 Rhind 293

MENTHA L., MINT Ellero Stalp 2; Horse Ars for you, Hot lavender, Mints, Pennyroyal, Marjoram "Keatley, p 224 12

M. viridis, MINT, SPEAR-MINT, used as a sauce, & as aromatic & carminative, in form of Spearmint and Spearmint Water Rhind 492

M.

M. piperita PEPPERMINT most useful of, an aromatic stimulant; most pleasant of all the Mints in medicine used in colic; only to expel flatus, to cover the unpleasant taste of the meds, to relieve nausea & griping pains of abdom canal. Mixture M. enters then as an antiflatulentmedie; it flavors Rhubarb, Senna. Rhind 492

M. citrata, oil extremely fragrant, in much the odor of oil of Bergamot
M. rotundifolia, M. aquatica, M. arvensis; have similar quals to M. viridis,
M. Pulegium, PENNYROYAL Rhind 492

HEDEOMA H. pulegioides, the Pennyroyal of Nam, has got popular repn as carminative.

CUNILA C. Mariana, DITTANY, benefitly used in infusion in slt fevers colds, to excite perspiration.

MARRUBIUM, M. vulgare, HOREHOUND, popular remedy for coughs in infusion a bitter juice of the herb, [illegible] nine parts of water [illegible] rubbing [illegible] in the [illegible] Rhind 528

NEPETA N. Glechoma, GROUND IVY, large used by country people as pectoral remedy in Eng.

N. Cataria, CATMINT, CATNEP, used to make Catnip Tea; famed as a feline aphrodisiac.

GALEOPSIS G. ochroleuca a pectoral medicn

MELISSA Arab M. officinalis, BALM, a pectoral remedy; tonic in Julep, MXVI to ℥ss AqC ℥ss; Ellac 22 Rhind 493, 528
M. Calamintha, CALAMINT, do

LEONURUS L. Cardiaca do

OCIMUM L. O. febrifugum of Sierra Leone, a febrifuge, BASIL, var's sp of O Rhind 493

BRUNELLA Mill B. vulgaris, SELF-HEAL, a febrifuge,

LYCOPUS L. L. europaeus, a febrifuge, also yields a pd. the dyes by wh. gypsies are said to stain the faces

MONARDA L, resp of US Bees, as more of its sp are here, & the few are fine in Mex. Stephilia is near it; no inc. no allies; nearest the Rosemary, & here the Sages & Catmints, all vy aromatic, in habits. Fr Nicolas Monardes 2 Sp bot. b as Sevilla d 1578, an of + cracks on medical & useful plts, resp of New World "Simples" as Tobacco, Sassafras, &c, 1574.

MONARDA M. fistulosa, a fragrant Nam herb, a febrifuge

M. punctata yields (as do Sage, Lavender, Savory & Hyssop) a Stearoptine see Camphor

M. didyma L, bpd by Bleeban as OSWEGO TEA; see called Bee-balm; Int n. pers. is bee balm; milk tea of the flows; Mexicans Int. n. for pts, ORECHEE "Flowers or Flaming Flowers". An old Eng. writer says "The O Tea is not only a vy pleasant pt in gardens, but the scent of the lvs is vy refreshy & agreeable to most persons, & so are vy fond of the tea and of the sp. lvs." Bauerian gives instead it to Bog; called it M. Oswegensis, sent for by Peter Collinson 1749, sed 1752. Valuable to cultv, bec its flos come in out. in succession from a vas, Bleeban; val. to lov. run wild in woods, McMahon; incorrect, seeds not a thirsty number, bel. pd, to cotyledons short up; pedes long multipd. Most N. sp. of; fd in Mex, lvs scabd. Ind, keep to Allsp. Altens in Va & NC; rare in O, & W Middle.

ORIGANUM O. Dictamnus, DITTANY of CRETE, a febrifuge
O. MARJORAM; the n. Majorana cass from the genus by Mench.
Ellac 122 Stalp 4 Rhind 493

ROSMARINUS R. officinalis, ROSEMARY furnishes best the camphor-like Stearoptine. Of pot repute; a strg decoctn of lvs used to allay heat of skin in erysip; used to make headache & excitability vigorous actn; residual fce used pt to encourg growth of hair & cure baldness; it is what causes the good color of most pomatums so used; an infusion of it prevents hair to uncurly in damp weather; it is one of the pts in Bouquet, used in make Cologne water. a Hungary water (the Fr Vinaigre aux 4 voleurs) "The adoration of Rosemary & Nut-brown honey is said due to bees feeding on flos of it." Ellac 200 Stalp 2 Rhind 493

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STACHYS Bentham S Betonica, BETONY, lvs procdered produce sweat; actn sd to be mechanical, due to the minute stiff hairs w wh covered.

SATUREIA L SAVORY, fr Satureia thro it Savoreggia
Ellac. 216 Sibth 1

PERILLA L

HYPTIS, Jacq. + ex + πυιός, hip p 661,

SALVIA L
S. officinalis, SAGE, Rhind 492
S. pomifera Rhind 493
S. sclarea, CLARY, Rhind 493

PYCNANTHEMUM Benth (Tullia Lagasca)

HYSSOPUS L
Ellac. 97; Sibth 1, Othello 1 3, lago saying "Set Hyssop & weed up Thyme" Rhind 527

LOPHANTHUS Benth.

COLLINSONIA L, Linn g, Commerce's Essex Collinsia of Lin, 1 of his beds at Ann But, a Quaker, who d 1768 aged 74; dealer in woollen goods. Had a bee yonke; introd + naturalized, esp fr Maple in Sweetness; PC money to 3 Sept 2, 1738, "At the bottom of the box is a specimen of white, wh but's hv dubbed C-, but I think it shd rather be Haworthia, for I lead in the cy at seeds these sent me. Miller is mistkn in mkg it can fr Mdl." Green aerif, stems, leaves, seed to Eng fr Pa. In rich soil, by Bottom. L. vis Cat. in 1731 & publ acc of plec. Ok fr C in 1737, chic among them. Below: "I shall let weed by Darwin who" I he letsky disc 2 cy nurlow Gir. in this lin, the Ranks (Gran) ctd. orderly diversify, fr each or, & the female bends herself into contrast to wl of stem, & sh on c his this & applies herself to the other. It is poll (of the anthers may mature bef the ovl" fortune to The Botanic Garden; in Loves of the Plants, Canto Sweet Darwin, Darling of Collins' gentle name, The same, their features & their form the same, Wl rival love for fair Collinia's sighs, Kniv the elk bow's all the amplest pride, Ed that to express contrast to Rose sel-love. The modern sci notes fresh actn. Heathen wind in vain to see it; the Rose so not seed well; than best of the day, but be proving fair flower, stock the digests. But Wilcoll exp "The stamens are Ar affity to approch the pistil." Fomed mag; Indo used in to cure sore eyes; Rat keep water of Hyd, Va, Ky, Tenn, use it entirely as a [illegible] in [illegible] the eye to remove cells. Porcher says "pts decoc farmers or ctd & thro + broiled in [illegible] poultices, inside fr fr for kidney, colics, cramps, & crys, indigestion. Formerly in [illegible] the eye to remove cells. Porcher says "pts decoc farmers or ctd & thro + broiled in [illegible] are used in Eng for empirics curiosity emmenths & prima furnish." For kidney, stone like [illegible] called Hard weed, Horsemint, STAGGERWEED, also Richweed, Heartall, Horsewood, Horse balm; also COLLICK WEED; & Dr. Eff is as Collinsonia Canensis. In mid Atl Stake weeds, rich hills, & lately dug.

SCUTELLARIA L, (Cassida, Thunef); link to Scrophul, by lip a curved, are rel's contrary. 150 sp, 1 of larger fam order. Hence centre US, mr sp here than anywhr else; in temp & old cd; a few in mtns of Bras, Ferm, me in tab lds of Mex; many in Rus Asia, decay in Bur & sp only in Eng. Calyx has on its upr lobe a fnd concave edge, hinged, wh raises Ar falls, closes over mo of calyx, protecting ess of seeds; as Lin. sp. has the upr half finally dehiscent, he hold persistent; M; so cures S.S. Object? SKULL-CAP hence the Eng name; bot n Sour fr Lat vol mag a dish, salver; fr shape of calyx, ans; fr shape of calyx & ref to fr Ray; fr Arch shield, ie. for head, helmet, XII.
S. Wrightii, A Gray, disc by W in Texas; grows pretty in gardens; axillary in flw; tyd by Riechan.

DRACOCEPHALUM L (Moldavica, Mönch; Zerveiade, Reyschem, Adl)

CEDRONELLA, Mönch

PHYSOSTEGIA Benth

SYNANDRA Benth

MOLUCCELLA L

LAMIUM L, then as type of fam by lin,

AMETHYSTEA L

TRICHOSPEMMA L

TEUCRIUM L (Chamaedrys, Tourn.) T. Polium it id ie be petal com for As chalcea,

THYMUS
Sibth 2 Ellac 283 Rhind 494

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VERBENA FAM. constit by Juss, 1806, bef by him as Dilleniaceae, 1789. 845, sp 663. $S_5 P_5 S_{\frac{1}{2}} C_{2 \text{ or } 4}$

Discs fr Labiatae by nutlets concreted into one, bearing terminal style; by usual abs of ovules.
Bex Lab, closely exp in diagn. sta, opposite lvs, the fuses.
Ecphyse Lab. in tropics, there com, & in temp Am; being shrubs or even gigantic timber; herbs in colder latitudes; rare in NAs, NAm, Eur.
Bexps as Labs but less, of the tropic wooddl or commonest.

Callicarpa L (Porphyra Lour, Sphaeodyscocum, Mix, Burchardia, Dubium, Johnsonia Caresi)
C. lanata bark astrin, astly tinc tanc, observed by Chinatese when no betel lvs; Malays think it diuretic

Stachytarpheta Vahl (Melasanthus, Pohl) S. jamaicensis the Bog falsely attr'd prop pis to. as did Bue to Vercain, Lvs suit adultrt Chin Tea; & are sold in American domes under the name of BRAZILIAN TEA. Expsd juice of lvs is pop in Portola as a cooling purgative to children, dose 1-2 tablespoonfuls. In FrWI used in decoctn for clysters & as anthelmintic. It has sm ~~[illegible]~~ for promotg the menstrual discha. In Bog. its fresh lvs are applied to ulcers; it is then called URGERAO or JAXRAO.

Lantana L (Camarabera Rosh, Cammara, Plum) Sol hv the aromatic lvs & flos used in eng hs, baths, chamm.
L. pseudo-thea highly esteemed in Bras in infusion, as tea; Saint-Hilaire fd it very apeth; aromatic; com cld the CAMTAO or MATTO, or CHA DE PEDESTRE. The lvs bear decoctions &c, eaten.

Lippia L (Platonia, Rat, Aloysia, Cerv, Dipteracalyx, Chaum)
L. citrata aromatic, Marcelus exp to Sage & Thyme

Vitex L (Agnocastus Rott, Lemiseria, Lo)
V. Tarouna, used in S Bras und n. of TARUMA in syphilis
V. trifolia heavy acrid drupes, called in Ind Filbl Bueree or WILD PEPPER; lvs a pell diuretic
V. Negundo " " " in Ind a decocta of its aromatic lvs help from the warm bath of women after delivery; pillows stuffed w them are put und the head to cure catarrh & headache strong

V. Agnus-Castus L has sim acrid drupes. Seeds thot at Salerno to be corn against chk, it powdered, a second over half a o Wine, add to the stomach.

Verbena, Rhind 531

Mints Earthes

TEAK, Tectona grandis, in Verbena fam, or INDIAN OAK, not useful tree of Ind, no timber equal it for shipbldg; the ship worm in the west & the termite or ld, eq solid, its strong rotdy close-grd wood. Wild, ber much of Bur Ind, in mtns alg Malabar, in Guzerat, &c. Teak forests are of tree of teq, avog wh T. does not predom. Govt has appt foresters to watch over it at Lat; since 1843 millions of plts to be raised for seed, but as slow to grow as our oak. Hawkins

Rhind 450

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VERBENA E
Disc. fr Labiate
Rec. Lab. closel
Replace Lab. in
in older latitude
Bogs as Labs b

Callicarpa L (
C. lanata
thk it diuretic

Stachytarpl
as did Bue to Vera
Expsd juice of lvs i
cocin for clyster
Mag. its fresh lvs

Lantana L (
L. pseudo-t
CAPTAO to MATT

Lippia L (Plat
L. citrata

Vitex L (Ag
V. Trifolia
V. Negundo
after delivery; tum
catarrh & headache

V. Agnus-C
exhausted over bale

Verbena, Rhi

Paragonula L P. vulgaris, PEBRINCO, Marcius supp. abte. indian.

Gonelina L (Mitchell's Amm) G. parviflora, make water mucilagin; use to allay indoc vomiting

Cornea Roxb (Roscoea, Roxb) C. villosa, lvs hay very disagreeable smell, used in lieu for fomentations

Premna L P. integrifolia, root cordial & stomachic in decoctn
Bresculenta, drupes eatable
Vitkameria L (Duplassia, Houst) V. inermis, L, & ros, hr ba used in medcn not conseq; dely bleeds, subakrinfent

Tectona L, TBAR, fam not impt of order; T. grandis; enormous tree, no decid lvs, cor to mnsplies; in ~~tracts of~~ mansplies of Malabar, Pegu, & in districts in E.I; timber abds in particles of size; noted in Asia for durability; much the ble of coarse mahogany, but lts, & inf step. Fine dbtble it is perhaps the best in the world. Wood the only useful part of it, Roxburgh; but flrs diuretic, lvs give a red dye, & Malays use the decoctn in cholera, Rottlicker.

Clerodendron L (Agnicdbea, Schrk, Siphonanthus, L, Ovieda, L, Valdia, Plum, Dercya, Spr, Cornacchinia, Savi)

Verbena L (Glandularia, Gmel, Billaverea, Adanso, Shattocaetia, Blecus, Corcovia, Runge)
Virtues of over PERVAIN "poet or the reputation was exactly reversed" Pl. Verbena of the ancients, Ivy AD, a sacred herb; had lvs like the olive used as an amulet & in expiatory exercises" Bauhin 1596; Sibthorp identifies it w Rothfinalis; Gulus used lvs to cleanse stble used in festivities in honor of Zeus; hence mn derive V for verre to sweep, brush, clean; frs for herba, herb Virg. 8th eclg mentions it;
"Bring running water, bind these altars round With fillets, & with Vervain press the ground".
At temple of Venus Victrix, capitole, Cato, was used to ask success for the cgn & Verbena sce; its sacred close was also seen in the procc of sending a rival portion of the pit as a NT peasant to sale, the crown 7 ft, 1903; DC 95 in 1897.
Exp. Vervain ed to be to old folks fertaen, means of cleansing or removing ills. Emblem of sensibility; hence Ang poet
"Verbena, in thy pensive price The emblem of the feeling heart I trace.
Exp legl. of use for healing wounds; when separated "Gate they cross the back or the hand, & then they bless it" Aiton
"Hallowed be thy Vervain, As thou prevest on the ground, For as the Me of Calvary Where thou wast first found"
"Thou healedst our Saviour Jesus Christ, And stanchedst his bleeding wound; In the name of the F, S, & of Christ, I take thee to the ground"
V. Aublettia, Aublet's Hd, fd by Blackburn, Gulf of Mex to Central Ills, Mo & Ka, Penny, S W Pennsylvania, Texas, Arch, Flrs May & June to Sept. Second ed. Pub 1794 by Dd. Richard; vary much; V bipinnatifida, V plandulosa, V nervosa are forms of it;
Name to Aublet; bte of nve, b Salm, Barrence, 1728; coll exp in Mauritius; pub Hist of Fr Guiana 1775; d Paris 1778. Sol bots tried to u. a genus fm him; d'Jaquin is this; A but proved to be a V; Gaertner & proved a Sonneratia, of Myrtaceae; Lamarck & proved Lythrum the Consol Phoen; Richard's proved Monsonia, of Rutaceae; Schreber's an Apeiba, a genus est by Aublet himself. But this "bring such a brave gn, may secure for him a wd wider fame than either genus ch. But not as delic in hill or the brea ng modes gently rolls. "Wild Verbena" of Col is Abronia umbellata Lam, a beautiful vine, light lavender.

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MYOPORACEÆ, rep. Verbenac. in Australia; shrubs; 9 g, 42 sp; res Verbenac, exc for mder diff in fr.
Bois members the AVICENNIAS; these trees lve the Mangroves in sale swamps, & crep roots at 6° or more, causing bef sticking into it, have a single apex, as also the naked Aeyarapus the suckers they throw up.

