

Heads of a course of lectures in botany. Read at Cambridge / [Thomas Martyn].

Contributors

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The Rev^d. RICHARD WALKER, D.D.

Vice-Master of TRINITY-COLLEGE,

A N D

Professour of *Casuistical Divinity* in the

UNIVERSITY of CAMBRIDGE.

Rev^d. S I R,

TH E following Work may claim your Patronage with some Propriety, since it is to you that it owes it's Birth. Had it not been for your Munificent Design in founding a BOTANIC GARDEN, the Author would scarce have thought of attempting to restore the Study of BOTANY, which was almost lost among us. To teach this extensive Science without a good GARDEN is next to impossible; at least it cannot be done effectually, nor even tolerably without allotting more Time to it than I have to spare.

FOR

FOR want of such a Design as Yours, those Seeds which the excellent Mr *Ray* once planted, and which have been since his Time now and then watered, are not yet brought to Perfection. That this, by Means of Your Noble Design, may at length be performed, and that the Munificence of those who wish well to the Study of Nature may compleat what you have so generously begun, is the hearty wish of,

Rev^d. SIR,

Your most devoted

Cambridge,
Jan. 1, 1764.

And Obedient Servant,

THOMAS MARTYN.

T H E

P R E F A C E.

WHILST the Works of Nature are so much studied in most Countries of *Europe*; it is to be lamented that the Progress of Natural History has been but slow in *Great Britain*. Notwithstanding we must yield in point of Climate to many other Kingdoms, yet upon the whole it must be allowed that our Advantages are superior to any which they can boast. The great Enlargement of the *British* Dominions in *America*, has opened a wide Field for new Discoveries and Improvements in Natural History; and the Extensiveness, I might almost say the Universality, of our Trade, gives into our Hands the Natural Treasures of every Climate. Nothing is wanting but a proper Spirit to make use of these great Advantages, and to receive those Treasures which Nature so willingly and so liberally pours in upon us from every Quarter.

France has generally employed Men of Eminence in various Parts of the World to search after the Productions of Nature; whilst Persons of the best Abilities have been supported at

Home to receive the Fruits of their Labours, to observe the Nature of new Productions, and to make Experiments upon the old. The Northern Kingdoms of *Sweden* and *Denmark*, which are confessedly much our Inferiors both in Point of Climate and of Trade, have yet far outstripped us in this Pursuit: The former of these, under the Influence and Direction of the celebrated *Linnaeus*, has dispatched inquisitive Persons into almost every Part of the World; and these Enquiries have been attended with a Success that has deservedly augmented the Credit of Natural History, and derives new Honour on the illustrious *Swede*. *Denmark* has very lately caught this Flame, but under the Patronage of the King himself it seems to make a rapid Progress; in Imitation of the neighbour Kingdom, inquisitive Persons have been sent to travel in foreign Countries, and that Part of the Natural History of *Denmark* which respects its vegetable Productions will be more elegant and compleat than any other Kingdom can boast.

The great Spirit of Planting which has lately arisen in *Britain*, and the noble Taste which now prevails in Gardening, give room to hope that Botany at least may be pursued among us with more Ardour as a Science. The Botanic Garden at *Edinburgh* already begins to flourish under the Conduct of Professor *Hope*, who seems intent at the same Time upon searching for the almost neglected Plants of *Scotland*: the Garden at *Cambridge* has at length got an Establishment that may serve at least for its Support; the noble Garden at *Kew* is excellently furnished, and considering how few Years it has subsisted

is in wonderful Forwardness; and Mr *Miller's* acknowledged Abilities have long made that of *Chelfey* well known over *Europe*. We are not therefore destitute of Means for Instruction; what now seems principally wanting is to employ Men who have a Turn for the Study of Nature to search for the hidden Treasures of distant Countries, especially those which have been lately added to the Dominions of *Britain* in *America*; by such Enquiries, at this Time of publick Tranquillity, no doubt but many useful natural Productions might be discovered; there is no want of Men that have Curiosity and Ability sufficient to undertake this Business, if they were properly supported; and ample Materials might be furnished thereby for a Natural History of the whole *British Empire*.

