Notes on

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# Barton's Lectures on Botany

1809.

William Elmer

Monday April 17th 1809.

# Lecture 1st.

## Of the difference between Animals and Plants.

A plant is defined to be a living organized body, fixed to a certain spot, where it propagates its species.

Some plants have locomotion the Valleriana Spiralis of Linnaeus & some other have locomotion. In these plants the male and female flowers are separate from each other. The male flowers detach themselves from the stalk and pursue the females & in this manner propagate their species.

The power of Locomotion cannot be considered a characteristic mark between Animals & Plants.

For I say some animals are not capable of spontaneous motion. The (Pennatula Encrinus) Pennatula Letacea) of Linnaeus are animals that are not possessed of spontaneous

motion. Some animals as well as plants have no sexual organs. The Tænia (Tape Worm) is certainly produced in the Intestines of the Foetus.

Irritability exists in near all the parts of Plants.

The brain is wanting in some animals as the polypi, tenia, cuttlefish &c.

Plants have both brain & nerves. Some animals have no heart as the fresh water polypi — the hydra &c.

Some flowers have the property of doubling themselves. The almond tree in its wild state bears single flowers, when brought into a Garden, and nourished the flowers become double.

The smell of the Glauca (Magnolia) proves fatal to some Animals.

Lecture 2d April 18th 1809.



The natural heat of Man is 98° of Farenheit's Thermometer. The heat of the Rattlesnake is 61°.

Plants have a peculiar heat of their own, different from that of the Atmosphere in which they live. The Maple Birch English Walnut &c. have a specific heat.

Both animals and plants are able to support for a considerable time a greater heat than is natural.

Hermaphrodites are those plants in which the male and female organs are blended together.

Monoecious are those plants in which the male & female organs are upon the same root but in different parts of it. —

Dioecious are those plants in which the male & female organs are upon distinct root as in the Lombardy Poplar. — In this Country the Lombard Poplars are all Males.

Mr Spalding

Lecture 3d April 24th 1809

Absent.

Mr Winthrop

Lecture 4th April 25th 1809.

The branches of Natural History are six in Number viz: Zoology, Botany, Mineralogy, including Geology, Meteorology and Hydrology.

That part of Natural History which is called Botany is the subject of our present course of Lectures.

Botany is of vast extent it composes seven eighths of the

Materials in the Materia Medica.



Anatomists divide the human body into Head, Trunk & Extremities. In like manner Linnaeus divides plants into three parts viz: radix herba and fructificatio —

By the radix I mean the root or that part of the plant which lies buried in the ground.

By the herba, I mean the stem leaves and its appendages &

By the fructificatio, I mean the flower or properly speaking the fruit.

The radix, is that part which supports the herba & fructificatio. It is divided into two parts viz the caudex, and radicula. the latter act as absorbing vessels.

The caudex, is that part of the root ~~for~~ which ~~sup~~ supports the tree and from which it proceeds.

The radicula are fibres which proceed from the caudex, and nourishes both it and the plant.

Linnaeus also subdivides into Caudex Ascendens and Caudex Descendens. This division I think is altogether needless.

Every part of a plant contains the germ of every other part.

Extension Refer

## I. Of the Radix.

This I shall consider in the following manner viz: 1. With respect to its form. 2. Its growth, and 3. Its duration.

1. With respect to its Form

They are 1. Radix Fibrosa. 2. Radix Fusiformis. 3. Rad: Tuberosa. 4. Rad: Granulata. 5. Rad: Bulbosa. 6. Rad: Premorsa.

1. Of the Radix Fibrosa, or Fibrous Root. This kind may be seen in all the Grasses, and in wheat rye, oats, barley &c.

2. Radix Fusiformis, or Spindle-shaped Root. This is very common & known to all. examples of it are seen in the carrot, Parsnip, Hemlock. &c

3. Radix Tuberosa or Tuberose Root
It is a hard, solid & fleshy root and has sometimes one knot, & sometimes more, according to the different kinds of plants. as in the turnip & potatoe which have but one knot - in the peony which has several.

4. Radix Premorsa. It is a species of root which does not taper off but ends very abruptly, and appears as if it had been eaten off. It is called by the Country People Devil's Bit.

5. Radix Granulata. This is exceedingly rare. An example of it may be seen in the White Saxifrage

6 Radix Bulbosa or Bulbous Root. This is very common & familiar to all. as the Onion tulip &c.
The bulb consists of two parts the bulb properly so called, and the radicula. These fasciculi consist of exhaling and absorbing vessels. The business of Nutrition is carried on in them.
Linnaeus also divides the bulbous

into Squamosus, Solidus,
Tunicated, Articulatus and
Duplicatus.