Avicennia tomentosa, WHITE MANGROVE of Brez, the pitty used in Rio in tang; exudes a pro aromatic resin, wh furnishes a miserable food to Negrs, who calls it Manava. Avicen nitens blo its saline, mucilag. ins root is an antidote. Unripe seeds used in India for pickles; ripe, they are boiled & eaten by poor.

Myoporum Ks, Boatia Plum (a genus of equinoctial Am) some Moore in Hawaiian; rest of fam in Austn or Cape.

SELAGINACEÆ, rep Vs at C.G.Hope; diff in bgs loelled anthers; 10 g, 120 sp; herbs or sod shrubs; alt lvs.
Hebenstretia dentata. sd. to be scentless in morng, strg smelly at mid d, sweet in evg.
Globularia L (Globoria Adans, Alypum Tourn) Euc, chiefly in S Medit basin.
G. Alypum is a bitter drastic purgative, nice sugd, to be the ΒΑΛΛΟΝ of Dioscorides, & hence called Excitex terribilis; but the A had the σπέρμα ὡς ἐπίθημα, & was direct prob some Euphorbia by.
G. vulgaris, similar quals; both emetic.
G. nanodon Pall, a Siberian species.

BORAGINACEÆ, constit 1789, Juss; g 54, sp 633; prin of S Eur, Levant & mid Asia; less N Ind, also C in trop; Punk. ld but 22 in Nthn, abide Shldy has 35.
Stem ± rough hairy; lvs alt (degenerate); hollow pedic; stam 5; flow not labiate exc Echium, or obscured by sub
Prop: sofc, mucilagin, emollient; some decoagulate on throwg in fire, sd to be fo coating bitter.

Borago Tourn B officinalis yes ordinar of beverage in wh its lvs are steeped, wh yet has odor of Cucumber & Nutmeg; but its sugd exhilarate quals wh caused B to be reckd amg the 4 cordial flrs, alg w Alkanet, Roses & Violets, may justly be numbred." Ly. Once that a pecoral used; a decocto of its lvs mixed w honey relies afted pleurisy. Its yg lvs salt a pickle in esteem.

Echium L 2 officinalis, used in Eng, mixed therewith for pickles.
E. vulgare, Bugloss, a weed now in Ind, Allanwood by Byers.
E. Italicum

Anchusa L (Buglossum Tourn) Asperifolia, ALKANET; root yields the dye, a red tincture, also ld in Echium nitrum. Onosma echioides, Lithospermum tinctorium, Anchusa tinctoria that to be a pode chem prin appears the resins. Rhind 513

Trichodesma Rbr, Sp that diuretic; one of the cures for snake bites in Ind.
Cynoglossum L, C. officinale ins say is narcotic; lvs are bitterish, yield a fat stop-smelled oil.

Symphytum L COMFREY, S officinale, once that a vulnerary; it path. wh tender, the lvs are a substitute for spinage, & the qy shrots, blanded by being fried to prev thro' heaps of earth, are eaten. Its Aegyptian; it is not never faled by poors at wished take. Roots abd in mucilage; are sweetish to an astringency. Ly,

Omphalodes, Tourn, Alkanna, Tausch (Barbatiga, Link) Arnebia, Fisch (Moretenia Ledb) Moltkia, Lehm.
Kieganitella Fisch
Pulmonaria L.

Mertensia Roth (Hippoglossum, Hornem)

Onosmodium, Mich, (Purshia Spreng)

Lithospermum L

Echinospermum Swartz
Bothriospermum Bunge
Lycopsis L
Myosotis, L (Stephiosmia, Turg, Exarchena, Rbr)

EUROPEAN FORGET-ME-NOT; name in Fa gon to Pollen, reptans; DC to Alpestris;
The flr wh has a flr as bright as rum
And leaf as delicate as softest satin,
Called the Fairies, but kn as well
By 20 names I cannot stop to tell."
Sargent

Persian Legend; of an angel who falls in love w a fair girl seen seated on the bank of a R; "swing in her golden hair sprays of a small blue flr that grows luxuriantly on the margin".

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EHRETIACEÆ, constit so by Martius, 1828, & recd by Lily; TRICHONEMACEÆ, Endlicher 1838. g 14 sp 252
Tropical trees, shrubs or herbs; diff to Bor. in the 4 ovules being ovaliform. Nine N of 45°
Rhectia, L; E. buxifolia, root in Ind, has helpful in cachexia & syphilis. Smooth Bd, bearcable drupes.
Bourreria Rbr (Ehretia, Kunth). B. umbellata, lvs in Mex used to allay inflam, & as a febrifuge.
Tiaridium Lehm, (Heliotropium, DC, Schobera, Scop) T. indicum used in Eng to cleanse ulcers; astringent
Eugloca Mex
Heliotropium, L, H. europeum, lvs were formerly used as Tiaridium
H. peruvianum, HELIOTROPE, fr Peru, of delicious odor

SCROPHULARIACEÆ, omitted by Linn. 1753; g 176, ng 1814; diag for Lab by 4 called many, ed Linn.; res in lab. omitted.

Diuretic, abdt in all gen, for ascites & leg pleu. I being Ed at Meled Id; so hot cest; cons by Kiny, N Am, Ind, Cultd, Shun; overcome the sensible drows of D del Fuego.

Resys acrid, bitterish, suspected.

Allied by Bentham thus Subplasia from co Scrophularia; Celsia x Verbascum having connecty links?

Allied to Orobanchaceæ by Bolfa; cons if not all its sp being parasitical; x thus Buchnera hydrocotyleæ, ab it Illinc.

" " Lentibularieæ (Lilly, & bor unlike, nor free central placenta)

" " Bignoniæ (" & bor alternate leaves & seed coats)

" " Acanthaceæ (" " " " " "

" " Pedaliaceæ (" placenta neo parietal ins)

" " Gesneriaceæ (" " " " "

" " Cyrtandraceæ (" " " " "

Many hr stigma of highly interest plates, I of more the back, I to front of flr; on corolla expdy, they std apart & even a little curved back; when touched they collapse suddenly & so non force.

Schweinitzia L. has clavate glands growing fr edge of petaloid sepals, x are the real corolla, stam opp to them.

Scrophularia

S aquatica x poch S nodosa; lvs x roots see purgato x emetic

Calceolaria Ruiz. em ap emetic x purgato; roots of C. arachnoidea are highly esd in Chili used in ch RHEUM for dyeing woollen cloths crimson. Rhind 593

Digitalis L. D. purpurea, ochroleuca, lacinata, ferruginea &c, hr the emetic x acrid qual so intense as to be danger. Powdered lvs or the extract, produce vomitg, dejectn, vertigo, incr salivation x urine, lr the pulse, x even cause death. Rhind 554

Verbascum L. V. Thapsus x V. nigrum approach Digitalis in quals; seeds used by poached to poison fish; lvs acrid, bitterish; flrs of V. lychnitis mistaken to Arnica.

Mimulus L. M guttatus, lvs eaten as salad (Urvedalia, Br. Erythranthe, Spch)

M. Jamesii, Dr C. fed by Mushon N Rockies.

M. moschatus, MUSK PLANT; genus M, bch was in Synopsis, infirmacies, official; Many tells of a Mimmulus "a very bad weed in the fields", expd to be his seed vessels see Rhinanthus or this.

Toreenia L. T asiatica, juice of lvs thrown Malabar coast a cure for gonorrhœa.

Scoparia L. S dulcis; infusn used in Sp Am by Inds to cure agues in Brazil et hemorrhoids.

Euphrasia L. E officinalis, stly bitter x aromatic; Kranichfeld used it in juice in catarrhal inflam of eye; x H it useful in coughs, hoarseness, earache x headache fr catarrhal diffs.

Melampyrum L. M. pratense. Cows ed to fond of it; L says bees x yellowest bitter is mk who it abds

Pedicularis L. Sx acrid; eaten by goats; mdy all Hachen in dying.

Flair is the king cup that
in the meadow blows
Flair is the daisy that
beside her grows.

Gray

C. L. Marr Dec 8.

Francisoea Ruiz F. uniflora, DIANACA of E Brazil, x exp on to the lower part of pus cal in excess the hypophalic system. Largely used in syphilis, hence called by Boring BUENCUCHO VEGETAL; use like x all the bitters yet nauseously slow; rep d as a purgato, emetic, cutaneous aggrve, alexipharmic; flavoredness an acid poison. P. of Pots, the CHILI JASMINE.

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SCROPHULARIACEÆ, consts by Juss. 1789, p 176, ep 1814; distg fr Lab by ½ celled ovary, ed album; res in lab. corolla.

Distrib, abdt in all pts, fr arctic to alpine pts, l being fd at Mckel Id; to harvest; cons in Euro, N Am, Ind, Austral, S Am; occurs the sterile shores of T del Fuego.

Prop acid, bitterish, suspected.

Allied by Bonnetia thus Sapotaceæ to Stilaceæ; Celsia x Verbascum trong connects links?

Allied to Orobanchaceæ by Stilaceæ, cons if we all its sp being parasitical; x thus Buchneraceæ hydrobadenic, wh it likes.

" " Lyonsiaceæ by tribes Mimosaceæ x Gaillon

" " Lennibulaceæ (diff, Sbr exile, not free central placenta)

" " Bignoniaceæ (" Sbr albumen meats x emb straight.)

" " Acanthaceæ (" " " " "

" " Pedaliaceæ (" placenta neo parietal ins)

" " Crescentiaceæ (" " " " "

" " Gesneriaceæ (" " " " "

Many hr stigma of highly instrt plates, l pl near the back, l to front of flr; on corolla expdg, they std apart x even after curved back; when touched they collapse suddenly x to ma force.

Schweinkia L has clavate glands growg fr edge of petaloid sepals, x are the real corolla, stamn opp to them.

Scrophularia

S aquatica x peck S nodosa, lvs x roots are purgative x emetic

Calceolaria Ruiz. [illegible]

tea dyeing mordant

Digitalis L

Powdered lvs

Rhind 554

Verbascum

acid, Mucilag

Mimulus

M. James

M. moschatus

weed in the field

Torenia L

Scoparia L

Euphrasia L. E officinalis, sltly bitter x aromatic; Kranichfeld used it in sure in catarrhal inflam of eye; x it is useful in coryza, headaches, earache x headache fr catarrhal diff.

Melampyrum L. M. pratense. Cows ed to fond of it; L says bees x yellowest butter is md whr it abds

Pedicularis L. Sr acid; eaten by goats; poisons all blacken in dying.

Herpestes Gaertn. H. amara, H. indica, intensely bitter.

Picrorhiza Royle. mnd fr bitterness of its rhizome used as substitute in Ind.

Vandellia L. V. diffusa of gt val in Guiana as an antibilious emetic, is called BITTER BLAIN by Bucrolles, x Haimarada by Aroyah Inds.

Linaria Tourn (Elatine, Moench)

L. cymbalaria of bitter aromatic, x the purgative diuretic; BITTER ROOT x BITTER PIDO; TOAD FLAX; VELLOW SNAPDRAGON. Its lvs is occasionally in milk fr diarrhoea. Flrs [illegible] in diarrhoea [illegible] which [illegible] Flrs in [illegible] used as a yellow dye.

L. cymbalaria has a warm cress like flavor; recom as antiscorbutic. Sue in India as sugar in cure of diabetes

L. Elatine ed to be bitter x purgative

Antirrhinum L (Orontium Rafi)

A. speciosum Gray; fnd by Nuttall as Gambelia Gray dec; l of varies x not beaut. 12 flrs; disc by Wm Gambel in 1842 on Catalina I off Calif, next 1845 on Guadalupe I off Calif by Dr Edward Palmer. Nuttall called it Gambelia; corolla stand 24 as slender tubular flrs 1"; sp diff in habit fr A. Gr was humble medical student of Phila, d 1849; ed to be be neph of Nuttall, and at 22 req an overld trip to Calif 1842 collects plts x birds; one trip 1849; sadly into lonely Sierras hrs for week ex, thy applied few x dys to Calif; "sleeps in peace beneath the towering pines wh cluster on a sunny hillside, severely up to the low waters of the Rio del Plumas" fev - fever, ague, 1850.

Guadalupe I. is 26°00' 20" S, 10 miles in volcanic x extinct craters; Jrnt its flrg plts are unlike elsewhr in the world; 500 acres betrs it of some pelasmodial exhals on mainl; than only land lies to be occupied, they are in county Jaw.

Franciscea Pohl. F. uniflora, 'MANACA' of Brazilians, a esp gn to the legs nat; of gen val in exerg the lymphatic system. Largely used in syphilis, hence called by Roeing MERCURIO VEGETAL; use blk x all the bastrs yts nauseously bitter; regrd as a purgative, emetic, cutaneous agent, alexipharmic; fancied as an acid poison. F. of Bert, the CAROLINA JASMINE.

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Bramia B. serrata in Bras. used in propg baths for rheumatic patients; has very powerfuly odor.

Gratiola L. (Sophronanthe Benth. Nibrea, Raf.)
G. peruviana L. has purgative & emetic virtues
G. officinalis formerly old GRATIA DEI, on acct of use as med; by Hitter; vilest purgative & emetic, said to be basis of the famous pill named, Eau médicinale; said to be serviceable in hydrocephalus; in excess a violent poison; Haller says it renders bitter by its abdce on the grasses used as pastures.

Bramwallia L. Hidebrandia Gardn. Morgania, Bs. Angelonia, HBK, Curisia, Comm. Herpestis, Hamb.
Leptoglossis, Benth. Proceoglossis, Miers. Limosella L. (Danubianculus, Haller)
Salpiglossis R&P

Sobizanthus, R&P.

Ianthe Griseb. Bentham's gen it next to Verbascum.
Maurandia Ort (Usteria Chav.)
Galvezia Domb (Apossinia Chav.) Wightia Wall. Hallenia L. Chionophila Benth. Russelia Jacq. Ixianthes B.
Paulownia Zucc (pl by Bentham Zd in Chelonoe)

Collinsia Nutt

Chelone L. robertian to Dilectus, cdne. for Tournefort 1700 "It has my Pillar, ovary sess. sick, ch. & compressed, w membranaceous rim, intermediate w. vertical, C. glabra L. spd by Bl as TURTLE-HEAD, type sp; many forms; as lis C. obliqua, w. obclate bracts; C. Pseudolinifolia, ovate-lcl, in 3 Dl lists, recent. Kerr gives it the com. name of the open flr, to horse-tail.

Pentstemon Mich. (Dasanthera Raf. Elmigera Rchb)

Veronica L. (Hebe, Lucy, Leptandra, Nutt. Callistachya, Raf. Eustachya, Raf. Aidelus, Spr. Omphalospora Besser. Diplophyllum, Lehm, Cochlidiospermum, Rb.)

Gerardia L. (Vicipularia R&P)

Castilleia L. imprit. (Euchromo, Nutt)

Rhinanthus L. (Alectorolophus, Rich)

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LENTIBULARIACEÆ; constit. by Richard, 1808; p 4, sp 175.

Herbs in water or marshes; radical undivided lvs, or cpd w. bladder-ty.
Flrs lab: seg, anthers (cells), ov of 2 valvate bractlets called. Seeds ty, minute,
Esp in tropics; on in all pts.

Genlica Sellii, exclusively Bras p.
Polygompalyx, Lemm (Utricularia A.DC.)
Pinguicula Zonch (Boundonia, Rchb)

Pouligaris, Spd by Lin, p. 686; has prop of sep consistence to milk, and of preventing its separty into whey or cream!" Lyt but none not form thickening milk but for p = fat, & the slippery feel of the lvs, say all textbks, till 00.
Lvs rd to cow sheep; when fresh are dbly purpur w richness. Linn's sup rur solid milk of the lapps is rnd by rnng it warm & fresh fr the cow over a strainer on cob-beds lvs of Rhubarb laid. "The milk, after passg sup them, is left a d nt 2 to 4d; till it begins to sour; & thus rows up as cream, but becomes compact & tenacs & not delicn in taste. Not nec that the beds lvs be used, tho the milk is sometimes turned, on contrary, a smll pt of this solid milk wd act on that ob. in beds, in same w Eg-coat & lvs. Meehan Spg 00 says n P lvs used by Conrad Gesner of Zurich Swz, publ at Basle 1541 his Hist. of Pts; had fr his lvs as Butterwort by Bay to pr of rapidly turng or into butr; hence com in Engld sci, 01. I fd the soft cdt hair ob cov the lf, secrete a glutinous fluid; the firm buttery mass and fr reindeer milk by Swedes in sm mnr as dscr for Lapps was a popular article of diet thr. Gerard calls it Butter-wort; unlikely to do so if fr lvs. Gesner that it the pt Pliny called Dodecatheon, n transld by L to Androsaces. Darwin ch. relates to this sp.

