



JOHN LINDLEY

FLORA MEDICA

A Botanical Account of
All the more important
Plants used in Medicine

FLORA MEDICA ;

A BOTONICAL ACCOUNT

OF ALL THE MORE

IMPORTANT PLANTS USED IN MEDICINE,



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PREFACE.

THERE are probably few persons engaged in teaching Botany to medical students in this country, who have not experienced great inconvenience from the want of some work in which correct systematical descriptions of medicinal plants are to be found, and which is cheap enough to be used as a class book. By the author, at least, this has been so strongly felt, that he would long since have made the present attempt at supplying the deficiency had he been a medical man, or had he not hoped in each succeeding year that such a work would have appeared from the pen of some writer of reputation, both as a botanist and pharmacologist. This expectation has not been realised; the necessity that students should have access to a botanical account of the plants which furnish the substances used medicinally in different parts of the world, daily becomes more urgent; and hence the work now presented to the public makes its appearance.

Under existing arrangements it is chiefly from systematical works treating of the British Flora, that the student of Botany derives his acquaintance with species; and as but a small number of the plants found wild in this country are either officinal, or of much medical value, he is practically excluded from any acquaintance with those important exotic species which it is most desirable for him so to study as to recognise them when he sees them. The student therefore who is really anxious to study Botany for those great purposes which render it so indispensable a branch of medical science, has been obliged to remain satisfied with such general knowledge as he can obtain

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from books like the author's *Natural System of Botany*. His examination in practical Botany becomes alarming to him because he is necessarily ill-prepared to meet it; and when passed, all but the theory of the science is too apt to quit his memory, from the want of definite points upon which his attention can be permanently fixed.

But there is another reason which has induced the author to take up the investigation of medical plants. All persons at all conversant with *Materia Medica*, are aware how conflicting are the statements found in books, and made in conversation, respecting the sources from which medicinal plants, often of the commonest kind, are derived.

For instance, one writer says that *Cubebs* are obtained from Sierra Leone, where *Piper Cubeba* does not grow: another refers the origin of this pepper, in Bourbon, to *Piper caudatum*, which is a Brazilian, not an African species; a third asserts that *Cubebs* come from Java, and are the fruit of *Piper caninum*, not of *P. Cubeba*. *Cascarilla* bark is assigned by one writer to *Croton Cascarilla*, by another to *C. pseudo-china*, and by a third to *C. Eleuteria*. *Rhubarb* has been said by different writers to be the root of *Rheum palmatum*, *R. undulatum*, and *R. Emodi*; and in all these cases the assertion has been made with equal confidence. According to one author *Sarsaparilla* is the root of *Smilax officinalis*; to another, of *Smilax medica*; to a third, of *Smilax aspera*; to others, of a species called *S. Sarsaparilla*. I have even heard it stated with great confidence, that of the few kinds of vegetable drugs admitted into the last edition of the *Pharmacopœia* of the College of Physicians, twelve are referred to plants which certainly do not produce them; and that twenty-six others have been assigned to their sources with more or less inaccuracy. As the greater part of these differences of opinion can be more readily settled by Botanical investigation than by Pharmaceutical evidence, the author trusts that it will not be thought presumptuous in him to have made the attempt, although he is not a medical man.

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In executing his task he has been much embarrassed to determine within what limits to confine it. To be guided by the last edition of the London Pharmacopœia, or by any other work of the same description, would have manifestly been inexpedient, because all such books are from their very nature circumscribed, and confined in their application to some particular place. To have thus limited the present work, would have entirely defeated one of the first objects set before himself by the author in the execution of it — the indication of what remedial agents are employed in other countries, but not yet introduced into English practice. No one will be bold enough to assert that the physician already possesses the most powerful agents produced by the vegetable kingdom; for every year is bringing some new plant into notice for its energy, while others are excluded because of their inertness. In tropical countries, where a fervid sun, a humid air, and a teeming soil give extraordinary energy to vegetable life, the natives of those regions often recognise the existence of potent herbs unknown to the European practitioner. No doubt such virtues are often as fabulous, and imaginary, as those of indigenous plants long since rejected by the sagacity of European practice. But we are not altogether to despise the experience of nations less advanced in knowledge than ourselves, or to suppose because they may ascribe imaginary virtues to some of their officinal substances, as has been abundantly done by ourselves in former days, that therefore the remedial properties of their plants are not worth a serious investigation; or that their medical knowledge is beneath our notice because they are unacquainted with the terms of modern science. It is not much above twenty years since an English officer in India was cured of gonorrhœa by his native servant, after the skill of regular European practitioners had been exhausted: the remedy employed was Cubebs, the importance of which was previously unknown, and the rationale of whose action is to this day beyond the discovery of physiologists. It is of undoubted value in urethral catarrh: and who shall

say that there are not hundreds of equally powerful remedies still remaining to be discovered. Look to *Hemidesmus indicus*, the source of Indian Sarsaparilla, the most active medicine of that name now known to the English physician, although excluded from the Pharmacopœia; to *Chloranthus officinalis*, unrivalled in Java for its aromatic properties and powerful stimulating effects; to *Soymida febrifuga*, *Galipea officinalis*, and *Cedrela Toona*, which, at least, rival the Jesuit's bark in their influence over the most dangerous fevers; to *Erythroxylon Coca* one of the most active stimulants of the nervous system; or, finally, consider the accounts we have of the effects of Jamaica Dogwood, *Piscidia Erythrina*, which, if there is any truth in medical reports, must be a narcotic superior to opium for many purposes; and it must be sufficiently apparent to all unprejudiced minds, that the resources of the vegetable kingdom, far from being exhausted, have hardly yet been called into existence. It is presumptuous for the theorist to assert that he already possesses a remedy "for all the maladies that flesh is heir to;" it is mere idleness in the routine practitioner, carried away by the attraction of specious generalities, to fancy that one tonic is as good as another tonic, or one purgative as another purgative. In reality the true cause of the different actions of medicines upon the human body is admitted by the highest authorities to be wholly unknown; and surely this is in itself the best of all reasons why we should not assume that we already possess against disease all the remedies which nature affords; on the contrary, it should stimulate us to reiterated enquiries into the peculiar action of new remedial agents.

The medical student rarely knows, at the time when he is acquiring his professional education, what his after destiny will be. A large proportion of the young men who frequent the class-rooms are scattered to all the corners of the earth; they are perpetually liable to be cut off from supplies of the drugs of the Pharmacopœia, and then are driven upon their own resources; and they find the medicines

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which are powerful in Europe, comparatively inactive in other climates. The heat of a country, its humidity, particular localities, food, and the social habits of a people will predispose them to varieties of disease for which the drugs of Europe offer no sufficient remedy, and will render that which is relied upon in one country unworthy of dependence in another. Thus the Cinchona bark of Peru, important as it is in Europe, is, we are told, rejected by the people among whom it grows, because it is found too stimulating and heating for their excitable constitutions. And speaking of Ipecacuanha Dr. Von Martius, who so carefully examined practically the *Materia Medica* of Brazil, asserts "*nullum est dubium quin Emetica in terris zonæ fervidæ subjectis effectus producent multo magis salutares quam in regionibus frigidioribus.*"

This last observation seems to indicate, that if emetic plants are so much more common in hot than cold countries; it is because there is so much greater a necessity for them. The late Mr. Burnett, and many other persons, have asserted that every country spontaneously furnishes remedies for those maladies which the people of the soil are naturally subject to, and that the foreign drugs imported into the markets of Europe would soon be superseded to a great extent, if the properties of European plants were carefully examined. It is contended, in illustration of this opinion, that Salicine, obtained from our native Willows is equal in energy to Quinine, and that it is formed by Providence in low marshy places, exactly where remittent and intermittent fevers are experienced most frequently, and with the greatest severity. It is not for the author to offer an opinion upon a point of this sort; his business here is only with facts, or what are believed to be facts. It is, however, deserving of notice, that if England is already found to yield species of such powerful action as Hellebore, Hemlock, Henbane, Belladonna, Stramonium, Foxglove, Willow bark, Holly leaves, Spurge Laurel, Centaury, Colchicum, Bryony, Ergot, and many more, it becomes probable that other powerful agents still remain to be

discovered in this country. Such a subject of investigation is by no means unimportant, when it is considered how wretchedly inadequate in too many cases is the remuneration of medical men, and how much the practitioner would often be relieved, if his expenses could be diminished by the substitution of domestic remedies, to be had for the trouble of getting them, in place of exotic drugs which are not only costly, but often so much adulterated as to be unfit for use. When we consider the quality of much of the Scammony, Sarsaparilla, Senna, and even Rhubarb that are sold in the shops, it is surely not extravagant to expect that they should often be advantageously rejected for some of the plants which grow almost at our doors. Our marshes are overrun with the *Iris Pseudacorus*, an active purgative and emetic; *Ranunculus Flammula* another common plant is described by Dr. Withering, the introducer of *Digitalis* into practice, as the best of all known emetics; and the common Lilac, which, although not a native, is to be found in every garden, has fruit which in its unripe state is singularly bitter, and yields an extract spoken of as a remarkably good tonic and febrifuge.

They were considerations of this kind which decided the author to include in his work all the plants whether indigenous or exotic, and whether officinal or not, the properties of which were sufficiently well attested to deserve particular notice. Those plants have however been omitted, whatever their reputation may have been, against the efficiency of which medical opinion has been distinctly and generally expressed. Such exceptions as may be found to this rule, have usually been made for purposes connected with the lecture-room, or for the sake of calling attention to plants whose properties seem to deserve further investigation.

It by no means follows that plants are inert because medical men have reported unfavourably of their action. The most powerful species have had their energy destroyed by unskilful preparation, or by not knowing at what season

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to collect them. Orfila says, "We were one day in the shop of an apothecary who had several times furnished us with extract of hemlock, which we had administered to dogs, to the dose of 10 drachms without producing any serious accident. We endeavoured to prove to him that the medicine was badly prepared, and in order to convince him effectually, we swallowed, in the presence of several persons who happened to be in his shop, a drachm of this extract (72 grains) dissolved in two drachms of water. We felt no ill effect from it, whilst 20 to 30 grains of the extract, well prepared, would probably have proved fatal to us." This observation upon the badness of shop preparations of this drug is confirmed by Mr. Pereira; and Dr. Christison considers it absolutely necessary to begin the inquiry into its effects anew, the preparations hitherto employed being of very little energy, or absolutely inert. Dr. Hancock makes the same remark upon shop *Sarsaparilla*.

If it should appear that many exotic plants have been admitted, the importance of which is possibly not greater than that of many European plants which have been rejected, it should also be considered, that the latter have been expelled from practice upon definite grounds, and that no such careful investigation of the former has yet been made; moreover, the very nature of the climate of tropical countries generally causes the properties of plants to be more concentrated and completely elaborated than in northern latitudes. It may possibly be said that numerous species have been admitted, the properties of which are dietetic or poisonous rather than medicinal. In noticing alimentary plants the author has followed the example of the College of Physicians who admit Barley, Wheat, Oats, Arrow-root, Sago, &c. into the *Pharmacopœia*; and he has endeavoured to select such alimentary plants only as furnish the diet of a sick person. With respect to poisons it is to be remembered that the energy which renders them dangerous if taken in excess, may also cause them to be, in the hands of skilful prac-

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tioners, most valuable remedial agents. A medical man should also be aware of their existence, as he may at any time be called upon to counteract their effects.

In arranging his materials the author has generally noticed at greatest length those plants which he supposes to be most important; while others are either very shortly described, or only mentioned by name. It will be found, that the technical descriptions have been carefully framed in accordance with the existing state of Botanical knowledge, and according to the most approved rules of modern science. The student will therefore be able to use them as models upon which to familiarise himself with the art of descriptive Botany. Nevertheless, it has not been thought necessary to provide in all cases original descriptions; and consequently although a great many are so, many others are only amended, altered, or corrected from the works of other Botanists. In such a collection of facts as this is much originality can hardly be expected; it will however be found, upon reference to the articles Cinchona, Croton, Rheum, Convolvulus, and others, that original investigation has not been neglected when it seemed to be required.

It will be generally found that the authorities for the medicinal properties ascribed to species are those of the writers whose works are quoted among the Botanical references; if it is not so the exact authority for a statement is usually expressly mentioned.

For the convenience of those who may wish to use this work as a catalogue of the contents of the Medicinal department of a Botanic Garden, all the species are numbered consecutively; and it is intended that the same numbers should be preserved, in case the work should ever reach a second edition; all additions being introduced with letters after the numbers next to which they may be placed. This intimation is given for the satisfaction of those who may be desirous of combining the advantage of a catalogue with the information the work contains.

In the present state of systematical Botany no two

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writers upon classification can agree respecting the exact sequence in which the natural orders of plants should follow each other. By some the plan of Jussieu is adopted, by others that of De Candolle, and by many the systems of Endlicher, of the author of this work, of Von Martius, of Schultz, or even of Reichenbach may be preferred. This can only be accounted for upon the supposition that the systems of all these authors are equally false. To enable the reader of this book to suit his own convenience in the arrangement of the matter, the work is so printed that the different natural orders may be cut asunder and re-arranged at the pleasure of the possessor; some space has necessarily been sacrificed to this object, but it is hoped that a corresponding degree of convenience will attend it. The scheme is, however, only a matter of experiment, and will be abandoned hereafter if it should appear not to be of general advantage. As the work leaves the publisher's hands the sequence of matter corresponds with that of the author's Natural System of Botany, because it will probably be that preferred by the majority of readers in this country.

It only remains to notice the sources from which the information contained in this work has been procured. As all the Pharmacological works of most repute have been occasionally more or less consulted, it may appear almost invidious to name any one in particular from which such information has been gleaned more than from others. It is, however, an act of the merest justice to say, that the valuable work of Guibourt, the excellent lectures on *Materia Medica* by Mr. Pereira, published in the Medical Gazette, and Dr. Royle's various writings have furnished the author with the most valuable part of his information upon doubtful points.

LONDON, *June* 14. 1838.

ABBREVIATIONS.

*** The greater part of the references in the following pages will be sufficiently intelligible. Those only which are subjoined seem to require explanation.

DC. De Candolle.

EB. English Botany.

HBK. Humboldt, Bonpland, and Kunth.

N. and E. Nees and Ebermaier.

R. and S. Römer and Schultes.

S. and C. Stevenson and Churchill's Medical Botany.

W. and A. Wight and Arnott.

Woodv. Woodville's Medical Botany.

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Nat. syst. ed. 2. p. 5.

CLEMATIS.

INVOLUCRE 0, or resembling a calyx below the flower. Sepals 4-8 coloured, valvate. Petals 0 or shorter than the sepals. Achenia numerous, terminated by a long feathery hardened, tail-like style. Seed pendulous. — