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978-1-108-07563-3 - Botany for Ladies: Or, A Popular Introduction to the Natural System of Plants, According to the Classification of De Candolle

Jane Loudon

Excerpt

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## MODERN BOTANY FOR LADIES.

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### PART I.

#### INTRODUCTION.

THE following pages are intended to enable my readers to acquire a knowledge of Botany with as little trouble to themselves as possible.

As, however, Botany is a “wide word,” I must here premise that I only propose to treat of that part of the science which relates to the classification of plants, according to the natural system of Jussieu, as improved by the late Professor De Candolle ; and that the grand object I have in view is to enable my readers to find out the name of a plant when they see it for the first time ; or, if they hear or read the name of a plant, to make that name intelligible to them. Nothing is more natural than to ask the name of every pretty flower we see ; but unless the inquirer knows something of botany, the name, if it be a scientific one, will seem only a collection

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of barbarous sounds, and will convey no ideas to the mind. Half the interest of new greenhouse plants is thus destroyed, as few of them have English names, and strangers will soon cease to make any inquiries respecting them when they find they can obtain no answers that they can understand. Now, a very slight knowledge of botany will take away this mortifying feeling ; and the name of a new plant, and the ascertaining the order to which it belongs, will recall a variety of recollections that will open up a new source of interest and enjoyment even in such interesting and enjoyable things as flowers—for we never can enjoy thoroughly anything that we do not understand.

It now only remains for me to say why I have divided my work into two parts. My reason is my belief that a student will always remember more easily a few strongly marked divisions than a number of smaller ones, the differences between which are only faintly perceptible. In a more advanced state of knowledge, it is delightful to trace the minute shades of difference by which the numerous orders are united, so as to form one great whole ; but these gentle gradations confuse a beginner. On this account I have thought it best to devote the first part of my work to a few of the more important orders, which differ most widely from each other, and

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PART I.]      PRELIMINARY OBSERVATIONS.      3

which I have described at a greater length than my space will allow me to bestow upon the whole; and in the second part of my work, I shall give a short account of the whole natural system, introducing the orders described in the first part, in their proper places, so that my readers may see how they are connected with the others.

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MISCELLANEOUS ORDERS.

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PRELIMINARY OBSERVATIONS.

IN this first part I shall endeavour to familiarise my readers with botanical details, as all the orders I shall describe contain a great number of genera; and to begin at the beginning, I must first tell them what is here meant by an order, and what by a genus of plants. A genus then may be compared to a family of children, all the plants in it being known by one common or generic name, in addition to their particular or specific one. Thus, if *Rosa alba* be spoken of, *Rosa* is the generic name which is common to all roses, but *alba* is the specific name which is only applied to the white rose.

An order includes many genera, and bears the same affinity to a nation as a genus does to

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## 4 PRELIMINARY OBSERVATIONS. [PART I.]

a family. In many cases the resemblance which the plants in each order bear to each other is sufficiently strong to enable the student to recognise them at first sight; in the same manner as you may generally know a Frenchman or a German from an Englishman, even before you hear him speak. But unfortunately this general outward resemblance does not always exist, and it is necessary for the student to become acquainted with the general construction of flowers before the points of resemblance which have occasioned certain genera to be linked together to form orders, can be understood.

It is thus evident that the first step towards a knowledge of systematic botany is to study flowers thoroughly, and few objects of study can be more interesting, whether we regard the elegance of their forms or the beauty and brilliancy of their colours. My readers may perhaps, however, be as much surprised as I was, to learn that the beautifully coloured parts of flowers are the least important; and that, as they only serve as a covering to the stamens and pistil, which are designed for the production of seed, they may be, and indeed actually are, wanting in a great many of what are considered perfect flowers. In examining a flower, therefore, it must be remembered that the production of seed is the object, for which all the curi-

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ous contrivances we discover are designed. The germen or ovary (*a* in fig. 1) is protected by a thick fleshy substance (*b*), called the receptacle or disk, which serves as a bed or foundation on which the other parts of the flower rest, and which is thence frequently called a thalamus or torus, both words signifying a bed. The ovary itself is hollow, and it is sometimes divided into several cells, each enclosing a number of ovules, which are afterwards to become seeds; but sometimes there is only one cell, and sometimes only one seed in each cell.

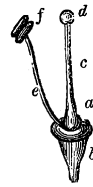


FIG. 1.—STAMEN  
AND PISTIL.