Pinguicula Vulgaris, VELLOW BUTTERWORT, Spd by Meehan, "1 of the pretty spp; flrs ob such a charm to the early season of the S.W.S. Gaudre fd it at Pointe. Pg, blmg 16 Jul; rnnd by Pl, in Flora of Cambridge, 1855, & P. compandata by Lamarck 1782, sft in lmm patches in marshy clmp pts, esp in Fine Summers these frcmg in Mar. with golden sheets of bloom. lvs clammy-hairy; hairs o.

Utricularia L. (Lentibularia, Vaillant, a genus since absorbed in it.)

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ACANTHACEÆ; constit. 1789; Juss; p 155, sp 1450. Tropical, herbs or shrubs, lvs opp. Fls usly concealed in axils of hrge leafy bracts. Placte in the placenta, ob expands into broad woody, thickened processes. ☾ S 4-5 P 5 Seg C 4. Stam. conts 4 x dilpo. Ovary of 4 carpels, being 2 cells, each cell 2 or 4 seeds.
Constit a large pt of the weedy herbage of tropics; but in some instnces adv to Pl, as Acanthus in Eng & a few sp in US: many dcr of pot beauty. esp. Justicia, Aphelandra, Ruellia.
Vy lit insptce to man; gently mucilagnos & slty bitter; some vy bitter & pectoral; some dyes & pts. Whatever Hippocrates has to lend to this nh cal the power shown; Ac to the to ants!
Thunbergia L, calyx 3, reduced to a sacce. Ang, its pl supplied by bracts; co in related fr Clistax and Mendoxia.

Ruellia Lin (Linn) 1 of 6 hundred & Evaluable sp blue dye called Room is obtd in Assam by a sp; not of a Rex spread; Ruellosa, Pursh, Spd by Meehan as Syrubed Ruellia; "Has vy beauty" rd to last but fd if in mnd be + Eg-ac. Quite out Monmouth June 4 Lepe. M. saw 10 river Angs expanded tanks w a mass of blooms," in Tenn, mid Aug. Fl here W of Allegny Mtn today, Hy Mec.
R. tuberosa, dr his claim fine dye, making in unpromd bnd. Ruellaceæ: Habac-
Phlogacanthus, Thysacanthus, Cardiacanthus, Elasiacanthus, Herpetacanthus, Rhimac-Anisac-Anthac-Chatac-Climac-Diplacanthus, Cryptbiacanthus, Siphonacanthus, Stemonacanthus, Onychacanthus, Ophthalmacanthus, Neurac-Asteracantha, Isacanthus, Blepharacanthus, Eremacanthus, Petracanthus, Stachyacanthus, Dicliacanthus, Lentacanthus, Adenacanthus
Dipteracanthus Nees, D. strepens has lvs subacid.

Justicia L.

Paulo Willdenia, Hochst, Sebastiano-Schauseria, Nees,
Blepharis Juss Dilivaria Juss Ecbolium L Chamerantheum Nees Henera Whitfieldia Goldfussia
Acanthus L. BEAUTIFUL, its beautifully lobed & chanated lvs [illegible] the Corinthian capit, are excellent. Lord Vivian, Eng, Ambassd Cstnp, the Architect Callimach, pass the tiny [illegible] of [illegible] a few d bef her indg wd to yley came up to accte the [illegible] for her. Since he collected the dcr intended for her wdg, & put them in the mrge vell in a lid basket, on the pavmt on a pit of Acanthus, & then cvrd it w a tile. In sudy spng the lvs of Ac had gon and the basket; jst the tile they recov wd & surrond its ctds. Callim, struck at the sud decoratn, wh smd the wk of the Gracs in marb, "Conrd the capital of the Corinthian column." Story not reliable, say critics.

CARYOPHYLLACEÆ vs succulent hard-shelled fruit; winglss seeds; lab. flrs; cornices, esp Madag. & Mauritius !! p 54 opposites and 6 ft.
Caesarea L. C. Cujete, CALABASH tree, 40 ft; pt pnrd fr soap, lbs w acrid pulp eaten by Negroes; hard shell used as bottles, pitchers and 6 ft.
Parmentiera cerifera, CANDLE-TREE on Pato de Velas, in Panama, fr rec a tp candle; poudly cum by castles. Bedulle of Mexfed, fr fr a cucumber.
GESNERACEÆ sft-wooded, fleshy herbs or shrubs; g 59, sp 280; gently pts of cmcld beauty, sft on trees, g 2 sp; fr. fruit berry, succulent, oft eatable, rrr yields a dye; rrr opposite. Columnea Sanctum is Old by Linnaeus; LIANE à FIRO & thing in Afr.
Saccinota A. P. (Crecellaria Swift) omitted in Lill.

PEDALIACEÆ herbs, labiate, diff fr Bignoniac in no wings to seeds; g 19, sp 25; trop, esp Afr.
Sesamum L, lvs oblong, seeds on + dsd sll, expressed in Eg in jet qus; tastless as Olive, & used for it, sans old. Gingilla Oil; is a vy gd qual is used to adulterate Oil of Almonds; is opt to get vanill.

Martynia proboscidea, OKRA, UNICORN-PLANT, old in It, Testa di Quaglia; pair of lf-holled horns is notedly for big bals of cloth.
Uncaria procumbens, GRAPPLE-PLANT, at Cal th, has fruit covr w hooked spines, wh. catch as Marty

BIGNONIACEE instit. Juss. 1789; § 34 sp 250. Winged seeds. Sp B_3 St_5 C_2 ovules +

Flos dense sepal it to kindred order: Aff to Acanthaceae - in big " ".

Trees; shrubs; few herbs; oft twining or climbing.

Wood oddly orbicular into 4 concentric lobes, esp in Bign, consolatus; pecul in woody sp. In Guayaquil these twiners are so to be lost 2 dens of the woody axes, aff 5; aff 16, aff 38.

Note the order, chiefly in tropics; the trumpet shaped flos are the chief glory of their habitats.

O in Eur wild; in Am. N to Pa, S to 2 end of Chili.

Best kn for the gay beauty of the flos, wh to the lope es, pap colors, pet abdce, oft aug the int obj; in a temp. forest.

Bignonia L.

B. Chica; by boiling les of it in water, Chica (also called Carajuru) is obt, a red feculent subst; wh is sometimes used by addg bark of an unkn tree, old Arayuna; Inds use it for pntg the bodies red; oft impts to dyers; pts used to cotton.

B. Cheverie; tough shrubs are woven into coldtrees work

B. antisyphilitica; bark of rpe bes in Braz 1 of mt potful rem apt syphi decoctn, also bark dried & powded, externally.

B. leucoxylon, Mt that an antidote to Manchineel poison.

B. echinata, sd to be used in adulterating Sarsaparilla (bes)

B. sd Braz sp from large trees in forests; fitted for timber; I old Ipe-tabacco finds durable ship-timber; one old Ipecuana, is hardest wd in B; one old Pao d'arco, pts one of the best woods for bows.

T. [illegible] B. Cand. [illegible] T. [illegible] T. longiflora, abds in tanning; Mt bitter, usually used as tonic [illegible] T. Ipe (similar), used in Braz as purge for bad bloods. T. speciosa, diuretic & cathartic. T. radicans, invasive; PRONITES DR; fpd by Bentham; who dec its leaves by far no bees no labiates; suggests that seeds is effected by sun-glass of insectes, as in Eb, jes, wasps, B etc, only the Bees that open lateral wholly seed "Tubes of spike dainty work? Great beauty in cold climes esp not of, Mt esp. old Bldg. [illegible] Bees head [illegible], Acanus + in tropics.

Catalpa Scop.

CRUCIFERE all composed of vegetl vampire; M

Ordeuche. Gerb. n. for a pltt the strongest of antidotes; hence Gerb to his parentage; Bacon Essays, old ben Eng sp; but this is proved mainly on acts of bromus & rapa; cape, turnip, rob; its clubby, tuberous stem [illegible] 1857; Being that pod to cape, cabbage, capia, Meehan.

Epipactis Virginiana, Farens, fpd by Meehan as Beech-drops; may be Am phs kn; named by Walter, Gronov, Marshall, etc; he calls it Orobanche, [illegible] that he said it as Epipactis Marilana, and E is [illegible] to its comp appearance of Beech drops; by acts this plt is certainly by [illegible] being parasitic on the roots of the beech, Fagus sylvatica & ferruginea"; Barton, in Compendium of the Flora of Phila, 1818, called it Fa Virg - plus is wrong as being that fer kn; spelly changed to mk the g "wholly" [illegible] Gates. Cons lies slow, big annum, stays to its rad. Buds of sm Bor Ds spread when M contact in growing pt of vertimized root" In E, M. is a stalor-like thread rise at the end of small bac of medium plt, wh. one is evident that the plt had to consist by that thread once, in root bdies it pts prob. parasitic early & later, "indeed, Ar. Le discovered the seed-pericarpon; root fed abv nor kn to seed; [illegible] & sep taken to bud, not the above; M. infers that the upper that is to last the wilding, the lower [illegible] to the latest, not the earlier under of the pip. Edr T Bull 1858 p 65 states it may be Trimorphic. Cleistog. flos app. [illegible] M. [illegible] Bot. Gates 1.0; Meehan thinks he [illegible] 2 yrs. Cancer-root, an old n for le jor pt astring, bitter; that one a pstal rem for leprosy; [illegible] cancer-root, fring w white oxide of arsenic, Martin's powder; now unused; Gates of [illegible] applied to Scirrhous ulcers" Dixon.

Epipactis tipelia abyssinica or Bleder-Daus; is Ed in Dr [illegible] six quals of the mt formidable & incredibl natures. Lobelia:

LOBELIACEE instit by Juss 1811; 279; 37588; herbs; milky juice; lves alt; O etip; S_5 P_5 St_5 C_{1-3}

Fet capsular dehiscent apex; seeds ∞, minute, borne on lining rem axis. Anthers syngenesious. Flos lab.

Bref tropics or thr borders; + in W, Pa, Himalayas, C & H, Hawaiian Is; many in Chilia Australia.

All dangrs or suspcs for the overly acrid milk. 23 Lobelia; in Gen Syngen, 3 milkwoods.

Centropogon Prest. C. surinamensis, succulent fruited Mt be eatable.

Cyphia glandulifera, Atg 25, farinaceous fabes eaten by the poor.

Tupa 80m Rhynnopetalum, n DJIBARRA, extly venomous; smoke of its wood, inhaled, causes vomitg; its atmosphere is id to be fatal; its seeds made w butter, facilitate parturition.

T. Feuillei yields a dngrs poison in Chili

Siphocampylus Caractchous, so nmd by inhabs of Rayayan for the tenacity of its juice.

Isotoma longiflora, of W, I of mt venomous of plts; Sp d it PRETENTA CABALLOS becit its horses that eat it, swelly them till they burst; then wn; it is violent cathartic, no remedy can arrange its effects & they end in d; lves are actv vesicants.

Lobelia L (Dortmanns, Rudb, xc); n gen by Plumier, in on Am plts 1693-171, in hour of L. d'Ad, botanic. 200 sp; pet adds to be named so in sp; 18 these Eur, Europ, sea, on in Scandin, Britain. [illegible]

L. urens, a rare Eur plt, named [illegible] butterfly.

L. inflata, INDIAN TOBACCO, most actv plt of N Am Materia Medica; emetic, cathartic, pr expectorant gen w view to empty the stom, it operates speedily & powerfully; produc pt relaxatn, debility, perspiration, and in overdosed, d.

L. syphilitica, GREAT BLUE LOBELIA; anti-syphilitic virtues ascr to it are supd to inv related in its diuretic qual; these are never gently discredited. Rhind 587

L. cardinalis, CARDINAL-FLOWER, acrid, rhis on anthelmintic.

Rhind 588 [illegible] Pharmacopeia Herbal, 1849, [illegible] Used by Cherokees & Osa Tribes as anthelmintic. Beck, 1858 says "I of the mt potent plts, Ann N.Y." Wadell, a gay Arl "have N. clouds of the beam" Mt. Miss Sigourney "Lobelia attires like cardinals in her pride" Wile dishfly is also much in autumn, [illegible] in S of Alle in S, & N to Sask, in N; those of Ct, Mg, & Tex be mks amongst Rt [illegible] in dazzling, bright-splendour w pals [illegible] are same. Vast fd wild, white, rose, yell'h, colors may as well as the blood-scarlet.

L. cœlestis, DWARF L. of our gardens; fr Cdd; pistil pushes thru roses of pollen, then exposes its stigmatic surf. Dandelion thread, it must be fertly ing; "but it is certain that it will seek fertly when inj. feed, fr the ovl of bogs pollen fr, a distance are wholly excluded" Meehan. How feed them?

In Feayson, Gray, I of last dicc; in L E Eg, fr Dr Fray, Dr E Palmer, Mathany Treat; fpd by Meehan, Rep. prec.

L. of W, pd to produce pain in the breast & difficy of breathy in person some feet fr its sence. In Bot Gardn, [illegible] of the Plants, Dr E Dunnin, [illegible]

And fell in debilitat suffocating breaths Heads the drunk pinkin of the pale witch death.

LOBEL, Plumier, fpd by Nicolas, L. [illegible] Eng, 900 here be gulf not leaved, but [illegible]; was adpd Bot to Ed Jas I & his successors; p d in London, 1616. Mathias de L'Obel, [illegible] in Eng not [illegible] early as [illegible] Eng, [illegible] Ed [illegible] Ed [illegible] Ed

MONADELPHOUS PLANTS

BYTTNERIACEÆ, trees, shrubs, ·cov w stellate or forked hairs, occ. w scurfs; dicty to Malv by anthers bent, & called to Sterculiac by anthers turned inwds. Tendy to loss of petals, abortn of stam, & alt products of monadelphism. G. 45, sp 400.

Theobroma L (Cacao Tourn) T. Cacao, CACAO or CHOCOLATE tree; see Khind 336 OC 313

Waltheria L W. Douradinha, vy mucilgnos; used tonic in Braz apt syph.
Dombeya Cav. D. spectabilis, flk used into corpses in Madag; sy Afr & As.
Lasiopetalum Smith, Austrl.

STERCULIACEÆ large trees or shrubs, § 34 sp 125; 2 called anthers turned outwds; stam column. Tropical or in warm clim. Chiefly resembl for + mucilage.

Adansonia L, BAOBAB, see Lvs dried, powded, mix Lato, fairly art w Mk, wh they mix w the food, to dim the exces perspiratn due to climate. Eur. find it serviceabl in diarrh, fevers &c. Pulp of fruit, ctly acid, aptly, oft eaten; the juice pressed fr it, w sugar, makes a drk valued as a specific in putrid & pestilential fevers. Dried pulp mixed w water is used in Gp in dysentery; chiefly cpd of gum lk Gum Senegal, 2 sugary matter, & starch, & art acid wh appears to be malic.

Bombax L, CEIBA; notable sp for noble aspect rather than utility; seeds of + are invested w fine cotton, but cannot be manufd fr their being no adhesn betw hairs. Am sp: hv emetic barks.
B. pentandrum, COTTON-TREE of India, yields a gum, gum w spices in cert travel complts

Salmalia Sch; bark emetic: honey of flrs of S. malabarica sd to be purgative & diuretic.
Durio Rumph, DURIAN, see. Fd in Is of Ind Archip; thr extnsly cultd.

Ochroma Swartz, O. lagopus, tree in W.I. wood + ; fr cod used instd of cotn; both fr antiseptic; woolly lining of the fruit used + bte as styptic in wnd. Chiefly + & ...

Chorisia HBK, C. speciosa, ARVORE de PAINA, woolly coat of seeds is used in diff cos to stuff cushions.

Eriodendron, DC (Campylanthera, Schott, Eriona, Sch E, Gossampinus, Rumph) woolly coat stuffing.
Bombax, Sch E. Reevesia, Lk Neesia, Blum, Montezuma, Mes. Asterocidalong Kl, (Bleyharanthemum)
Cheirostemon Humb. (Cheiranthodendron Larrad.) & C. platanoides + Nex, HAND-PLANT or MANITA, no petals, large angular calyx, res a leather cup, fr centre of wh rises up a column by 5 nar curved anthrs w a curved style in mid; consid res to a hand w lg claws.

Helicteres L, H. Sacarolha, SACAROLHA of Braz. decocn of root used apt syph; mucilgnos.
Myrodia Swartz M. angustifolia sd to hv simi prop.
Sterculia L; many uses of + sp, hly p 361-2; 3 eaten nuts.
S. Tragacantha, prods Gum Tr of Sierraleone,
S. urens " " " of Coromandel.
S. tomentosa &c, KOLA of Afr, seeds chewed or sucked, render flavor of water & fruit half palatable, aptly.