With regard to the following *Compendium* I shall only observe, that it was impossible to give the Heads of the last Twenty Lectures, in which the *Genera* and *Species* of Plants will be demonstrated, 'till the Botanic Garden is in a better State than it is at present. The Author hopes any Imperfections may be excused, since he had no one to shew him the Way; and his Design was only to give his Pupils a Sketch of his Lectures, not to expose himself to the critical Eye of the Public.

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H E A D S

OF A

Course of LECTURES in BOTANY.

LECTURE THE FIRST.

I. INTRODUCTION.

II. 1. BOTANY defined.

A VEGETABLE defined.

The constituent Parts of a Vegetable,

{
Root
Stem
Leaves
Appendages
Fructification.

2. The ROOT.

{
Fibrous
Tuberous
Bulbous {
Solid
Tunicated
Squamous
Testiculated
Palmated
Fusiform
Granulous

3. The STEM.

{
Stalk
Trunk
Straw, *Culmus*
Scapus
Frons

Branch
 Bough
 Flower-stalk, *Pedunculus*
 Leaf-stalk or Foot-stalk, *Petiolus*
 Head
 Spike
 Panicle
 Whorl, *Verticillus*
 Cluster, *Racemus*
 Umbell { Simple
 { Compound.

{ Simple
 { Compound
 { Dichotomous.

{ Naked
 { Flexuose
 { Twining, *Volubilis*
 { Climbing, *Scandens*
 { Procumbent
 { Creeping
 { Parasitical
 { Two-edged, *Anceps*
 { Furrowed, *Sulcatus*
 { Striated
 { Villous
 { Scabrous
 { Bristly, *Hispidus*

III. 1. The Organization of Plants.

Vegetative Life, how kept up.

Diseases and Death, whence.

The *Variety* in the Vegetable World, whence it arises.

The *Parts* of which a Plant is composed, are

Fibres
 { Vessels { Succiferous Vessels
 { Vesicles, *Utriculi*
 { Air Vessels, *Tracheæ*
 Fluids.

2. A *Root* consists of

{ Pith
 { Wood
 { Bark } Inner, *Liber*
 Outer, *Cortex*
 { Cuticle

Its *Uses*

Its *Duration* { Annual
 Perennial

3. The *Stem* consists of

{ Pith
 { Wood
 { Bark } Inner, *Liber*
 Outer, *Cortex*
 { Cuticle

The *Structure* of the Stem

{ The *Circles* in the Trunks of Trees, whence formed
 { Concentrical within the Tropics
 { The Age of a Tree to be discovered from the Number of
 these Circles
 { The Circles nearer to each other as they approach the Cen-
 tre of the Trunk

The *Uses* of the Stem

Its *Duration* { Annual
 Perennial

Of the Age of Trees

Its *Magnitude*

Concerning the great Size of Trees.

LECTURE THE SECOND.

Of LEAVES.

{ Simple
 { Compound

A *Simple Leaf*:

I. With respect to the *Form* of its *Border*, is

{ Round
 { Ovate
 { Elliptic, *Ovale*
 { Spatulate
 { Cuneiform
 { Oblong

II. With respect to its *Angles* or *Prominencies*, is

{
Lanceolate
Linear
Acerose
Subulate
Triangular, &c.

III. With respect to its *Sinus's* or *Hollows*,

{
Reniform
Cordate
Lunulate
Sagittate
Hastate
Panduriform
Divided, *Fissum.* Bifid, &c.
Lobate. Bilobate, &c.
Palmate
Pinnatifid
Lyrate
Laciniate
Sinuate
Parted. Bipartite, &c.
Intire

IV. With respect to its *Apex* or *Extremity*,

{
Truncate
Retuse
Emarginate
Obtuse
Acute
Acuminate
Cirrhone

V. With respect to its *Margin*,

{
Spinose
Dentate
Serrate
Crenate
Repand
Cartilaginous
Ciliate

VI. With respect to its *Surface*,

{
Viscid
Tomentose
Woolly, *Lanatum*

Hairy,

Hairy, *Pilosum*
 Bristly, *Hispidum*
 Rough, *Scabrum*
 Prickly, *Aculeatum*
 Striated
 Vesicular, *Papillosum*
 Dotted, *Punctatum*
 Shining, *Nitidum*
 Plaited, *Plicatum*
 Waved, *Undulatum*
 Curled, *Crispum*
 Wrinkled, *Rugosum*
 Concave, *Concavum*, *f. Cucullatum*
 Veiny
 Nervose
 Coloured
 Smooth

VII. With respect to its substance,

Cylindrical
 Semicylindrical
 Hollow, *Tubulosum*
 Succulent, *Succulentum*, *f. Carnosum*
 Plane
 Gibbose
 Channelled, *Canaliculatum*
 Eniform
 Acinaciform
 Dolabriform
 Linguiform
 Two-edged, *Anceps*
 Furrowed, *Sulcatum*
 Carinated
 Membranaceous

LECTURE THE THIRD.

