BRITISH POISONOUS PLANTS.

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SECOND EDITION.

Illustrated with Thirty-two Coloured Plates,

INCLUDING THE

PRINCIPAL POISONOUS FUNGI.

LONDON:
JOHN VAN VOORST, PATERNOSTER ROW.
MDCCCLXI.

PREFACE.

THE occurrence from year to year of cases of accidental poisoning, by substitution of a deleterious for a wholesome vegetable, has led to the idea, that a small work, illustrative of the poisonous plants indigenous to this country, might be useful in rendering the subject one of more general interest than it has previously been; and, by directing attention to the dangerous results of such mistakes, originating in the correspondence of form which some of them present to well-known articles of food or condiment, render such casualties less frequent in future.

The illustrations consist of twenty-eight figures of the principal species described, which have been transferred to stone from the original plates of the "English Botany."

To persons residing in the country, and especially to clergymen and others whose advice and influence, in their respective neighbourhoods, may lead to the improvement of the ignorant and less educated, it is considered that such a publication may prove valuable. At the same time, the low price at which uncoloured copies are issued, will place them within the reach of the school library, and thus tend to render service to the rising generation. The knowledge once implanted, that many of the most admired ornaments of our fields, and woods and gardens, not only contain within them the elements of disease and death, but that these are, in many instances, of a character so powerful as to render a small portion of a leaf, stem, or root, or a few seeds or berries, subversive of human

life, cannot fail to instil caution into the most careless, and thus lessen the liability to danger by which we are surrounded.

As the book is not intended for the use of the practical botanist, to whom the forms and properties of the plants represented are of course familiar; but as one of reference for those who, owing to want of leisure or inclination, are only casual observers of such objects; although a certain amount of classification is requisite, it has been the aim of the writer to avoid as much as possible those conventional forms of expression and technical terms, which, however necessary to science and in daily use among its students, are always subjects of complaint to the uninitiated reader, and act as obstacles to the diffusion of that general knowledge of the things around us, so desirable, as tending to enhance the value of life by the improvement of our social condition. The phraseology of science is in the aggregate over-laboured; and that of Botany, especially, encumbered with a nomenclature as difficult to be understood, beyond the exclusive circle of its more enthusiastic votaries, as are the cuneiform characters of Assyrian inscriptions or the hieroglyphics of ancient Egypt.

How far one engaged in the reiterated interpretation of such mysticisms, may succeed in divesting the matter of the following pages of an obscurity of diction he deplores, and in rendering at the same time description in language as simple and commonplace as such a subject will admit, he will not attempt to decide. His desire to do so may be overpowered by habit, and his expectation be disappointed. To will, is one thing; to act accordingly, another.

This Second Edition contains Four additional Plates and descriptive Text of the principal poisonous Fungi of Britain.

BRITISH POISONOUS PLANTS.

Poisons may be classed as producing their deleterious effects by three different modes of action. Some are injurious in consequence of the inflammation they occasion in the parts or organs with which they come in contact, and are known as *Irritants*: others, without producing any immediate change on the surface that receives them, act upon the brain and nervous system, inducing a tendency to insensibility or torpor, resulting from over-excitement; these are *Narcotics*: while the third class, a much more numerous and dangerous series, partakes of both the previous characters, and includes those denominated *Narcotic-irritants*. The vegetable kingdom yields examples of all these, and more especially of the last. To the general reader, the interest attaching to this classification of effects may not appear to be of much importance, but in a medical point of view its value is great, as the treatment of patients, for the alleviation of their sufferings, is necessarily modified to the nature and action of the poison swallowed.

In all cases of poisoning or suspected poisoning, medical

assistance ought to be as quickly obtained as possible, but, as the action of the deleterious substance is often so rapid as to produce injuries that no after-treatment can effectually remedy, no time should be lost in endeavouring to counteract the evil.

It is an unfortunate circumstance that, in most accidental instances of vegetable poisoning, the quantity taken into the stomach is considerable, and this especially where the article has been substituted for food or its ordinary accompaniments; and, that it is, at the same time, less open to the administration of antidotes than most mineral substances, whose dangerous qualities may often be neutralized, or even altogether removed by chemical means. Under all circumstances an emetic should be given, where the patient is capable of swallowing, or vomiting excited by tickling the inside of the throat or back of the mouth with a feather—where no other emetic is at hand, two or three teaspoonfuls of mixed mustard, stirred in half-a-pint of warm water, will generally answer the purpose. When the poisonous matter itself occasions vomiting, it should be encouraged to the utmost by frequent draughts of warm water, or, as soon as it can be prepared, of thin gruel or barley-water; and, when the sickness ceases, after the discharge of the poison by this means, a cup or two of strong coffee or of black tea will be beneficial. Where the poison is of the narcotic class, the stupefaction and tendency to sleep which it occasions, should be checked by hurrying the patients about, pouring cold water upon the head, and using every means of excitement possible; as otherwise the vomiting necessary to its removal may not be induced, in consequence of the insensibility of the stomach.

Such are the means by which a non-medical agent may contribute towards rendering the danger less imminent, and which, when resorted to quickly, have often prevented the more fatal termination of an accident. They preserved the

life of a member of the writer's family, a girl between three and four years of age, who gathered and ate a number of the large, black-currant-like berries of the Deadly Nightshade, the greater portion of which were expelled from the stomach by the aid of the mustard emetic; and, although sufficient action had previously taken place on the nervous system, to convulse the child's countenance for several hours, a warm-water bath, and a strong dose of castor-oil were the only farther remedies required to restore her. The number of berries swallowed in this instance could not have been more than fifteen or twenty, but death has resulted from a much smaller quantity, where the above precautions had not been immediately taken, and the arrival of the medical adviser was too long delayed.

When some time has elapsed after swallowing the poison, before suspicion arises, and pain and other symptoms indicate that it has reached the bowels, injections of warm water, soap and water, or thin gruel with a little salt may be employed safely, and especially when vomiting has not occurred to the desired extent, and a difficulty of swallowing, a frequent effect of narcotic-irritant poisoning, prevents the repetition of the means of inducing it. The incapability of swallowing is generally, however, rather spasmodic than continuous, and advantage must be taken of the intervals during which the convulsive action is suspended to administer the emetic.

In these remarks, no remedies are suggested except those of the most ordinary character. Under the present very imperfect system of general education, the writer is no advocate for domestic medicine, beyond that of the simplest kind; and is satisfied that in cases like those before us, as in many others, much more harm than good is frequently done by trespassing beyond them.

Let the reader bear in mind the old adage, "prevention is better than cure" and be careful to instil this wholesome

doctrine into the minds of others, and never lose an opportunity of warning them of the fatal consequences that may ensue from a slight mistake in the recognition of a vegetable substance. Our senses of smell and taste were bestowed upon us to rectify the deficiencies of that of sight, and, if duly employed with it in the selection of food, would in most instances tend to the avoidance of errors so precarious to human life.

Athough, in studying our indigenous poisonous plants, it will be well to bear in mind the existence of such diversity in their properties, their arrangement in the following pages will be more conveniently based upon a different plan.

Certain corresponding features belonging to many species of plants collectively, however unlike they may be in other respects individually considered, have given origin to their association in groups called Natural Orders; in which groups there is frequently a resemblance of properties or qualities throughout, rendering them subservient to particular uses, namely, for food, medicine, &c., and some of them are equally noted for their poisonous character: and, although the exceptions to such uniformity of properties are sometimes numerous, this arrangement will admit of coincident remarks, that, in one founded upon qualities alone, could not be introduced with equal propriety, or at least without interruption to the general course of description.

The characters by which botanists distinguish the natural orders, families, and species of plants, cannot be altogether dispensed with, even in a work intended for popular reference. The names of the parts or organs composing a flower are readily learned; the nomenclature is less complicated than that of the figures in a quadrille. Our little book does not pretend to teach botany, but only to take a short lesson from the pages of that grave and intricate branch of science, and strive to render it useful to the end we have in view,

that of familiarizing the examination of the objects of our study without involving unnecessary technicalities.

A flower, in its most perfect form, consists of four or five series of parts. Externally, the *calyx* or flower-cup, usually of a green hue, as the little leaves at the back of a Rose—or the cup that contains the blossom of a Primrose, the pieces composing it are called *sepals*. Within the calyx is the *corolla* or blossom, generally the coloured and most conspicuous portion of the flower, the pieces forming which are called *petals*. Within the corolla are the *stamens*, threads, bearing coloured tips called *anthers*; the stamens vary in number from one to many, and they are either free, or united to the calyx, corolla, or some other part. In the centre of the flower is the *pistil* or *pistils*, the lower part of which is the *ovary*, becoming afterwards the fruit or seed-vessel. Upon the arrangement, numbers and other circumstances attaching to these organs, the distinctive characters of plants and their associations are chiefly constructed. The calyx and corolla are sometimes wanting, the flower consisting of stamens and pistils only, and occasionally these two latter occur apart from each other or in separate flowers, which flowers are then said to be *unisexual*. Although varying in appearance in different plants, a very little practice enables a person to recognize the parts of a flower under all the changes to which they are liable. In a few instances another series of parts is found in a flower, occupying a place between the corolla and the stamens, and partaking of the character of one or other of those organs: such is the cup in the middle of the flower of a Narcissus, such are the rays in a Passion-flower.

According to the arrangement proposed, the first natural order that comes before us, as containing poisonous plants, is—

RANUNCULACEÆ, THE CROWFOOT TRIBE.

These plants are collectively distinguished by their numerous free stamens arising from beneath the ovaries, and by the pistils being almost universally two or more, and separate from each other.

All the British species are herbs, differing much in appearance and in the forms of their flowers, as may be observed by comparing a Buttercup and a Larkspur, but having their leaves generally much divided and half surrounding the stem at their lower part.

Almost all of them are poisonous, either *acrid* or *narcotic-irritants*, especially the latter. The different species of Crowfoot or Buttercup are so caustic, that the hands of children are, not unfrequently, inflamed, and sometimes even blistered, by carelessly gathering and grasping the bruised stems and leaves during hot weather. This is especially the case with those that grow in marshes and about the margins of ponds and ditches; and strolling beggars are said to employ them sometimes to ulcerate their feet and legs, for the purpose of exciting compassion. The popular names, Butterflower and Buttercup, were bestowed upon the more common kinds of Crowfoot, under the idea that the deeper colour of butter, made during their season of bloom, was due to the cows feeding upon their brilliant yellow flowers; but neither cows nor horses will feed upon them, however bare the pasture may be of more grateful herbage. I have not met with any record of human poisoning by these common and well-known

plants; a fact that may possibly be owing to the immediate emetic effect resulting from their action. Dr. A. S. Taylor mentions an instance of a young lady, of the age of fifteen, who, after eating several stems and flowers of *Ranunculus bulbosus*, and chewing many more, sucking the juice, suffered greatly during eight days, exhibiting many of the symptoms of acrid poisoning and even delirium. This plant, the earliest Buttercup of the meadows, has a small roundish root, somewhat resembling that of a turnip-radish, but, as it is rarely met with in any other situation than those in which it forms a part of the general vegetation of our fields, and its flowers are so universally known, this caution against eating it or any others of its tribe may be sufficient. The acrid principle of the field Buttercups is so volatile as to be chiefly, if not entirely, dissipated by drying: hence, when mingled with the grass in making hay, they are not only harmless, but, owing to the abundance of mucilage contained in their stems, contribute to the nutritive quality of the fodder.

The wood Anemone, *Anemone nemorosa*, so common, and so conspicuous by its white flowers in our woods in April, and the Pasque Flower, *Anemone Pulsatilla*, ornamenting about the same time with its deep purple hairy blossoms our chalk hills and high open pastures, are equally acrid with the Buttercups. But it is when this acridity is associated with a narcotic proximate principle that the Crowfoot Tribe is most dangerous and fatal to human life. The most recent case of accidental poisoning, to which this little book owes existence, was due to a plant of this series, a frequent ornament in the garden and shrubbery: viz.—

Monkshood, **Aconitum.**

There are many species of this genus or family of the *Ra-*

nunculaceæ to be met with under cultivation, and all of them are fine stately and showy plants, whose leaves are deeply cut into finger-like divisions, and whose irregular flowers are generally arranged in upright bunches terminating the stems. These flowers are usually either blue or purple, sometimes beautifully variegated with white, and in a few instances of a pale-yellow or cream-colour. In form they are very peculiar: the outer part or *calyx* is coloured and resembles a *corolla* in texture, its uppermost division or *sepal* being shaped like a helmet, or, as the common English name indicates, more resembling a monk's cowl or hood. Underneath this hood, on opening it, we observe two curiously formed *petals*, with long stalks, each terminating above in a little curved bag. The most common species in the gardens of this country is figured on our first Plate:—

Common Monkshood, Wolf's-bane, *Aconitum Napellus*. Plate I.

This is usually seen growing in circular patches, readily recognized, as the spring advances, by the bright green hue of the deeply-fingered leaves, which make their appearance some time before the shooting up of the tall leafy stems. The roots, whence they proceed, are from 2 to 4 inches long, of a pale brown colour on the outside, and at the upper part about the thickness of a man's thumb, but tapering below, and furnished with a number of fibres, which divide towards their extremities into an abundance of slender brown threads: they are white inside, and of a fleshy texture resembling that of a turnip. These roots multiply readily, and thus soon form the rounded patches before mentioned. The flowering stems rise to the height of 3 or 4 feet. The leaves are glossy, very deeply cut into five principal lobes,

each of which is more or less deeply divided and toothed. The flowers are dark blue and somewhat downy; they appear in June, about a month earlier than those of the other garden species. The pistils are generally three, each separate ovary opening eventually on the inner side to discharge its seeds.

Every part of this plant is a powerful poison, and its action is often too rapid to admit of the effectual administration of remedies. The young leaves have been mistaken for Parsley, the root on several occasions for Horse-radish: the flavour of them both is totally unlike that of the vegetables for which they have been substituted, but this circumstance is either not attended to at the time, or regarded as too trivial to excite more than a passing remark. The root of the Monkshood has an earthy smell, and is bitter to the taste, without any very remarkable pungency at first, but soon produces a slight tingling and a burning sensation, attended with a kind of numbness and contraction of the skin of the tongue and roof of the mouth: the pricking or tingling soon extends over the body, and a feeling of constriction about the throat, occasionally amounting almost to strangling, induces the patient to frequently grasp it with the hand. The symptoms may vary according to age, constitution, and other circumstances, but headache, confused vision, restlessness, convulsive clenching of the hands and jaw, vomiting and diarrhœa, attended with severe pain in the abdomen, are the most prominent and ordinary. The time of death varies from one to eight hours after the poison has been swallowed, and hopes may be entertained of the patient's recovery if the fatal termination does not ensue within that period.

The Monkshood was introduced here as a garden ornament, or, more probably, as a powerful medicinal agent, at a very early period, and occupies at present a place in our Materia Medica, or catalogue of remedies sanctioned by authority. It has no other claim to be considered as one of the wild

plants of this country, than that of being met with growing uncultivated in a few places in the western part of England. Its frequency in the garden, and the careless manner in which its deadly roots are often distributed, have induced us to place it, though only an interloper, at the head of our list of British poisonous plants. The recent accident in Scotland, where three persons died, in consequence of the roots of the Monks-hood being brought in by a boy from the garden as Horse-radish, and used by the cook, unconsciously, in preparing sauce for beef, added to many others of a similar kind, ought to render gardeners cautious in planting, and teach them to avoid placing this and other poisonous herbs in the vicinity of those employed for culinary purposes; and no less so in their disposal of superfluous roots, where there is a possibility of their being found by ignorant people, and misappropriated. The education of the gardener himself, however, is, in too many instances, inefficient, as, even when well-acquainted with the names of plants and the methods of successful cultivation, he is often altogether destitute of information regarding their properties and uses.

Stinking Hellebore, Bear's-foot, Setter-wort, *Helleborus fœtidus*. Plate II.

A large, handsome, evergreen plant, not uncommon on the borders of woods and thickets, on a chalky or calcareous soil, flowering in the early part of the spring. The thick, rather succulent stems, rise to the height of 1 or 2 feet, bearing numerous spreading, stalked, dark-green, glossy leaves, which are divided in a finger-like manner and serrated, or toothed like a saw, on the edges. The numerous, rather pendulous flowers are cup-shaped, composed of five rounded, concave, green sepals, tipped with purple, and contain several small,

tubular or horn-shaped petals, surrounding a considerable number of free stamens, and from three to five pistils.

Green Hellebore, *Helleborus viridis*. Plate III.

A much smaller species than the preceding, which it other wise somewhat resembles in foliage and general appearance. It seldom attains the height of a foot: the leaves are dark green, but not glossy; the flowers are few, expanded instead of cup-shaped, and the sepals pointed, and of a deeper green colour, without the purple margin which characterizes those of the Fœtid Hellebore.

The Christmas Rose of the gardens, with large white flowers, vying in brightness with the snow above which they are often seen expanding, is the Black Hellebore, *Helleborus niger*, a native of the south of Germany, and deriving its name from the dark or blackish hue of the root.

All the Hellebores are narcotic-irritant poisons, occasioning violent vomiting, diarrhœa, attended with severe burning pain and convulsions, terminating with death. They have an acrid, bitterish, unpleasant flavour, which is not likely to be any inducement to their use, either as food or condiment; but being powerfully cathartic, the different species acquired an early reputation as remedies against worms. On this account they are often employed medicinally by irregular practitioners, and have occasioned loss of life. The immediate cause of death, in most of the cases on record, seems to have been the violent inflammation induced in the stomach and intestines. In an instance that occurred near Southampton, in November 1845, a child, about two years of age, died within thirteen hours, in consequence of taking two dessert spoonfuls of the infusion of Bear's-foot, administered by its grandmother; and several cases of the poisoning of adult

persons, by the use of Hellebore as a cathartic medicine, prove the danger incurred by the employment of so powerful an irritant.