Malvales

Theobroma L the CACAO or CHOCOLATE TR, of Malvales, order Byttneriaceæ. T. = food fr gods; chiefly L's extract of seeds; dat to Dlex, extnsv culta bot disc, also that the plant bev to it of lands wrg not plant fruits & opt, & lost no time in mkg it kn to OW; tuld arrv to 20° N to Bahia; in Afr & As also, 20° high, lvs large, dbly pted, flrs pole sed, on stems & larger brs even to roots; Thunberg says Humboldt, thl I forget the dp inq to va-nae by the lux of trop plants on let sep a C plants, Aft a deep rot, the large thorns of the T bone to the root at a considdistnce fr the trunk, & weeps to the deep silk mnnd. A constckg exampl of the expansn pos of life can b dly be met w in organ nat." Fruit are large, rol, pted pods, 5-6' lg, con in 5 cells, 20-40 beans. Not said to seed, only scrooned fr wind; can't bear scorchg sun, esp when yg; bananas, maize, manioc & dc bed kl plts are sown betw the roots, and also shade they enjoy the damp & hot they req; reqs warmer clim than coffee or sugar. 2 yr aft sowg it is 3° high, sends out rog bes; only 3-4 lately let fruits cos the 3d yr; in full bearg by 6-7th, + till + 20 yr. An Ind who can get a few thos cacao trees planted can pass an idle life; weed the trees 2-3 t a yr, pathes, sunflowers, Lvs mle & dry the seeds in the sun. Chiefly used in form of Chocolate; beans are roasted, fine gnd, into a pert smooth paste, flavr improv by adg spice as vanilla

mucilage; stam
pay allus to Flax,
Arotic.
of the ice; esp the
st for dry, fever used
dich, Mecha, quring
he crumbled seeds are
N1 are called Quasso
ucipaises to lb.
ry cold coughs.

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BITTNERIAC
bely called, for Ster
prodcts of monadelp
Theobroma L (
Waltheria L W
Dombeya Cav. T
Lasiopetalum Sm

STERCULIA
Tropical or in warm
Adansonia L,
w the feed, to dim
Pulp of fruit, stely
purgld & restrictent
Gum Senegal, 2-grp

Bombax L, CE
but cannot be mar
B. pentandr

Salmalia Schott
Bucio Rumph
Ochroma Swa
of the fruit used
Chorisia HBK,

Eriodendron,
Bombacopsis
Cheirostemon
no petals, large an
w a curved style in

Helicteres L,
Mayodia Schech
Sterculia, L
S. Tragacan
S. urens
S. tomento

MALVACEÆ; Juss. 1789; 39 g, 1000 sp; herbs, trees, shrubs; + in mucilage; stam. column; 1 called anthers turned inward; no unwhole-com quals.

Malvæ is a link to Ranunc, in hvg sep cargels over a central recep. Mucilgs prop ellis to flax, Vg + In tropz; dlng N; in Sic 1/50 of dry pts, in Eu 1/45, in Sco 1/33, in Lapl. 0.

Humboldt computed in Am. they are 1/50 of the dry pts of veg; 1/200 of comp. 0 in Arctic.

Malva L. MALLOWS & MARSHMALLOWS; thr use in Eur is v little; vol plt of the itr; exp the root, pieces in decoctn a plentiful, emolt, cleans mucil, salutary for bowels; demulcent for dry fauces used w Fr, also use it exactly in poultices, lozenges, &c, used n of GUMMOUS.

M. crispa, ch td by Columellas to be fit to manure into cordg.

M. alcea; petals are asteriate.

M. sylvestris, Mallow, Dompest-ly, Sibbo 116

M. rotundifolia; "ch. eat & relish the unripe fruit, prob not in play than bec stepcole relish." Meebau, quoting "Then sitting da coben schest rose der Upon the threshold of the door, Pick ye mallows, sport to please, The crumbled seeds wc called a cheese."

Althæa, L (Alcea, L)

A rosea, HOLLYHOCK, malaxy of Dioscorides, thes officinal in Eu for use of Marshmallows, Lvs mk a blue colg matr sd exp to indigo.

Sida L (Malvinda, Medik)

S. cordifolia used w rice is used to allev. bloody flux.

S. mauritiana Hindoo dvs mk cordiaux of it.

S. microanthe. Ht stat stems used to mk rocket-sticks

S. abutila sd tribe cultd in China for hemp

S. lanceolata root vy bitter, thot a vol. stomachic.

Abelmoschus A

A moschatus, musky seeds that cordial & stomachic; by Arabs mixed w coffee. In WI are called Quimbo musqué; reduced to powder & steeped in rum that potent rem. for snake bites.

A esculentus, fst cld Ochro, Gombo, Gobbo, Bendikai, &c, fame in soup, fry for mucilgnous to it.

Sphaeralcea Hdbl.

S cisplatina platina used in Braz, a decoctn, for inflam of bowels; & for Mouth.

S. cangiuitolia; chewed lvs in Braz applied to wasp-stgs

Pavonia Cav. P diuretica in Braz a diuretic (emollient?)

Urena L. U lobata; decocn of root & stem in Braz for wounds; thes expectorant for dry cold coughs.

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Abutilon Tourn.

A esculentum, BENCAO DE DEOS, Ars in Bras used as a boiled veget.

Hibiscus L. (Tow. Dillenia, & H. d. Cavanilles) to Malvinae, Juss. Sol. cp in trop used, blk, to make cordage; per pt. of wd is in this. Malva & Sida, cop this.

H. arboreus; slave-ships always rad for its fibres of blk, in WI; pple old MICHOK or MICHAUT

H. cannabinus, SUN, cultd in India for hemp: bark called Wank; coarse oil pressed fr its seeds.

H. Rosa Sinensis, CHINESE ROSE, chin use petals to blken the eyebrows & the leather of the shoes. Florists have dev'd it yel, or orange & scarlet flos.

H. Sabdariffa, H. Surattensis, &c, are oftly cultd,

H. coccineus Spr by Dlechan as Thunbergia Rose-Mallow, is cultd by Walter Aff. Carolina in Eur by later [illegible] H. speciosus; pt. [illegible] pple have to the US; very Cattle infer to the Chinese Rose [illegible] not [illegible] to our gardens. Cultd [illegible] by its fry appl, bp it in tub on bot blks, as a by [illegible] H. [illegible] cult here by Peter Collinson All 1788; prob introd into Eng ant bef, for Peter Collinson writs 1767 to Wm Bartram "The crimson H. is a charming flr. I cd hv no perfect idea of it but fr thy dept pts. Pray desire thy f. (Wm B.) to spare no pains to procure seeds fr Charleston, adhe. I dare say it ripens seeds!" Natv in swamps but does well in gardens, as in Tenn, Ber & Cambr. Natv in dp marshes on the coast, Fla, Ga, & W.

H. esculentus, L. OCHRO, GOMBO, Okra, DC 150

Narcissus, Narcissa, Narteca, Lawrencia, Gaya, Cristoria, Medlita, Hermodaticus, Helvatinus, Gossypium L. (Xylon, Linnæ) Rhind 3 205-213, DC 402-411

G. herbaceum, in Eros, up lvs & seeds used in dysentery; steeped in vinegar are applied to head in hemicrania.

Callirhoë Nutt (C. a nymph d sea, d Oceanus & Tethys; after her married a beauty fr at Athas, ptl cntg, fr wh 9 stams in diff. C. involucrata, Torrey, Gp & by Mexicans; deserves pecuar in, as its fry bre trail diffused; resl cp rows at fr old Mal-va Papaver fr res to Papaver Rhoeas (the Wild Poppy of Corn & Rose of Rng: a fr poppy? or from its overhang the fr? W), hence Ad. supts Nuttall may as begin it to M. hv called it Beautiful Rhoeas, Callirhoe) Basilia cuit ra-involucrata, in Eng, & cocon by Vick, "Bore res a specie; cultv by the Indns" Scouler, Bnd it in his Fdt Hwrp, 1849, plts in Dec, Ki, Nebr.

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TERNSTRŒMIACEÆ Consist by Mirbel, 1818; pl by Lily amg Guttiferales; trees & shrubs; flrs solt, sold gh or red; S 5-7 P 5,6, or 9 sep, monodelphous, polyadelphous or distinct; C 2-7, a capsule, or central drupe; seeds no aris, fmy large. 833 sp 130; those cultd in Eur gardens are Camellia & Gordonia & Thea for China & US; tea house of China is shown, whe 60-70 feet tall & shrubs, in woods; 20 in El, 7 in China, 2 N Am, 1 in Afr.

Kielmeyera Mart, K speciosa, Ws in Bras used as fomentation, to sch vol adapted on act of ably in mantlage.
Gordonia Ellis (Laurianthus Cateeb, Polyspora Sims, Stuartia Mench, or) Bmuse by tanners in US.
Gr.

Stuartia Cavan.
Camellia L (S sanqua Nees, Kitz, Endl)
C. oleifera, seeds yield an edible table oil Rhind 602
C. japonica, the diff vars are the glory of gardeners. Rhind 602

Thea L. 2 of 3 sp yield the Tea; its stly stimulating props become narcotic in cy hot cos as Penang.
Rhind 888 DC 117

DIPTERACEÆ of Guttiferales has stam usly distinct, but ments stly & irregly polyadelphous, with 4-7 sp, 7 p, sm glossy gums, dammar, balsams, incense, oil, &c; only in India; in lad Andes from the largest forests.

RHIZOBOLACEÆ of do, stam stly many, cy nos; 2 p, 8 sep, sm, are large trees in S Am forests; the Caryocar butyrosum produces the Souarrow Nuts.

HYPERICACEÆ of do, stam usly ∞, rare many, alm also polyadelphous. Easily recognised by the unequal sided petals or dk glds on the edges gently diffused; in mtns, valleys, marshes, dry plns, m dens, heaths. 13 g, 296 sp; dishbaggs, Li p 406

Acrocum L (Leoglyllum Spach)

Elodea Adans (Martia Spreng, Triadenia, Spach)
E virginica; US; a stomachic tincture have md fr in.

Vismia Vellez; sp Am, bu copious yel juice, energetic props; V guinensis of Mex & Surinam yields the Ara Guianensi Gutta of commerce; V micrantha & laccifera yield red stks of drastic juice resin anlog to gamboge.

Hypericum L (Drosanthe, Webbia, Crossophyllum, Olympia, Androsæmum, Myriandra, are some of Spachs nos only)
H. hircinum, fœtid
H. connatum, Braz a people for some thers is ordly md for ie; called Erva do Gato.
H. laxiusculum, "Allecrion brabe", decocto of lis that in Bras a specific agt bites of snks.
H. perforatum; con a yel juice wh as in rc Eu sp, is in end properties to the essl oil; and they ho bn used as tonics & astringents; whe the yel juice is use copious as in S Am, sp are tro energetic in acts.
Rhind 513

Parnassia L

BEAUMURIACEÆ Distgd fr Hyp. by shaggy seeds; sml shrubs w fleshy scale-like lvs, alt, overcoped w resinous sticky glands; fr Medit coast & salt plains in N Asia; abds in saline mts; stam many w polyadelphous 3 g 4 sp; p Hotchachna, Eidocoaldia; & Reaumuria of Harvey; R. vermiculata used at Alexia as cure for itch.

MYRISTICACEÆ Nutmegs; fr ho of the Eh coarsely united in a cylinder; 3 g, 3 sp; very ch lad & md of Bay; N Caledonia monotypic; Myristicaceæ, or 44, 302 sp, prinous mass climbers or tree on dam, hr ecdy mon-many; fu some of the colored Ericinaceæ, 5 g, 15 sp; Lactoris bracts, sumerous verticers, hermaphrodites, fl usually in cymes, sm fr Chilean Tr, 15 sp.

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CUCURBITACEÆ climbers bearg pomed fruit; GOURD FAM; 5 stame, cancly 3 or 2, distin et rc ccco; or 33 combined thus 4 sin in pairs & the 5th remains free. Anthers 2 celled, ty lg extrorse, 5 lg 2 sty C 1

Related to Passifloraceæ, wh diff by hairy no stipules anthers, adhere at ovary, bicarpel ovs.

" to Campanulaceæ, (or Hibiscus)

" to Cucurbitaceæ, " thus Gynoecia

" " Loasaceæ, " " " of Linodes, which is our Oa; no habit of Cu-

" " Loasdiz ~~aceæ~~ thus Zannia

" " Euphorbiaceæ, x Rafflesiaceæ,

Placental structure gen. 1 ly x 3 ly.

Distrn chiefly tro. tropics; esp Ind; many in Tropic x Brazil, Few in Eur x N Am; rel in C Afr; two in Austr; 1 in New Zeal; the annual sp readily acclimate in N lands, hence are com in Eur gardens.

Peppo, in cultn, edible fruits, some of wh at least, are active poisons wild; as Bottle Gourd.

Bacinnay x d acrid resiny principle, nasty, but intense in pulp and the seeds, wh are thenetic milts oily. Some of the fruits are rapid cathartics, acts even in small doses to precipitate an early cold line of the alimentary canal.

All sp have PUMPKIN, Zoo 18, Mwm 3

Lagenaria Ser BOTTLE GOURD, DISHRAG PLANT is L. vulgaris, CALABASH, GOURD, DC 245

Cucumis L (Melo, Pepo)

C. Hardcockii ~~anis not cathartic sp fruit~~

C. pseudo-colocynthis " " "

C. Colocynthis (ex Citrullus) COLOCYNTH, Bruce & the dog; one of not ved medicns

Shiv Otteile 1, "The food that came to him is as bitter as Colocynthida"

Ethno 44 Rhind 538

C. Melo, MELON

Rhind 376 DC 258

C. sativa CUCUMBER

Rhind 378 DC 264

C. Anguria, WEST INDIAN GHERKIN

DC 267

Cucumis utilissimus, MELON

Cucurbita L (= Pepo, Tourn, Melopepo, Tourn) GOURDS; DC 250

C. maxima, RED GOURD; flesh when boiled ~~eat~~ taste of a tender Carrot; DC 249

C. pepo (ex Bacincasa ovifera) WHITE GOURD in Ind planted at ev in Feast, being esp'd to insure ~~prosperity to the wedded pair~~ DC, 268

C. ovifera, VEGETABLE MARROW Juicy ~~esteem~~ (of our best ~~culinary veg~~ Lily, Rhind 378 DC 264

C. citrullus, WATER MELON, cultd for the cool refreshing juice of its large fr Rhind 379 DC 268

C. pepo, PUMPKIN, Ethno 180, Rhind 378 DC 253

C. melopepo, SQUASH, Rhind 379

C. moschata, MUSK or MELON PUMPKIN, DC 256

C. ficifolia, FIG-LEAVED PUMPKIN, DC 257

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Luffa Drunet, [illegible] so violently cathartic hint; sol mixed by Tidy p 314.
L. acutangula, DC 271, ANGULAR LUFFA

Bryonia, L, BRYONY, BRYONY, [illegible] vy cathartic, as Ballay, B. dioica; juice of the root very cathartic, while yg shts have of it, p used as Bryoniapus, res it in fever; purgato; nar petal than Jalap.

B. americana, x B. alba, sd to be similar prps
B. abyssinica, root sd to be eaten not danger
B. cylicea, root once supposed to be the true Columba

Eballium [illegible], E. agreste, (Momordica elaterium L, Cucus agrestis) SQUIRTING CUCUMBER; nav of bitter Bue; poisn pulp sudly forcibly expelled for intro of fruit when qu ripe, 2 stalk is loosened; for poisn, see Ly, p 314.

Momordica L; some if not all the lid sp em to be easily cath; 2 are pickled; 2 Sam p poisns
M. cylindrica, L, TOWEL GOURD, DC 269

Telfairia Hook, T. pedata of Ato; seeds oily, form emulsion; hpe 2 chestnuts; sd to be pd as Almds; lw a vy great flavor; pressed, yield + oil, equal to that of finest olives; pulp is + bitter, prod a violent headache when only applied to the tongue.
Sechium edule, Chayote, of WI

Zanonia L 2 indica, BANDOLIER FRUIT, so called del for form of seed vsls; taste aml of cucumber, Boiled lvs are infused in baths; mixed w butter, serve as a prepn for an antiparalytic liniment.

Bryonopsis Am, Sicyidium Schlecht.
Sicyos, L (Sicyoides, Tourn, Badana, Boerhav) Tis a cucumber-like vine chpd by L on acct of his rule no g. name to be adhered.
S. angulatus L; fgd by Meehan as STAR CUCUMBER; fr similar clusters of seed vsls, each mostly a single seed, w a dry thin covrg. In Wabash bottoms it grows to 6-8 high, Outlook, Rapid growth; that fgd was sprouted in May, but frost was 20° gr, side of hogwash pus in a line and the seeds; w 100 sq ft leaf surf, various stems at pitt no thicker than a lead pencil.
Echinocystis Torr.