Squamosus as in the Lily
Solidus, there is none.
Tunicatus, as in the Onion, Tulip.
Articulatus is very rare.
Duplicatus two bulbs connected
together this plant is called by
the country people Adam & Eve.
When this plant is put into
water one of the bulbs swims, &
the other sinks. The reason of
this is obvious, the bulb that
swims is the one that has put
forth its germ, and the other
retains its germ untill the
next year, for this reason it
is heavier & of course sinks.

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Lecture 5th 27th April 1809.

Delineatio Plantæ.

A plant is divided into the
Radix, Herba & the Fructificatio.
The Fritillaria Imperialis or
Crown Imperial of Persia, is a
true specimen of this division
viz: radix, herba, fructificatio
& the small twigs on the top of it
are called the bractea or bracte.

Of roots with respect to their Growth.

1. Some roots run perpendicularly into the ground, the fusiforme roots are all of this kind viz: the parsnip, carrot, raddish &c.
2. Some run in an horizontal direction: as the Podophyllum peltatum, or May Apple.
3. Some fasp off in every direction as in the Radix Repens or creeping root, and the Mint.

Roots are divided into simplex ramosa, & ramosissima.

Duration.

Some roots subsist for one year, and are called annual as the wheat, rye, barley &c.

Some for two years they are called biennials, as the Clover.

Some for many years, they are called perennials, as the radices fruticosa.

Climate and cultivation affects perennial plants, and changes them into annual. The moving of a perennial plant from a warm climate to a cold changes it into an annual.

Culture prolongs the life of plants. The Dodder is very pernicious to the flax.

The Misletoe clings to the Apple tree and receives its nourishment from it. These are called parasitic plants.

Some roots penetrate through wood and other hard substances. Dr Barton shewed an instance in which the root of a small Orange tree had penetrated through a piece of wood.

## II. Of the Herba.

By Linnaeus it is defined to be "that part which arises from the root, and is composed of the trunk, leaves &c."

1. Of the Trunk. It is divided into six kinds. viz: caulis, culmus scapus, pedunculus, petiolus and frons.

The Caulis or Stem is the body of a tree or herb, supporting the branches, leaves & the fructification as the Crown Imperial.

Culmus is the proper trunk of the Grasses Indian Corn &c. It is generally tubular or hollow

and jointed. All those plants of that have the Culmus trunk are innocent.

Scapus is a stem which proceeds from the roots and supports the fructification only, as in the Blue Bottle, narcissus, & primrose.

Thrombus is that kind of stem which terminates in a Leaf as in the ferns.

Stipes is that stem which supports the plant as in the Mushroom.

Pedunculus is that which supports the flower.

Petiolus is the stem which supports the leaf.

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Lecture 6th 28th April

We come now to speak of the Folium or Leaf.

Organ: motus plantae

I shall speak of them under Linnaeus three general Heads.

1 the Simple. 2 Compound. 3. to their Determination.

1. Folium Simplex is that kind which consists of one undivided

expansion, proceeding from the rib.

2. Compound.

3. Determination. They are either opposite or alternate.

There is a material difference between the colour of the sides of the leaves, the upper surface being of a much deeper green than the under, owing to its receiving a greater quantity of light. Linnaeus calls the surfaces discus, supine & prone, but I think Pagina Superior & Inferior are much better names.

The chief vegetable principles of plants are the following —

1 Caloric, it is present in all plants.
2. Light it is found in the Oils
3. Electric fluid - in the Marygold
4. Carbon it forms the chief part of plants.
5. Hydrogen.
6 Oxygen
7. ~~Azote~~ it is exhaled by plants

Lecture 7th May 1st 1809

Of the Folium.

They are divided into simple and compound.

The folium simplex is that kind of leaf which consists of one undivided portion situated on its petiole; as in the folium populi.

The folium composita is that kind of leaf which is divided into several smaller leaves or folleola situated upon a single petiole, as in the Goats Rue, Parsnip

The leaves of the Rose are opposite excepting the terminating one which is called a "folium pennata cum impari." The horse chesnut is a folium digitatum. The Ceringa or Lealock is a folium oppositum

Some have their leaves both opposite & alternate. they are called "fol: alternis oppositisque."

Structure of the Leaves.

The Cortex is the outer green part

or covering of the leaf. Underneath that is the Netlike work. Underneath the cortical net is the parenchyma or pulpy substance. The leaves of Plants are not the only organs of perspiration.