I. Of COMPOUND LEAVES.

I. A *Compound Leaf* with respect to its *Structure*, is

- Jointed, *Articulatum*
- Digitated
- Binate
- Ternate
- Quinate
- Pinnate
 - Unequally
 - Cirrhosely
 - Abruptly
 - Oppositely
 - Alternately
 - Interruptedly
 - Articulately
 - Decursively
- Conjugate

II. With respect to the *Degree* of Composition, is

- Decompounded
- Bigeminate
- Biternate
- Bipinnate
- Pedate
- Supradecomounded
- Triternate
- Tripinnate

III. With respect to their *Situation*, Leaves are

- Radical
- Cauline
- Axillary
- Verticillate
- Opposite
- Alternate
- Scattered, *Sparsa*
- Imbricated
- Fasciculated
- Double, *Disticha*

IV. With

IV. With respect to their *Connexion* with the Stem

Peltate
 Petiolate
 Sessile
 Decurrent
 Embracing, *Amplexicaule*
 Perfoliate
 Connate
 Sheathing, *Vaginans*

V. With respect to their *Direction*,

Oblique
 Inflexed
 Approximating, *Adpressum*
 Erect
 Patent
 Horizontal
 Declining, *Reclinatum*
 Revolute
 Pendent, *Dependens*
 Rooting, *Radicans*
 Swimming
 Immerged

II. I. Of BUDS.

The *Manner* in which Leaves are produced from the Bud
 The *Situation* of the Leaves within the Bud
 The *Time* when Buds open

2. Of LEAVES.

} Vessels
 } Uses

Concerning the Sleep of Plants

III. The *Fulcra* or *Appendages*.

} Stipula
 } Bractea
 } Thorn
 } Prickle
 } Clasper or Tendril
 } Gland
 } Hair

The *Uses* of these Parts.

LECTURE THE FOURTH.

Of the FRUCTIFICATION.

I. I. The FLOWER.

Empalement or Flower-cup, *Calyx*} Sheath, *Spatha*} Chaff, *Gluma*

Corolla or Flower-leaves

Petals

{	Monopetalous	}	Tube
			Limb
	{	}	Bell-shaped, <i>Campanulata</i>
			Funnel-shaped, <i>Infundibuliformis</i>
			Salver-shaped, <i>Hypocrateriformis</i>
Wheel-shaped, <i>Rotata</i>			
}	}	Upper Lip, <i>Galea</i>	
		Lower Lip or Beard, <i>Barba</i>	
}	}	Tail, <i>Unguis</i>	
		Border, <i>Lamina</i>	

Cruciform
Papilionaceous

}	Standard, <i>Vexillum</i>
	Wings, <i>Alæ</i>
	Keel, <i>Carina</i>

Nectarium.

Stamen

}	Filament
	Anthera or Summit
	Farina or Pollen

Pointal, *Pistillum*

}	Ovary
	Style
	Stigma

Male	}	Flowers.
Female		
Hermaphrodite		

I. 2. The FRUIT.

Seed-vessel

- Capfulc { Valve, *Valvula*
- { Partition, *Difsepimentum*
- { Cell, *Loculamentum*
- Siliqua
- Legumen
- Conceptacle, *Conceptaculum*, *f. Folliculus*
- Cone

- Plum, *Drupa*
- Apple, *Pomum*
- Berry, *Bacca*
- Mulberry, *Morus*

Seed

- Heart
- Lobes, *Cotyledones*
- Ligature
- Scar, *Hilum*
- Coat, *Arillus*
- Crown, *Coronula* { Calyculate
- { Downy
- { Feathered, *Pappus plumofus*
- { Hairy, *Pappus pilofus*
- { Incumbent
- { Stipitated
- Wing, *Ala*

- Nut
- Grain
- Propago

I. 3. The RECEPTACLE.

- { Proper
- { Common

II. 1. Ufes of the Empalement and Corolla

2. The Appearance and Situation of the Nectarium

3. Of the Stamina

- Filaments { Form
- { Situation
- Antheræ { Number
- { Form
- { Situation
- Pollen; Form

4. Of the Pointal { Situation
Structure

Ovary, Style, Stigma

- { Number
- { Form
- { Situation
- { Duration

5. Of the Seed Vessel.

- { Unicapfular, Bicapfular, &c.
- { Unilocular, &c.
- { Bivalve, &c.