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Trichosanthes anguina L, SNAKE GOURD 272 DC
Sechium edule, CHOCO, CHAYOTE, DC 273

CONVOLVULACEÆ; twiners; used for this exp[illegible] during morning or only in fair weather; any rain their closing bef rain indicates power to keep the pollen dry.

IPOMŒA L (fr res to Convolvulus, Bindweed, fr Ipos a Bindweed, x Opsis like) disgd fr C by stigmas being two-lobed cariform instead two x linear.

I. lacunosa L fgd by Meehan as White-Star Gp; rare in Pa, where M. fds it open during rain, Curious in dissemination of pistils; wh in one flr dev vy prodly, no pos int; flrs hear aspect by a few use the tose on the touch, zero ate stigma has seck pollen. In most Ip flrs are at least large as lvs; here lvs large as any but flrs vy tnl, wbl capsule rather abv av; why so, ag? Plac rec of use beast of Am Is, Popular yet many lvs, 2 seed well w twing habit, cpy a rich elegance to its slender growth." M, "Nature was too intent on the lvs to pv much thot to the flrs" M. Use of lvs Ans pts in Reg gardens, in essays 1840; named by Raf; Pillenius 1732 makes it a Convolv; Aiton C. scoparius or Strawflower"; Riddell, Cami organizing the "Small-fired Bindweed"; Easily disg fr fr the Short-lobed by short-tubed corolla x pedicel shorter than lvs." M queries as to x lacunosa, as orig "full of holes, pits or lit lakes," not vy apparent in pits he has; apparent in Nder lvs as lacuna, holes, S.T.B. + in lvs of Ans, x to Ia x Ela; + also O; 2 x Ke, Ks, Ilr; in Sag x Pa, rare in NY; not in Cal? Ms I is fd on Pacific slope, but closely allied genera replace in Ay-Bet.

I. leptophylla Torrey, fgd by Meehan as the Colorado Man-root, fd by Dr Bourey's party July (186); since in UKS, E Col, in the dry, sandy, barren regn, restored by the Plazze x Ark Rs, x to Texas, "Stems often erect, bushy, 2' high"; pered; coil of the plas is a parasitic raid, on sandy regn; insm, coarses on trees; + buffaloes; + each in each way, x vy nicely that wonderful pt, the L. l. cld by the hunter. Man-root, fr Shoshony desert in sz x stp to a man; edible; x Col. corresp. used 2 men overlap so Plas x seem but a bill d to dig up a root for the Convent Sup. Root dee 5-7', a trench below gd to absb moisture; fr of rare beauty; M. eps Mr Hemsons of Chicago Park mig so such in the desert,

Why art thou thus in thy beauty cast, O lonely, loneliest flower,
Where the sound of step has never passed, From human heart or bower?

Ins nar elpd x Ap.

I. tuberosa, L, enormous very nutritious
I. mammosa, Choisy, not essen [illegible] DC 57
I.
SWEET POTATO, Convolvulus Batatas, L, DC 53-55

Luffa Dunal

L. acutangula

Bryonia, L, Ellis

B. americana

B. abyssinica

B. cylinca, rove

Bolbilina Schrad.

nsex of hotter Eur; po

bryonia. see 4/, p 319.

Momordica L

Momordica L.

Telfairia Hook. T.

agreat Asia; pressed

when only applied to th

Sechium edule,

Zanonia L

Bruised leaves are indus

Bryonopsis Arn.

Sicyos L (Sic

S. angulatus L

Trichosanthes a

Sechium edule,

Ipomoea

Mrs Jackson's "Morning-glory" in Devon," he wrote;

Wondrous interlacement!

Holding fast to threads by green & silky tings,

With the dawn it spreads its white & purple wings,

Greenness in its stem, & shelterings while it clings,

Sturdy morning-glory.

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Sesbania; no acid

In Mex.

ex; sol used as

Luffa Tournef.
L. acutangula

Bryonia, L, 1010
fruit dry, p used as Eb
B. acuminata
B. abyssinica
B. cyprica, v

Ecballium Colla
name of bitter fruit
bryonia. see 4, p 319.

Momordica, L
M. cylindrica, p

Telfairia Hook
spread Aroor; press
when only applied to
Dochium edule

Zanonia L
Bruised leaves see in

Bryonopsis Arn.
Sicyos, L (S
S. angulatus L
dry thin coriac. lv W
20 gr. bite of infusion
Echinocystis

Dicherosanthe
Dochium edu

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BEGONIACEÆ stamens distinct or in a solid column; herbs or succ. under shrubs; no acid juice; alt toothed oblique-based lvs; hyp scarious stipules; glandular, diœcious $\♂ S_2 P_2$ $\♀ S_{2+2} P_{3+3}$
Placentation wonderful, Lily, p 319
Cons. in VI, 5 Sens. El; nose no. crit. Abr; sol in Madag, 12 Fr Bourbon, 1 on Abyssinia. In Max.
2-3 g, 153 sp: Eup Eugaralunia x Diplodillum Lily.
Prop; more astringent, bitter; sol medicinal; some diuretic purgative in Max; sol used as pot-herbs.

SCITAMINEÆ. BANANA FAM. = Amomal Alliance of Ly.

Scitamina of L, 1751; considered here as = Musaceæ of Ly, p 165, Musaceæ of Juss, 1789.

Musaceæ are also w diverge veins; stamens or only; minus stem; blade sepd to upper particle by a rd tumor; 6 fertile to magin. Elts in spatha. $S_3 P_3 St_6 C_3$ succulent indehis.

Natives of C G d H, Is of Abs SE coast; tropic plns; not

Valuable x inept as food for the fruit,

Ivs of gigantic size used to thatch Ind cotges, for eat his food, for basket mkg, for yields a val fi

Stems formed of the bases wh are vanish for the vast pulled out by hdsds; sd to be called in W I x sold as a tinder

Values of these spl vsls varies to 9 to 22 p Ly.

Ypshoots bat x dcies reptil x cotes.

MUSA Tournef. Juice of fr x lymph of stem

Musa sapientum BANANA Rhind 260-1 vc 304

Musa paradisiaca PLANTAIN Rhind 260 vc 304

Musa textilis MANILLA HEMP

ESTATE IN GEORGETOWN, D. C.

By virtue of the last will and testament of Caroline D. Giessing, deceased, and further, by a decree of the Supreme Court of the District of Columbia, passed in Equity Cause No. 10,060, Equity Docket 27, we will sell in front of the premises, on TUESDAY, MARCH SIXTH, A. D. D. 1888, commencing at FOUR THIRTY O'CLOCK P. M.:

FIRST—All that piece or parcel of ground situate and lying in Georgetown, District of Columbia, and bounded as follows; that is to say: All that portion or part of lot of ground known and distinguished by number one hundred and seventy-nine (179), in Thomas Beall's addition to Georgetown. Beginning at the southeast corner of said lot, at the intersection of Bridge and Greene streets, and running thence on the north line of Bridge street of said Georgetown, west about forty-one feet, thence north and parallel with Greene street fifty-eight and one-half feet, thence east and parallel with the first line about forty-one feet to Greene street, then south by and with Greene street fifty-eight and a-half feet to the beginning, together with all and singular the buildings, improvements, rights, privileges, and appurtenances to the same belonging or in anywise appertaining.

SECOND—IMMEDIATELY AFTER we will sell, in front of the premises, all that piece or parcel of ground in Beall's addition to Georgetown, District of Columbia, being part of Lot number one hundred and seventy-nine in said addition, beginning for said piece at the end of fifty-nine feet six inches from the boundary number fifty-seven, on the north side of Bridge street, and running from said point of beginning north with the west line of Greene street twenty-two feet, more or less, to the lot lately O'Bolley's; thence west parallel with Bridge street sixty-five feet seven inches; thence south parallel with the first line of this piece twenty-one feet six inches, more or less; thence east twenty-three feet four inches; thence south six inches, more or less, and thence east forty-two feet three inches to said Greene street and the point of beginning (more fully described in deed from James Wardell to Frederick W. Giessing, dated January 3, A. D. 1862, and in a corrected deed from same party to same party, dated 20th day of February, A. D. 1865), together with rights of alley, &c.

THIRD—The following piece or parcel of ground, to wit: the north part of lot number one hundred and seventy-nine, in Thomas Beall's addition to Georgetown, District of Columbia, fronting twenty feet more or less on Greene street, and extending back sixty-five and-a-half feet deep (lying north of the property late Wardell's and now said Giessing's), and more fully designated in deed from William Redin, trustee, to Frederick W. Giessing, dated 22d day of January, A. D. 1862, together with the rights and appurtenances belonging to same.

FOURTH—All that part of lot numbered one hundred and seventy-nine (179), in Beall's addition to Georgetown, in the District of Columbia, beginning for the same at the northeast corner of said lot, and running thence southerly with the west side of Green street, twenty feet more or less; thence westerly parallel with Bridge street sixty feet; thence northerly parallel with the first line twenty feet, more or less, and thence easterly sixty feet to the beginning, together with all the buildings, improvements, rights, privileges, appurtenances and other hereditaments to the same belonging, or in any wise appertaining.

On the SAME DAY, IMMEDIATELY AFTER THE ABOVE, we will sell in front of the premises all that certain piece or parcel of land and premises situate

RAVENALA Adans, (Urania Schreber) TRAVELLER'S TREE.

R. speciosa, a magnificent Palmetto pln, called by the Fr ARBRE DU VOYAGEUR; seed sd to be eatable; pulpy swll, of sm brilt blue colr; yields an essntl oil. Juice of fr used in dyeing. Seed w tuft of lg hairs.

PHENACOSPERMUM Endl.

STRELITZIA Banks (? Heliconia Aiorta) Elv pentandres, t incep. Seed w tuft of lg hairs

HELICONIA L. (Bihai Plum) Only genus w solitary seed.

H. Psittacorum, fr eatable

H. BIHAI, "

H. angustifolia fpd Ly plns

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SCITAMINEÆ. BANANA FAM. = Ammonal Alliance of Ly.

Scitamina of L, 1751; considered here as = Musaceæ of Ly, p 165, Musaceæ of Juss, 1789.

Musaceæ are also w diverge echas; stemals or indy; lve sheathg at base, forming a spurious stem; blade sepd to taper petiole by a rd tumor; 6 nc parallel veins eglr, at rt angl to mide r omagio. Elvs in spatha. $S_3 P_3 St_6 C_3$. Fre 3 celled tacilis capsule or succulent indehis.

Natve of C G d H, Is of Abr SE coast; tropic plns; not much bevd exc to Japan; 4 p, 20 gn

Valuable x ingt as food for the fruit,

lvs of gigantic size used to thatch Ind cotges, fre a natl cloth fr wch a trwole may eat his food, fre basket mkg, fre yields a cal flax fr wch sm of finest muslins of Ind,

Stems formed of the bases wch are sensibl fro the vast nos of spiral vels cnt, wch may be pulled out by hdfuls; sd to be called in W I a sold as a tinder, " No of threads in each convolution of these spiral vels varies fr 9 to 22" Ly.

Ripe fruits not a delic veptbl cooked.

MUSA Tournef. Juice of fr x lymph of stem are sthly astringt x diaphoretic,

Musa sapientum BANANA *Rhind* 260-1 vc 364

Musa paradisiaca PLANTAIN *Rhind* 260 ec 364

Fiber textile: MANILLA HEMP

RAVENALA *Adans*, (Urania *Schreber*) TRAVELLER'S TREE.

R. speciosa, a magnif Palmacis plt, called by the Fr ARBRE DU VOYAGEUR; seed sd blue color, yields an esntl oil. Juice of fr used in dyeing.

The Bananas of Colombia.

To the Editor of THE EVENING STAR:

In your issue of the 27th ultimo I read with pleasure an extract from "Good Housekeeping" relating to the banana produced in Colombia, S.A., my native country. As the extract did not give any details of the natural development of that desirable fruit I take pleasure in sending the following particulars for the information of the readers of your paper: In Colombia will be found about sixteen kinds of platano (the name generally given to this product). The common platano grows from 1 foot to 16 inches long, and is an indigenous plant. The dominico never grows more than 10 inches. It is a very fine platano, and its name is derived from its native place, Dominica. The maritu, the smallest of the three varieties of the common platano, is the one well known here as the red banana. The common guineo is also an indigenous fruit, and grows as large as the red banana. The apple guineo, when in full size, is only 6 inches, and the smallest one is the fig, of Guinea. The name of this fruit suggests its taste, which is like that of an American apple. It is supposed to have originated in Guinea. The English banana is the one ordinarily used in this country. It is so called because it originated in England's domain. The French guineo is small and red and is a native of Martinica. All these guineos are of a green color first and become gradually yellow as they ripen. The common platano and the dominico are alike in all respects except in size and thickness, and both are of universal use among the Spanish-speaking people. When they are green or yellow the people of Colombia roast, boil, or fry them. They supply the place of bread and vegetables. They are used in soup and mixed with milk and eggs, are made into fritters. When green the people cut them into four slices and dry them in the open sun. When dried a meal is made from them, which is ordinarily used to make gruels and fritters. When they are ripe they are served as fruits usually. In that condition they are roasted with the skin, and when done a mush is made of them and eaten in milk. They are also preserved with sugar and served as desserts. When thoroughly ripened and at the point of being spoiled they are passed through hot water and placed in the open air for two or three weeks. There they become nicely preserved and ready for use on the dinner table. Words fail me to praise worthily a product that actually constitutes the staple food of many millions of people in South America. The best authors of these countries have written many beautiful poems on the merits and usefulness of the platano alone. Oh, how gladly I would change my bread here for that beloved platano of my country, the republic of Colombia.

M. M. DE MEZA.

Heliconia Bierta) Elv pentandra, t inog. Seed w tuft of fl.

Plum) Only genus w solitary seed.

eatable

HAI, "

L Ly p164

Digitized by Hunt Institute for Botanical Documentation

ZINGIBERACEAE constit as Cannae by Juss, 1789, in part; Scitamineae RC, 1810.
$S_3 P_{3+3} St_3$, only 1 fertile C_3 Aromatic, tuns, herbs; rhiz creep; stems of colouring bases, of lvs, new branches. Lvs simple, sheaths; the blade dist sepd fr sheath by a slender neck; a single midrib, fr wh the vy +, simple, convoded reins diverge at acute angle. Flrs in dense spike, rac, or panicle; terminal or radical. Flrs fr spathaceous membrane bracts. Inner row of petals are sterile staminoids, one larger, a labellum. Fruit capsular, occ berried. Roscoe has a vol on them.
Allied by Alpinia to Scitidae-
" " Mantisia to Orchidae-
Nos 298, 2473 sp. Gently objects of gt beauty, fr high dev of flrs, Hedychium coronarium, Alpinia nutans, or fr rich glowing colored bracts, as Curcuma Roscoeana or fr ornamental foliage Canna

Value, chiff, for aromatic stimulating props of root or rhizome, esp in Ginger, Galangale, Zedoary
" " " " " " " seeds, Cardamoms, Grains of Paradise,
" " " dyeing properties, Turmeric
" for edible fruit, Globa wilmensis
" for edible starch, arrow-root fr Curcuma angustifolia prepared at Travancore, E.I. & C. rubescens
" for medical purposes

GLOEBA L (Catimbium, Juss)
G. wilmensis, fruit said to be eatable

COLEBROOKIA Don (Ceranthera Ham, Hura, König, Sphaerocarpus, Gaert, Manitia, Giesecke)

CERATANTHERA Hermann. MANITSIA Cuspe. TRILOPHUS Lestib ROSCOEA Smith
ZINGIBER Gaertn, (Jagera, Giesecke, Dietrichia, do, Casumunar, Colla, Lampujang, Rumph) GINGER
Shipp, 101 Elliot-78 Rhind 489-90

CURCUMA L (Zerumbet, Rumph, Stissera, & Kendlia, Giesecke)
C. Roscoeana, prized for its rich glowing colored bracts

C. Zedoaria, ZEDOARY, prized for aromatic stimulating quals of rot

C. Zerumbet, ZEDOARY, do

C. longa, TURMERIC ROOT, yield D, a subtle ker for its dyeing props; it is cordial & carminative, & thus by natives had also an excit produce for cleansing ulcers. Rhind 518

C. angustifolia, an ARROW-ROOT, com sold in its st Benares, a fine or starch, eatable, excellent, prepared at Travancore & the a large pt of inhabs food. Gently tried the coder here ever there is too much aromatic oil present to permit use of the abit starch

C. rubescens, its pendulous tubers, & tha of sol or esp of hd, yields a vy beaut pure starch; natives prepare & eat,
C. yields the except Mex drug ild Cascara de Pague wh abds in tannin.