Dr. A. S. Taylor, in his valuable book 'On Poisons in relation to Medical Jurisprudence and Medicine,' remarking on the death of the child, observes that, "if persons are not always killed by such worm-medicines, it must be a very fortunate circumstance."

The Poppy is the representative of an Order of plants denominated—

PAPAVERACEÆ, THE POPPY TRIBE,

distinguished chiefly by the calyx, which consists of two sepals falling off as the flower opens, and by the corolla, consisting of four petals, and including numerous free stamens and a single pistil.

These plants have usually a thick milky juice, which is powerfully narcotic. From that of the large White Poppy, *Papaver somniferum*, of which the variously-coloured Garden Poppies are cultivated varieties, opium is obtained. The small Red Poppies, found in corn-fields, are of the same genus, but contain a much less proportion of the active narcotic principle than do the larger cultivated kinds. All are unwholesome, especially the seed-vessels; but it has not been considered necessary to give figures of the different species, which are only of annual duration, and are generally so well known and recognized by their showy flowers. The effect of opium and of the solution of that drug in spirit of wine, laudanum, is too familiar to need comment; and the immediate remedies for poisoning by Poppies as narcotic

plants have been remarked on generally in the Introduction. In some plants of the order, the thick juice, that flows out abundantly when the leaves and other parts are broken or bruised, is of a deep orange colour, and highly corrosive, as in

Celandine, *Chelidonium majus*. Plate IV.

This is a common plant by road-sides near towns and houses, especially growing upon heaps of rubbish and old walls, where it readily attracts attention through the summer by its bright gold-coloured flowers, the long greenish pistil of which becomes a pod, somewhat resembling that containing the seeds of the Wallflower or the Turnip. I am not aware that any instance of poisoning by the common Celandine has been recorded, but it is violently acrid and irritant; and, although the abundance of the orange-coloured juice, that stains the hands while gathering, and its corrosive flavour, may have hitherto prevented its appropriation as food, its dangerous character is not less deserving of notice; especially as upon one occasion, a town servant, translated to a suburban village, employed the leaves, which are frequently more divided and curled at the edges than represented in our plate, as a garnish in lieu of Parsley. The juice is a popular remedy for the cure of warts, and, diluted with milk, is sometimes used for removing the white specks and stains that are occasionally formed on the surface of the cornea or ball of the eye; but it is a dangerous application in the latter case, unless applied carefully, being apt to induce inflammation.

Another series of poisonous plants is found in the Natural Order

LEGUMINOSÆ, THE PEA TRIBE,

the native species of which are collectively distinguished by the peculiar and well-known form of the flowers, and the podded fruit. Examples of the order may be seen in the various kinds of Bean, Pea, Vetch, Tare and Clover, in the Broom, Furze, and Laburnum. The employment of the seeds and fruits of many plants of this tribe as human food, and of their herbage as fodder for cattle, tends to foster the supposition that no harm can ensue from their indiscriminate use for such purposes; but it is an erroneous one. Few orders are more diversified in properties, or more dangerous as regards the operation of certain species. It has indeed been observed by a modern writer, that its wholesome members ought rather to be regarded as exceptions to a very generally deleterious character; and, although that is perhaps scarcely correct, even taking the Leguminous plants in the aggregate, it is not without utility, in serving to place us upon our guard against the narcotic-irritant qualities of many. Most of the European species are, it is true, devoid of any powerfully prejudicial action; but in some, the presence, in greater or less proportion, of a proximate principle called Cytisine, from Cytisus, the Laburnum family, renders them not only unwholesome, but, as in the case of that beautiful tree, highly active poisons. An instance to this effect occurred some years ago in a village in Hertfordshire. A high wind had shaken down in abundance the yet green pods of some large Laburnum-trees that overhung the footpath, and three little girls, from five to seven years of age, collect-

ing them in play, ate the seeds as peas: shortly afterwards they were seized with vomiting and diarrhœa, attended by alarming convulsions, in which two of them expired during the night; while the third, the youngest, only recovered after a lingering illness of several months. Several cases have been reported in the medical journals and newspapers, of poisoning by the seeds and bark of the common Laburnum, and all of them attended by symptoms similar in degree to those above related.

The only indigenous or wild British plants with pea-flowers, in which deleterious qualities have been hitherto experienced, are the Yellow, and the Rough-podded Vetchling, *Lathyrus Aphaca* and *Lathyrus hirsutus* of botanists, and neither of them is common: the first is figured

Yellow Vetchling, *Lathyrus Aphaca*. Plate V.

The flowers are solitary; the leaves entire, smooth, and shaped like the head of a halberd, or triangular. It is chiefly met with in the eastern and southern counties of England, growing in sandy cornfields and about bushy heaths in a similar soil, and, where found, like many other annual herbs, it is often abundant. Some of the older writers have remarked that "the seeds of this and of all other species of Vetchling are nutritive, either eaten in broth or made into bread," but violent headache and vomiting have resulted upon more than one occasion where they have been eaten. Those of the Hairy or Rough-podded Vetchling have an unpleasant flavour, and act as a cathartic. Its flowers, growing two together, are of a mixed red and purple colour; the leaves are composed of two longish narrow leaflets, and terminate in branched tendrils; the short pods are clothed with hairs. No evidence exists that the other and more common

species of Vetchling are poisonous, but their wholesomeness may be doubted.

CUCURBITACEÆ, THE CUCUMBER TRIBE,

has a single representative among our wild plants in the

RED-BERRIED, COMMON OR WHITE BRYONY, *Bryonia dioica.* PLATE VI.

This is a vine-like plant, growing in woods and hedges, and is exceedingly common. The stems climb by means of tendrils, and extend among the trees and shrubs, often to the length of several yards during the summer, dying away after ripening their fruit; they are, as well as the somewhat vine-shaped leaves, very rough to the touch, a general character of the exotic plants of the order. The flowers are small, greenish, and produced, generally three or four together, in little bunches. Stamens and pistils are never found in the same flower, nor are the flowers which bear them individually ever met with on the same plant in this species, whence the name *dioica,* signifying literally two dwellings. The berries, when ripe, are red, filled with juice of an unpleasant fœtid odour, and each contains six comparatively large spotted seeds. The large fleshy pale-coloured root is often seen suspended in herb-shops, occasionally trimmed into a rude human form. It is a powerful and highly irritant purgative, a decoction of which is sometimes recommended by self-constituted medical advisers, but dangerous to their patients. The berries eaten by children have produced vomiting; but although this plant is generally

admitted to be an irritant poison, owing to the circumstance of its being confounded by several medical writers and compilers with the so-called Black Bryony, a plant belonging to a totally different group of the vegetable kingdom, very little dependence can be placed on reports concerning its action in individual cases.

The fruit of all the Cucurbitaceæ contains an active poisonous principle, more abundant in the pulp, and in the *placenta*, or part to which the seeds are attached, than elsewhere; and which is probably the chief source of the disorder so frequently produced by the Cucumber, Melon, &c., in certain habits and constitutions. The extract from some exotic species of the tribe, as the Squirting Cucumber, *Momordica Elaterium*, and the Colocynth, *Cucumis Colocynthis*, affords useful medicines; but in regard to the employment of the fruits of many as articles of food, the abundance of mucilage contained in them is the only redeeming feature that separates them from the list of active irritant poisons.

UMBELLIFERÆ, THE PARSLEY TRIBE.

This tribe of plants constitutes one of the most remarkable, and at the same time one of the most natural, groups in the vegetable kingdom. The species are all herbaceous, with hollow stems, usually more or less furrowed, or striated externally. The leaves are attached alternately, their footstalks dilated at the base, and sheathing the stem. They are generally much divided. The flowers have that peculiar arrangement denominated by botanists an umbel; that is, they are supported upon short footstalks arranged in the manner of the spokes of an umbrella. Sometimes the umbel is simple, but in most of the species it is compound; the

footstalks being subdivided, and each supporting a secondary umbel at the extremity. The flowers are small, with five petals, and five stamens alternating with them; the calyx very minute, occurring often merely as a thickened rim, or with five very small segments. The fruit consists of two cells or *carpels*, which, though adherent at first, separate when ripe, each appearing then attached by its upper end to a little stem of its own. These *carpels* are marked with various channels and ridges, upon the position and aspect of which many of the generic distinctions are founded; characters however too minute in general to be appreciated, or correctly defined, by any but the scientific botanist.

The order is chiefly confined to the Northern Hemisphere. Britain contains about sixty species. Some of these, such as Hydrocotyle and Eryngium, present peculiar modifications of the typical form. But, with these exceptions, the plants of the order may be usually distinguished at a glance from the surrounding vegetation, by their furrowed, green stems, finely divided, almost fern-like leaves, and umbelliferous flowers.

The order is an interesting one, from the number of plants it contains which supply us with articles of food, condiment, and medicine, but at the same time includes many species possessing highly deleterious properties; while from the close general resemblance the plants bear to each other, the wholesome and poisonous ones are very apt to be confounded by ignorant or incautious persons.

Among those of the order which yield articles of food may be mentioned the Carrot and Parsnep, varieties obtained by cultivation from two plants of the order abounding on our chalk downs and limestone hills. The Celery, Parsley, and Fennel are well-known culinary vegetables, while the Caraway, Anise, and some others supply materials no less useful to the druggist and confectioner. The Umbelliferæ, however, may be regarded upon the whole as a suspicious order of

plants, and, from the near resemblance of many of them, and especially of their seeds, great caution should always be exercised with regard to them.

The first plant we shall select in our brief review of the poisonous species indigenous to this country is the well-known

Hemlock, *Conium maculatum*, Plate VII.

This plant is readily recognized by its tall, smooth, glossy green stems, dotted over with irregular spots of brownish-purple, and rising usually to a height of 2 or 3 feet. Its leaves are finely divided and of a very peculiar shade of dark, glossy green. Its root, like those of most of the order, is tapering like that of a Parsnep. Every part of the plant has a strong, unpleasant odour which would enable most people to distinguish it at once. When out of flower it may be recognized by the appearance of the fruit, each carpel of which has five prominent ridges waved or crenulated on the margin.

The plant is found on hedge-banks and the borders of fields all over the island, though not in great abundance in the more southern counties. In the North of England it is one of the most common weeds, particularly in Durham and Northumberland, where it usually covers every hedge-bank, as the Cow-Parsley does around London. It is a biennial, and the young plant of the first year is said to possess but little of the active principle which renders it when mature so dangerous to animal life. This principle, called by chemists *Conia*, abounds chiefly in the root and leaves.

Several cases have occurred in which the leaves have been eaten in mistake for Parsley, probably from the seeds having been sown with those of the latter plant, though the much darker and more glossy leaves of the Hemlock ought to have been a sufficient distinction.

Orfila mentions instances of its having been taken in soup in the place of other culinary herbs. In all the fatal cases recorded, its action seems to have been chiefly upon the nervous system, producing insensibility and paralysis of the extremities before death, which in some instances has occurred within an hour or two after the poison has been taken. It operates no less fatally on some of the domestic animals. The sheep however eats it with impunity, and horses have occasionally swallowed considerable quantities without apparent effect. It should always be carefully exterminated from meadows and pastures. As is the case with many poisonous plants, its injurious qualities are in a great measure dissipated in drying. Cows and goats will not eat it.

The leaves and seeds are much employed in medicine as sedatives; but their action is too powerful to admit of their administration by any but the medical practitioner.

Fool's Parsley, *Æthusa Cynapium*, Plate VIII.

This is annual, and a common weed in gardens and cultivated fields. It rises from 6 inches to 2 feet in height. The leaves are dark green, smooth and glossy, much divided; the flowers are small and white, appearing in July and August. The plant may be recognized by the leaves of the involucrum or calyx-like whorl surrounding the secondary umbels: these leaves are very long and much reflexed, or turned back upon the stem; they are three in number and point outwards.

The plant has long had a bad name, but until 1845 no fatal case of poisoning by it seems to have been recorded. In the May of that year a child five years old ate a few of the somewhat bulbous roots in mistake for young Turnips. She was soon after seized with pain in the abdomen, followed by a feeling of sickness and tendency to lock-jaw: death occurred

within one hour from the time she had eaten the roots. An instance likewise happened in Germany a few years back, in which the leaves were taken in soup in place of Parsley. In this case vomiting and diarrhœa followed, the lower jaw became fixed, and death took place within twenty-four hours. Many similar mistakes have occurred both with children and adults, attended by corresponding symptoms, but happily without fatal result.

The plant has when rubbed a disagreeable scent very different from that of Parsley.

Water Hemlock or Cowbane, *Cicuta virosa*. Plate IX

A perennial plant, growing in ditches, and about the margins of rivers and pools; rising to the height of 3 or 4 feet, with a striated stem, and large, dark green leaves, less divided than those of the Hemlock, or Fool's Parsley, and with the leaflets, spear-shaped, arranged in twos or threes, and much toothed or serrated on the edges. The plant, in the latter part of the season of growth, has a very strong and fœtid odour; but in the spring, before this is developed, cows not unfrequently eat it with the water grasses to which they are so partial. It acts most fatally upon them; but horses, hogs, and goats browse upon it with impunity. Fortunately it is a local plant in this country, and nowhere very common.

On the human frame it acts no less prejudicially than upon cattle. A small portion, either of the root or leaves, soon produces burning pain in the stomach, giddiness, convulsions and death. In the year 1844 four children ate the roots, taking them for parsneps: one died in three hours, the others recovered. Castor-oil in the form of enemas was, in this case, administered with good effect.

This plant has been supposed by some to have been the

Conium of the Greeks, the agent employed in the execution, or rather political murder, of Socrates; but the symptoms, so minutely detailed by Plato, are certainly more in accordance with those produced by the true Hemlock, *Conium maculatum*.

Water Dropwort, *Œnanthe crocata*. Plate X.

A large plant growing 4 or 5 feet high, generally on the banks of large rivers. It is particularly abundant on those of the Thames in the lower part of its course. The plant, when not in flower, bears a great resemblance to Celery. The flowers appear in July: they are pale yellow, in large, dense, rounded umbels. The greater size of the clusters of flowers, and the presence of an involucrum or whorl of small leaves below both the primary and secondary umbels, will readily distinguish it from the wild Celery, which grows in similar situations: the latter plant, however, in its uncultivated state, though not absolutely poisonous, is acrid and unfit for food.

The Water Dropwort is perhaps the most virulent of the umbelliferous plants; and as its roots bear the same similarity to Parsneps in taste and appearance, that the leaves do to Celery, accidents from its use have not been unfrequent. Some years back, a number of convicts working upon the river-bank near Woolwich, found a quantity of this plant. Struck by its resemblance to the well-known vegetables above mentioned, seventeen of them ate it. Shortly afterwards nine of the men went into convulsions and became insensible; one died in five minutes, another in a quarter of an hour, a third in an hour, and a fourth a few minutes later. Two more expired in the course of a few days. They appear to have partaken of both root and leaves. A short time ago, the writer observed a man eating the leaves of this

plant in the same place; he had fortunately not swallowed much of it before warned of its poisonous nature. Persons cannot be too cautious in tasting wild plants, however nearly they may resemble in external appearance cultivated varieties. The poisonous principle seems to reside in a yellow juice, which stains the hands that gather it. In a dry situation this juice is produced in but small quantity, and the plant is less virulent.

Fine-leaved Water-Dropwort, *Œnanthe Phellandrium*. Plate XI.

This species is common in ditches and watery places: it is, like the last, perennial, and flowers in June and July. The leaves are finely divided, the leaflets wedge-shaped and deeply cut. The root is spindle-shaped. The stem rises 2 or 3 feet in height. When growing in water, the leaflets sometimes become attenuated and much lengthened, almost hair-like. In this case the flowers are not produced. The plant is poisonous, but apparently not as much so as the former species; at least no fatal cases of poisoning by it have been recorded. In some instances horses have been injured by it, but cows are said to eat it without effect.

Another plant of the same genus, the Common Dropwort, is reputed to be poisonous. It grows abundantly in ditches and slow rivulets, and may be easily known by its leaves, which are tubular and inflated; the leaflets few in number, and small compared with the footstalks.

Several other umbelliferous plants indigenous to this country are considered poisonous, and the whole tribe should be regarded with suspicion, although those we have described are the only ones whose dangerous properties have been established by experience.

SOLANACEÆ, THE POTATO TRIBE.

This tribe includes some of the most powerfully poisonous of our native plants, among them the Henbane and Nightshade. The order is an extensive one; but though a very natural assemblage as regards general appearance and structure, it contains plants of very different properties as regards their action upon animal life. The same family to which belongs the Deadly Nightshade, includes also the Potato, *Solanum tuberosum*, the most valuable of our esculent roots; and the Capsicum and Tomata may be cited, as other instances of useful and wholesome plants belonging to an order generally remarkable for the possession of deleterious properties. Still this difference is more apparent than real; for, in truth, the same active principle which renders the Nightshade and Henbane among the most powerful of narcotic poisons, exists in a greater or less quantity in nearly all plants of the order. The leaves and stems of the common Potato are narcotic, and it is well known that the berries, which are said to have been eaten in mistake on the first introduction of the plant, possess this quality in a still greater degree; indeed the root, when grown exposed to the air and light, becomes poisonous, and death has actually taken place from eating this vegetable in such condition.