Partition { Corresponding
Contrary

- { Form
- { Elasticity

Drupa { Pill
Pulp
Stone

Pomum { Pill
Pulp
Calculary
Coare

Berry { Pill
Pulp

The Uses of the Seed-vessel

6. Of the Seed

Lobes ; Structure

Monocotyledonous
Dicotyledonous
Polycotyledonous } Plants

Heart

- { Plume
- { Radicle

Situation

Of the Ligature and Scar

Of the Provisions to facilitate the Propagation of Seeds

7. Of the Receptacle

- { Plane
- { Convex
- { Conical

- Naked
- Dotted
- Villous
- Brittly
- Chaffy

III. Of that Property of Flowers which is called *Vigiliæ Florum*

LECTURE THE FIFTH.

Of VEGETATION.

- The Principles of the Seed
- The manner in which the Seed vegetates
- Of the Seminal Leaves, and their Use
- The Cause of Vegetation
- The Vegetable *Pabulum*
- Of Vessels

- Succiferous Vessels
- Vesicles, *Utriculi*
- Air Vessels, *Tracheæ*

Of the Juices

- The Juices of the
 - Root
 - Stem
 - Leaf
 - Flower
 - Seed
 - Bark

- Of the Air in the Air-vessels
- Of the Motion of the Juices, and the Cause of it
- The Discharge of Vegetables by Perspiration
- The Force with which the Juices rise
- Of the Circulation of the Juices in Vegetables

LECTURE THE SIXTH.

The HISTORY of BOTANY.

I. The State of the Science among the Ancients

- Theophrastus
- Dioscorides
- Pliny

II. The Arabians

- III. The barbarous Writers
- IV. The State of Botany at the Restoration of Learning
- V. Translators and Commentators
- VI. The State of the Science from the latter End of the 16th to the beginning of the 18th Century
- VII. The Use and Origin of Method
 - { Gesner
 - { Columna
 - { Cæsalpinus

LECTURE THE SEVENTH.

The System of *Cæsalpinus*.

TREES

1. With the Heart in the upper Part of the Seed
2. With the Heart in the lower Part of the Seed

HERBS

3. With one Seed to a Flower
4. With one Berry
5. With one Capsule
6. With two Seeds
7. With two Capsules
8. With three Seeds
9. With a trilocular Capsule
10. With four Seeds
11. With several Seeds
12. With several Capsules
13. Without Seed

Of Dr *Morison* and his System

LECTURE THE EIGHTH.

The Botanical Works of Mr *Ray* Mr *Ray*'s System

HERBS

Not Floriferous or Inferior

1. Sea-Plants
2. Fungi
3. Mosses
4. Capillaries

Floriferous or Superior

Dicotyledonous

Dicotyledonous

5. Apetalous
6. Planipetalous
7. Discous with a downy Seed
8. Discous with a solid Seed, or **Corymbiferous**
9. Capitated
10. Gymnomonospermous
11. Umbelliferous
12. Stellated
13. Asperifolious
14. Verticillated
15. Gymnopolyspermous
16. Pomiferous
17. Bacciferous
18. Multifiliquous
19. Vasculiferous with **Monopetalous** and **Dipetalous Flowers**
20. Siliquous
21. Leguminous
22. Vasculiferous with **Pentapetalous Flowers**

Monocotyledonous

23. Bulbous
24. Grasses
25. Anomalous

TREES.

Of the Distinction into

- | | |
|---|-------------|
| } | Trees |
| | Shrubs |
| | Undershrubs |
| | Herbs |

26. Palms
27. With the Male and Female Flowers distinct

Hermaphrodite Flowers

28. With moist umbilicated Fruits
29. With moist Fruits not umbilicated
30. With dry Fruits not Siliquous
31. Siliquous
32. Anomalous

LECTURE THE NINTH.