AEMPFERIA L (Sancorus Rumph)
K. galanga one of the prominent prop used by Galangale in hed

AMOMUM L (Cardamomum Rumph, Matonia Salisb, Alexis do, &c) CARDAMOMS.
A. aromaticum, fruit on E Coast of Bengal, yields C seed,

A. Grana Paradisi; GRAINS OF PARADISE a hot acid seed, used to gr a pungent flavor to spirituous liquors; are prin the fruit of this; inferior kds fr. A. angustifolium, A. macrocarpum, A. maximum, A. Clusii.
A. repens, CARDAMOM, Rhind 489

ELETTARIA Rheed, (Matonia, Sm, Cardamomum Salisb, Geanthus Reinw) CARDAMOMS
E. Cardamomum produces Malabar Cardamoms
E. major " Ceylon C. in an inferior sort

Dorachodes Blume Dracodes Blume, Gastrochilus, Lestib, Peperidium, Ly, Leptosolena, Presl,
Monolophus Wall Conilophus Blume Gastrochilus, Wall. Jacuanga, Lestib, Monocystis, Ly
Kolmonatia, Presl, Nyctoplylax Zippel Hitchenia Wall.
HEDYCHIUM König (Gandarulum Rumph)
H. coronarium, fr beaut flrs

Digitized by Hunt Institute for Botanical Documentation

RENEALMIA L (Alpinia Plum, Gethyes, Salisb), The Aromatic Rs are sd to be carminative, ob. which bruised are used in pain of the limbs.

PACO
P. sericea, used in Braz as carminative & stomachic, its sweet aromatic root

ALPINIA L (Zerumbet, Jacq, Costus, Pers, Bthanium, Salisb, Allughas, L, Buekia, Gieseke, Catimbium, Lewis)
A. nutans, of Beauv. Ans; used in many cpd Galangales tonic to dig.

A racemosa, produces GALANGALE & is so called

A. Galanga, " GALANGALE do.

A. pyramidatum Bl. } yield an inferior
A. Allughas } Galangale.
A. aromatica "Root sweetly aromatic, used in Braz, as carminative & stomachic."

HELLENIA Willd (Alpina Gieseke, Martensia, G, Heritiera, Retz, Languas, König)

COSTUS L (Tsjana Gmel, Planera, Gieseke, Banksia, König, Hellenia, Retz, Glissanthe, Salisb)
Roots of bitter flavd & are cepa for tonics; but are not of use. All the Braz. Costi hv a subacid nauseous juice, used in nephritic disorders & gonorrhoea.

MARANTACEÆ. Canna of Juss, 1789. 6 g, 160 sp; herbs, tropical, no aromatic, of tuberous, abdg in starch. Stem of branchg. Lvs, distichous as Zing.
Lily sops them to other Scitam - by chace of lip / stamen & half an anther; the filamt is petaloid, entire or 2 lobed, one of the lobes bearing the 1 cell of the anther off one edge.
For capsular as in Zing. Seeds rd, rot arll; album rd, smooth dorsg.
Discum of relationship Liy p. 168-9.
Mose wild bepd tropics; sol in Ind; more in trop Ams & Afr.
Zing exp chac by aromatic bitty principle, 1 abg in Mar - wh are exp noted for the arrow-root, starch abdg so whic, sweet & cell as a delic artcl of food for
Maranta arundinacea, M. Allouyia, M. nobilis, in WI, M. zamoxisiana in Rl.

THALIA L (Pervenia DC)

MARANTA Plum
M. Allouyia, tubers cked w pepper & salt are eaten in WI

M. arundinacea, juice sd to be efficacious in poisond wds; acrid when fresh, redng the skin, excitg the saliva when chewed. INDIAN ARROWROOT (also yielded by M. zamoxisiana) Rhind & 68 DC 81

PHRYNIUM Willd. (Phyllodes, Lourcir)
P. dichotomum yields a tough fibre

CALATHEA Gesn Meyer (Cassochlaena, Kcr) [illegible] of Braz spec being worked into baskets.

MEROSMA L, Hk.

CANNA L (Cannacorus Pers) INDIAN SHOT PLANT. Fleshy crowns of some are eaten in Peru
C. aurantiaca, glauca &c, tubers diuretic, diaphoretic, not usdlt. Starch of in acta
C. Achiras is that to be the sp fr wh in WI the Arrow-root of Tous les mois is extracted,

C. sp. (Grt), the seeds, called INDIAN SHOT, are used as subst for Coffee, & yield a purple dye.

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WATER-LILIES

Lily classes as the alliance of Nymphaleæ, the Nymphaeaceæ, *Water-lilies*, Cabombaceæ, *Water-shields*, *Water-beans* or Nelumbiaceæ: but & Sd have embryo lying on outside of a large mass of albumen, a single fact; & distinctly 3d has an evanescent plumule. Flrs compound highly dev of pics; but woody stems 0. Close upon Ranunculaceæ, & much the Ranal Alliance at every; alliance also to Cruciferaceæ. Stamens oft attached to ovary, even to its very tip; a condition of hypogyn structs.

NYMPHÆACEÆ, constit by Salisb, 1805; many-celled fruit; 5 g, 50 sp.

Herbs in quiet waters; no trunk prostrate; lvs peltate or cordate; flrs large, showy, oft fragrt.

Fruit + celled, indehiscit. Seeds sy +, attached to spongy parietes, Albumen farinaceous, Embryo small, Cotyledons fleshy, concave; plumule oblique. May place it mag Endogens, for seeing no exogens growth in stems, and finds a vitellus (amniotic sac) enclosing embryo, as in Alisgaceæ (Alisphaceæ) Pipeiaceæ &c, mistaken for a single cotyledon by Richard, who took the 2 cotyledons for a plumule; Von Martius tdg him: Brown & Brongniart proved Richard's cotyledon a vitellus. Ly still guesses the 2 cotyledons being Exog; finds them in ♁ Castalia & in Nelumbium not suddly contracted at base like true Exog; and plumule of Nelum- placed in oblique directn no ergo to lobes, nth be gt to cotyl. modified monocot embryos. cpr nucleus in seed of Orchids & spheroidal cotyledon; so he thks it may be called one sylic cotyledon. Transitional stage of dev persisting?

Pollen Hassal thks pers Ny- to be Endog; p gran of Nymphaea (C) he descr as oval, bilepid, tuberc dn lickly cuvity a single pollen cube; chances of End-, *Hassal*.

Milk present DC thks pecies than Exog-; but Ly shows Limnocharis, a Butomad End-, is lactescent.

Lvs are Exog-, in aptic; but Ly says of lit value, & suffdly like Hydrocharis amg End-.

Venation convolute, like + Exog- & 0 Endog-.

Inserctn & direct antidotes to stem are like Exog-.

Flrs res Exog-, exp Magnoliaceæ.

Fruit res. Papaver

Rhizome of Castalia con cellular tissue no confused distrbn of fibrovasc, bdles thro it, not at all like Exog- but res those in succulent Endog- & Ly.

Roots of Nuphar luteum, by Mirbel, bdls, bundles of fibres are placed in concentric circle, the pri outer; as in Exog- but Ly says the bdls of bundles of a cross sec of Endog exps, (no Schlerden be pointed out)

Resumeto of Castalia also Ly, is not exactly like exog, or endog-; radicle is very endorhizal, at half endog-; but rely Ldmus lengthen the tubes to allow plumule to esc, as in acorn, Exog-.

Affinity no sedens discussed by Ly, p 410-411

Example of small transitn of sepals, petals & stamens & pistils.

Floating plants of entire N hemi; occ at 0 Od H; cons in S Hemi; resp in S Amerdy by Victoria.

Exps sd to be antiaphrodisiac, sedative, narcotic; generally credited, but quite imaginary, might assumed to the dwelly "in the midst of cool & placid waters, combined no the chaste whiteness of their flrs!"

Waterlilies

VICTORIA regia disc 1837 by Rbt Schomburgk in S Berbice; its is queen of co-plts; sd lr-gran lvs 6° diam, sunc by an elevated rim and hly exhibit the pale carmine red of lr surf. Flrs cont blossms dpng intervocately of sd bucid petals; 14' diam, sd thro not the Amazon district but neo in the r itself; delights in still waters, growing in inlets, lks, or my quiet bcs of the r fully exposed to the sun.

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Lily classes as the
or Nelumbiaceae: Ov
3d has an enormous
microscope, & much the
ridge at the ovary, exce

NYMPHÆACEÆ

Herbs in quiet
Fruit + called, indehis
Cotyledons fleshy, concave;
and finds a vitellus (
a single cotyledon by Rich
proved Richard's cotyledon
Nelumbium not suddly
lobes, wh be go to centr
thks it may be called
Pollen Hooker thks go
a single pollen cube; cha
Milk present DC th
Lvs are Exog, in
Venation canonbe, Ik
Inserted & distinct arti
Fhs see Exog, esp Di
Fruit see Papaver
Rhizome of Castalia
in succulent Endog, L
Roots of Nuphar lut
but Lily says the Stele
Germination of Castalia
lengthen the base to allo
Affinity to sede
Example of pro
Floating plants
Perps ad to b
assumed for the dmelly

WATER-LILIES "Water Lilies" "The Star & the Water Lily"

Lalla Rookh,
"Those virgin lilies all the nt Bathing their beauties in the lake,
That may may rise nte breth & bret When the beloved Sun's awake.

Joaquin Miller
The lily on the water sleeping Encircled with pearl, & boxed with gold,
An emblem is, my love, of thee.

Shelley
Floating water-lilies, broad & bright Wh lie the oak wh overhung the hedge
Wanonate beams of the non watery light.

Mrs Hemans' Lines to the Lily,
Oh beautiful thou art, Thou sculpture-like & stately River Queen!
Crowning the depths, as with the light serene Of a pure heart,
Bright lily of the wave! Rising in fearless grace with every swell!
Thou seemst as if a spirit meekly brave Dwelt in thy cell,
Lifting alike thy head Of placid beauty, feminine, yet free,
Whether with foam or pictured azure spread The waters be.

Longfellow, Evangeline,
Lay in the golden sun, the lakes of the Atchafalaya,
Water-lilies in myriads rocked on the slight undulations,
Made by the passing oars, & resplendent in beauty, the lotus
Lifted her golden crown above the heads of the boatmen.

Scott
"The water-lily to the light Her chalice reared of silver bright,

Wordsworth, Cleopatra;
There dozing in golden sunlight Lie'st thou, smooth Nile;
Thou slender papyri that cover The sleeping crocodile;
The lotus lolls on the water And opens its breast of gold,
Where over its broad leaf pavement Never a ripple rolled.

Longfellow by Miss Mayburnpore
White water-lilies, crowded round the ocean streams, & from the isle & wilds
Lifting their golden filaments & seeds, They were illumined orbs, they crown & seed.

Qu in Springs & Hours
Much where transparent waters glide Soft flowing o'er a sanguit bed;
Jane crossed on the dimpling tide, Nymphaea rais'd her lovely head;
But conscious of the earliest beam, She rises from her humid nest,
And sees reflected on the stream The virgin whiteness of her breast;
Till the bright day-star to the west Declines in Ocean's arms to have;
Then folded in her modest vest She slumbers on the rocking wave.
Broad white lilies lie tumulously And starry river-buds glimmer by;
And around them the soft stream doth glide a dance With a motion of sweet sound & radiance.
The water lily to the light Her chalice reared of silver bright Scott, of Loch Katrine

Oh beautiful thou art, Thou sculpture-like a stately River-queen!
Crowning the depths, as with the light serene Of a pure heart!
Bright lily of the wave! Rising in fearless grace with every swell!
Thou seemst as if a spirit meekly brave Dwelt in thy cell;
Lifting alike thy head Of placid beauty, feminine, yet free,
Whether with foam or pictured azure spread The waters be. Mrs Hemans.

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Lily classes a
ex Nelumbiaceae:
Id. has an enlarge
unicarpic, & wit
sides of the ovary,

NYMPHAE
Herbs in q
Fruit + called in
Cotyledons fleshy, c
and finds a circell
a single cotyledon. b
proved Richards on
Nelumbium not
lobes, wh he gives
tubs is may be call
Pollen Hassal th
a single pollen tube
Milk present D
Lvs are Exog-
Venation coroll
Inserted a dirtin
Flrs ex Exog-,
Fruit ex. Papay
Rhizome of Castal
in nutritive Endo
Roots of Nuph
but Lily are the
Germinate of Cas
lengthen the pass
Affinity
Example
Floating
Perps so
assumed for the d

EURYALE *Salisb.* (Annesleya, *Andr.*) type of tribe Euryaleae, sole alar includes Victoria; tribe has tube of calyx adherent to disk; petals distinct. Nymphaeaceae (Cavallea, Nymphaea) have both distinct and Barclayeae (Barclaya) has calyx free but corolla adhering to the disk & non-petalous.

Euryale seeds con a large qu of starch, & are thus a favorite food in Indias & Chinese.

VICTORIA *Lindley* "Most gigantic & beaut of water plants"; of Sam; for its edible seeds these called WATER MAIZE. Half-adherent ovary produced, sepals being adnate to disk of flr."

RAFFLESIA *Arnoldi*, of Asarinae, Bc, even larger in the thus Victoria; fgd p 90 *Lindl*, desc p 536

CASTALIA *Salisb.* (Nymphæa *Neck*, Leucanymphæa, *Pond*; DC *made it* Castalia, Castalia *Lotus*)
The Nymphæa of authors till the priority by Salisb. was demonstrated in 1887 by Edwd. L. Casson.
Rhizomes of various sp. are eaten by Zanzibar negroes, who roast & eat them like Bananas. Vast numbers
Seeds eaten in India raw or after roasting in heated sand. Name N. is the old belief of Nymphs dwelling in gently flowing
streams.

C. alba WHITE WATER-LILY of the NUS, (*Rhind* 597) expands abt 7 a.m.; closes 4 p.m.; flows every day
expands & closes, next.
Rhizomes better than sale pulp for dyeing gray, Fee; long used advantageously for tanning leathers; a favorable ext
of beer has been prepared from them. Roots by average bitter taste; used in highlands of Scotl. to dye cloth dk bro. w. pot. Rh.
Seeds in a vase well.
C. Nymphæa dentata, a white sp. of Old Mg. has also a red-vase.

C. Nymphæa lotus, EGYPTIAN WATER-LILY (*Rhind* 270) grows in vast qu. in the plains of Lower
no Colors when the lf. is out of water. Flow. abt. mid Sept., expd. end Oct. Ac. call it Nymphæa.
Has white flow. & for the a poppy-tree, full of fined seeds. Well deser. says Shaw by Herodotus & Theophr;
high esteem of the Ethiopia in the mortuary ceremony of Pharaohs. Res. N. alba, may lvs. are cooked as asper;
in horticult. yes of Ind. Atc. Am. nato; t. in ponds & rivers of Jamaica. Rh.

ANCIENT PLANTS AND FLOWERS.

is now nearly two years since Emil Brugsch Bey while prospecting for stray mummies struck the famous lead of royal coffins at Deir-el-Bahari, but ardent Egyptologists are still studying the remains, and every now and then some interesting morsel of discovered truth is given to the world. Aahmes I, founder of the Eighteenth Dynasty, was carefully folded up and laid away 500 years or so—a century more or less doesn't count—before the well-greaved Greeks were drinking delight of battle on the ringing plains of windy Troy; but leaves and flowers and fruits were found mingled with his dust, and Dr. Schweinfurth has been investigating these remnants of an ancient flora with striking success. Wreaths and votive offerings and funeral repasts of garden truck would naturally be dry and juiceless after resting for 3,500 years on the bosom of a desiccated king, but under judicious manipulation in hot water the dry cells swelled into their original plumpness, and the leaves, attached to cardboard and treated like recent specimens, were sent to Sir Joseph Hooker at Kew and exhibited at a late soirée of the Royal Society. Not only were the forms of the leaves so far restored that they could be botanically identified, but the intricate venation of the flower petals could be plainly traced, the coloring of lilies, larkspurs and other flowers was displayed, and even the distinctive odors of some specimens were preserved.

