Delivered the second Time
June 2 1815.

When a plant has many stamina with one more or many pistilla in the same flower, it is placed in Polyª. but if the stamens are inserted on the calyx they fall into Icosandria, the esculent class, while the other is the poisonous one. As the papaver Somn: Sarracenia fera fathers cup; the storm. Thea — many &c and the water lily.

In Dydynamia you will find 4 stamina 2 shorter. The filaments are bent inward, so as to be said to connive. 2 order Gymno: having naked seeds. The Verticillate plants have open monopetalous corrola and naked seeds. the calyx closes and serves as a seed vessels, and they are opens for their exclusion. They are usually aromatic and comprize most of the herbs which are dried & preserved for winter in families for family medicines and some are of the first importance. Hysop. Mint Lavender. Cat nip. Hoar hound Thymus. Ocymum Salinum become encrusted with salt, & it scraped from the leaves by the inhabitants of the country. the plants may form it.

In Angiospermia the calyx is open & the are not in whirl. These are the personate plants. They are medicinal & poisonous generally, but form a fine Nat. order. The Digitalis purpura is here treated.

Tetradynamia is purely natural. Such is the resemblance of properties & appearance that it is very difficult to distinguish plants of this order from each. The closer the affinity of plants of a class, the more nice & difficult will be the investigation of the genera. These plants are acrid, sharp when of their natural green and full grown but esculent & mild when etiolated (B.) Cabbage Turnip Radish &c. &. either of these wild & from poor soil will prove hot as mustard. They a furnished with a siliqua, a two valved pericarp the seed of which are attached alternately to either suture or receptaculum — the corol 4 pet. Crucif. The calyx 4 phyl. the two opposite leaves larger & swelled at the base, the other two smaller & flat. 6 stamina 2 shorter than the other 4. The shorter curved to give place usually to a gland. So that you may at first sight distinguish this very Nat. Class from others by every any one of 5 or 4 part of the plants. Honesty Iberis - Cabbage radish. horse radish. Mustard &c. &c. Cheiranthus Stock & wall flower.

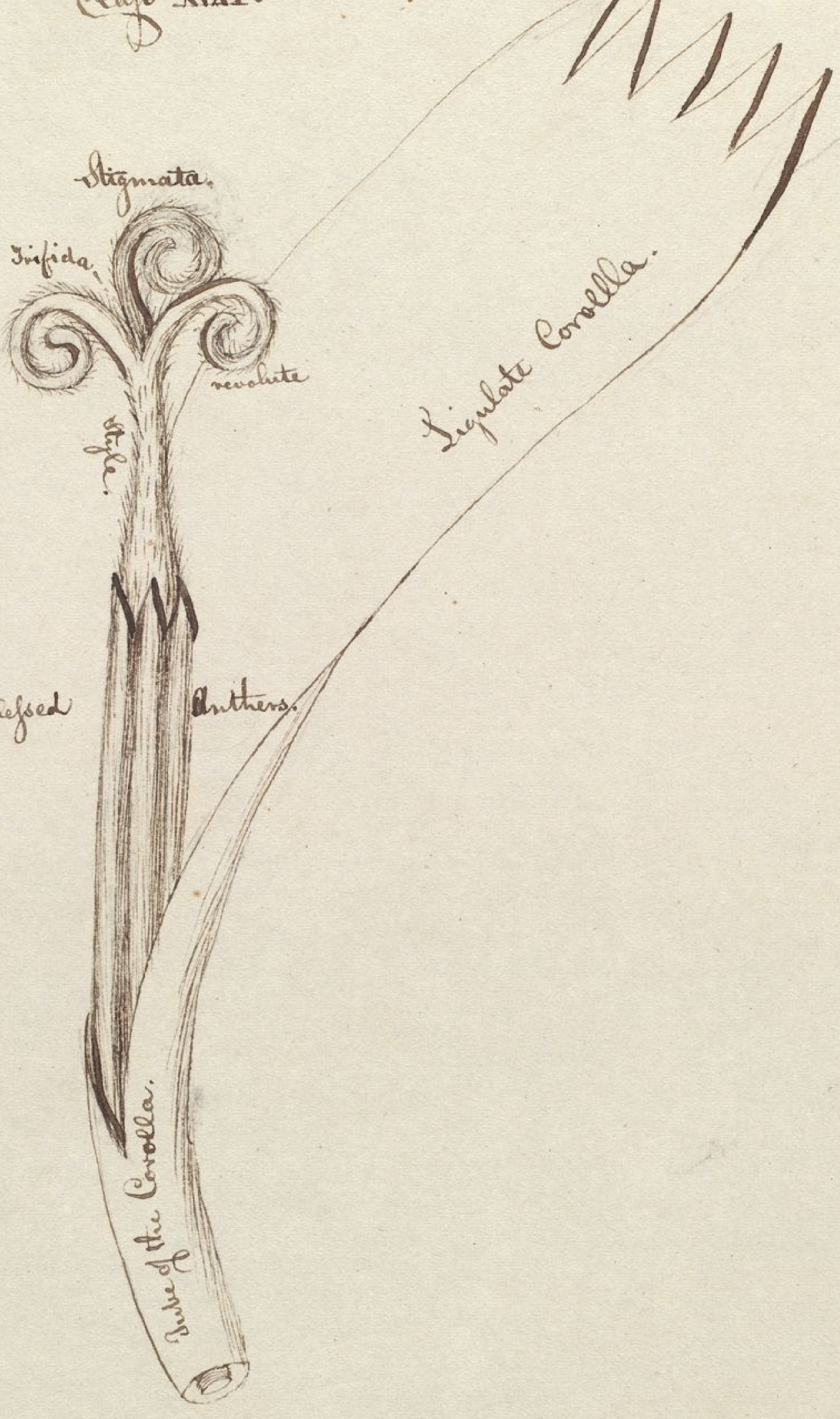
In Monadel. you have the filaments collapse & surrounding the pistillum. These coalesced filaments form a column & hence arises the name of that beautiful Nat. order Columniferæ, including Althea Hibiscus [illegible] all the plants called *Geranium*. Gordonia, Stewartia Cotton plant Gossypium. Mallows: They are frequently spoken of under the name *Malvaceæ*. *Mallows tribe*