The Systems of *Rivinus* and *Tournefort*.

Of Arbitrary Classes

The Classes of *Rivinus*

Regular, 1. Monopetalous Flowers

2. Dipetalous

3. Tripetalous

4. Tetrapetalous

5. Pentapetalous

6. Hexapetalous

7. Polypetalous

Compound Flowers

8. With regular Florets only

9. With regular and irregular Florets

10. With irregular Florets only

Irregular, 11. Monopetalous Flowers

12—17. Dipetalous, &c. as before

13. Imperfect Plants

Of M. *Tournefort* and his System

M. *Tournefort*'s Classes.

Herbs

Perfect

With a Simple Flower

Monopetalous

1. Campaniform, Bell-shaped

2. { Infundibuliform, Funnel-shaped

2. { Rotated, Wheel-shaped

3. Anomalous or Personated

4. Labiated

Polypetalous

5. Cruciform

6. Rosaceous

7. Rosaceous in an Umbell

8. Caryophylleous

9. Liliaceous

10. Papilionaceous

11. Anomalous

With a Compound Flower

12. Flosculous

13. Semiflosculous

14. Radiated

Imperfect

- 15. Stamineous
- 16. Ferns
- 17. Mosses, Fungi, Sea-Plants

Trees, with

- 18. Apetalous Flowers
- 19. Amentaceous
- 20. Monopetalous
- 21. Rosaceous
- 22. Papilionaceous

The Systems of M. *Magnol* and others

LECTURE THE TENTH.

Of the *Sexes* in Plants.

The System of *Linnaeus*

His Classes

- 1. Monandria
- 2. Diandria
- 3. Triandria
- 4. Tetrandria
- 5. Pentandria
- 6. Hexandria
- 7. Heptandria
- 8. Octandria
- 9. Enneandria
- 10. Decandria
- 11. Dodecandria
- 12. Icosandria
- 13. Polyandria

LECTURE THE ELEVENTH.

The Continuation of *Linnaeus's* System

- 14. Didynamia
 - { Gymnospermia
 - { Angiospermia
- 15. Tetrodynamia
 - { Siliculosæ
 - { Siliquosæ

16. Monadelphia
 17. Diadelphia
 18. Polyadelphia
 19. Syngenesia
 Polygamia
 { Æqualis
 { Superflua
 { Frustranea
 { Necessaria
 Monogamia
 20. Gynandria
 21. Monoecia
 22. Dioecia
 23. Polygamia
 24. Cryptogamia
 { Filices
 { Musci
 { Algæ
 { Fungi
 25. Appendix, Palmæ

The other Works of *Linnaeus*

The other Writers of this Century

LECTURE THE TWELFTH.

Monandria
 Diandria
 Triandria

LECTURE THE THIRTEENTH.

Triandria
 Tetrandria

LECTURE THE FOURTEENTH.

Pentandria Monogynia

LECTURE THE FIFTEENTH.

Pentandria Digynia

LECTURE THE SIXTEENTH.

Hexandria
Heptandria
Octandria
Enneandria

LECTURE THE SEVENTEENTH.

Decandria
Dodecandria

LECTURE THE EIGHTEENTH.

Icosandria

LECTURE THE NINETEENTH.

Polyandria

LECTURE THE TWENTIETH.

Didynamia Gymnospermia

LECTURE THE TWENTY-FIRST.

Didynamia Angiospermia

LECTURE THE TWENTY-SECOND.

Tetradynamia

LECTURE THE TWENTY-THIRD.

Monadelphia

LECTURE THE TWENTY-FOURTH.

Diadelphia
Polyadelphia

LECTURE THE TWENTY-FIFTH.

Syngenesia Polygamia *Æqualis*
Superflua

LECTURE THE TWENTY-SIXTH.

Syngenesia Polygamia Frustranea
Necessaria
Monogamia

LECTURE THE TWENTY-SEVENTH.

Gynandria

LECTURE THE TWENTY-EIGHTH.

Monoecia

LECTURE THE TWENTY-NINTH.

Dioecia
Polygamia

LECTURE

LECTURE THE THIRTIETH.

Cryptogamia Filices
Musci

LECTURE THE THIRTY-FIRST.

Cryptogamia Algæ
Fungi

Conclusion

F I N I S.