From Dr. Schweinfurth's interesting memoir it appears that the wreaths were made of certain leaves folded to hold the petals of blue and white water lilies (*Nymphæa cærulea* and *N. Lotus*), identical with the beautiful flowers so common now in Lower Egypt and which have often been exhibited at the monthly horticultural meetings here. What now passes for the lotus (*Nelumbium*) is a plant of much later introduction. How the particular species of *Mimusops* which furnished the wreath leaves was determined at last by its microscopic structure and how the different lilies were distinguished, and how it was decided finally beyond question that certain other leaves were those of a cultivated watermelon and not of a wild colocynth which they closely resemble, all show how difficult it is for any secret to elude the search of modern science. Dr. Schweinfurth concludes that Amenhotep I was probably buried in the spring time, inasmuch as the leaves of the willow which formed his funeral wreath (*salix safsaf*) were small and pale, thus indicating that the year was yet young. Another deduction is that commerce between Greece and Egypt had been established as early as the time of Ulysses, for in the coffin of one Pharaoh was a basket of a variety of lichen which is to-day sold in every drug bazaar of Egypt for its supposed medicinal qualities and as a flavoring for the daily bread of the Arab. There is no place in Egypt where this lichen can grow, and the supply probably came from the islands of the Greek Archipelago, as it does to-day. The seeds of a Greek juniper (*Juniperus Phœnicea*) which were also found, furnished corroborative testimony as to this supposed trans-Mediterranean commerce.

It is worth noting that the specimens in this most ancient *hortus siccus*—grasses, leaves, and flowers of many widely separated genera—do not show the slightest difference from the same species as they exist to-day in the minutest details of form, texture or perhaps even of color. No doubt the men whose bodies were buried in the nineteenth century B. C. were very human and resembled men of the nineteenth century A. D. in all essentials as closely as the acacia flowers in Pharaoh's coffin resembled those which now bloom on the banks of the Nile. Evolution is a marvellously slow process.

NYMPHÆA *Salisbury* (Nuphar, *Smith*, Nymphoxanthus, *Rich*, Nymphæa, *Hayne*)

N. lutea YELLOW POND-LILY
Lvs. reported to be stygnic. Buds prepare a cooling drink for the sick, coh. they call PUFFEN
CICEGHI. The stems are bitter & astringent, therefore prescribed in dysentery; conc. + starch, & after
repeated washings, are used for bred. out dampness. Seeds especially sat. for as to of scarcity of food
wild people in whose countries they grow; taste like poppy-seeds, are used either boiled or raw like
Millet. No acid present, *Flandin*. "Has a dy. brane. spec. in sw. the ponds." Rh.

MR. L. W. GOODELL, of Dwight, Massachusetts, has flowered this year a plant of *Euryale ferox*, a native of India and China; and, next to its near relative, the Victoria, the largest aquatic plant known. Like Victoria, it is an annual, with spiny, strongly-ribbed, circular leaves fully two feet across, and armed flower stalks and calyx; but the flower is violet in color, and not larger than that of the common wild water lily. This plant is said to flower freely in the open air in Pekin, where the climate is not unlike that of our Northern States, so that there is a chance, at the South, at least, that it may become naturalized. Otherwise it will not be very often seen probably in this country, as the flowers are neither sufficiently interesting nor sufficiently beautiful to justify any great trouble or expense in raising it. They are less beautiful than the flowers of the Victoria, which many of the *Nymphæas* far excel in charm and beauty.—*Garden and Forest.*

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CASTALIA *Salisb.* (Nymphæa *Neck*, Leucanthemum, *Decand*; DC reads it Cyanea, Castalia, *Ferns*)
The Nymphæa of authors till the priority by 3 y of Sis n was demonstrated in 1887 by Edward L. Greene.
Rhizomes of various sp are eaten by Senegal negroes, who roast & eat them like braces. Farinaceous
Seeds—eaten in India raw or after roasting in heated sand. Name N. from the old belief of Nymphs dwelling in sandy flowing streams.

C. alba WHITE WATER-LILY of the NUS, (Rhind 552) expands abt 7 am, closes 4 pm, flts everals
expands a 24 or 36 hours.
Rhizomes better than cale-fells for dyeing gray, Fee; imp used advantageously for tanning leather; a tolerable sort
of beer has been prepared from them." Ross by average bitter tone; used in highlds of Scotlr to dye cloth dk brn or gy
Seeds in a true well.
C. Nymphæa dentata, a white sp of Old Wp has also a red var.

C. Nymphæa lotus, EGYPTIAN WATER-LILY (Rhind 290) grows in vast qu in the plains of Lower
ne Cairo when the Nile is and water. Flrs abt mid Sept, ripe end Oct. Ac call it Nymphæa.
Has white flrs & bt the a poppy fce, full of t, red seeds. Well descr says Shaw by Herodotus & Theophr;
fgd amg Mt of Sp & Ethiopia in the mosaic pavement of Praeneste. Res. N. alba, only lvs are toothed at edge;
in horticult gdn of Ind, Afr & Am nato; t in ponds & rivers of Jamaica." Rh.

C. Nymphæa cærulea, BLUE WATER-LILY

C. Nymphæa flava, *Leiroux*; AUDUBON'S YELLOW WATER-LILY is the a by ob Nuttall Sp 2 ii,
Audubon's Birds of Am, 1843, gv a colored repr of it, a swan flying amg a lot of it; nvg the lilies N. L.
L. [illegible] Gov Doy who collects in Fla has it by Ind. But this Ms for a fancy sketch, till Mrs Pierce at
Pedee, in co Jan, wrote Thorpe, that Ms 55 p 265, proposing for it N. luteola, undoubtd same; she tl it only ra
rrowhead in the seed, may serve to be a useful vulgarism (Ed a stage wd), ob, since a yel flr. Lrs bout lvs
lic thk on the sfc & in May, when the flrs appr, it is l of the gedt ats I ev beheld. It grows in water fr 1-5 ft dp,
length of stalks, she tells deep as depth.... I hv traced it 40 mi alg the Sdsl; & it grows all abt Jacksonv, 35 mi
below us". Rhiz fleshy, not corpus in alla, but cover, cmnly and of scales; the next y roots can cut fr these sc,
dle in diff full & lv each scale pitted; from some of these hover one thereby point, at lst as lk a root at the nerf,
proceeds on, & finally makes a sp pit capable of flrg in aut, of some y; grows 2 ft, or so, the a short cent,
makes a cluster of small tubers, ob volume lv that season at least & ave of unless dj; & grows upo, ex as is a
small pk out tuberos prolong time? apples' round co dd.

C. Nymphæa *Lotus* of the Gocks, the one WL, dedic by them to the nymphs who presided over the
waters"; so descr by Theophr & Diosc; & by Ellwy; "still grows where they saw it, in the lakes & ponds of Thessa-
ly, & in the Nalla of modr botany." Ann ex N. odorata differ little, was thr same by Gerrard, &c. Disc of a rosy var is
lake in western cntry, boiled as a pot herb, novelty. Plz in Sac is called at Swamp-weed, Swamp-pink, Venus Club, Venus' Finger,
Sacrifice Club, Water-Cow, Water-rocks.
C. Nymphæa odorata *Aiton*; disty fr alba by larger size & buy shape; usly a pale rse of stigmatic rays, a
nix sligly scaved ifr, & st dilts. "Dif recog N. californica (Watson) N. minor DC, usyd vars; Rat adds parviflora,
Rebella, chlorina (yellow rose)." Rare. Red var fd at Cod & Falmouth Mts berg, Woburn; at Hopkinton Ms; Ell; NY, O, Rof;
Raf.
Var. w red lvs, w red sepals, w brik, Scog. Var. w Silver flrs w, Rd.
Prop. DeRiddell, famed bot of last gen, says "Its juice is good apt inflam, burns, scalds; seeds good in thicrt, orcoitys,
diarrhœas," Raf. says "similar properties to N. alba but much more so"; roots ably used; kept in shops in NY. Has
in w starch, mucilage, super sccin, ammonia, ulmin, tartaric acid," "dyes a dk brn & blk also w lvs"; "leaves are
excln food for cows & cattle"; in Canada they are eaten in spr, boiled, for greens"; "fresh juice of the roots, reduced to leccro-
juice, is said to be a good corrective to remove pimples & freckles." Rat adds it has sa-ha here as Dead-lily, Cow-cab-
bage, Water-cabbage.

NYMPHÆA *Salisbury* (N. Nuphar, *Smith*, Nymphoxanthus, *Rafi*, Dicnaphne, *Raynl*)

N. luteum YELLOW POND-LILY
Lvs reported to be aseptic. Ducks prepare a cooling drink for the fire, ob they call PUTER
CICEGHI. The stems are bitter & astringent, thereby prescribed in dysentery; cont starch, & after
repeated washings, are used for food out danger. Seeds capacity not for ins to of scarcity by the
wild people in whose countries they grow; taste like poppy-seeds, are used either boiled or raw like
Millet. No acid present, flavoless. "Has a dy brown, spce in anthel ponds" Rh.

Mr. L. W. Goodell, of Dwight, Massachusetts, has flowered this year a plant of *Euryale ferox*, a native of India and China; and, next to its near relative, the Victoria, the largest aquatic plant known. Like Victoria, it is an annual, with spiny, strongly-ribbed, circular leaves fully two feet across, and armed flower stalks and calyx; but the flower is violet in color, and not larger than that of the common wild water lily. This plant is said to flower freely in the open air in Pekin, where the climate is not unlike that of our Northern States, so that there is a chance, at the South, at least, that it may become naturalized. Otherwise it will not be very often seen probably in this country, as the flowers are neither sufficiently interesting nor sufficiently beautiful to justify any great trouble or expense in raising it. They are less beautiful than the flowers of the Victoria, which many of the *Nymphæas* far excel in charm and beauty.—*Garden and Forest.*

DEPARTURE OF SOUTHERN SOLDIERS.

The Washington Light Infantry departed yesterday for Charleston, S. C. They composed the

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BASCLARIA Pers. Petals are carried up on the stamens, on the central disk, on outside of sth they even obscure into a tube; chapter iamous of between calyx & superior ovaries in succeeding.

CABOMBACEÆ so constituted by DC (1828); as C-bace, Mich 1903; a section of Nymphaeaceae, DC, 1828; an order Hydrostachydaceae, Schelden. 2 g, 3 sp.

Diff. fr. Ny – in hasg distinct carpels; [acro-visible ovules; + albumen.]

Floats petals less; flos solitary, solitary; yel or purple. S 3 or 4 P same Pe 4 or more C 3 or more

Fru indehisc, tipped by hooked style.

Diff. fr. Nelumb – in hasg + albumen, more than seed in a carpel, lit ovules.

Bridesmais vy remarkably, a vy thick layer of well-defined mucilaginous jelly, in wh the cells of the epidermis are introduced; Schelden: as trace of spiral vals in its subsyl.

Stem, Ly bd consist of a mass of oval cells time mostly 15-10 large air tubes, ran longitudinally; in centre of sth is a pr of woody bundles, crescent shaped in the transv sects, w the concavity the inside. These bundles are of thin-walled elongd tissue, w a solid (axe?) cube in middle.

Ana. fr NJ to Cayenne; & in case of Brasen hyd trachea.

CABOMBA Aubl. (Neotria, Schreb) C. aquatica is bpd by Ly, p417

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BRASENIA Pursh (Hydropeltis Mich) (Rondachione Ave) B. purpurea, cross secs. bpd, p417

NELUMBIACEAE; WATER-BEANS; constit by DC 1821. 1 genus 3 sp

NELUMBIUM Juss. (Nelumbo, Gaertn, Cyamus, Salisb.) Prostrate trunk in quiet waters, petiole, fleshy, deep bro. Rhizome prostrate at the pt, w bundles of cols forming a mark cylinder, w who outer layer part bundles passe to bra & bel Abs (Vapor). Sepals Pnumes, Obl, + nerv, and trans. Stam + in rel rows; Gam petaloid. Torus flesh, enlarged, enclosing carpels in sep hollows; they are 1 celled, 1 seeded; style cy short; stigma simple; ovule 1, suspended by pt of a cord rising fr base of the cavity, inverted. Albumen 0. Embryo large w 2 fleshy cotyledons & hlfshy dev plumule.

Beautiful race of water-plant; is an exon to the usual impetus of all unsen as a mark of affinity, hap-well w Nymphaea, not a trace of it; but its cotyls are crammed w starch; plumule so completely signal it is only to perform all the functions of growth the instt germinates is excited, while in Ny & the embryo was feeble.

In temp or trop of N, Old & New; most abdt in E.I. Rarely com in Eg but are extinct in Eg & Ethio.

Fruit of N. speciosum (Spured Thy p 41) is believed to be the Eg Bean of Pythagoras. Nuts of it are eatl & wholesm. Seeds eaten raw, roasted or boiled in India. Rhind 597

Flr of N. speciosum is belvd to be fr that Mythic LOTUS wh so fre occurs on the monuments of Eg & Ind. Gr dance. 3 sp, white, rosy, & blue.

Root or Creeping stem used for food in China; the tender shoots of the roots betw the jts are eaten in Ind by natives, boiled or in curries.

Fruit is not the Lotus of the Lotophagi, wh was the fr of the Lote-tree, the Zizyphus Lotus, of Rhamnaceae (& some genus as Jujube, the pleasant eatg drupe of 4 Bras sp). Z. L. is to this d, hly, cold, for food by Arabs of Barbary, who call it SADR, & its leaves NABK. (Of other sp of Z, one has kernels employ by Chinese as sedative, Z. spinifferus; but on the Gambia the poisonous, of anesthetic, narcotic, and intoxicating by negroes; the latter is hydrocyanic acid & prussic acid.) Buckthorn & Ceanothus are our poisonous [illegible]

Name Lotus has different modes: Leguminosae, pet in the shape of a bean (but the bean of Alimnoinus); as tribe Loteae, named fr G. Lotus of L. (Kuskeia, Moench) near Peiphium, and a subdivn of ord, Leguminosae, the a fr a hyp genus of DC, Lotineae: special origin in "the Greek lotus, wh grew wild in the meadows nd Sparta & Troy, on wh horses fed, a kind of clover, poch. Peiphium melilotus, L. "Sweet lucy; hence the orgn of Melilotus for the first Clover.

N. luteum.

Nuttall says its tubers are the of Sweetpotato, are as farinaceous & agreeable, when boiled, used for food by NAm Inds. Endlicher says the milky viscid juice of leaves & flowers is employed as remedy agt skin & diseases, & the petals wh smell of Anise flos, are stely astringent & used lk Rose flos. Dr Wight says its a fine aid in spinal rels, carefully extracted in Ind & formed into these wicks wh on pet & sesam oils are burnt in the lamps of the Hindoos placed before the shrines of the gods". Shailer, are prepared fr sm Nymphaea as but less sacred.

Rhind says of it p 270 it appears amongst the ark of Eg & Ethio. Used in the mosaic pavement of Pompeii: was called by Herodotus the lily-rose of the Nile, by Theophrastus the Egyptian or Lotus of Antinoos; "Are of a lively red & fr shed lk the rose of a watering-pot, filled w dry hollow, each contain an obl seed as large as a small filbert; Gr cpd by Theophrastus to a warm-rose, used in vases Eg mummies. Cmn in Ind, rare 0 in Eg.

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PINES

CONIFERAE

Woody trees, branchd, abd in resin, cone-bearg; simple lvs, needles; wood cells with bordered pits.
Founded by Juss as Coniferae 1789; Ldy calls them Pinaceae & bef, Cupressae, 1835.
Discs of chancy, Lcy p 226?
Div into 2 grps (Endlicher, Bentham &c) Abietineae w pollen cuneiform, dilatate ends, intermed band;
Cupressineae, sphenoidal.

G 20, sp 100.
Fr except mere of Arctic Am to bottom of Ind Archip. Resin part in temp; + in Bus Alb, Chios, temp Mex. Appear in N w diffs to S; in N, Pines, Larch, Cedar, Spruce, Juniper
(in S, Araucarias, Podocarps, Dammars, Butassas, Dacryds.

Gigantic, fast growing, noble, robust.

THE STONE PINE

PINE tree, Pinus pinea, mlegant pyramid-like rest & edible kernel (almond-like)

History difficult bec. the anc. do not distgs betw the conifers; exc 2 groups, ἐλάτη the P. picea; the other has the 2 names of πίτυς and πεύκη; the Pine if it occurs comes under these.

Homer kn the 3; his ἐλάτη a tall aspiring tree w epithets lofty towering, heaven-high, = the Fir therefore

his πίτυς occurs in 2 pls, in Iliad

Then as the mtn oak or poplar sh Or pine, (fit mast for some great admiral)
Nigh to the axe till w a groaning sound It sinks & spreads its honors on the ground
Thus fell the King;

Here the adj δόρυος, wyshoots, & the asoca w oak & poplar leads more naturally to the larch-fir (or Pinus picea) Pinus laricio.
So Ulysses on Calypso's Isle hollows his ship of elm, poplar & fir, ἐλάτη.
Same considerations apply to 2d passage. πίτυς & πεύκη have as fundamental meaning = pitch-tree, resin-tree: Theophr. says what he called πεύκη the Greeks called πίτυς: gives details, but too definite; O to show wh the cult'd pine had "sold ropes on the Gr notns, or was a foreign tree.
Is called Pityusa or sp ^ to the race.