The Next class called Dia — Decempe- 4. order. 5g. 6g. 8g. 11g... I know nothing Monoecia of the 1st order. In the 2d. we are acquainted Fumaria and Corydalis, origin 1 one. Fum. offic: Cory: *Speciosa*, *Fungosa* – *cucullaria* – *glauca*. beautiful & singular plants. (Drawing.)

Polygala belong to octandria that is the stamina are eight & their filaments form two bundles Polygala Senega. The cast of the 4 order is the finest and is very Natural. It has ten stamina. (Drawings) It includes a great proportion of the Papilionaceous flowers. Those which do not belong here belong in 10 andria. The resemble each other excepting in having the stamina in 10.a all seperate. Of these we have the beautiful Cercis, Judas tree Cassia Senna- &c. These 10. androus plants together with some other as the Mimosa. *Gleditsia* or honey locust compose the Nat. order of ~~Butt.~~ Leguminous butterfly s.d F.r and perhaps there are few association are more natural. The flowers are 4 petaled. Vex. 1. Alæ. 2. Carina 1. Keel. The The stamina by the union of their filaments form a cylinder is a few thro' which passes the legumen. but in most the cylinder is not perfect and one of the filaments is entirely detached (Drawings). ~~the calyx~~ The seed vessels is likewise peculiar, being the Legumen or Pod: bivalvular & having the seed attached only to one side. The calyx is monophyllus — with the favorite number — with 5 segments the upper of which is larger & longer than the 4 which correspond with each other in pairs. As in the Tetradynamia or the Siliquosæ plants we have 5 or 6 distinguishing characters so here we have the Butterfly shape Cor: the peculiar calyx. The connection of the filaments & the Legumen. The term Papillionaceous flower is derived from that beautiful ~~the~~ system of Tournefort. Lin: calls them Leguminosa Leguminous or bearing the pod. As the Pea pod Among these plants we find Amorpha fruticosa which you have all admired at Watts Spartium scoparia Broom. Lupinus Varius — Arachis Hypogea — called Hypogea, quia, is soon as it flowers the growing germ pushes into the ground and there matures the seed. This is a mode of planting which we should have mentioned when treating of the method of the dispersion of seeds. This plant is the Pea nut or Ground nut. Colutea arborescens, (Bladdersenna) Phaseolus Pisum, Lathyrus. Trifolium the clover. T pratense red. arvense the pussies (repens (the white). The curious Hedysarum gyrans which in a calm day moves its leaves in various directions. The populus tremula or aspen is in continual motion on account of the peculiar construction of the peduncles (explain) but the Hedysarum moves

