A SCHOOL FLORA: FOR THE USE OF ELEMENTARY BOTANICAL CLASSES

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FOR THE USE OF

ELEMENTARY

BOTANICAL CLASSES

BY

W. MARSHALL WATTS, D.Sc. (LOND.) B.Sc. (VICT.)

LATE PHYSICAL SCIENCE MASTER IN THE GIGGLESWICK GRAMMAR SCHOOL

NEW IMPRESSION

WITH 174 ILLUSTRATIONS

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PREFACE

THE object of this little work is to provide the student who has mastered the elements of botanical science with a Flora of such small size as to be easily carried on country rambles, which shall enable him readily to identify the common plants with which he will meet.

It has been sought to render the task of determining an unknown plant as easy as possible by making each step of the process to consist in deciding which of *two opposite* characters the plant under examination possesses. An example will best explain the way in which the book is to be used. The first table (on p. 9) is used to determine the Sub-Class to which the plant belongs. When this has been made out the tables under each division are used to determine the Natural Order, and then in like manner the Genus and Species are to be found. We will suppose that the plant which the student has for determination is the common Germander Speedwell[1]—a well-known little plant with bright blue flowers. The plant being a flowering plant, we have to determine whether it is a dicotyledon or monocotyledon? Its net-veined leaves and 4-partite corolla leave no doubt that it is a dicotyledon. We pass on then to 4, and ask —Is the corolla present as well as the calyx? and the answer being in the affirmative, the next point to decide is 6, whether the stamens grow on the corolla? Evidently they do, and the plant therefore belongs to **Corollifloræ.** Turning now to the

[1] See Fig. between pp. 102 and 103.

classification of the plants belonging to Corolliflorae (p. 12), we proceed as follows :—

Quest. Ovary superior or inferior? *Ans.* Superior. Turn then to 53. *Quest.* Stamens hypogynous or epipetalous? *Ans.* The bright blue corollas easily drop off and carry the two stamens with them ; the stamens are therefore epipetalous. We pass on to 59, and the ovary being all in one piece and therefore syncarpous, and the leaves not being succulent, we come to 60. *Quest.* Ovary 4-cleft and style basilar, or style terminal? *Ans.* Terminal. 62. *Quest.* Stamens 5, or 2, 4, or 6? *Ans.* There are 2 stamens. 63. *Quest.* A shrub or a herb? *Ans.* A herb. 66. *Quest.* Stamens 4 or 2 or 6? *Ans.* 2. Refer then to 67. Since the stamens are two in number and not 6, we pass on to 69, and lastly, since there are 4 petals we decide that our plant belongs to the Natural Order **Scrophulariaceæ**. The next thing is to determine the genus and the species. Turning then to p. 102, we easily see that since there are 2 stamens and not 4 or 5, the plant must be a **Veronica**. Again, a little attention decides that the flowers are in racemes (422), that the racemes are axillary (424), and this being a land plant we pass on to 426; and since the racemes are opposite and not alternate, the plant can be no other than **VERONICA CHAMÆDRYS**. The description agrees with this determination, since the plant under examination has ovate and serrate leaves and bright blue flowers.

Whilst the arrangement of the Tables is frequently arbitrary, and applicable only to the particular set of plants included in this work, the characters of each Natural Order have been given at some length, and are those of the British plants of the Order considered as a whole.

It is hoped that most plants may be easily identified with a little patience. The great point is to make sure that the question raised at each step is thoroughly understood; nothing must be left to guess-work. Oliver's *Lessons in Elementary Botany* may be consulted for explanation of the botanical terms employed in this work, and for greater convenience a glossary is added at the end of the book.

In some cases the beginner must be satisfied with knowing the Natural Order to which his plant belongs. The classification

of such Natural Orders as Umbelliferæ and Compositæ can never be made easy.

The time of flowering is indicated immediately after the name of each plant. Thus 6-10 means that the plant flowers from June to October.

In the former edition of this book, compiled for the use of the Botanical Classes of the Giggleswick School, all plants which grow within a few miles of that centre were included whether rare or common; but the book having been adopted by schools elsewhere, the author was urged to enlarge the list of plants included in the work, so as to make it as useful for schools in other parts of the country as it has been found to be at Giggleswick. This has been done in the present edition. The names of all plants considered 'common' are printed in capitals, and the work includes all (or nearly all) the plants marked with a higher topographical number than 50 in the eighth edition (1886) of the 'London Catalogue.' The names of some few plants which appear not to be indigenous are printed in *thin* type. In addition to the 'common' plants, the rarer plants growing within reach of certain schools have been included, and I beg to express my acknowledgments to those gentlemen who have furnished me with lists of such plants. The names of these plants are printed in small type, and the schools near which they grow are noted by the use of the following abbreviations:—

B.	Berkhampsted.	Nt.	Newton Abbot.
C.	Cheltenham.	R.	Radley.
Cl.	Clifton.	Rg.	Rugby.
F.	Felsted.	S.	Sedbergh.
G.	Giggleswick.	St.	Stonyhurst.
H.	Haileybury.	T.	Taunton.
L.	Lancing.	Tb.	Tonbridge.
M.	Marlborough.	W.	Winchester.
N.	Newcastle-under-Lyme.	Wl.	Wellington.