In many plants of the order, this narcotic principle is associated with an essential oil, which modifies its action on the human frame: this is the case with the Tobacco, a plant belonging to the same family. Tobacco is one of the most virulent of narcotic-irritant poisons, a fact but too little known among those addicted to smoking. A small portion of the powdered leaves is sufficient to cause death, and a few drops of the oil will destroy life instantly. Paralysis has been occasioned

by excessive smoking; and, even when used with moderation, it impairs the action of the digestive organs, inducing dyspepsia and other forms of disease resulting from an unhealthy state of the liver, a condition indicated by the foul breath of the habitual smoker.

Although a well-marked family as regards general structure, it would be difficult to give any decided or universal character which should enable the unscientific observer to distinguish a Solanaceous plant, without entering into details incompatible with the nature of the present work.

The first species we shall mention is the

Deadly Nightshade, *Atropa Belladonna.* Plate XII.

This plant, sometimes called Dwale, occurs occasionally in waste ground, the borders of fields and hedge-banks, especially in a chalky soil; but nowhere very abundantly, having been pretty generally eradicated in consequence of its known dangerous properties. The root is perennial, thick, and fleshy, and of a whitish colour. The stems die down every year; they rise about 3 or 4 feet in height. The flowers, which are of a dull brownish purple, appear in June, the fruit ripening in August. The dark purple berries are tempting in appearance, and being somewhat sweet to the taste, are very liable to be eaten by children. A very small number will occasion death, and even half a berry has sometimes proved fatal. The whole plant is a powerfully acrid narcotic; the root and leaves equally so with the berries, though cases of poisoning are much more frequent with the latter.

The active principle is an alkali called by chemists Atropia. The leaves are used to a considerable extent in medicine as a sedative, but requiring great caution in their administration.

The effect of the plant upon the human frame is peculiar causing at first great excitement, and afterwards stupefaction and death. The pupil of the eye is usually much dilated. Many cases of poisoning by this plant have happened of late years; a remarkable one occurred in the autumn of 1846 when the berries were sold in London as edible fruit by some ignorant and careless dealers. Two persons who partook of them died, and others narrowly escaped. Its fatal effect seems to have been long known, for there is strong reason for believing this to have been the poisonous plant which occasioned such disastrous consequences to the Roman troops under Mark Antony, in their retreat from the Parthians. Plutarch, in relating this misadventure, says, "Those who sought for herbs obtained few that they were accustomed to eat, and in tasting unknown plants they found one that caused insanity and death. He that had eaten thereof immediately lost all memory and knowledge, but at the same time would busy himself in turning and moving every stone he met with, as if he were engaged in some very important pursuit. The camp was filled with unhappy men bending to the ground, and digging up and removing stones, till at last they were carried off by a bilious vomiting, when wine, the only remedy, was not at hand." The Scotch, under Macbeth, are said to have mingled the juice of Belladonna with the bread which they supplied to the army of Sweno the Dane during a truce, and by eating which the invaders became stupefied, and were murdered at leisure while in that state by their treacherous entertainers. No less than 150 soldiers suffered from its effects near Dresden some time back.

Dr. Taylor, in his valuable work on poisons, before quoted, records the case of a boy fourteen years of age, who had swallowed thirty of the berries, which he had bought in the street in August 1846. Three hours after eating them his throat became hot and dry, his sight confused, and swallowing

difficult; soon afterwards he appeared as if intoxicated, caught at imaginary objects in the air, and seemed to have lost all idea of distance. The pupils of the eyes were greatly dilated and perfectly insensible to light. He continued in this state for two days, being occasionally conscious during that period, and recovered in six days under medical treatment.

Woody Nightshade or Bitter-sweet, *Solanum dulcamara*. Plate XIII.

A common and generally well-known plant, abounding in hedges and by roadsides almost everywhere. Its bright purple reflexed petals and orange stamens render it one of the most beautiful of our native plants. The flowers are produced first in June, but the plant continues to blossom from that time until late in autumn. The berries, of a bright crimson tint when ripe, come to maturity a few weeks after the flowers appear. The branches are slender, and have a tendency to climb, though not furnished with tendrils. It rises from 3 to 10 or 12 feet in height according to the situation in which it grows.

The leaves are narcotic, producing nausea and giddiness when eaten, and the fruit is equally deleterious, though no fatal cases of poisoning by either seem to be recorded. The young branches and root have been employed in medicine as a sudorific, but not to any great extent, its action, like that of all Solanaceous plants, being uncertain, and often dangerous. Another species of the same family, the—

Black or Garden Nightshade, *Solanum nigrum*, Plate XIV.

has proved fatal in several cases, its effects being more powerful than those produced by the Bitter-sweet, though similar in nature. The plant is annual, rising to the height of one or two feet, and bearing small white flowers resembling those of the last mentioned in form. The berries, when mature, are black. It is a common weed in gardens, by waysides, and about manure heaps. Like the Woody Nightshade, it has sometimes been employed in medicine.

Henbane, *Hyoscyamus niger*. Plate XV.

An annual plant, not uncommon in some parts of the country in waste ground near towns and villages, generally in dry places or about rubbish heaps. It grows from a few inches to a foot or more in height, with downy stems and leaves, having a strongly fœtid odour. The flowers are greenish-yellow, generally, with dark veins forming a network over the corolla, but sometimes of a pale yellow and without veins; they are produced in July and August. The whole herb is poisonous to man, though apparently having little effect on domestic cattle and horses. It occasions delirium and stupor, accompanied by great dilatation of the pupil of the eye. The seeds have been used for smoking, as a remedy for toothache, but should never be employed, having caused convulsions, and even insanity, in some instances. The leaves are the most powerful portion of the plant; even the odour of these, when fresh, will produce giddiness and stupor. Two fatal cases at least of poisoning by this plant are re-

corded, and less serious accidents from its use have been frequent. In one case the roots were dug up by a woman in mistake for parsneps, and eaten in soup by no less than nine persons, all of whom suffered severely from their effects. A still more remarkable instance of such an error is recorded by Dr. Houlton, in which the roots were eaten by the inmates of a monastery for supper, probably in place of the same esculent vegetable. All who had partaken of them were more or less affected during the night and following day. With some, the actions induced were rather ludicrous. One monk got up at midnight and tolled the bell for matins, while of those who obeyed the summons, some could not read, others repeated what was not in their breviaries, and many were seized with the strangest hallucinations.

Swine are said to feed upon the leaves and stems with perfect impunity. There is one more Solanaceous plant, which from its very dangerous properties we have figured in the present work, although scarcely indigenous to this country—it is the

Thorn-apple, *Datura stramonium*. Plate XVI.

It springs up not unfrequently in the neighbourhood of gardens, especially about London, though originally a native of North America. The plant is too peculiar in appearance to render any description necessary, the prickly seed-vessels and white trumpet-shaped flowers represented in the Plate rendering its recognition easy. The leaves have a slightly fœtid odour, but the flowers are sweet-scented, though producing stupor if their exhalations are breathed for any length of time. The herb is powerfully narcotic, particularly the fruit and seeds. When the first settlers arrived in Virginia, some ate the leaves of this plant, and experienced such strange and

unpleasant effects therefrom, that the colonists called it the "Devil's Apple," a name by which it is still known in the American States. The usual consequences of the poison, when taken in sufficient quantity, are dimness of sight, giddiness and delirium, sometimes amounting to mania; but its action varies greatly on different persons. Many fatal instances of its dangerous effects on the human constitution are recorded. In most of these cases it has been eaten by children in mistake for some other wild plant. The seeds are popularly used as a remedy for asthma, being smoked with tobacco; but their employment is accompanied with great danger, while, at best, it is but a doubtful specific against the disorder. There are many species of Thorn-apple in both the old and new continents, possessing the same properties with that we are describing. One of them, a native of Greece and Asia Minor, was used by the priests of Delphi to produce those semi-delirious paroxysms, which they palmed off on the multitude as the results or manifestations of divine inspiration. The seeds of another species were similarly employed by the ancient Peruvians.

SCROPHULARIACEÆ, THE FIGWORT TRIBE,

IS a very suspicious order of plants, generally characterized by their irregular flowers; the corolla of which has its petals growing together, and the stamens, either two or four in number, attached to and falling off with it. When there are four stamens, which is generally the case, two of them are always longer than the other two. There is never more than one pistil, the ovary of which is two-celled, and contains a great number of exceedingly small seeds. The corolla or blossom presents, in different plants of the order, a variety of

forms; but it is always irregular, smaller on one side than the opposite, or otherwise unsymmetrical in the arrangement of the united petals; in some instances, indeed, it resembles more or less the snout of an animal, as in the Toad-flax and Snap-dragon. The ovary, fruit or seed-vessel being entire, not lobed or divided, is one of the most essential characters of distinction between it and the Mint and Sage tribe; which has somewhat similar irregular flowers, and the same number and arrangement of the stamens; but has the ovary, or base of its solitary pistil, divided into four readily separating lobes, each containing a single seed.

The flowers of the Figwort Tribe being often very ornamental, numerous species, from different parts of the world, are to be met with in our gardens; and, though not universally unwholesome, or at least sufficiently so to act as poisons, they should be regarded with caution, as many of these exotics, as well as others of indigenous growth, have powerful emetic and cathartic properties. No instances have, however, been recorded of accidental poisoning by any British species of the order, with the exception of that most stately and beautiful of all our native flowering plants, the

Foxglove or Throatwort, *Digitalis purpurea.* Plate XVII.

This is readily distinguished by its erect downy stem, varying from 2 to 5 or 6 feet in height; bearing large stalked leaves placed alternately, and terminating in a long one-sided bunch of large pendulous, tubular, crimson flowers, hairy within and marked with whitish eye-like spots: the flowers are occasionally yellowish-white, rarely in the wild state, more frequently so in gardens. The broad, oblong or spear-shaped, rugged and deeply-veined leaves, are of a dull

deep green colour above and pale on the under side: previous to the extension of the tall flowering stem, they form a circular tuft, often of considerable size.

This elegant plant is one of the most powerful of our indigenous poisonous herbs; but it does not appear to have occasioned much mischief, unless in cases where it has been taken or administered with a view to medicinal effect. The quantity required to produce death seems to be in a great measure dependent upon peculiarity of constitution in the patient, a very small dose being attended with similar symptoms, in some persons, to those resulting from a much larger upon others. As a medicinal remedy, it is one that ought never to be used without the utmost precaution, or taken on the recommendation of any one but a regular practitioner. Being generally known to country people, in consequence of its frequency on hedge-banks and the borders of woods in most parts of the kingdom; and the leaves having an odour and flavour alike unprepossessing, the former fœtid, the latter bitter and nauseous; it does not appear to have been ever the subject of mistake as food; but, owing possibly to some vague accounts of its properties in the works of the old herbalists, quacks, and well-intentioned though no less ignorant dabblers in medicine, have occasionally been induced to prescribe overpowering doses of this dangerous agent; followed by giddiness, vomiting, diarrhœa, convulsions, and all the other symptoms resulting from the administration of narcotic-irritant poison, and, independent of these, a lowering of the action of the heart, under which the patient has expired.

The English name Throatwort, applied to it in some parts of the country, originated in a fanciful resemblance between its hollow blossom and the cavity of the throat as viewed through the open mouth; and, in the days of "signature medicine," as they have been termed, when every plant was

supposed to indicate, by certain peculiarities of feature, the organ, the diseases of which it was destined to cure; the curious spots on the inside of the flower of the Foxglove, were compared to those preceding or accompanying ulceration of the human throat. Hence, probably, its early use as an antiphlogistic remedy for quinsy and other inflammatory affections of the food passage. It is, however, certain that if its decoction or infusion was ever used otherwise than as a gargle, it must often have proved deleterious. As many fatal instances of its action have been recorded, even within the past twenty or thirty years, the repetition of a previous caution will not be superfluous. No such remedy should ever be admitted in domestic or unauthorized practice. The Foxglove or Throatwort, though a valuable, is a dangerous agent, even in the hand of the experienced physician; and that danger is increased a hundredfold, when it is administered by one ignorant of its powers, and incapable of watching and palliating their action. It would be, indeed, about as wise to trust a child with a lighted taper in a magazine of gunpowder, as a human life to the incautious wielder of a remedy so deadly.

Where death has resulted from an overdose of this poison, it has generally taken place within twenty-four hours; but its action is regarded by medical practitioners as very insidious, because, when given repeatedly in small quantities, and for a considerable time without any very marked effect, the patient has occasionally died suddenly, apparently in consequence of its accumulating power over the action of the heart.

In cases of accidental poisoning by Foxglove, after encouraging vomiting until the noxious matter has been removed from the stomach, its effects may be ameliorated by drinking strong tea mixed with a little brandy or hartshorn, to excite the depressed circulation and vital energy; and, in this in-

stance, green tea, if at hand, is preferable to black, on account of its greater astringency, and likewise its more powerful action on the nervous system. Above all, the patient should be kept as much as possible in a recumbent position, or lying down.

Dr. A. S. Taylor has remarked:—"As indicative of the singular effect of this poison on the nerves of sensation, it may be stated that a coal-fire appeared to the patient to have a blue colour." A corresponding symptom has resulted from poisoning by the Deadly Nightshade, and is likely to occur in other cases where the organs of sight are affected by general disturbance of the functions of the brain.

THYMELEACEÆ, The Mezereon Tribe.

Two species of small shrubs met with in our woods, one very common, the other comparatively rare, represent this natural order, characterized by the flowers having no proper corolla; while the calyx, which has four divisions, or rarely five, is often highly coloured, and generally resembles that organ in appearance and texture. These plants are powerful acrid poisons.

Mezereon, *Daphne Mezereum*. Plate XVIII.

This, though rare in the wild state, is very common in gardens and shrubberies. The flowers make their appearance in February and March, before the expansion of the leaves, and often nearly covering the straight rod-like branches: they are of a purplish-rose colour, seldom white, and grow in little tufts, about three together. The leaves are spear-

shaped, narrowing gradually toward the lower part. The berries, of a bright crimson or scarlet when ripe, contrasting well with the lively green of the foliage, render the shrub very ornamental; but it ought never to be planted within the reach of children, who, attracted by their beauty and resemblance to currants, have been frequently poisoned by them: four or five are sufficient to produce serious illness, and death has resulted from swallowing a larger and indefinite number. The administration of them, as well as of a decoction of the bark, as medicine, is highly dangerous, though not unfrequent in some parts of the continent, and by quacks and village doctresses in England.

Besides the acridity, which occasions the Mezereon to rank among irritant poisons, the berries manifest an influence over the nervous system allied to that produced by the Monkshood and the Deadly Nightshade. The greatest danger, however, results from their irritant action: hence, thin gruel and barley-water should be taken to encourage the vomiting they occasion, and castor-oil in preference to any other cathartic medicine.

Spurge Laurel, *Daphne Laureola*. Plate XIX.

This is an evergreen shrub, 2 or 3 feet high, with leaves somewhat resembling those of the common Laurel, though more in colour than in form, and much smaller. It is of frequent occurrence in woods and thickets, especially where the soil is stiff or clayey. The flowers are yellowish-green, and appear in March. The berries, when ripe, are black, and are more acrid than those of the Mezereon. A decoction of the root and bark is sometimes recommended for children afflicted with worms; but it should never be used, being one of those remedies that can only be employed at the risk of

life, and with no greater efficacy than cathartics of a milder character. The greatest evil may accrue from following the directions of self-constituted medical prescribers, whose sole authority and library of reference is often the once far-famed "Culpepper's Herbal," or some equally valuable book of recipes. The Lady Bountiful of the village would do more good by confining her benevolent practice to the issue of nourishing food and warm clothing, where necessary, than by attempting to combat disease by remedies of which the action is equivocal, if not, as in this instance, dangerous in the highest degree. The hint is intended as a general caution, but it is based upon a fact connected with the use of the plant before us.

EUPHORBIACEÆ, The Spurge Tribe,

is a natural order of plants of great extent, and distributed over most parts of the world. The leading characters of these plants are the acrid milky juices, and the cathartic oil abounding in the seeds of many. The first especially renders them unwholesome, and in many instances highly poisonous, a property of which the oil frequently partakes. The distinctive features, by which the species of the order are recognized by an accomplished botanist, are too liable to exceptions to be satisfactory to the general observer. The British plants belonging to it are the Box, the Spurges or Wart-weeds, and the Mercury. The Box, well known as an evergreen shrub, and in its dwarfed state as an edging for garden-walks, does not show the milky juice, except on the early expansion of the leaves; but is said to be poisonous to animals that browse upon it in the wild state. Of the indigenous species of Spurge or Wart-weed, we only figure one.

Caper Spurge, *Euphorbia Lathyris*. Plate XX.

This is a stately and ornamental plant, with a purplish-red, smooth stem, about 3 feet in height at full growth, and dark green leaves pointing in four directions. The whole plant is glaucous, or covered with a whitish powdery matter resembling what is called the "bloom" on plums and grapes. The flowers, produced in June and July, are inconspicuous, and their structure too obscure for popular description; but the stalked fruit, composed of three very distinct, though closely cohering parts, is comparatively large.

This Spurge has been long cultivated in gardens on account of its fruit, which is often pickled as a substitute for capers, resembling them in size and appearance, and somewhat in their pungent flavour. In a fresh state it is highly acrid; but the process of long steeping in salt and water, and afterwards in vinegar, neutralizes the active principle, or so far lessens its virulence, as to render it inert in the quantity of such condiment usually eaten. In North America, where it has been introduced from Europe, it has received the name of Mole Plant, owing to the circumstance that moles never disturb the ground in which it grows.