Ligulate Flower of Syngenesia

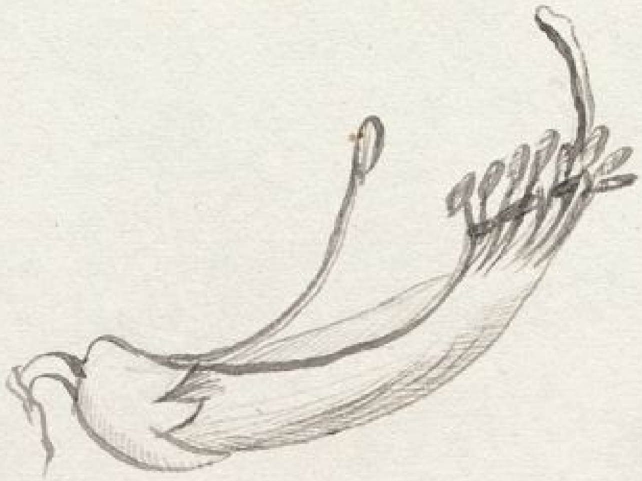
Claſs XIX.



Syngenesia. XIX. Clafs.

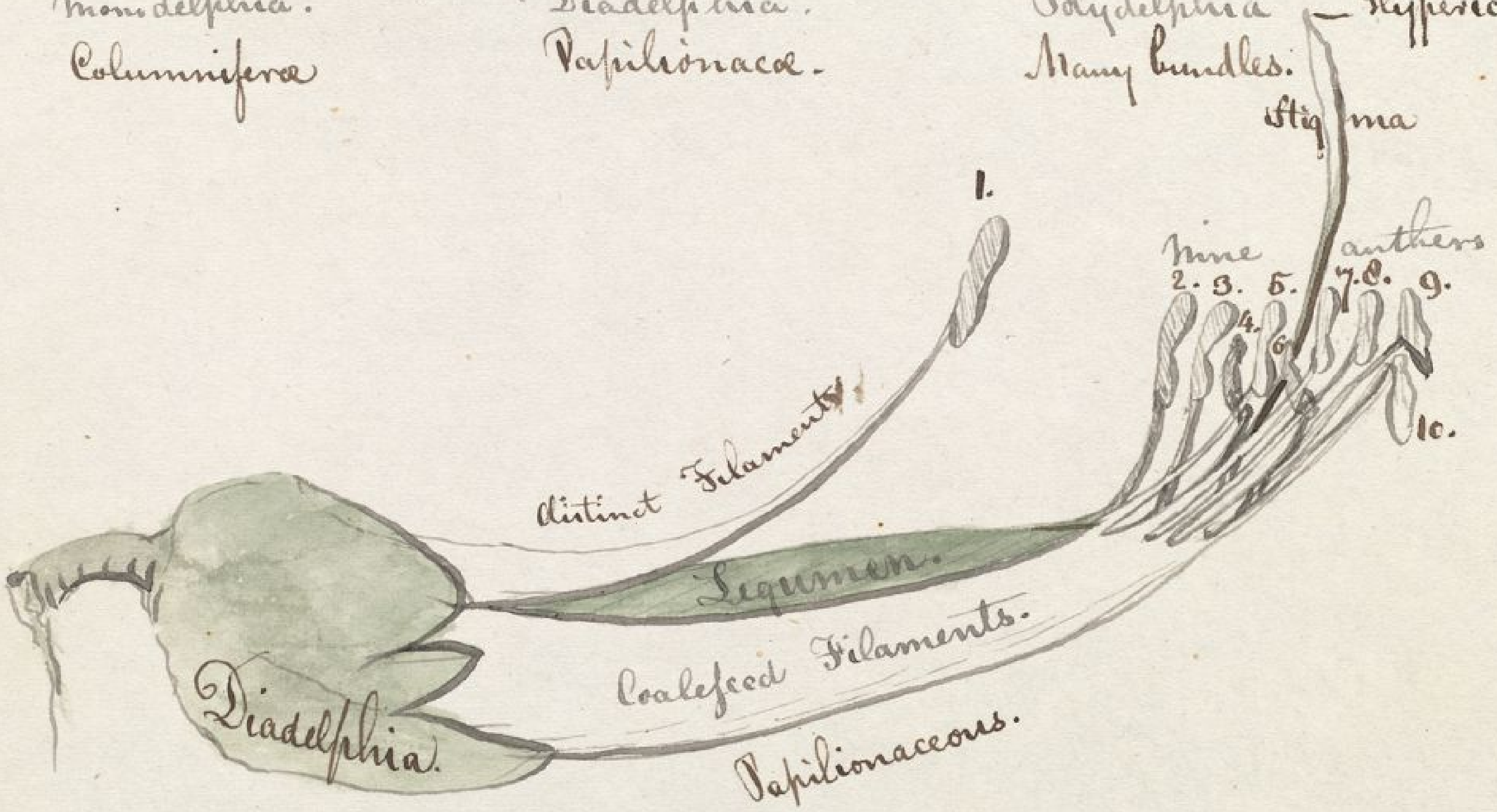
Tubulose Florets.