For the use of the critical botanist the consecutive numbers of the 'London Catalogue' (8th ed.) have been given (*under* the name), and also the topographical numbers (*after* the name). These latter numbers form 'a scale of rarity or frequency in relation to Britain as a whole. They express the number of counties in which the species has been reported to occur. By subdividing the larger counties into two or more vice-counties their number is increased to 112.'

Thus **Myosurus minimus** (43) (11) . . . . [T. W. Wl.

means that this plant is numbered 11 in the 'Catalogue,' that it grows in 43 out of 112 counties or vice-counties, and that (of the Schools mentioned) it is found within reach of Taunton, Winchester, and Wellington.

Again, CARDAMINE HIRSUTA (106) (93-94)

means that this name here includes the *two* plants marked 93 and 94, viz., Cardamine hirsuta of Linnæus, and Cardamine flexuosa of Withering, and that it is so common a plant that it occurs in 106 out of 112 topographical divisions.

GIGGLESWICK, 1887.

The chief difference between the present edition and former editions consists in the illustrations now given. Some of these are representations of plants mentioned in the *Flora*; others are for the purpose of elucidating points of structure upon which the discrimination between somewhat similar plants depends. It is hoped that these additions will make the use of the book easier for the beginner.

W. M. W.

LONDON, *June* 1905.

SYNOPSIS OF THE NATURAL ORDERS.

CLASS I.—DICOTYLEDONS.

Stem, when perennial, with pith, rings of wood and bark. Leaves usually net-veined. Parts of flower arranged in a quaternary ($\frac{4}{4}$) or quinary ($\frac{5}{5}$) manner. Embryo with two seed-lobes or *cotyledons*.

A—Polypetalæ

(Flowers with both calyx and corolla, and petals not united).

I. SUB-CLASS.—*THALAMIFLORÆ, stamens inserted on the receptacle (hypogynous) free from the calyx, ovary superior.*

* Pistil apocarpous, of one or more carpels.

1. **Ranunculaceæ.**
   (Ranunculus Family). Herbs. Stamens many (∞). Petals many (∞).
2. **Berberidaceæ.**
   (Barberry Family). Shrubs. Stamens definite.

** Pistil syncarpous.

† Ovules parietal.

3. **Nymphæaceæ.**
   (Water-lily Family). Aquatic plants. Petals and stamens ∞.
4. **Papaveraceæ.**
   (Poppy Family). Herbs with milky juice, flowers regular. Sepals 2, deciduous. Petals 4. Stamens ∞.
5. **Fumariaceæ.**
   (Fumitory Family). Herbs with irregular small flowers. Stamens 6, with united filaments (diadelphous).
6. **Cruciferæ.**
   (Crucifer Family). Herbs with regular flowers. Petals 4. Stamens 6 (tetradynamous).

7. **Resedaceæ.**

(Mignonette Family). Herbs with small irregular flowers. Stamens ∞.

8. **Cistaceæ.**

(Rock-rose Family). Shrubby herbs with regular flowers. Stamens ∞. Petals 5 fugacious. Stigmas 3.

9. **Violaceæ.**

(Violet Family). Herbs with irregular flowers. Stamens 5. Style 1.

†† Placenta free-central.

11. **Caryophyllaceæ.**

(Pink Family). Herbs with regular flowers. Sepals 4 or 5. Stamens 8 or 10. Styles 2—5. Leaves opposite, nodes swollen.

12. **Paronychiaceæ.**

(Knawel Family). Small tufted herbs with minute regular flowers. Sepals 4—5. Stamens 1—5. Style 1.

††† Pistil 2- or more celled, placentas axile.

10. **Polygalaceæ.**

(Milkwort Family). Herbs with irregular flowers. Stamens 8, monadelphous.

13. **Linaceæ.**

(Flax Family). Herbs with regular flowers. Sepals, petals, and stamens usually 4—5. Capsule many-celled.

14. **Malvaceæ.**

(Mallow Family). Herbs with regular flowers. Stamens ∞, monadelphous.

15. **Tiliaceæ.**

(Lime Family). Trees with regular flowers. Stamens ∞. Sepals and petals 5.

16. **Hypericaceæ.**

(St. John's Wort Family). Shrubs or herbs with regular flowers. Stamens ∞, polyadelphous.

17. **Aceraceæ.**

(Maple Family). Trees with regular greenish flowers. Sepals and petals 5. Stamens 8.

18. **Geraniaceæ.**

(Geranium Family). Herbs. Sepals and petals 3—5. Stamens definite. Fruit beaked of 5 carpels.

19. **Oxalidaceæ.**

(Shamrock Family). Similar to Geraniaceæ, but the fruit is not beaked.