The Caper Spurge is not unfrequently met with in dry woods and on the borders of pastures throughout the kingdom, but must be regarded rather as a naturalized than indigenous species. Including this and some others similarly circumstanced, fifteen Spurges are enumerated and described in our catalogues of native plants: it would enhance too greatly the price of this little volume to give figures even of those which are most common, and the milky juice, which flows abundantly from every part of the plants when broken, affords a characteristic too striking to be overlooked. Such juice is always to be considered indicative of dangerous pro-

perties. In the different species of Spurge, it has a burning flavour, and blisters the tongue, and even the external skin, when applied to them. Under such circumstances, it is surprising that these plants should ever be eaten by mistake; and yet two cases have been recorded in which death has resulted from species that are among the most common of our garden weeds. In one, a boy, six years of age, died in consequence of eating the Petty Spurge, *Euphorbia Peplus*; being seized soon after with vomiting, diarrhœa, spasms, inability to swallow, and other distressing and painful symptoms. In the second, a lad, between thirteen and fourteen, ate, in a spirit of thoughtless daring to his schoolfellows, several plants of the Sun Spurge, *Euphorbia Helioscopia*, dying within three hours under similar symptoms. In both instances, the mouth, throat, and stomach were found to be in a highly inflamed and corroded condition.

Much mischief has been occasioned by the use of the root and seeds of these plants, under the recommendation and administration of village doctors and doctresses, against whose prescriptions, drawn from such suspicious or dangerous sources, it is impossible to instil too great caution.

Herb Mercury, *Mercurialis perennis*. Plate XXI.

It is very frequent in woods and under hedges, where it spreads widely at the root, and sometimes, in the former situation, appears in extensive patches to the exclusion of almost all other herbs. The stems are angular, from a span to a foot in height, and never branched; the leaves stalked and opposite. The flowers are very small, green, growing in slender bunches, and are of two kinds, barren and fertile, always on different plants. In some parts of the country it has the name of Wild Spinach, under which it is confounded

with an annual indigenous species of the same family, said to be eaten in some parts of the continent, boiled as a substitute for that vegetable. Both of them are unwholesome, but the one figured is especially so. The milky juice, belonging to plants of the tribe generally, is far less copious than in the Spurges, and in the full-grown state of the Mercury, indeed, often scarcely perceptible, a circumstance which, added perhaps to the association by name with a well-known esculent, has occasioned it to be used as food by some ignorant people. Ray, one of the earliest and best English naturalists, relates a case, in which a man, his wife, and three children, suffered severely from eating it fried with bacon. Another instance occurred in 1820, near Worcester, where it was collected by a party of Irish vagrants and boiled with soup; all of them were taken ill about an hour after the meal, exhibiting, in greater or less degree, the ordinary symptoms of narcotic-irritant poisoning, and two of the younger children died the following day.

TRILLIACEÆ, THE PARIS TRIBE.

This is a small natural order of plants, chiefly remarkable for the general correspondence in number between the leaves and all the organs of the solitary flower. We have only a single species indigenous to these islands.

HERB PARIS, ONE-BERRY, TRUE-LOVE, *Paris quadrifolia.* PLATE XXII.

In habit it is not unlike the Herb-Mercury, creeping at the root, and forming patches of indefinite extent in dark woods and other shaded places in many parts of the kingdom.

The stems appear in April and May, rising from a few inches to a foot, and bearing four leaves in the form of a cross at the top; from the centre of which is produced a single erect flower, consisting of a calyx of four darkish-green spear-shaped leaves; a corolla of four very narrow, yellowish-green petals; eight stamens; and a bluish-black ovary, terminating with four stigmas, and becoming a succulent currant-like berry. The number of leaves varies from three to six, though it is generally four, and the parts of the flower almost universally correspond to them: hence, indeed, the name, from the Latin, *par, paris,* even or alike.

The whole plant acts as an emetic, attended by sedative effects. No fatal cases of poisoning have been recorded, but the symptoms exhibited by a child of four years of age, who had eaten a few of the berries as black currants, seemed indicative of an acrid narcotic property approaching to that of the Deadly Nightshade.

DIOSCOREACEÆ, THE YAM TRIBE,

consists of twining and climbing plants, which generally spring from large tubers, some of which are cultivated for food, like the Potato, in the warm countries to which they are chiefly limited. They all contain an acrid principle, which in the edible species existing only in small quantity, and diffused among abundance of mucilage and starch, does not render them unwholesome, especially when cooked. Hence the tubers of several species, called Yams, constitute an important article of nutriment in most tropical countries. Great Britain furnishes only one species of the tribe, which, from its powerful acrid and cathartic qualities, ranks as a dangerous irritant poison.

Black Bryony, *Tamus communis*. Plate XXIII.

This is a very common plant in woods and hedges, with weak stems twining round everything within their reach, and thus ascending or creeping among the trees and bushes to a considerable distance. The leaves are heart-shaped, pointed, smooth, and generally shining as if they had been varnished. The flowers are small, greenish-white, in loose bunches, and of two kinds, barren and fertile, on different plants; the latter being succeeded by berries of a red colour when ripe. The large fleshy root is black on the outside; it is exceedingly acrid, and though an old cathartic medicine, and still occasionally administered in powder and decoction by quacks and others, it is one of the most fearful remedies that ignorance can suggest or credulity rely upon. Death, in its most painful form, is the result of an over-dose; while the effect of a small quantity, varying not with the age only, but according to the idiosyncrasy of the patient, leaves little room for determining the limit between safety and destruction. The berries act as an emetic, and children should be cautioned against eating them.

AMARYLLIDACEÆ, the Narcissus Tribe.

This is an extensive family of plants, though having but few representatives in Britain. They may be collectively described as lily-like, herbaceous plants, with long sword-shaped leaves, the flowers with six petals and six stamens, and an inferior ovary, that is, the seed-vessel, situated beneath the flower, not included within it. This latter peculiarity distinguishes the order from Liliaceæ, the true Lily tribe,

and is the more worthy of notice from the circumstance of the bulbous roots of the latter order being generally innocuous, while the Amaryllidaceæ contain many poisonous species. They have all bulbous roots, which are perennial, while the leaves and flower-stems die down every year.

Daffodil, *Narcissus pseudo-narcissus*. Plate XXIV.

An abundant plant in many parts of the country, growing in deep shady woods and moist pastures, where its bright yellow flowers appear about the middle of March. The genus Narcissus is distinguished by the presence of a tubular or cup-shaped appendage, or corona, surrounding the stamens, within the petals. In the present species this is very much developed, forming a long rather vase-like tube, fringed at the top. The flowers have a strong scent, pleasant to most persons, but causing headache if indulged in for any length of time. The bulbs, and indeed every part of the plant, are powerfully emetic: even the flowers are said to have produced dangerous effects to infants who have swallowed portions of them.

Narcissus, *Narcissus poeticus*. Plate XXV.

This is a beautiful species, long naturalized in England, though in all probability not originally indigenous to this country. The flowers are pure white, with the small cup-like process in the centre tipped with crimson; they appear in May. The plant is found in several parts of the island, generally in open heathy localities. It is more poisonous than the last species, being most powerfully emetic and irritant, especially the bulbs, thirty or forty grains of which are

sufficient to occasion alarming symptoms. The scent of the flowers is very delicious, but as is the case with the preceding species, this odour is deleterious, producing intense headache, stupefaction, and vomiting, if indulged in to excess. The Greek name of the plant was doubtless derived from this circumstance; *νάρκη* signifying stupor or insensibility, and the beautiful fable regarding the flower, promulgated by the poets, must have been an after-thought.

Another species, *Narcissus biflorus*, so called from the flowers usually appearing two together on the same stem, is so rare and local that we have not thought necessary to figure it. It nearly resembles the last in form, but the flowers are straw-coloured instead of white, and with a yellow cup. They appear in the end of May. The properties of the plant are similar to those of the two already described, and indeed the same might be said of the whole genus, many individuals of which are to be found among the most frequent ornaments of our flower gardens, especially the large Double Daffodil and the Jonquil.

The common Snowdrop belongs to this order, and must be mentioned cursorily as possessing similar properties to the Narcissi, though in a less degree. The Guernsey Lily, a plant introduced into the Channel Islands, is likewise said to be poisonous.

LILIACEÆ, THE LILY TRIBE.

This is, like the last, a very extensive natural order, and is distinguished from it by the ovary being included within the corolla. The plants are generally free from any deleterious quality beyond a slight acridity, dissipated in most cases by heat. One section however of the family, distinguished chiefly

by a peculiarity of the seeds, contains a few poisonous species, one of which, a native of Great Britain, deserves notice, though no fatal case of poisoning has ever occurred, or at least been recorded, from its use; it is the

Wild Hyacinth or Hare-bell, *Hyacinthus nonscriptus.* Plate XXVI.

A common plant in woods, and under hedges throughout the kingdom. Its purplish-blue bell-shaped flowers appear in May and June, but the long leaves remain above ground until late in the autumn. The flowers have a slight starch-like scent. The bulbs are very acrid and the leaves probably partake of this quality, which appears to reside in a viscid juice existing in every part of the plant.

The Squills, plants of the genus Scilla, possess in a milder form the same active principle, and some of the species are doubtless deleterious, if not absolutely dangerous. There are three indigenous to this country; small plants resembling the Hyacinth in habit, but with the blue flowers arranged in a star-like form, instead of bell-shaped as in that plant.

COLCHICACEÆ, the Meadow Saffron Tribe.

There is a small order of plants very nearly allied to the Lilies, in the form of the flower and general appearance, which contains some of the most virulent and active of poisonous herbs; indeed nearly all the plants belonging to it are dangerous in their properties. It may be mentioned, that the distinction between this and the Lily tribe, being dependent on the peculiar position of the anthers or tips of the stamens,

though of great botanical importance, as separating two vegetable groups of very different qualities, is far too minute to be relied upon by the unscientific, and should rather be regarded as a caution against tasting the bulbs, foliage, or seeds of any Lily-like plant whose properties are unknown. The only plant of this tribe commonly found in Great Britain is the

MEADOW SAFFRON, *Colchicum autumnale.* PLATE XXVII.

A native of rich moist meadows in many parts of the island, especially on the banks of rivers which occasionally overflow. Its flowers appear in autumn, after the broad, dark green leaves have died down. They are of a delicate shade of purplish-pink, with six petals united at the base into a long tube, as in the common garden Crocus. The seed-vessel is at the bottom of this tube and does not make its appearance above ground until the succeeding spring. The whole plant is strongly impregnated with an active principle known to chemists as *veratrin,* and which is a powerfully irritant poison. A few years ago a woman in Covent Garden Market in London, picked up a number of the bulbs of this plant, which had been thrown away by some herbalist. She mistook them for onions and ate some of them, which speedily caused her death. In another case recorded a man swallowed some of the seeds incautiously; he was soon attacked with pain in the throat, vomiting and diarrhœa, and death quickly ensued. The plant is used somewhat largely in medicine, both root and seeds being thus employed, and many fatal accidents have arisen from its incautious administration. The leaves are eaten by deer and cattle, and have sometimes in the spring, when most virulent, caused the death of those animals; but when dried in hay, they appear innocuous, and horses do not eat them while growing.

ARACEÆ, The Arum Tribe.

Arum, Lords and Ladies, Cuckoo-pint, *Arum maculatum*. Plate XXVIII.

This plant is the only British representative of an order of vegetables, of very general distribution, distinguished by the extremely peculiar nature of their flowering organs, which are contained in a sheath-like leaf, called by botanists a spathe, within which rises a long fleshy stem or column, bearing the stamens on its middle or upper part, and on its lower portion the pistils and future seeds. They are furnished usually with very large tuberous roots somewhat resembling those of the Potato. A powerful acrid principle resides in most of the species, and the English one is no exception to this rule. The plant is one of the first to emerge from the ground on the approach of spring, and its bright green, arrow-head leaves, sometimes spotted with purple, may then be noticed under almost every hedge in shady situations. The green spathe opens in May, disclosing a small purple club-shaped column, around the base of which may be observed the ovaries or young seed-vessels; these, enlarging, change in the latter part of the summer to a brilliant red, and when the spathe and leaves have died down, which is usually the case soon after the flowering season, the bright-coloured berries, supported on a short thick stem, alone mark the situation of the plant.

In two or three cases the leaves have been eaten by children, and have produced very distressing effects. In one instance three children partook of them. Their tongues became swollen, so as to render swallowing difficult, and convulsions followed; one died in twelve, and another in sixteen days;

the third recovered. The root possesses very acrid properties occasioning similar symptoms when bitten. Its poisonous qualities are, however, wholly dissipated by heat, and it then becomes highly nutritious. In the Isle of Portland, in Dorsetshire, where the plant is very abundant, the roots are collected in great quantities by the peasantry, and being first macerated in water, and then baked and reduced to powder, are eaten under the name of Portland Sago. The roots of various foreign species are employed as food after being subjected to a similar process; among them the Eddoe, a well-known tropical esculent; but even this, before being exposed to heat, is exceedingly acrid.

Besides the species described and figured in the preceding pages, we have, indigenous to these islands, a number of others more or less deleterious; upon which, although instances of their fatal action are either rare, or wanting altogether, a few remarks are necessary before concluding this short notice of British poisonous plants. The only authenticated cases of death from their use are associated with the leaves and berries of the common Yew-tree. This beautiful and durable evergreen, so frequently planted in burial-grounds as an emblem of immortality, grows abundantly wild in many parts of the kingdom, varying much in size, from that of a mere bush to a widely spreading tree. In the latter form, it is too well known, as an ornament of our village-church inclosures, to need particular description. It is a member of the natural order

CONIFERÆ, THE FIR TRIBE,

and notwithstanding the vast apparent difference between its succulent berry-like fruit, and the woody cones of the Firs,

Larches, and Cedars, a regular transition may be traced between them, by comparison of their relative structure, and those of others of the same tribe. All of the individuals belonging to the Fir tribe, contain, associated with their juices and other secretions, a volatile oil of highly active properties, which occasions many of them to act as powerful stimulants, and hence to be valuable as medicinal agents. The principle in question is, however, in certain instances, present in so large a proportion, as to render the plants some of the most dangerous of vegetable productions. Of this class, the Yew and the Savin, *Juniperus Sabina*, especially, rank foremost in the list of European poisons; and, although the latter is not indigenous, its frequency in gardens, and occasional use by irregular practitioners, will justify reference to it here, as a vegetable irritant of such violent and hopelessly destructive character, that it ought never to be employed internally.

Yew Tree, *Taxus baccata.*

The fatal effects produced by the Yew upon cows and horses, which, in the spring, when pasturage is scanty, will often browse upon the young shoots, have been remarked from a very early period. A more recent instance is recorded by Professor Burnett, in which three horses, taken to be sold at a country fair, were tethered to the churchyard railings, over which some Yew boughs hung. The horses ate the leaves, and they were all three killed by their repast. The same author states, on the authority of an Italian physician, that Yew leaves, when administered in small doses, manifest a power, similar to that of the Foxglove, over the action of the heart and arteries, reducing the force of circulation; and that, if persisted in or given in too large quantity, they prove equally fatal.

Many cases are recorded of the poisonous effect of Yew

leaves and berries, in which the ordinary symptoms resulting from narcotic-irritant action generally occurred. Dr. A. S. Taylor, in the work before quoted, observes, that they act very energetically, and produce death in a few hours, sometimes without vomiting. It is stated by Dr. Percival, that a table-spoonful of the fresh leaves was administered to three children of five, four, and three years of age, as a remedy for worms. Yawning and listlessness soon succeeded; the eldest vomited a little, and complained of pain in the abdomen, but the other two suffered no pain. They all died within a few hours of each other. A case of poisoning by Yew berries was published a few years since by Mr. Hurt of Mansfield. A child aged three years and a half, ate a considerable quantity of these berries about eleven o'clock. In an hour afterwards, it appeared ill, but did not complain of any pain. It vomited part of its dinner, mixed with some of the berries. A medical man was sent for, but the child died in convulsions before he arrived. On inspection, the stomach was found to be in an inflamed state, and filled with mucus, containing the seeds and half-digested pulp of the berries. Many other cases of the kind might be detailed were it necessary; but the above are sufficiently indicative of the dangerous properties of the tree before us. The berries have a mawkish, slightly sweet flavour, and, containing much mucilage, are generally liked by young children, to whom they are especially alluring, by their bright scarlet colour and currant-like appearance. The succulent fruit itself is probably not particularly deleterious, as I recollect having often seen it eaten by my companions in childhood, though only in small quantities, and being cautioned, on tasting it, not to swallow or masticate the hard and almost stone-like seed, to the action of which the death of the child just mentioned might perhaps be ascribed. As the Yew is not unfrequently employed for forming clipped screens, in gardens and pleasure-grounds, to the exclusion of unsightly objects,

and often bears berries abundantly under the circumstance in question, the liability of danger resulting from their use by children and ignorant persons, ought to counsel the removal of all within reach previous to ripening, an object readily effected by the timely use of the garden shears and a birch-broom.

Another native tree, to which deleterious, if not immediately poisonous qualities have been attributed, is the

Elder, *Sambucus nigra.*

This plant, so well known from the use of its berries in making the wine called after them, is placed by botanists in the Natural Order Caprifoliaceæ, the Honeysuckle tribe; most of the species of which are emetic and cathartic, properties possessed by the Elder in a high degree, even by its berries in a crude state. Dr. Christison states that the leaves and flowers acted on a boy as an irritant poison, producing inflammation of the bowels, which lasted for eight days; and a case was reported in the Medical Gazette of the death of a woman fifty-four years of age, in consequence of inflammation induced by taking two tablespoonsful of the juice of Elder-root, as a remedy for a bilious attack. In this latter instance, it was probably the root of the Dwarf Elder, *Sambucus Ebulus,* that was used, a herbaceous species abundant in some parts of the country. There is a very general predilection among the lower classes in favour of vegetable remedies, especially those of home growth, and the Elder is regarded by many country people as a complete dispensary. There is not perhaps one case in twenty, in which fatal consequences ensue from the administration of such simple physic, as you may often hear it termed: but this is rather due to accident

than any other circumstance. The danger accruing from the use of the Elder as an internal medicine, arises from its irritant action, and does not appear to have been accompanied by any narcotic effect in the cases that stand on record. The fœtid odour of the leaves, when bruised, would seem, however, indicative of the presence of a proximate principle approaching in properties that of some of the plants of the Potato tribe; while a remark by many of the older English botanical writers respecting the unwholesomeness of sitting, and especially of sleeping, under its shade, is probably not without foundation.