monodelphia.
Columniferæ



Diadelphia.
Papilionaceæ.

Polydelphia — Hypericum.
Many bundles.



The 16th – 17th – & 18th – Claſses characterized by the coaleſcence of the Filaments.

M. Del:

in all direction turning & twisting their stems bends its leaves - moving & pulling and in a most curious manner. my father relates having seen a plant in the garden of his illustrious ~~patron~~ & generous patron Fothergill, which had this peculiar motion of the leaves (show it). This motion is greatest in calm warm days when it is said to be necessary for the proper respiration of the plant & seems the most convincing analogy between animals and vegetables, which always delights us to dwell upon. Glycyrrhiza (Liquorice plant) Robinia, Indigofera, Indigo plant. which produces a beautiful blue stain, but a foul and indelible one upon our country from its being a staple commodity and cultivated by prepare a miserable bevies of our brothers who have be torn from the homes to till the soil of the idle & the arrogant. Medicago Lucerne, which has made such noise of late & as usual in such things fails. Geoffroya inermis Cabbage tree Podalyria tinctoria. Wild indigo, australis. Usually pinnate or ternate leaves. Bean Bean - weather cock -

Polyadelphia

" "

Polus, many & delphia, brotherhoods. The stamina are united into many bundles. This class has been entirely abolished by Persoon and it really out of I may be allowed to judge from the perplexity which some of the genera have given. Some of the Plants have their stamina invariably united into bundles, others have not of the same genus, and frequently the union is so slight that we may be deceived.

Dr Barton allows 4. orders of the Class stands.
Enneandria. 9 stamina in three sets three stamina invariably in each are found in Hypericum Virgin: from the meadows not in flower.

In dodecandria is Theobroma Cocoa the chocolate tree Theos–broma– food for gods. Also Citrus Aurantium Medica &c. These are reffered to Polyandria.

In Icosandria we should expect many stam: above 20. inserted by bundles into the calyx. These plant will all fall into Icosandria. We know none of them.

In the Last order Polyg: Polydelphia Pol: we should find many stamina inserted by bundles into the common receptacle. Hypericum Perfor– Virg: frondosum &c. some beautiful specimens among them. Gordonia & Franklinia. We have but three plants of the Class in N. Amer. Hyper: St Johnswort & Hopea & Ascyrum neither of which do I know. Hypericum bacciferum produces Gamboge, which ~~has~~ is also the product of Garcinia Gambogioides & Stalagmites. It is a very unnatural order & we shall ~~not many~~ ~~to m~~ leave it to commence

Syngenesia which including the compound flowers collects numerous plants with lactea properties construction and appearances.

you can all distinguish compound flowers from double ones the one is a distortion of nature, the other ~~an~~ association of florets into a township or community republicism —

In pentandria 5 Class we have 5 stamina, but they are all seperate. In Syngenesia the stamina are 5 ~~[illegible]~~ and the filaments are disunited but the anthers formed into a cylinder. The character of the class is to have ~~an~~ a universal calyx usually composed of many scales including a broad receptacle upon which are situated many florets or little flowers, each having a ~~germ~~ naked germen, some provision of wafting the seed at a distance in the wind a pappus or down, or a membrane. a corolla which is tubular, ligulate (Drawing — 5 anthers collected supported by 5 distinct filaments. The pistillum consists of a filaformed style and bi~~fid~~partita revolute (explain drawings only two species have anything like a seed vessels but the calyx serves the purpose closing and opening — Tragopogon. Dandelion — &c — Compare with the aggregatae.

Of the Syngenesia Linneus has made six orders — Syn. Polygamia Aequ. S. P. Superf: S. P. Frustra: S. P. Necess.a — S. P. Segregata & Syn: Monogamia — It is the most difficult of all the classes

Syngenesia Poy.a Aequalis —

In this order the florets (the name for these parts) ~~they are~~ all alike and equal. They are all ligulate or tubulose and we always find one pistillum rising thro' the cylinder of anthers. This is easy and may be seen in Tragopogon porrifolium — Salsify. Leontodon Tarax. Lactuca lettuce. (Opium prepared from it) prize offered. Arctium Lappa. Carduus. Eupatorium. Rhenia & numerous others.

In Syn. Pol. Superf —, we have radiate flowers. The center or disk has flowers precisely like the

explain Ligulate. Tubulose & Radiate

first order Aequalis all are alike, but the outer circle of florets are usually ligulate and have not anthers being only furnished with the pistillum and germen. The other florets having stamina & pistilla in the same florets render these pistilliferous florets superfluous, hence Superflua. Tanacetum vulgare — Gnaphalium, Xeranthemum inapertum? Erigeron Canad. in Europe. natur.d Phila — Tussilago

It is said that the Chin. A has

colts foot. Senecio, Aster. Chinensis & numerous

all the colours of the Class.

others, Inula, Elecampane — Tagetes marygold Eleduis corona — Crysanthemum Leucanth.m lucidum — Bellis. Daisy. — Anthemis Cotula maysweed. — nobilis Camomile — Achillea millefolia Yarrow.

Syn.a Pol.a Frustra.a follows. In the last superflua we have the outer florets with pistils but in Frustranea the outer have neither Pis. or other — hence Frustranea. ineffectual. bearing no seeds This is very small. Helianthus or Sun flower. Rudbeckia & Centaurea. & other unknown to us —

The next Order in S. Pol. Necessaria — here the floret of the centre or disk are pistiliferous and those of the ray are staminiferous. Hence called necessaria because, the ray flowers are absolutely neccessary to the fertility of the seed. ~~Baltimorea~~ after Ld Baltimore. Calendula Officinalis marygd. Arctotis, the remained unknown.

The next class is called Segregata because nothwithstanding what we have said, the florets have the calyx of their own and are inserted into a common receptacle. How then you will ask shall we distinguish this order from the aggregate flowers. By the number of the stamina here always 5 & united in aggregates usually 4 & disunited & separate. I believe I have seen Echinops, but none other of this order—

The last order is Monogamia but all Botanists subsequent to Lin: has abolished it and placed the plants in their proper class with the other which are arrange in the Nat. Lin. under Campanacea. Bell shaped. Lobelia – Viola Asclepias – milk weed &c – The reason for destroying this order is that the flowers are solitary ~~and~~ or or not compound, excepting this order the whole class is a natural one & affords several points of distinguishing them from all others. The compound flowers all belong to this Class. When you see many florets inserted into a common calyx & receptacle you will examine if there are particular calyces and except in a a few we shall find none, the seeds are usually naked & if and doubt remains certainly may be obtain by examining the anthers, which if the are united ~~into~~ single a cylinder and a supported by 5 filaments. A greater number of these plants are covered with hairs, and are hoary. All other place them together. Those who wish to gain information in a pleasant way will read Rousseau upon Compound flowers

At the next lecture Dr Barnes will explain the classes Gynandria Monoecia Dioecia & Polygamia The last Lecture will be given on ~~Tuesday~~ Saturday next- It will be improper to deliver it on Monday the 4 of July because the statehouse yard is usually throng on such public days. As these are our last lectures we shall be happy to see any of your friends.

Passiflora