Gr names for the nuts in the cone" was at 1st gen'l, for all kinds of pine species; later was confined to pine-kernels; mentioned most distinctly by Arctic Gr of Herodots, 2d cy BC; comic poet to mention sort of pignolia or pine-nuts; Theocritus cites sorts of P nuts being a favourite delicacy in Sicily; describes a pleast resting-pl, wh fines spry, birds twitter, trees spread a cool shade & pines drop the nuts (for when the cone has hung up the scales open natly & drop the nuts wh then stl req to be cracked open)

In Italy Cato spks of the pine there; tells how to scr the kernels; Pliny begins his enum of tree-fruits w 4 edible cone-kernels, amg them Pinus sativa, & the pinastric or wild pine, robs nuts the Pavini boiled w honey & called the mixture aquicelas. Pliny the yr writg his celebr 2d ltr to Tacitus, ops the eruptn issuing out of Vesuv w a Pinus, we recog one P w umbrella-like crown resting on a tall & slender shaft. Poets spk of not as a forest but a garden (thereof foreign) tree; Virgil pinus in hortis, Ovid culta pinus. Petronius distinctly points its bare, tapering trunk & rustling-rest. Martial warns the traveler rest not beneath the P lest the heavy cones fall on yr head.

Now in It it new climbs high mtns nor gets far fr the shore; and part of foreign orig to both It & Gr; prob fr Asia; O kn these wild horses; too cold for it at Dunin; forms the comple adornment of most villas & gardens as Rome; lately extensively planted in the rich Campagna of Naples also wh fine & wide-wise its charmg mushroom-shaped crowns of tufted tes

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Noble trees, t
Founded by Justi a
Diem of chaos, L
Dio iace 2 gens (in

G 20, sp 100.
Ex script nam
temp Nim.

Gigantic, fastigia

Carpathian balsam is abt to this sp, by, &c use it in ship bldg, &c.

Now & then denser groups (most of the celebrated pinetum nr P-forest of Ravenna; to this R owes its salubrious air the sure by marshes; P-for. is on a former sea-bottom, 4+6 mls alg shore, 3 bad, Karl Witte desc it." Instd of the uniformity of a sweeping baldachino, in wh form we are accustd to see the pine, we here find many buds of grand old trees w the strangest & most curiously twisted bns; & below the verdant roof a luxuriant growth of shrubs & creepers covers the damp & fertile grd in wonderful variety. An author of last cy ctd +300 kds of plts in the P; & amongst them sing & chirp & buzz innumerable birds & sho winged creatures; cbl far abv, the breezes the rstlg sea whispers unceasingly thro the trs of the Ps". This pl yields 9000 bu. p. kernels a y; the easy to resinous cones afford the best beneth-fires. Mainly on new-formed ld, sea in t Romans; cd not ho tn-plted bef t Procopius. Whole territory was no doubt rich in P bef; Faenza nr R had cultd Ps wh towered abv the sown fields, in ds of Silius Italicus. Augstus chose R as lof the 2 stns for his fleet; prob bec of milit & polit reasons, not for trees. A pl called Pineta was nr R at t Gothic invasion; sms to ho bn NW of the city, not where it is now. Liutprand was pld to protect R fr the sea at a t when all N. It was struggle against nature by constn, dyns & the marvels of technical skill. Dante saw & adm it, calls it that of Chiassi, ie classis, ie the old harbor of R; Boccacio so too. It was one popst sol class monasteries; then of the Pope; no union of It, ~~it or~~ he ceded it to the canons of St John Lateran, they to a private indiv; wh contracts were to nullified by It courts; It got hmoo paid a wdly moderate sum & took posn of the P; capital of the P valued at 4-5 mlln francs. Citns of R ho by anc custm, extensv rights of use; hence compl that affords easy livelihood it attracts vagabonds; still the P is considered the palladium of R, shields the cy & district fr poisonous exhalations & tides, & is valued & cherished accdly." Hehn.

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PINUS L. Gen. 158 Step 70 Rhind 456-469, 18

P. palustris, Virginian P., or largely used in navy for masts, by oil of turpentine, commercial

P. halepensis, resembles Dioscorides by which Syria Pine, now largely used by Sir in Italy etc

P. sylvestris yields Eur. oil of turp, Oun & Burgundy pitch

P. pumilio y. Hungarian balsam.

P. Pinaster. y. Bordeaux turpentine

P. insignis a well kn Cal conifer and sp. nr Monterey

P. Lambertiana, the SUGAR PINE, 200° high, stride, & digested into bearing, trunk clear of limbs for 80°, or 70°, to base.

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ABIES Tournef Rhind 469

A. pectinata, SILVER FIR, Pinus Picea L., yields Strasby turpentine

A. balsamea, BALM OF GILEAD FIR, BALSAM FIR, yields Canada Balsam.

PICEA Link

TSUGA

T. Canadensis, HEMLOCK; spruce beer fr its bas, 2 of Abies nigra, Ly.

LARIX Tournef Rhind 470

Common LARCH yields Venetian turpentine; a saccharine matter, Manna of Briançon, exudes fr bos; When Burn larch forests take fire, a pure resine fr burnt trees known as Gummi Occabee resine, sol. lk gum arabic is wholly soluble in water. Bark sd to be as useful in tanning as is the oak.

CEDRUS Mill.

CEDAR, Ellacs 8-40 Shlers Rhind 471

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CUNNINGHAMIA R Br (Belis, Salisb)

ARTHROTAXIS, Don MICROCACHRYS Hooker, fil. SCIADOPITYS, Zucc.
M. tetrafena is the Hum. Pine of Tasm., Zy

ARAUCARIA Juss (Dombeya, Lam, Colymbea, Salisb)
A. brasiliensis gvs a vast bearer resin
A. Bidwilli, only A in Austr; BUNYA-BUNYA, Mr Bidwill fd nutrs of Moreton Bay tribe on seeds of it.

A. imbricata, seeds eaten when boiled Rhind 476 SIR J. BANKS' A.
A. excelsa, NORFOLK I. PINE, Rhind 476

EUTASSA, Salisb. (Altingia Lond)
E. excelsa, the Norfolk Island Pine, an hum tree.

DAMMARA Rumph, (Agathis, Salisb)
D. australis, the KAURIE tree of NZ, 200', hard & compact wd, as knots, fr wh finest masts of the navy are now made. Gvs a hard brittle resin like copal.

DACRYDIUM; mn sp in NZ ma bigger than Masses?
D. Colensum ~ KAKA TERRO of NZ to 200' high.

CUPRESSINÆ.
JUNIPERUS L.
J. oxycedrus supd to hv to the word fr wh Gr carved the images of the gods, fetid oil, in veterin. pract.
J. Sabina, SAVIN, bruises stimulant, diuretic Rhind 477

J. communis, juice takes ons of Savin prepa; bruises diuretic, used to thrw pis. Rhind 476

J. procera, ZADD or THÉNA of Abyssinia, of timber val, 1 of largest trees there, hard, durable, in buildg; same or near as J. phoenicea.

THUJOPSIS, Thunb.

THUJA Tourn (Biota Don Platycladus Spach Cupressus, Pm)
T. occidentalis, bruises juice of Savin qual. ARBOR VITÆ Rhind 475

CRYPTOMERIA, Don THUJOPSIS, Zucc.

CUPRESSUS Tourn (Chamaecyparis, Spach) CYPRESS; mn cbt beautiful, it is oil
Antihelmintic) Gates of Cortana, famed for stg 1100 y. Contemtia to Rge Eugene IV, wore of it, 66,
C. thyoides, lvs eaten poisoned 2 ch in Bry, 67

C. macrocarpa the Callipress; magnificence of Cypresses Ph. "val. to the Stock"

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RETINISPORA Zucc

CALLITRIS Vent

C. quadrivalvis, st to be the SANDARACH tree, the ARAR TREE of Bartram, yields a plank 2' wide, wood that by Turks indestructible, used for the ceilings & floors of their mosques. S., a cobith, yel, brit, hideous, resins, subtree, no acrid aromatic taste, exudes fr it. Found on Mt Atlas.

PARLINIA Endl. (Pacylepis, Bongo)

TAXODIUM, L.C.Rich (Schubertia, Mirb, Cupressocyparis, Salisb)

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CHAMAECYPARIS, Zucc, GLYPTOSTROBUS, Endl. ACTINOSTROBUS, Endl. FRENELA do.
PHAROSTHEBA, Spach WIDDRINGTONIA Endl SAXE-GOTHEA Lindley LIBOCEDRUS, Endl.
SG—monster to Parodyl, w wide Neck of a Pelican, fem of a Dammar, tree of a summer, Rock of a Dove, habit of a Yew.
SEQUOIA Endl.

TAXACEÆ, constit. Rich. 1826; Sg. 50 sp.

Diff. "to Conifers in hard fruits not collected in cones, each ovule prompt & largely unprotected by hard scales; organization less than that of C." Ivs rarely equal, then the veins to Fourth, i.e., forked tree, or even thins.

Milder climates over the world; von Tempes in deciduous; com Zero the only one in Europe; in com in N of Asia. Most in new Asia.

The foolishness of the "Young man" and daring flight. JB

"There is an elder tree growing beside this dwelling
Rich and green
Its wings as with golden dust covered
Sweet the perfume that from them exhaled
Strange the birds of the air assembled
Round the tree are flying and singing
Birds - but the flight of the eagle."

JB

This day I have drawn & painted a table and [illegible] of the Crucified Saviour,
Bird I said to my spirit! Where the Saviour [illegible] Mt.
Birds and the flowers and the [illegible] of every thing [illegible]
are the hills and cataract [illegible]
And my spirit said to - [illegible] that [illegible] flight
of [illegible] and [illegible] beyond."

TTV

drys & elasticity; Ivs field
y it, & that it was by
a to man, his age, the that
d or in too large doses;
ices not dangerous,

Rhind 473

RETINOSPORA Succ

CALLITRIS Ven
C. quadrivalvis,
wood that by Turks
brie, indomit, verre, sub

PARCLINIA Endl,

TAXODIUM, L.C.R.

CHAMAECYPARIS,
PHAEROSEMBRA
96 transfer to Paradise
SEQUOIA Endl,

TAXACEÆ, contin. Rich, 1826; 8, 50 sp.

Diff. "to Conifers in have fruits not collected in cones, each ovule prompt & singly unprotected by hard scales; organization be than that of C." Lvs mats capid, then the venation Fanwise, ie, forked tree, th con thkns.

Milder climates over the world; one tropics in derdition; com Yew the only one in Eur, ie com in N of Asia. Most in ne ne Asia.

Resinous lk Conifers

TAXUS, L, YEW, Com Yew timber val, unsurpsd for durability & elasticity; lvs fatal by poisons ere to horses & cows; Caesar relates that K Cattulus took by it, & that it was by abt in Gaul a Gesen; an Ie physcn says Yew lvs pvn in sml doses to man lvs appr lk that of Digitalis, on heart & nervous, reduce circulation, fatal if too lg persisted or in too large doses; but prefer to D for its effects not accumulating in the system. Berries not dangrs, Seeds ad to be cohdesma.

Ellac 261 Shkpe 6 Name for Iva, L, whence also Ivy, Rhind 473

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PODOCARPUS L'Her, ribbed-fruited in sp in Zero Pinus; 3 fd at Cal Ed.
P. cupressina, CHIMANO, 1 of best timber trees of Java
P. Totara the most Val timber in NZ; pum of the tree has to cause of warts and savage natur.

DACRYDIUM [87] Ly pG base.
TORREYA Arcott (Cunyotaceae Juss)
T. nuts are very astringent & are used by Jap, interpretes tragacanth using, which likely to be ly detained back the Emp.

NAGEIA Gaertn.

PHYLLOCLADUS L.C.Rich (Thalamia, Sprenge, Rubectia, L.C.Rich, Brownera L.C.Rich)
P. trichomanoides, bark yields a red dye.
P. rhomboidalis, jagged fern-veined rhomboidal lvs, fgd Ly C.Ed.

CEPHALOTAXUS Sieb

SALISBURYIA Smith (Ginko Kämpf) Fruit abt large as Damsons resinous, edible, kernels eat by Japs to prame dign; tree of grt branch nov ann in Bury Ly.

GNETACEÆ Conrin 1834 by Blume; 2 g, 15 sp.
Smal trees or much bid, or sarmentose shrubs; secretn watery, not resinous; lvs opp or clustered; jts thkned, sometimes; lvs opp, entire, veins anastomosing, netic; wood marked w circle dns; flrs sepaarated, in catkins or heads; O ovary; seed drupaceous; seed crat thkly alty leathery, or shelly, or fibrous w & succulent out. Embryo of 2 cotyledons. Male flrs w a calyx
Coulc depel, see Ly, p 232-3-4.

EPHEDRA L, nam of temp Eur, As, & S Am; 21 sp enum by Meyer, 18— lvs & flrs of the As sp treasy herb in the shops as astrictes, used in Amentae Uva maritimae. Fruit sweetish, eatable, subacid, slty purgent. Forms a link betw Conifers and Casuarina of Amentales, of Australia, order Casuarinaceae.

GNETUM L (Thoa, Aubl, Gnemon, Rumph, Uta, Rheede) 7 sp, Endlicher. Forms the link betw Conifers & Chlamydobacea and Piperales. Fr hottest India & Guiana. Seed crat lined w sclerous woody tissue; ces a drupe; outer fleshy integ; then the layers of needle-like woody t, ry crushly, septy tracky when dittd, like the hairs of Cocoaage. Funiculus rec that of Cycas; both contract it in water; it is enormsly lg, tuberous, cellular, cells much elgated, twisted; while spirally but irregly twisted; seed 1 in. lg, funiculus 3½-5'
G. urens, inter of perisp lined w stinging hairs; seeds are eaten; stem exudes a tpt gum; cut access, an abd crop of the tasteless water wh may be drunk.
G. gnemon, seed is eaten raw, roasted, boiled or fried, prep lvs cy tasteless but form a fairt repst, in lieu of Spinach.

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CYCADACEÆ constituted Richd 1809; 6 g, 45 sp; chara, Gymnosperms w simple continuous stem, parallel veined pinnate lvs, antheriferous cone-scales,

Small trees or shrubs, of Palms-like; stem cylind, sphenoidal or dichotomously brch, alw strongly noted w lozenge-scars of fall woody lf-stalks. Mass of pith w stem, traversed by woody bundles, x rings of woody rays; sml lvs, angl, sml in regular + concentric circles, also pierced by medullary rays. Wood of gymnosperms woody t, x spiral vsl. Lvs pinnate, lgh, woody, pecoral, jointly articulate sml Arc in bud; lflts w fine simple veins pl smooth, ridgly on the petiole, lr ob they at last disarticulate. Flrs sepl, not trace of calyx or corol; stamens in terminal cones, one of scales w over lr side w lodd anthers, split lgrs; pollen hyaline, angular. Pistillate are of naked ovules, wind peltate scales, or at base of flat ones, or on margins of contracted lvs. Seeds hard or spongy coated nuts, w 1 or mr embryos hung by a lg funiculus in a central cavity of hope vsbr fleshy or mealy albumen; cotyls usually mr or - dominate.

There at lst noted to Ferns by Adanson, to Palms; L. Rich adopted idea of A, then to Ferns; mr by Vancouver suggested nat Cycas & Zamia a sep tribe; L. C. Richard, the lady, lr nat been an acute, 1802, thing it was intermediate betw Ferns & Palms.

Dec, ordr xci, Lly p 224

Nature of trop & temp p Asia, Au; not in equinoctial Afr; tho in C Good H, & M adsp. Once formed a a considbl part of flora of Grt Br.

CYCAS L

C. revoluta, in Jap a kd of sago prepd fr cellular interior of stem; ed by Thunberg to be in highest esteem; solder able to lv only mal qu of it a lgth; apt low of J to th a tree out of the co. Fy. Lly p 225

C. circinalis part of sago cost fr it; fr equin in the Murray; a good flour for the footing lr planted in a marsh; [illegible] fr trop with dried in air, compressed into [illegible] made vsb is supplied to [illegible] which [illegible] in wood. Sim to Phrynocia Lly.

DION Lindley (Platyzamia, Rich)

D. edule cone in sm pts in Mexico; the prt seeds there from a kind of Arrow-root.

ZAMIA L (Archozamia, Rich) Arong charcte veget of E. Cape Col, esp in the prt tract of thicket on the Caffer frontier.

Z. pumila & sc dwarf sp yield an esclt Arrowroot in Bahamas & in WI.

ENCEPHALARTOS Lehm; CAFFER-BREAD the various sp at C Good H

MACROZAMIA Miq.

M. spinosa supd to be the sp ob on W coast Austr grows to 30° high

DIPLOZAMIA Lehm

CERATOZAMIA Ad Brongniart.

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