Sorrel, Green Sauce, *Rumex acetosa*,

belongs to the Natural Order Polygonaceæ, the Knot-Grass tribe, the plants contained in which are not strictly poisonous, though they are some of them endued with active properties. The agreeable acid flavour of the leaves of Sorrel has led to their use as salad; but, as it is due to the presence of oxalic acid in the form of binoxalate of potash, they should never be eaten otherwise than sparingly, because, though not immediately fatal to life, serious illness has frequently ensued, where they have been taken in quantity. It is the above-named vegetable salt, obtained from common Sorrel, that is now so generally met with in the shops of the druggists under the false name of "essential salt of Lemon," for removing ink and other stains; a very small quantity of which acts as a powerful irritant poison. In one instance on record, a quarter of an ounce, administered by mistake, occasioned the death of a lady within eight minutes. Though the proportion of this salt is but small in the green plant, amounting perhaps to not more than $\frac{1}{300}$ part of its weight, it should always be borne in mind, that, while consuming the same, we are avail-

ing ourselves of a flavour that, however agreeable it may be to the palate, and wholesome as a small quantity of Sorrel may be under some circumstances and within a confined limit, it cannot be indulged in beyond without danger to health, and even to life. The instances of poisoning by Sorrel have generally occurred with children, who had eaten it in considerable quantity. And it may here be repeated, that too great an amount of caution against eating any wild plants cannot be instilled into the minds of the young and ignorant. The plant under notice is not at all dangerous as an adjunct with other salad herbs, or in soups and other culinary preparations with which it is used in some parts of the continent more frequently than it is here; but a morbid craving for articles of the kind is not uncommon among boys and girls, resulting from disease of the digestive organs, and idiosyncrasies difficult to fathom, and should always be discouraged where the objects are so equivocal in the effect they are liable to produce.

The Natural Order Graminaceæ, the Grass Tribe, which includes all our corn and fodder grasses, contains one poisonous British species, the only well-ascertained exception to the general wholesome or harmless character of the group. It is the

Bearded Darnel, *Lolium temulentum.* Plate XXXII.

This grass occurs rather commonly in some parts of England as a weed among corn. It is, however, not nearly so abundant here as in Syria and other eastern countries, where the wheat-fields are frequently so full of this noxious grass, that the reapers have to pull it up separately, and bind it in bundles to prevent its seeds becoming mixed with the grain. It appears to have been the *Zizania* of Scripture,

mistranslated "Tare" in our version, but evidently a corruption of Zizana, the Syriac name of the Darnel. The plant has long been known in the East for its intoxicating qualities, and has frequently caused serious accidents.

In this country it seldom exists in sufficient quantity to produce much mischief, even if gathered and ground up with the corn among which it grows; and though the evil effects sometimes following the use of the brown bread of London have been attributed by some to an admixture of Darnel seeds, they have probably in most instances arisen from the presence of bad flour, an adulteration which the dark colour of such bread readily conceals.

Some years ago eight persons of one family were attacked with violent sickness after eating brown bread, the symptoms closely resembling those of poisoning by arsenic. The bread was subjected to careful analysis, but no mineral or other poisonous matter could be detected; the flour of which it had been made presented no evidence of the presence of Fungi or of decomposition, and there was no satisfactory mode of accounting for its unwholesome qualities, but by supposing that the wheat had become mixed with the seeds of the Bearded Darnel. The principal symptoms were vomiting, giddiness, and trembling of the limbs; all of the persons eventually recovered. Dr. Taylor mentions a case in which several persons were seized with diarrhœa and severe colicky pains after eating brown bread for breakfast. In this instance likewise no mouldiness or peculiarity of any kind could be detected in the flour, and there was much reason to suspect the presence of Darnel.

The action of the seeds varies with individual constitution. In some they produce violent vomiting and purging, accompanied by nausea and pain in the stomach, and all the usual symptoms of irritant poisoning; but more generally the effect is narcotic, resembling that of intoxication by alco-

holic liquors. On this account the French have given the plant the name of Ivraie, from *ivre*, drunk, which term has been contracted by us into Ray or Rye-grass, commonly applied in England to both the Bearded Darnel and the more wholesome species *Lolium perenne*, one of our most valued fodder grasses.

The first intoxicating effect is usually succeeded by dizziness and loss of sight, often followed by delirium. In some cases paralysis and gangrene of the limbs have followed the continued use of bread containing Darnel. In the 'Medical and Physical Journal' the following case is related by Mr. Marsh as occurring in Wiltshire:—"In the month of September a sack of leased wheat with an equal quantity of *Tarling* wheat (the refuse which passes the sieve, abounding with the seeds of Darnel, which, by the generality of the people where the plant is known, is called *Cheal*), were ground and dressed together, and in the evening, about ten o'clock, bread was made of a part of it. Of this bread James Edmonds, about thirty-three years of age, and Robert, his son, aged thirteen, ate at about three o'clock the next morning. Two hours after, James became sick and giddy, felt pain and tightness in the calves of the legs, and was confined at home all day, but on the following day was so far recovered as to resume his work. Robert ate during the day about a pound and a half of this bread, and at night, on his return from his work, he ate more of the same; he felt giddy and had pain in his head the whole of the first day, with great pain and tightness of the legs, especially in the calves, attended with swelling, redness and itching of the skin. Four of the other children partook of the bread the following morning; they soon became giddy, were sick, their legs became painful, felt excessively tight, swelled, inflamed and itched very much, and continued in this state eight days, when the symptoms gradually disappeared, producing in one only a small collection

of gelatinous fluid in the inside of the foot. But with Robert, who ate with his father at three o'clock and also in the evening, the pain and inflammation continued to increase until it terminated in gangrene, sphacelus succeeded, and he was under the necessity of suffering amputation of both legs. Very little fever accompanied this until the latter stage of the disease."

A small farmer near Poictiers, in France, was killed by the use of flour similarly mixed; his wife and servant narrowly escaped the same fate by discontinuing the use of the poisonous food in time, but suffered violent vomiting and purging for many days. Eighty of the inmates of Sheffield workhouse were once attacked in this manner from the use of oatmeal containing Darnel; and some persons confined in the house of correction at Freyburg were, some years back, poisoned in the same way.

In some cases the flour of Darnel has been fraudulently mixed with wheat in places where the grass is very abundant. During the blockade of Genoa in 1800, some speculators mixed a large quantity of Darnel seeds with wheat, and ground them up together; a family of five persons bought some of this flour in the market, and, after eating a quantity in the form of bread, were seized with the usual symptoms, but eventually recovered.

With the view of testing its effects in small quantities, Dr. Cordier took six drachms of bread made from *Lolium* flour in the morning; it had rather a disagreeable taste, and, soon after eating it, he felt dizzy and distracted in mind; loss of sight, and then complete torpor, soon came on, followed by sickness; he recovered the next day.

The dangerous qualities of the "infelix lolium" were well known to the ancients; and its property of causing blindness to those who ate it became proverbial among the Romans, "He feeds on Darnel" being a phrase commonly applied by

them to a short-sighted or imprudent man. Ovid likewise alludes to it,

> "Et careant loliis oculos vitiantibus agri;
> Nec sterilis culto surgat avena solo."

Darnel is not only poisonous to man, but to most of our domestic animals. It has in several instances proved fatal to horses and sheep; fowls, however, and that almost omnivorous animal, the pig, seem exempt from its influence.

When brewed with barley, it communicates a very intoxicating quality to the beer—a circumstance of which fraudulent brewers and publicans have occasionally availed themselves. Its use for such purposes cannot be too strongly condemned; as, even in the smallest quantity, it must act prejudicially upon those drinking the liquid in which it has been infused. According to Linnæus, it has not unfrequently been so used in Sweden, though the practice has often been attended with distressing consequences. The same writer considered bread containing the *Lolium* not very unwholesome, unless eaten hot; but the instances recorded of poisoning by the plant do not seem to bear out his assertion.

The deleterious property appears to reside in an essential oil present only in the ripe seeds of the grass, but it is certainly not dissipated by heat.

The Bearded Darnel grows from two to three feet high. The flowers are produced in two rather distant, alternating rows, and are furnished with awns or bristles, which readily distinguish it from the common Rye-grass and other flat-spiked grasses, with which it might otherwise be confounded by the ordinary observer. The seeds are so much smaller than any common grain, that they may be readily separated by sifting.

The plants thus shortly described include the whole of those *Flowering* species, indigenous to Britain, that are known to be absolutely poisonous to man; but there are many others which possess properties so active as to render them injurious, and, under certain conditions, even dangerous, to some of which a passing allusion may be made here.

The berries of the common Buckthorn, *Rhamnus catharticus*, are violently purgative; the root of the Sweet Violet possesses similar properties, and is likewise emetic; the whole plant of *Linum catharticum*, the little white-flowered Flax, so common on our chalk downs, is strongly cathartic; the herbage and root of the common Bindweed, *Convolvulus sepium*, the large white flowers of which ornament our hedges in August and September, act in the same manner.

The berries of the Mountain Ash contain much prussic acid, and, though edible and not unwholesome in small quantity, might act poisonously to some constitutions if eaten in larger amount.

This acid is likewise present in the *kernels* of all stone-fruits, and in the leaves and flowers of the Cherry, Plum, Peach, Almond, and all trees of the same family. Instances of poisoning by Cherry kernels are not very frequent, rather perhaps owing to the difficulty of breaking the stones than to any other cause; but the following case may stand as a general caution against permitting children to eat anything of the kind.

A girl, aged five years, ate a considerable quantity of the kernels of sweet Cherries. Her brother, a few years older, also ate some. After the lapse of a few hours, symptoms of poisoning appeared, and a medical man called in the following day found the girl in a state of stupor, from which she was incapable of being roused. Death ensued about forty hours after the kernels had been eaten. The boy, who had eaten a smaller number, did not recover his health until a month afterwards.

All infusions of kernels in spirit contain prussic acid in large quantity, and should be used with the utmost caution, as fatal accidents might result from their careless employment, especially when given to children or weak persons. The *flowers* of the Peach have been productive of serious illness to those eating them; in one case recorded they proved fatal. The presence of prussic acid likewise gives the flavour and well-known scent to the Cherry-Laurel, which, though not a native plant, is, like the Laburnum, so commonly planted in our gardens, shrubberies, and plantations, as to require a short notice. The leaves of the Laurel are often employed to give flavour to various domestic preparations; but should never be so used, as the proportion of acid absorbed from them is apt to vary from many causes. Laurel-water is equally dangerous, producing the same effect as Oil of Bitter Almonds, or the distilled acid itself, though in less degree. The writer observed, not long ago, a cow devouring greedily some branches of the Garden Laurel which had been thrown upon a rubbish heap, such as is too often allowed to accumulate in the neighbourhood of suburban houses. It may serve as a hint to farmers and others, to avoid placing the plant within reach of their cattle, as it would probably prove fatal in sufficient quantity, and the poisonous quality would very likely be communicated to the milk, and even to the flesh of cattle browsing upon the leaves. In Virginia and the adjoining States accidents have not unfrequently been caused by eating the flesh of the fallow-deer of that country in the winter time, when the animal is apt to crop the foliage of *Kalmia latifolia*, a plant containing prussic acid in much the same proportion as the Cherry-Laurel.

The only remedy, capable of being safely applied by a non-medical person, for poisoning by prussic acid, or any vegetable substance containing it, is pouring a stream of cold water from some elevation upon the head and spine of the patient, who should be placed in a cool airy room. Smelling-

salts may be applied occasionally to the nostrils. The lives of many have been saved by this very simple treatment being resorted to immediately, while the delay of a few minutes would have been fatal. The effect of the poison is purely narcotic, and, owing to its rapid action on the nervous system, a convulsive contraction of the muscles of the jaw generally prevents the use of emetics.

The leaves of the Bird-Cherry, *Prunus padus,* and the bark of the same tree, have, in several instances, killed cattle browsing upon them; the common Sloe or Blackthorn, *Prunus spinosa,* contains prussic acid, but no cases are on record in which it has caused accident.

POISONOUS FUNGI.

All the species to which reference has been made in the former pages of this little book belong to the great group of Flowering Plants, those possessing distinct stems, leaves, and flowers, and multiplying by seed; but a large portion of the Vegetable Kingdom consists of plants differing totally from these in general structure, having no flowers and producing no seed properly so called, but propagating by means of minute cellular bodies, called *spores.* These less highly organized vegetables are known to botanists as *Cryptogamia.* Some of them have leaves resembling externally those of flowering herbs, as the Ferns and Mosses; others are formed of a cellular mass, often irregular in its development and presenting no appearance of leaves, or distinct stem and root; they include the Algæ, Lichens, and Fungi. Of the relation of these tribes to each other, and the points of structure in which they differ from their brethren of more complicated form, we can say little here that would be intelligible to the unscientific reader; but some notice of the Fungi is necessary in a work professing to treat of the Poisonous Plants of

Britain, as accidents from their use are perhaps even more frequent than those arising from the incautious employment of the Flowering species.

The Fungi are, with few exceptions, parasitic plants, growing usually upon decaying animal or vegetable matter. Their forms are extremely various; some consist merely of simple cells loosely agglutinated, or joined end to end; others present the aspect to the naked eye of mere stains or slime, while some are regular in form, and comparatively complicated in structure. They are of various colours, often displaying the most brilliant tints, but rarely showing the peculiar green hues so characteristic of the higher orders of vegetables. Their growth is extremely rapid, the plants often springing up, perfecting, and decaying in the course of a few hours. The spores or cellules by which they multiply are produced in countless numbers; in some within particular organs formed for their reception, in others throughout the cells of which the Fungus is composed. In the minute species which occasions the *smut* in corn more than ten millions have been produced by an individual plant, and in many this number is far exceeded. The atmosphere is constantly full of these vegetable germs, ready to grow wherever they meet with the circumstances favourable to their development, and thus often spreading the species over large districts with a rapidity that, in a more ignorant age, led them to be regarded as spontaneous or fortuitous productions. Some have considered these minute spores, when present in the air in unusual numbers, the direct cause of many epidemic diseases; and, though the medical opinion of the present day is against this view, the subject is still involved in much doubt, and requires further elucidation. The spores of most species, when alighting in a place favourable to their growth, throw out long filaments which permeate the substance, and eventually, if placed under the necessary conditions, produce the Fungus itself, as in the case of the common Mushroom, the mode of

cultivation of which is too generally known to require further allusion.

Fungi consist principally of a peculiar principle called by chemists Fungin; it contains much nitrogen, and is highly nutritious, closely approximating in its composition to animal fibrin. When this principle alone is present in the plant, the Fungi form wholesome articles of food; but in many it is combined with substances of an acrid or narcotic quality, often rendering them dangerous to animal life. Unfortunately these deleterious principles are, under peculiar circumstances, liable to be developed even in those species that are generally wholesome; while the differences between edible and poisonous varieties are often so obscure, as to be recognized only by the botanist who has devoted much attention to the structure of this numerous and complicated series of vegetable forms.

Any detailed account of the arrangement of this extensive family of plants, or of the characters of even its principal sections, would be impossible within the limits of the present work. Most of the poisonous species belong to the Genus *Agaricus*, including most of those plants vulgarly called Mushrooms and Toadstools. They consist of a cylindrical stem, bearing at its summit a circular cap or *pileus*, usually, when expanded, either flat or convex, but sometimes concave, and in some species torn and ragged at the edges. Upon the under side of this cap are arranged a number of vertical plates or *gills*, radiating from the centre to the edge, with shorter ones between them, all composed of a double but closely connected membrane, more or less attached to the cap. The stem rises sometimes from a kind of cup or bulb, technically termed the *volva*, and towards the upper part has frequently a membranous ring or collar, the remains of a *veil*, or membrane, originally connecting the margin of the cap with the stem before the expansion of the former.

Upon the form and appearance of these parts, the specific characters of the Mushrooms are founded; but they are so

liable to variation, and often differ so slightly in distinct species, that no one but an accomplished student of the tribe can place much reliance upon his interpretation of them. In the following pages, therefore, no attempt will be made to give descriptions which would only perplex those unaccustomed to the use of the precise phraseology of the naturalist, and perhaps give rise to the accidents they might be intended to provide against. To characterize all those species that are of a doubtful or poisonous nature would require a volume, and the descriptions would be of little use to any but a botanist, without an extensive series of coloured plates, wholly beyond the scope of the present book. Figures have therefore been given only of those species which are most liable to be gathered in mistake for the edible varieties in common use, and to those our attempts at popular description must be confined.

The use of Agarics as articles of food originated in very ancient times, and they seem to have been held in particular favour by the Romans, who employed various species, but appear to have preferred the large *Agaricus Cæsareus*. This fungus is not a native of Britain, but deserves some notice here, as the poisonous *Agaricus muscarius* has often been mistaken for it. Both are frequently of a brilliant scarlet or carmine tint, attain an equally large size, and otherwise closely resemble each other in general aspect. The *Cæsareus* is common in the south of Europe, where it is still in high esteem, though for some time it fell into discredit from having been used by Agrippina as the means of administering poison to Claudius Cæsar, whence its specific name. Is it not probable that *Agaricus muscarius* may have been substituted for the wholesome species accidentally in this case, as in many others, and the wicked empress made the victim of the proverbial inconvenience of an evil reputation? Pliny, alluding to the popular story, says, "Of all things eaten with

danger, I think mushrooms may be most esteemed; they have a most pleasant and delicious taste, but have fallen into disrepute, and acquired a bad name by occasion of the poison which Agrippina, the empress, conveyed to her husband, the emperor, by their means; a dangerous precedent given for the like practice afterwards." Nero used to call the favourite Fungus "food for the gods;" whether from his own predilection for it, or in sarcastic allusion to the death of the deified Claudius, does not appear. The name of *Boletus* was commonly applied to this plant by the Romans, though now used to designate another genus of Fungi; hence Pliny's expression "Boletus optimi cibi" must be taken as a compliment to the imperial Fungus, and not to the *Boletus edulis*, a species much recommended by modern mushroom-eaters.