The ovary is juicy and succulent when young, and very different from what it afterwards becomes when the seeds are ripe. Rising from the ovary in most flowers, is a long and slender stalk called the style (*c*), which supports a kind of head, called the stigma (*d*). The ovary, the style, and the stigma, constitute what is called the pistil; but the style is not so essential as the other parts, and indeed it is wanting in many flowers. Sometimes there are many styles, each with a stigma at its summit, forming the pistil; and when this is the case, the ovary will have as many cells as there are stigmas, or each stigma will have a separate ovary to itself. There are generally several stamens in a flower,

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each perfect stamen consisting of three parts,—the Filament, the Anther, and the Pollen. The filament (*e*) is, however, often wanting, and it is only the anther (*f*), and the powder called the pollen which it contains, that are essential. The anther, when the flower first expands, appears like a little oblong case with a deep groove down the centre, or rather like two oblong cases stuck together. When these cases become ripe, they burst and let out the pollen which was inclosed within them. The pollen is generally very abundant, and it is often seen in the form of yellow dust descending from the catkins of the cedar of Lebanon, or the Scotch fir, or of orange powder, as on the stamens of the orange lily, when it sticks to everything it touches. About the time of the bursting of the anthers, the stigma becomes covered with a glutinous moisture, which absorbs the pollen that falls upon it. The pollen, when absorbed by the stigma, is conveyed down the style to the ovary, where it falls upon and fertilises the ovules or incipient seeds. Nothing can be more beautiful or more ingenious than the mechanism by which this process is effected. It is necessary that the grains of pollen should be separated before they reach the ovary, and they are so in their passage down the style in a manner more fine and delicate than could be done by any exertion of

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mere human skill. We know that we ourselves are “fearfully and wonderfully made,” but how few of us are aware that every flower we crush beneath our feet, or gather only to destroy, displays as much of the Divine care and wisdom in its construction, as the frame of the mightiest giant!

I have already mentioned that the most conspicuous part of the flower is merely a covering to protect the seed-producing organs from injury. In most flowers there are two of these coverings, which form together what is called the perianth; the inner one, when spoken of separately, being called the corolla, and the outer one the calyx. The corolla is generally of some brilliant colour, and in most cases it is

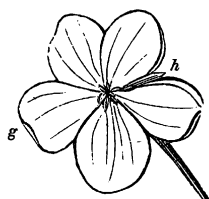


FIG. 2.—COROLLA OF A FLOWER.

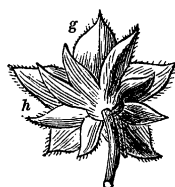


FIG. 3.—CALYX OF A FLOWER.

divided into several leaf-like parts called petals, (see *g* in figs. 2 and 3); and the calyx, which is commonly green, is divided into similar portions called sepals (see *h*). Sometimes there is

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only one of these coverings, and when this is the case it is called by modern botanists the calyx, though it may be coloured like a corolla; and sometimes the calyx and corolla are of the same colour, and so mixed as hardly to be distinguished from each other, as in the crocus and the tulip; in which case the divisions are called the segments of the perianth.



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## CHAPTER I.

THE ORDER RANUNCULACEÆ : ILLUSTRATED BY THE RANUNCULUS,  
THE BUTTERCUP OR CROWFOOT, THE PEONY, THE ANEMONE,  
THE HEPATICA, THE CLEMATIS, THE CHRISTMAS ROSE, THE  
WINTER ACONITE, MONKSHOOD, THE LARKSPUR, AND THE  
COLUMBINE.

SUCH of my readers who may have formed their first ideas of the natural system from some order, the flowers of which bear a strong resemblance to each other, will be surprised at reading the names of the heterogeneous assemblage of plants at the head of this chapter ; for surely no flowers can bear less resemblance to each other than the buttercup and the peony do to the columbine and the larkspur. There are, however, striking points of resemblance which link these flowers together ; the principal of which are the number and disposition of the ovaries, or carpels as they are called in this case, which, though they grow close together, and sometimes even adhere to each other, are yet perfectly distinct ; in the number and position of the stamens, which grow out of the receptacle from beneath the carpels ; and in the leaves and

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young stems, when cut or pressed, yielding a thin yellowish juice, which is extremely acrid, and, in most cases, poisonous. The flowers of the plants belonging to Ranunculaceæ differ widely in their shapes; and all the incongruities that are only sparingly met with in other orders, are here gathered together. Some of the flowers have only a coloured calyx, as in the clematis; in others the calyx and corolla are of the same colour, as in the globe-flower, or so intermingled as to seem all one, as in the columbine; and in others the calyx forms the most ornamental part of the flower, as in monkshood and the larkspurs. In short, modern botanists seem to have placed this unfortunate order first, as though to terrify students on the very threshold of the science, and to prevent them from daring to advance any farther to penetrate into its mysteries.

## THE GENUS RANUNCULUS.

THE word *Ranunculus* will doubtless conjure up in the minds of my readers those very showy, double, brilliantly-coloured flowers, which flower in spring, and are generally grown in beds like tulips. These flowers form a species of the genus, under the name of *Ranunculus asiaticus*; and having been introduced from Asia, they have retained their botanic name from not