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Lecture 8th May 3d 1809.

Of the Green Colour of the Leaves

It is by far the most grateful to the sight of all Colours.

Dr Stahl supposes it to arise from the phlogiston which is contained in the Atmosphere

There are at least 28.000 or 30.000 different species of Plants In the Hottest parts of the Globe we find the largest leaves.

The Talliput (a kind of Palm) which is found in the Island of Ceylon bears the largest leaves.

Beyond the Southern boundary of Virginia, the leaves of the plant begin to increase in size.

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Lecture 9th
Took no Note

Lecture 10th May 8th 1809

Of the Hypernaculi

The Gemma or bud are of three kinds viz the Gemma Florialis or flower bud, the Gemma Foliis or leaf bud, & the Gemma foliis florialisque, or the leaf & flower bud united.

Of the Fructificatio

It is divided into Calix Corolla & Stamen.

1. Calix - perianthium - involucrum, as the Cornus Florida / Sequoia / Amentum, Spatha. / Narcissus /

Lecture 11th May 15th 1809

Fructificatio Continu:

As I said in my former Lecture that the Calix is divided into the perianthium (as in the Laracenia) the involucrum as the (Cornus Florida) the amentum as the grapes. also wheat, rye the Spatha, as in the (Narcissus) the Gemma as the husk of (Indian Corn) the Calyptra as in the (Mosses) & the Volva as in the (Mushroom)

Lecture 12th May 12th 1809

Of the Corolla.

It is that part of the plant which is coloured & encloses the organs of generation, as in the Tulip.

Arthur Shaw

Lecture 13th May 15th 1809

The Narcissus & Tulip according to Linnaeus has no Calyx but the Corolla & nectary only,

Mr. De Jussieu says they have both calyx & corolla & no nectary, therefore what Linnaeus calls the corolla, Jussieu calls the calyx, & what Linnaeus calls the nectary, Jussieu calls the corolla.

Of the Genitalia

These organs are two in number viz the Stamen & Pistillum.

The Stamen is the Male Organ & the Pistillum the female.

The Stamen is by Linnaeus divided into 3 parts the filamentum anthera & the Pollen. I say but

tar, the filament & anther.
The filaments are the thread like parts of the stamen
The Anther is the summit or top of the ~~plant~~ stamen which contains the Poller.
The Poller is the prolific seed of the plant it is most commonly of a yellow colour.
The Pistillum is divided into the Germ, the Styles & Stigma.
The Germ or Ovarium is the bottom of the Pistillum which is contained in the Receptacle & produces the flower.
The Style is a tube thro which the Poller passes into the Germ. &
The Stigma is the top of the Pistillum which collect the Poller

## Botany.

A plant is an organized & living body, endued with the attribute of irritability - doubted whether possessed of sensibility - many facts render it probable that it is possessed of feeling. The organic parts are nearly of the same structure in the root, branches or trunk. In the trunks of trees six species are found. 1. Epidermis or Scarf Skin. 2 Cortex or Outer Bark 3. Liber or Inner Bark. 4 Alburnum or Sap. 5. Lignum the wood. 7. Medulla or Pith. There are seven different Vessels of Plants. 1. Sap Vessels. 2. Proper Vessels containing the proper juice or blood. 3 Air Vessels 4. Midullary Vessels. 5. Absorbent. 6 Excretory. 7 Secretory.

## Sexes of Plants.

All plants are known and distributed into different Classes, Orders, Genera Species & Varieties. The Classes are 24 in number, formed from the number, place of insertion, proportion connection, disposition, or absence of the stamen or male organs of generation. Orders are founded upon the number of Styles a female organ chiefly. 1 Class Monandria are male from monos one and aner a man - has 2 Orders. Monogynia one male & female & Diagynia two male & females

Hoya Carnosa — Wax Plant
Colchicum Autumnale Meadow Saffron
Chrysanthemum Leucanthemum — May weed
— Milk Daisy. or Bucks Eye. Ox Eye. white weed
Martagon Turks Cap Lily
Lizania Aquatica. Canadian or Wild Rice.
Lilium — Matrimonial Bower
Helianthus tuberosus Jerusalem Artichoke
Viburnum Oxycocos. (Bush Cranberry) —
Spiraea Filipendula — Common Dropwort
Saxifraga Umbrosa — (London Pride)
Mimulus Aurea (Monkey Flower)
Lychnis Calcedonica (Double red Ragged Robin.)
Achillea Ægyptiaca (Egyptian Milfoil)
Veronica Chamædrys — Germ. leaved Speedwell
Amaryllis Formosissima (Jacobean Lily)
Shepherdia Elæagnoides (Buffalo berry tree)
Rubus rosæfolius — (rose flowering bramble)
Scutellaria — (Skull Cap. blue flower)
Dionea Muscipula (Venus' Fly Trap (a carnivorous plant)
Polygala Lutea — Milk Wort —

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Botanical Names of Plant —

Fragaria — Strawberry
Punica — Pomegranate
Spirea Trifoliata. Indian Physic.
Thalictrum. Meadow Rue.
Aconitum — Hagger Weed — (a Delphinium)
Lynarrhodon. Wild Rose
Cleome — Bastard Mustard.
Cardamine Pratensis — Ladies Smock —
~~Pelargonium — Geranium~~
Podylaria Tinctoria Wild Indigo
Mimosa. Sensitive Plant —
Triticum Repens — Couch Grass.
Primula Primrose —
Cistus — Rock Rose —
Symphytum — Comfrey.
Nyssa Integrifolia. Gum Tree —
Citrus Aurantium — Orange Tree
Citrus Medica — Lemon —
Liriodendron. Tulip Tree —
Ruscus — Butcher's Broom —
Anthyllis — Ladies Fingers —
Cunila Pulegoides — Penny Royal —
Agave Americana. American Aloe.
Rhamnus — Buckthorn —
Broussenettia — Paper Mulberry.
Cerasus Double flowering Cherry
Salyx Babylonica Weeping Willow
Symphoria Racemosa Snow Berry
Rosa Rubiginosa — Sweet Briar
Convallaria Solomon's Seal —
Arum Tryphyllum — Wake Robin
Aralia Racemosa — Spikenard
Euphorbia Hypericifolia — Milk weed & Slitter in Farmer.
Lobelia Inflata — Asthma Weed —

Botanical Names of Plants &c.

Azalea viscosa — Wild Honey Suckle. Coinlas
Bignonia Catalpa — Catalpa Tree
Cactus — Indian Fig —
Asarum Canadense — Coltsfoot or Wild Ginger
Antirrhinum Linaria — Ramsted Weed
Polygonum Fagopyrum. Buckwheat
Cochlearia Armoracia. Horse Radish
Morus Rubra — Mulberry Tree
Myrica Cerifera. Bayberry Candleberry Myrtle
Platanus Occidentalis, American Plane or Butter Wood Tree
Brassica Rapa — Turnip —
Lactuca Sativa — Lettuce —
Tussilago Farfara. Coltsfoot.
~~Artemisia Absynthium~~ Wormwood
Pyrola. Winter Green
Pyrola Umbellata, called by the Indians Dipsisosawa —
Rhododendron — Rose Bay
Rho. Maximum, Penna Mount. Laurel.
Dracontium Fœtidum Skunk Cabbage
Humulus Lupulus. Comma Hop
Comptonia Asplenifolia. — Sweet Fern
Panax Quinquefolium — Ginseng
Cunila Mariana — Dittany
Rhus Glabrum — Sumach
Rhus Toxicodendron radicans — Poison Ivy
Populus Poplar —

Thuya Occidentalis, Amer. Arbor Vitæ
Cheiranthus Incanus, Stock July Flower
Syringa. Lilac — Syringa —
Ribes — Currant.
Robinia Pseud. Acacia. White flowering Locust Tree
Cheiranthus, Snow Drop or Fringe Tree
Juglans Nigra. Walnut
Jugl. Alba. Aquamata — Hickory Nut
Jugl. A. Minerva — Pig Nut
Jug. A. Ovata — Shell Bark
Juglans Pecan, Illinois Hickory or Pecan
Kalmia Latifolia — Laurel
Fagus Castanea Dentata. Chestnut tree
F — C — Pumila — Dwarf Ches. or Chinquapin
Diospyros Persimmon Tree.
Euonymus Atropurpureus Semperverens or Evergreen Spindle Tree Burning Bush —
Lonicera — Woodbine — Varieties.
Magnolia Glauca. Swamp Sassafras
Ilex Aquifolium. American Holly
Gleditsia Spinosa. Honey Locust
Hypericum St. Johns Wort. Weed
Laurus Benzoin Spice Wood
Laurus Sassafras Sassafras Tree
Verbascum. Mullein
Saururus — Water Lily (or Swamp Lily)
Rubus hispidus Dewberry Bush
Rubus fruticosus. Blackberry
Rubus Occidentalis — Raspberry.

Tilia Americana, Linden a Lime Tree
Vaccinium Corymbosum Whortleberry.
Vac. — Macrocarpon — Cranberry —
Oryza Sativa — Rice.
Podophyllum Peltatum May Apple. Lime Plant
Veronica — Speedwell —
Nabalium Lifo Everlasting
Hedera Quinquefolia American Ivy
Hydrangea Virginica Shrub —
Oxalis Acetosella — Sorrel. Rumex A.
Humulus Lupulus — Hop —
Asimina Vulgar — Pawpaw —
Arctium Burdock —
Atropa Belladonna — Nightshade
Brassica Cabbage
Spigelia Marylandica Indian Pink
Leontodon Taraxacum, Dandelion
Paonia Officinalis — Piney —
Papaver — Poppy —
Potentilla reptans cinquefoil five finger
Portulaca — Purslane
Calendula Officinalis — Marygold —
Cannabis — Hemp
Anthemis Nobilis Chamomile
Cheiranthus Wall flower —
Chelidonium — Celandine
Cynara Scolymus — Artichoke
Fragaria Strawberry —
Rumex Aquaticus — Water dock
Iris Pseudacorus. Water flag. Yellow
Convallaria Maialis — Lily of the Valley
Hyacinthus Orientalis Garden Hyacinth

Pelargonium — Geranium
Viburnum Opulus — Snow Ball
Dianthus barbatus — Sweet William
Gemphrena globosa — Bachelor's Buttons
Marrubium Vulgare — Horehound
Zea Mays — Indian Corn
Aquilegia Canadensis — Columbine
Fritillaria — Crown Imperial
Helianthus — Sunflower
Nymphaea or Nelumbium — Water Lily
Lunaria biennis — Honesty or Satin Flower
Poterium Sanguisorba — Garden Burnet
Citrus Decumana — Shaddock
Ligustrum — Privet
Delphinium — Larkspur
Carduus — Thistle
Typha — Cat-tail
Thlaspi — Shepherd's Purse
Cynoglossum — Hounds-tongue
Momordica — Balsam Apple
Phaseolus — Kidney Bean
Physalis Viscosa — Ground Cherry
Phytolacca decandria — Common Poke
Rumex — ~~Dock~~
Onopordum — Cotton Thistle
Cochlearia Officinalis — Scurvy Grass
Calthe Palustris — Marsh Marygold
Vinca — Periwinkle
Euphorbia — ~~Spurge~~
Datura Stramonium — Jamestown Weed
Crocus Sativus — Saffron
Cuscuta Americana — American Dodder
Ceanothus Americanus — New Jersey Tea — a Red Root
Butomus — Flowering Rush
Mentha — Peppermint — a Blueness Tree

Convolvulus Batatas - Sweet Potatoe
Calceolaria corymbosa Slipper Wort
Convallaria ~~racemosa~~ Magalis Lily of the Valley
Yucca filamentosa, Palmetto plant, Adam's Thread
Agapanthus umbellatus - African Blue Lily
Cactus Tuna - Prickly Pear
Asclepias Syriaca - Milkweed
Fraxinus Ornus - Flowering Ash
Chionanthus - White Fringe Tree
Robinia viscosa - Purple Acacia
Pseudo Acacia Common Locust
Andromeda - Ile Whatleberry
Hibiscus Esculentus - Okra
Solanum Lycopersicum - Tomato
Solanum Melongena - Egg Plant
Sesamum Orientale Queen Plant
Maranta Zebrina - Double Tuberose
Apium Petroselinum Garden Parsley
Apium Graveolens - Celery
Plantago Lanceolata - Common Plantain
Phaseolus ~~Limensis~~ ~~Lima~~ Bean.
Phlox Nivalis - Snowy Phlox
~~Phlox~~ - ~~Periwinkle~~
Hemerocallis flava - Yellow Day Lily
Lilium Candidum - Lady Lily
Spiraea tomentosa alba - White Elder
Sterculia regundo Box Elder
Staphylea Trifolia - Bladder Nut
Asclepias tuberosa - Milkweed White Root
Gillenia trifoliata, Inner Ipecacuanha
Flos adonis.
Corchorus Japonicus - {Kerria Japonica very showy yellow}
Canna Indica - Indian Shot
Tradescantia Virginica
Cucurbita Citrullus, Water Melon
Gladiolus Sword Lily & Corn Flag

New American Orchardist
by
C. Robert Barnet
Baltimore price $1.25

The Young Florists Manual
by G. C. Barnett
price 37½ cents

Barton. 1809.
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