Accidents from poisonous Fungi are much more frequent upon the Continent than they are here, owing to a greater number of species being there applied to esculent purposes. In Russia, Germany, and Italy they constitute at times a considerable portion of the food of the lower classes; and it is remarkable that many kinds are there eaten freely, which are here undoubtedly poisonous. This is particularly the case in Central Italy, where nearly all the common species seem to be eaten, with the exception of our Mushroom, *Agaricus campestris*, which is there considered deleterious. At Rome an inspector of Fungi is appointed to examine all exposed for sale, and none are allowed to be sold without a printed permission from this official; the stale Fungi and all specimens of *Ag. campestris* are consigned to the Tiber. This is indeed the only country where Fungi are eaten in which no regulations exist upon the subject, and in this instance our national repugnance to all unnecessary restriction has led to deplorable results, from the frequent accidental substitution of poisonous for wholesome varieties in our markets.

The only species of Agarics largely eaten in England are the

common Mushroom and the Champignon, *Agaricus Oreades*. It may be well to give a short description of the Mushroom, as, though no poisonous British kind resembles it very nearly, accidents have often arisen from persons ignorant of its characters picking other whitish Fungi in mistake for it. No one, however, should ever gather Mushrooms for the kitchen who is not practically acquainted with their appearance and smell, as no plants vary so much from their typical form and colour as the Fungi. The common Mushroom has a very pale brown or brownish-white pileus, the coat of which is easily peeled off, and projects beyond the gills; the gills are very close, pinkish when growing, but changing to dark brown in decay; the stem is quite solid, nearly smooth and whiter than the other parts; the rather thick spongy ring or collar is first attached to the pileus, but splits from it as the plant grows, and is white like the stem when young, but is coloured brown afterwards by the minute dark spores from the gills falling upon it. When the pileus is cut through, the fleshy part turns pink, or, if the Mushroom is old, brown. The whole plant has a fine peculiar scent, and is rather brittle. There is a variety, growing generally under hedges, with the stem somewhat hollow, lurid red gills, and an unpleasant odour. This is very unwholesome, as are likewise all that are in a state of decay. The only plant that could be mistaken for it by an experienced gatherer of Fungi is the one called in some parts of the country White Caps, *Ag. Georgii*, which is whiter than the Mushroom, very firm, and turns yellow when cut or broken, which the true Mushroom never does. This Fungus, which derives its name from growing about St. George's day, is not very unwholesome and is sometimes eaten.

Notwithstanding the peculiar appearance and scent of *Agaricus campestris*, many accidents have taken place from other whitish kinds being eaten in its stead. A white variety of the

Fly Agaric has several times been mistaken for it; and *Ag. vernalis* (Plate XXXI.) has often been gathered by children in place of the esculent species. A few years ago a man picked and ate a quantity of *Ag. campanulatus* in mistake for the Mushroom. In ten minutes he was seized with giddiness, dimness of sight, and trembling of the limbs; he managed to walk about two hundred yards, and then became nearly insensible; being found in that state, an emetic was given him, and he recovered the next day. The plant thus taken in error bears no great resemblance to the true Mushroom.

Agaricus muscarius, the Fly Agaric, so-called from its infusion having been employed as a fly poison, is common everywhere in the autumn, growing chiefly in woods and under trees. It occurs of many tints, frequently presenting the brilliant carmine or scarlet hue represented in the frontispiece of this book, but often orange, greenish-yellow, pale brown, and even white. The pileus, which is often seven or eight inches in diameter, is covered with whitish angular warts or spongy scales, which, when moist, are viscid. It is convex when growing, but becomes sometimes flat or depressed in the centre when it has attained its full size; the stem is not as solid as in the Mushroom, and is bulbous below, and covered at the base with scales, but the *volva* is rarely so regular as in the figure; the ring is usually deflexed upon the stem; the gills are white and broad.

This dangerous Fungus has been the occasion of many accidents, both here and in other parts of Europe, chiefly owing to its having been mistaken by the ignorant for esculent species in common use, an error the more likely to occur from its very variable colour.

During the disastrous retreat of the French from Russia, some soldiers found this plant growing in profusion in the woods about Polosk; they ate it, probably thinking it the edible *Ag. Cæsareus*, and were soon seized with all the

symptoms of narcotic-irritant poisoning; four, who, relying on their strength of constitution, refused to take any remedy, died during the following night, and it was long before any of them quite recovered. It may be remarked that *Agaricus Cæsareus* (which, as before stated, has not hitherto been found in these islands) has yellow gills, while those of *Ag. muscarius* are white when growing.

The action of this Fungus is, upon most persons, that of a narcotic, resembling opium in its immediate effects. In Siberia, the natives prepare an intoxicating liquor by adding the infusion of the *Ag. muscarius* to a liquid formed by fermenting the juice of the Willow herb, *Epilobium angustifolium*. Upon drinking this for a short time they are, according to Pennant, "seized with convulsions in all their limbs, then with a raving, such as attends a burning fever; a thousand phantoms, gay or gloomy, according to their constitutions, present themselves to their imaginations; some dance, others are seized with unspeakable horrors. They personify this Mushroom, and if its effects urge them to suicide, or any dreadful crime, they say they obey its commands. To fit themselves for premeditated assassination, they take the Mouchomore, the Russian name of this Agaric; and, such is the fascination of drunkenness in this country, that nothing can induce the natives to forbear this dreadful poison."

According to Langsdorf, these Fungi are collected in Eastern Siberia during the hot weather, and hung upon strings to dry, or picked up already dried on the ground, in which case they are more narcotic than those artificially prepared. The ordinary mode of taking it in Kamtschatka is to roll it up like a bolus and swallow it without mastication, which they assert would disorder the stomach. Sometimes it is taken steeped in the juice of the Bilberry, when its effects resemble those of strong wine. One or two small Fungi are sometimes eaten during one day without producing

any evil effect beyond intoxication; but the action varies much with individual constitution, and with some it occasions most distressing symptoms. It should be remarked that this Fungus appears to be much more virulent in Europe, especially in England, where a single small plant has sometimes caused death when taken in the fresh state. The poisonous principle seems to be partially removed by heat, and almost entirely so by boiling, as dogs have been fed with boiled Fly Agarics for weeks without injury, whereas a small quantity of the decoction will kill that animal. In some parts of Russia it is said to be eaten when steeped in vinegar; but whether from the plant being there less active than with us, or being rendered inert from the process to which it is subjected, is doubtful. It was formerly administered in cases of epilepsy, but is a most dangerous medicine.

The majority of fatal cases of poisoning by Fungi in Great Britain have resulted from the substitution of virulent kinds for the Champignon, the small Yellow Mushroom which often forms the fairy rings upon our downs and pastures. This very wholesome species varies from a pale to a deep buff; the pileus is rather darker than the gills, irregular, round, and convex, being most elevated in the centre; it is blunt at the edges; the fleshy part is rather leathery in texture. If the cap be cut through, the gills do not separate, but the fleshy portion runs down the middle of each gill, which is covered by a continuation of the same buff coat that lines the under surface of the pileus; the gills are waved at the edges, and often torn; there is no ring; the stem is solid, of the same colour as the gills, and divides easily into silky fibres. The plant is chiefly used in the dried state to flavour soups and ragouts.

Unfortunately there are poisonous species growing in similar situations, and sometimes forming fairy rings, that very nearly resemble the Champignon. The species most

frequently mistaken for it is that deservedly called *Ag. virosus*, of which figures are given on Plate XXXI. It is more of a yellow tint than the Champignon; the pileus differs in hue from the gills, which are easily separable from it; when young, it has a silky ring round the stem, but this disappears afterwards; the stem is hollow, viscid, and the same colour as the pileus; the whole plant is smooth and brittle. A poor family, residing in Lambeth, ate some for supper, were taken ill, and did not recover for many days. Some years back a similar accident occurred to some persons who found a variety of this Fungus in the Green Park, London. Unfortunately in this case medical aid was not so quickly procured, and all who partook of the fancied Champignons, died in a few hours. In this instance the Fungi were stewed, and eaten for breakfast; they appear to have belonged to the tall-growing variety called by some botanists *Ag. glutinosus* (Plate XXXII.).

Another small Fungus has sometimes been gathered by children or ignorant persons for the Champignon, the *Agaricus emeticus* (Plate XXXI.). It never grows in fairy rings, but is a woodland species. The pileus is convex when the plant is young; its colour variable, often a pale buff or yellow, but more generally rosy; the gills are always white. The stem is solid. According to some, it is extremely dangerous; but Vittadini, who ate it experimentally, found it only occasioned slight uneasiness and flatulency; its properties most likely vary like those of other Fungi with its place of growth.

Agaricus dryophyllus has, it is said, been mistaken for *Ag. Oreades* (the Champignon), but is readily distinguished by its somewhat hollow stem, and brittle watery cap. Several other kinds have been occasionally mistaken for *Ag. Oreades* by the unobservant.

Most of the Agarics owe their deleterious qualities to the presence of an acrid resinous principle, united in some with a volatile substance possessing similar properties. In *Ag. ver-*

nalis and some others, this poisonous matter seems soluble in water; in others, it is entirely dissipated by heat; while in many it seems little affected by boiling or maceration. The degree in which the virulent matter is generated evidently depends greatly upon situation, and even upon the amount of light to which the plant has been exposed. It has long been remarked that Mushrooms grown in cellars or dark places are unwholesome; and many kinds that can be eaten with impunity in a dry, warm climate, are rendered noxious by cloudy, damp weather.

The nature of the ordinary symptoms of poisoning by the acrid species may be deduced from the following cases:—

At Wisbeach, in 1850, Patrick Hunt, a labourer, saw and gathered some "Mushrooms," which he carried home; he ate some and gave some to the wife of a friend, who allowed her child, a girl of two years old, to eat them. They experienced no ill effect that day, but on the following morning were seized with violent sickness and purging, with great pain in the stomach. Hunt died in the evening, the woman the next day, and the child lingered one day longer. Another accident occurred in the neighbourhood to a labourer's child at the same time. The species was not recorded.

A family of six persons (the father, mother, and four children) ate two pounds of the reddish Fungus, known in Scotland as the Puddock-stool, dressed with butter. Pain commenced in some about twelve hours afterwards, accompanied by a sense of suffocation and violent retching; one felt no effect until thirty hours had elapsed, when he was attacked with the same symptoms. One child had violent pain in the abdomen, which swelled enormously; he fell into a deep sleep, and eventually expired in tetanic convulsions. Another died in the same manner. The mother vomited, her skin changed yellow, and she died in thirty-six hours after swallowing the poison. Another child died on the third day;

the fourth was attacked with convulsions, delirium, and colic, but recovered, as did likewise the father, who experienced an attack resembling dysentery, which he did not entirely recover from for upwards of a year.

Sometimes the action of the poison closely resembles that of arsenic and other mineral poisons, and in one case recorded the symptoms were nearly those of Asiatic cholera.

In all cases of poisoning by the acrid Agarics, the first thing done should be to empty the stomach by emetics and purgatives; but the use of the stomach-pump, when attainable, is the most efficient remedy, though not, of course, to be trusted to a non-medical person. Draughts of warm milk, broth, or other liquids, may be given afterwards. It is, however, very frequently noticed that the poison does not begin to act until many hours after being swallowed, and its effects are often, in consequence, supposed at the time to result from ordinary disturbance of the stomach or intestines, and no remedy is applied until too late.

The number of poisonous species of Agaric indigenous to this country is considerable; at least a dozen, besides those mentioned above, have caused death, either here or on the Continent. There is no rule whatever that can be relied upon for the recognition of the unwholesome kinds, but the observance of those minute and often obscure characters of the species that can only be determined by a botanist; but as a general rule it may be stated that all Agarics that have a styptic, or inky, or acrid taste, or that cause a sensation of heat in the fauces when swallowed in small quantity; all that have a milky juice, or that are viscid externally; those having a warty cap with fragments of membrane adhering; those with an unpleasant smell; all growing in tufts upon or about the roots and stumps of trees; those that turn blue when broken, or become liquid in decay, may be regarded as dangerous. There are, however, many exceptions to these

characters, and all persons will do well to abstain from tasting any Fungus that is not well known to them.

Those desirous of acquiring a knowledge of the esculent varieties, should consult Dr. Badham's excellent monograph upon the subject; but it is one involved in so much difficulty and doubt, that the writer of the present remarks would rather recommend the quaint caution of old Gerarde, "Galen affirmeth that they (Agarics) are very cold and moyste, and therefore do approach unto a venomous and motherie facultie, and engender a clammy and pituitous nutriment if eaten; therefore, I give my advice unto those that love such strange and new-fangled meates, to beware of licking honey among thorns, lest the swetenesse of the one do not countervaille the sharpnesse and pricking of the other."

The figure of *Agaricus subcantharellus*, or *Cantharellus aurantiacus* (Plate XXXI.), has been given because this plant has been mistaken for *Cantharellus cibarius*, the Chanterelle, an edible Fungus, not unfrequently eaten in this country and in France. The two species are of the same colour, and otherwise similar in aspect; but the former is smaller and has straight thin folds or gills, while those of the Chanterelle are much waved and thicker.

The Fungi belonging to the genus *Boletus* are distinguished from the Agarics by their spores being contained in a tubular mass beneath the pileus, instead of in radiating gills. Many of the *Boleti* are wholesome, especially the *Boletus edulis*, a very common variety. It is apt to be confounded with the species figured on Plate XXIX., *Boletus luridus*, which is reputed poisonous, but is said by Vittadini to be commonly found among the dried Fungi sold in Rome and other parts of Italy, and forming an ordinary article of food. It is usually of an olive or reddish tint, but is very variable in colour; the tubes below the pileus are yellow or greenish, and bright red or orange at the mouths, which are

quite round. The flesh is yellow, but turns blue when broken or cut; that of *B. edulis* is white, and does not change when broken.

Before concluding this short notice of the Poisonous Fungi, it is necessary to allude to the evil effects upon the human constitution of those minute parasitic species that attack corn and other vegetables during growth. The most remarkable of these plants is the well-known Ergot of Rye, *Spermoedia Clavus*. On our last Plate an ear of Rye is represented with some of the grains affected by this strange growth, which some have considered to be merely a diseased state of the plant, but which most naturalists now regard as a true Fungus. It is black or very dark-coloured, and farinaceous in substance, as if consisting of the farina of the grains intimately mingled with the minute vesicles forming the Fungus itself. The result of its growth is an extraordinary prolongation of the seed, which, thus diseased, often becomes upwards of an inch in length. When the Ergot attains this large size, it is generally found on only a few of the grains of each ear; but when smaller, the whole series is often affected more or less.

The grains attacked by Ergot, or Spur, as it is vulgarly called, are much lighter than water, while sound Rye seeds are heavier, a circumstance that renders them easily separable.

The disease is very prevalent in low-lying moist fields and during damp seasons; but as Rye is little grown in this country, and eaten still less, it has not often led here to any very serious consequences. In many parts of continental Europe, where Rye-bread forms the staple food of the mass of the people, and agriculture is in a backward state, the effects of the Ergot are often terrible. In the wet district of Sologne, lying between the rivers Loire and Cher, this disease was so widely spread during the middle of the last century, and produced such fearful disorders among those

eating the injured grain, that the French government sent down the Abbé Tessier to make a report upon the growth of the destructive Fungus and its effects; and it is to his researches that we are indebted for most of what is known regarding the diseases occasioned by its use. The most usual manner in which it affects the human frame is by giving rise to a peculiar kind of mortification of the limbs, called Dry Gangrene or Ergotism, not very dissimilar to that produced by the use of bread containing Darnel. An instance of disorder thus caused seems to have occurred in England about the same time from Ergot on Wheat. A farmer, near Bury St. Edmunds, had his wheat in many places laid by stormy weather, and, unwilling to mix it with that in good condition, he had it gathered and threshed separately. The diseased corn, probably attacked by Ergot, to which all kinds of grain are more or less liable, was sold at a low price to labourers in the neighbourhood. One family, consisting of a man, his wife, and six children, ate little but bread and pudding made from this damaged grain. They were all seized with Ergotism; one, an infant, died from the disorder, the others lost their feet or legs, and suffered otherwise from this dreadful disease. In some cases the use of the Ergot is said to occasion spasms and convulsive contractions of the limbs without gangrene—another instance of the very different effect of Fungi under different circumstances, and of how much their action depends upon constitutional peculiarities.

The use of mildewed corn and mouldy bread has sometimes been followed by the symptoms of irritant poisoning; but it does not appear to be determined whether this action is caused by the Fungi forming the mouldiness, or is merely a result due to the chemical changes that accompany their production; however this may be, people should carefully avoid such damaged food.

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Printed by Taylor and Francis, Red Lion Court, Fleet Street.

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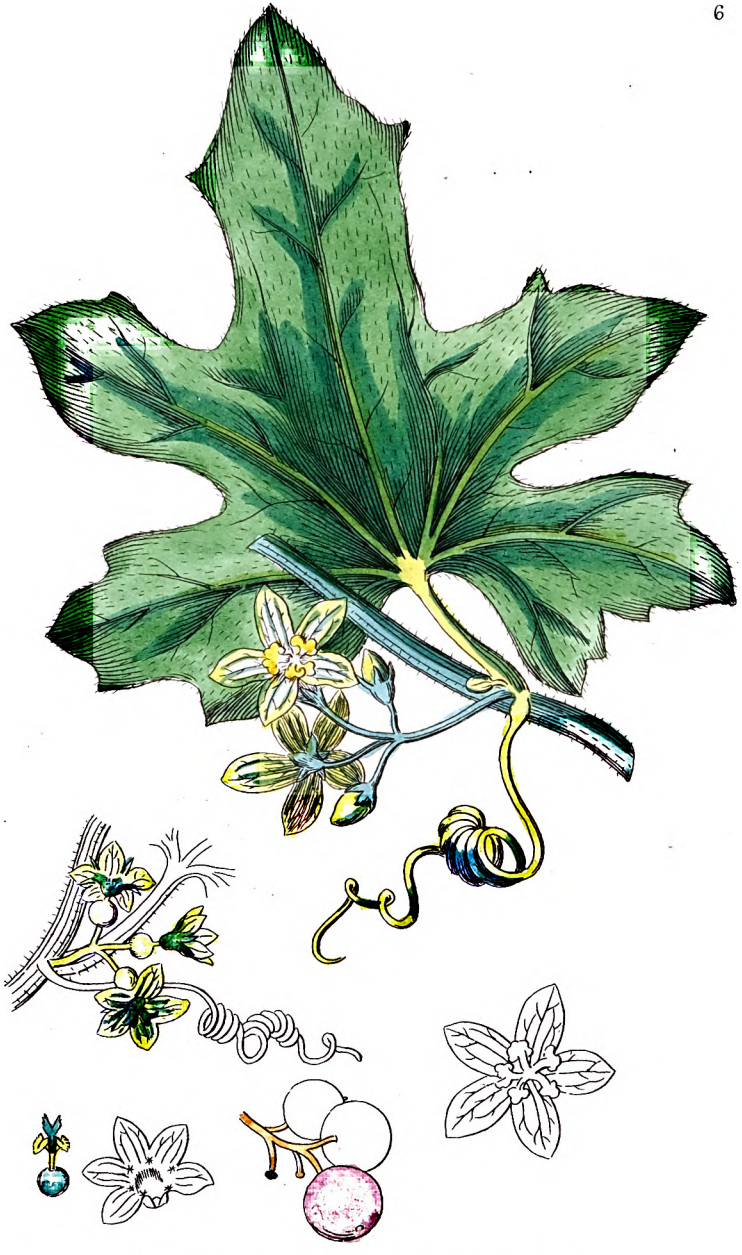

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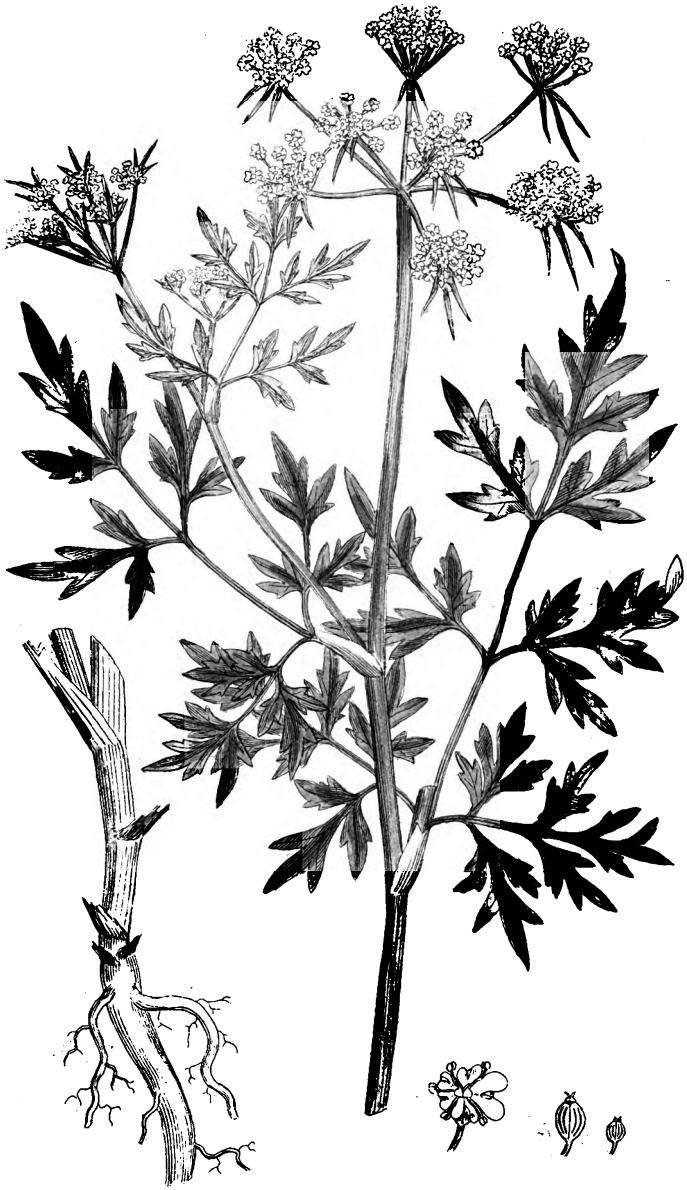

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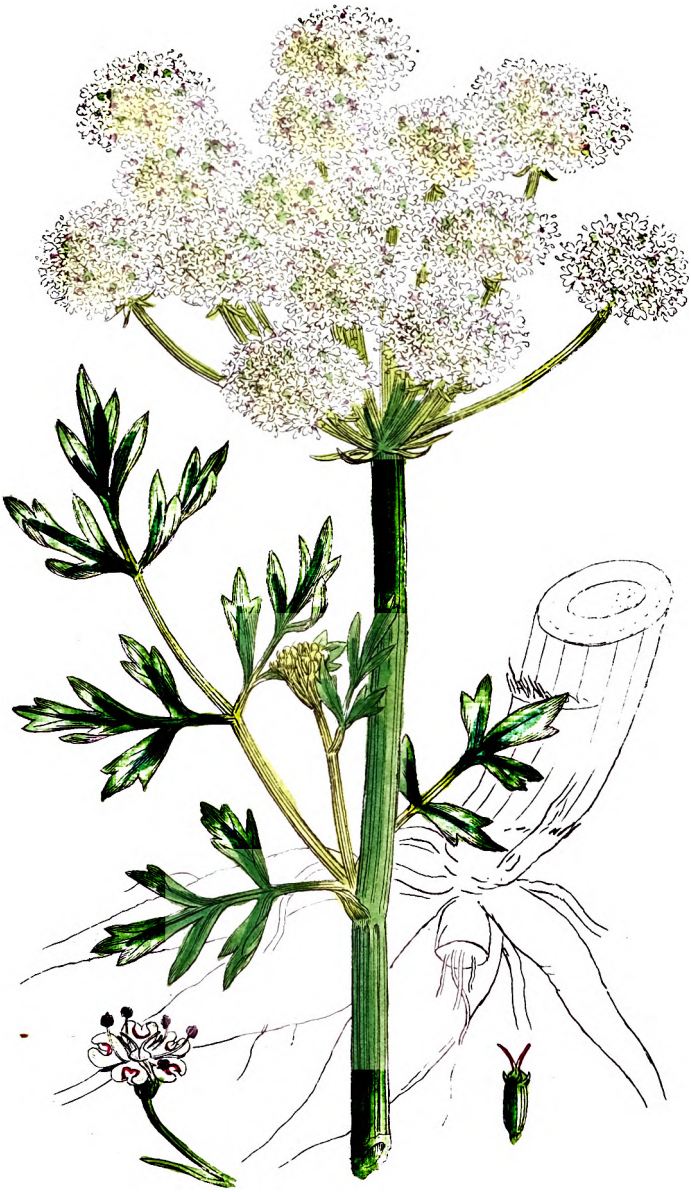

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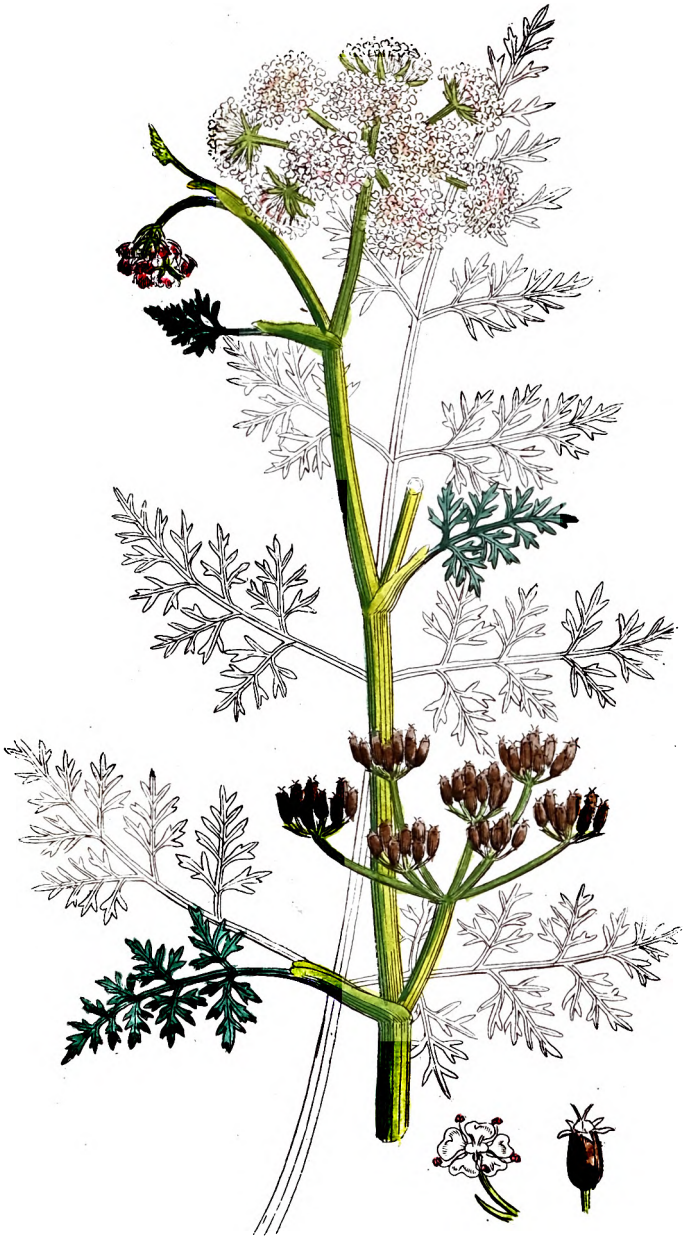

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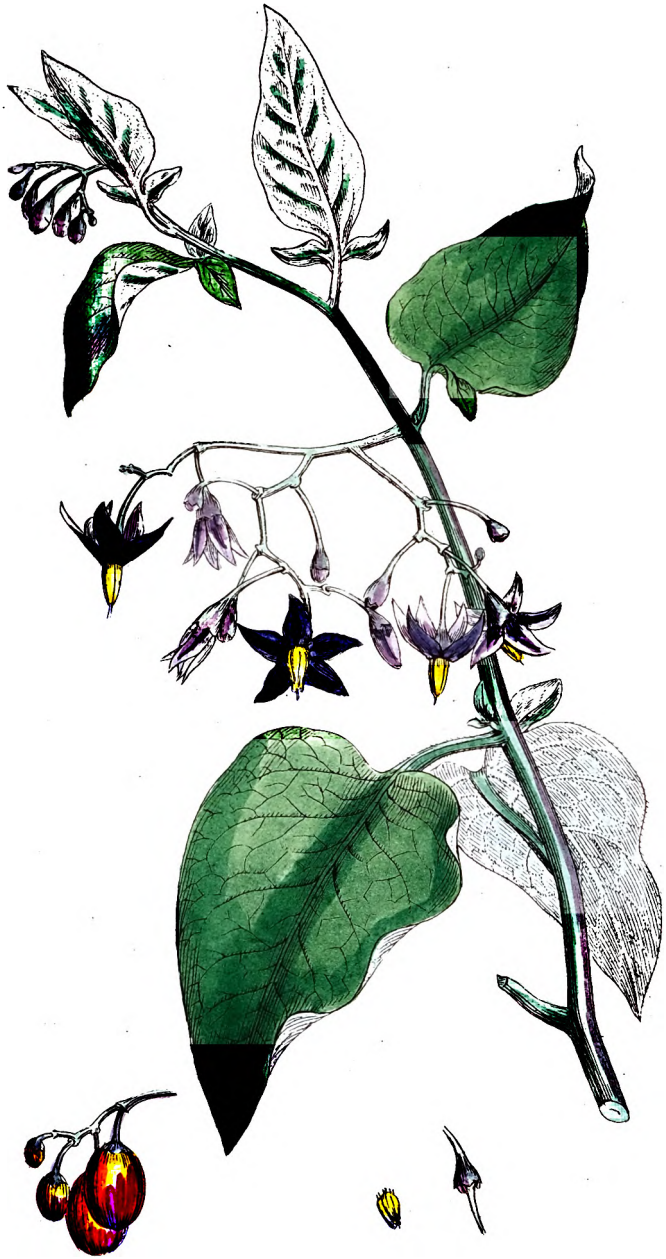

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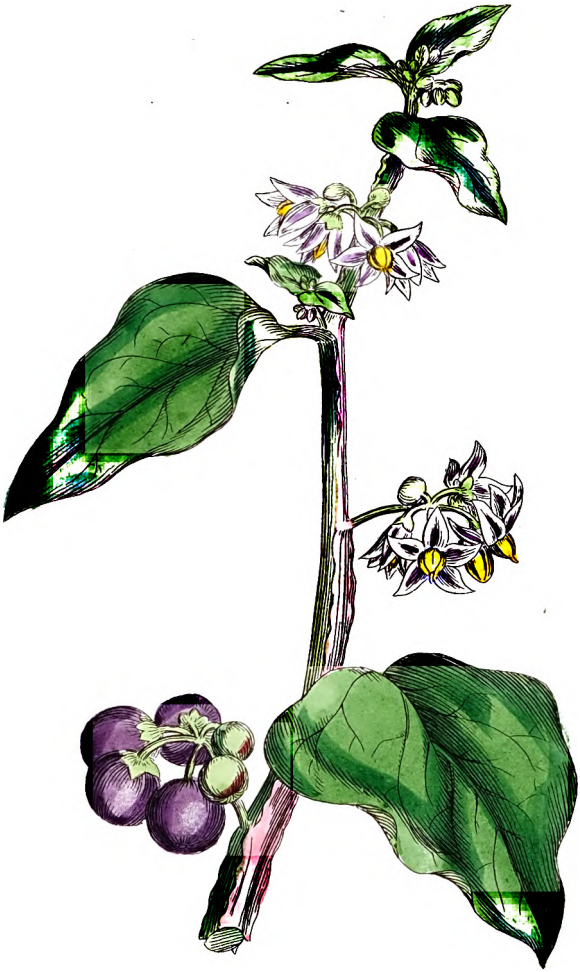

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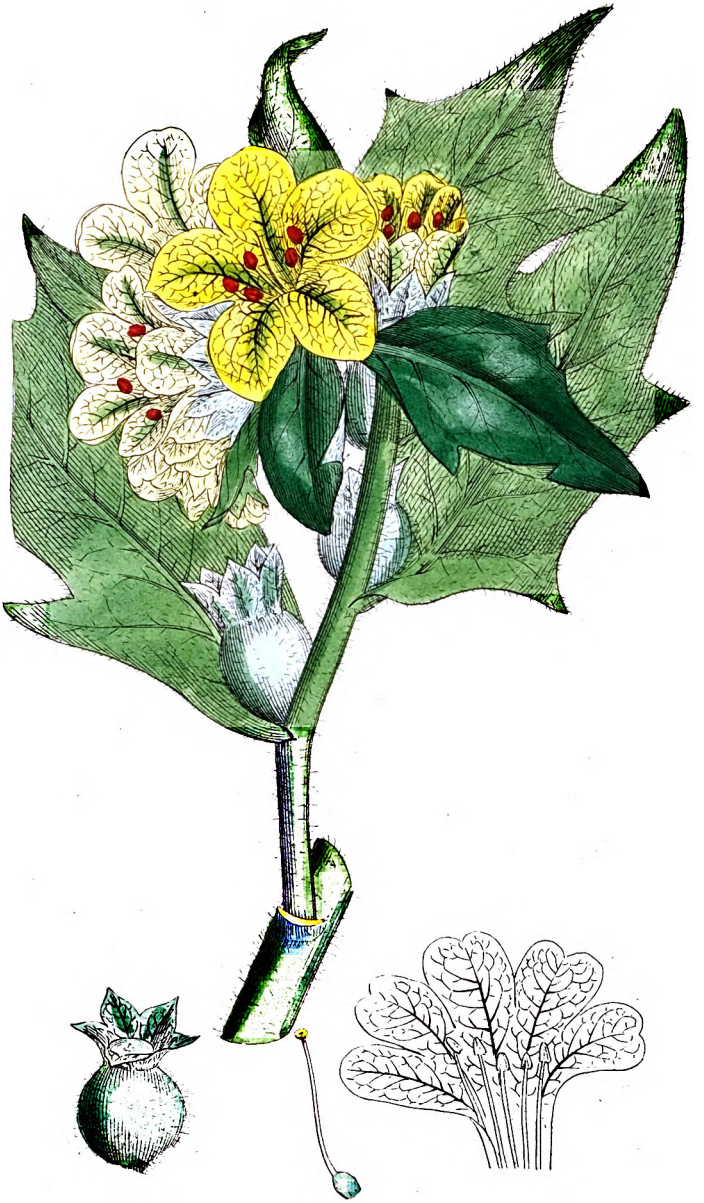

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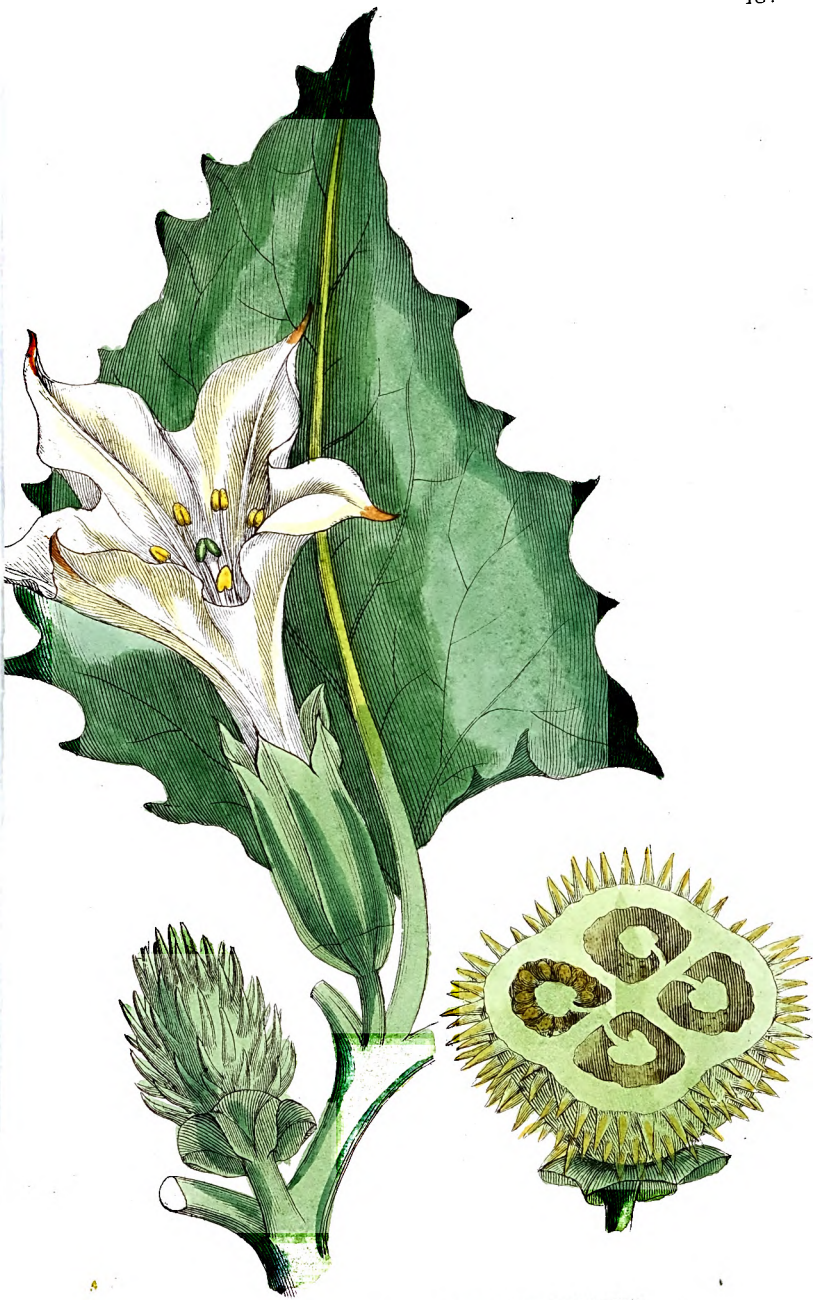

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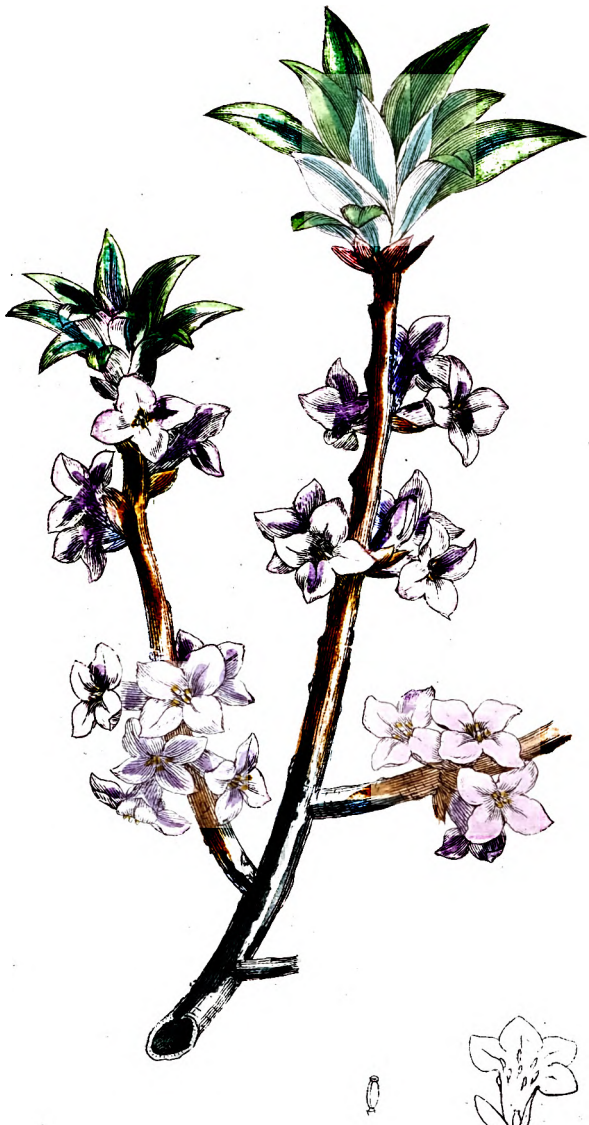

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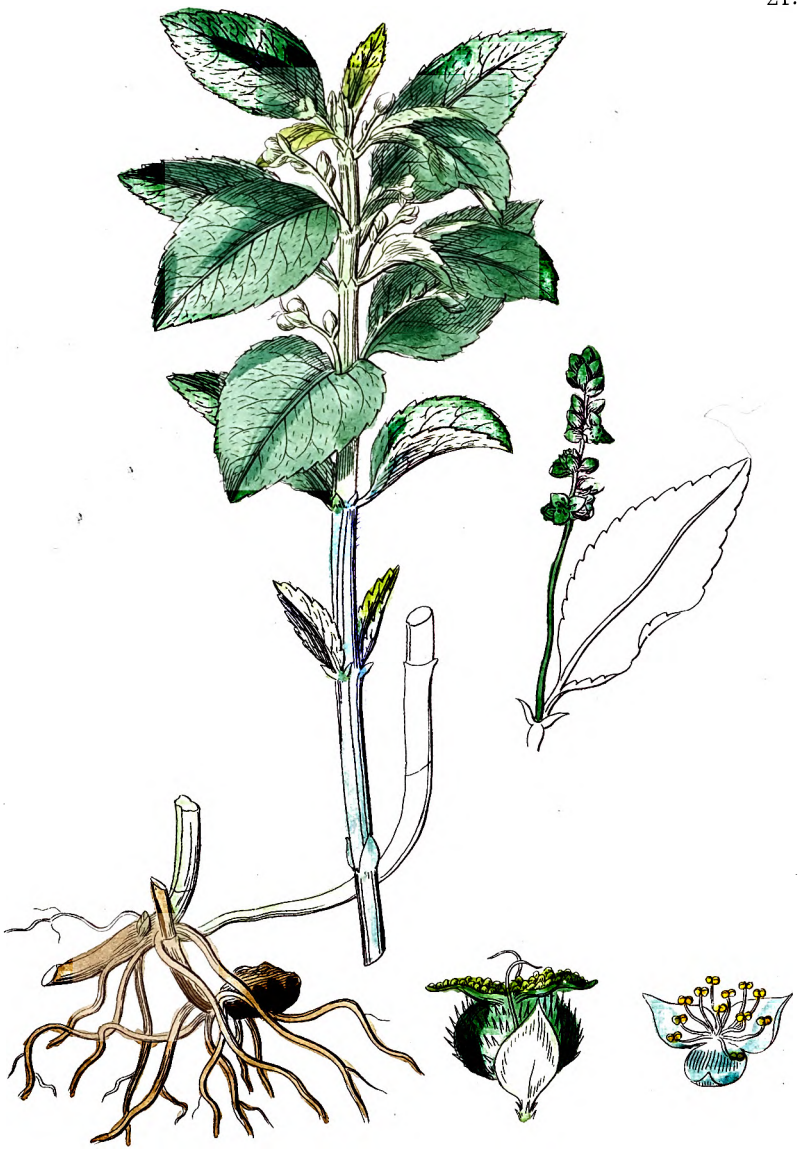

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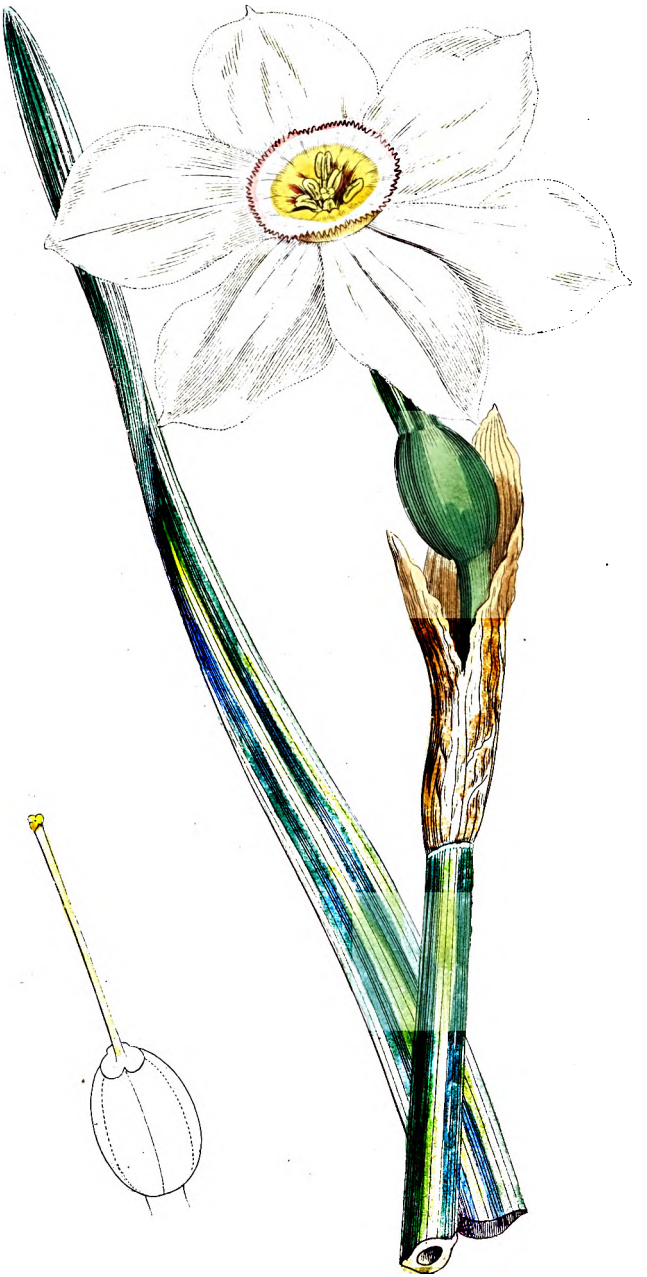

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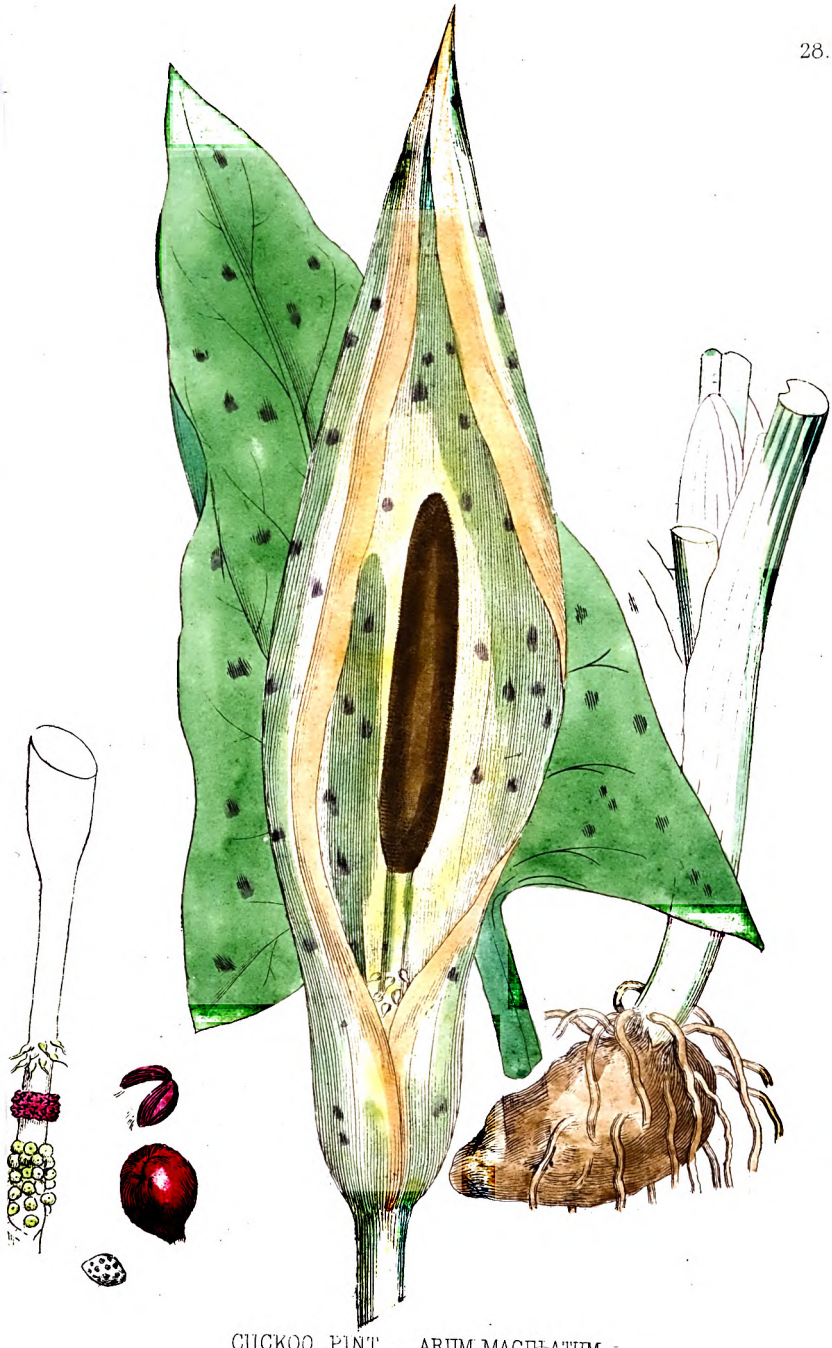
WILD HYACINTH.—HYACINTHUS NONSCRIPTUS.

MEADOW SAFFRON.—COLCHICUM AUTUMNALE.



CUCKOO PINT.... ARUM MACULATUM.

AGARICUS MUSCARIUS.

J.E.S. *Fcat.*

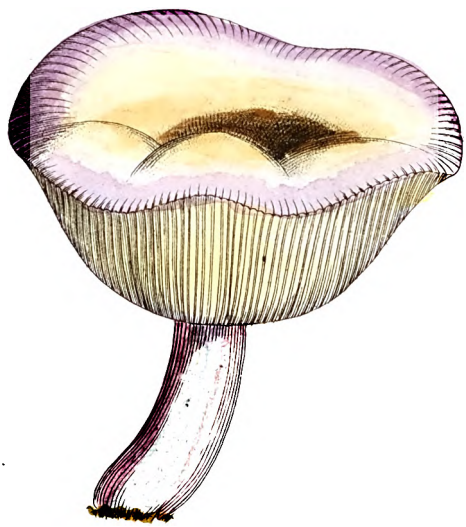
BOLETUS LURIDUS.

J.E.S. *Fecit*.

AGARICUS SUBCANTHARELLUS.

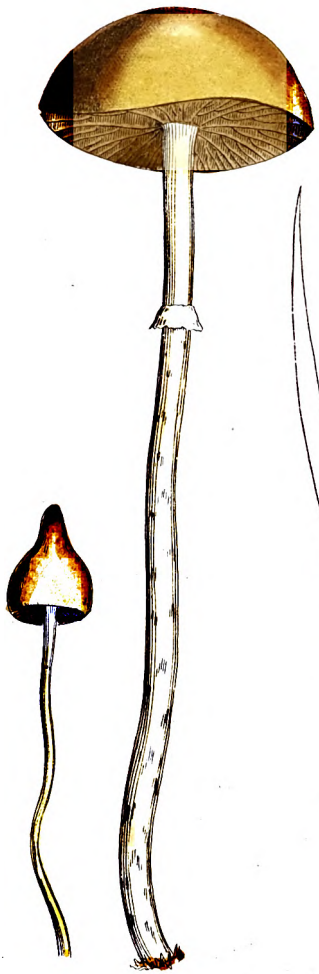
AGARICUS VERNALIS.

AGARICUS VIROSUS.



AGARICUS EMETICUS.

J.E.S. *Fecit.*



AGARICUS GLUTINOSUS.

DARNEL.

ERGOT.

J.E.S. *Fecit*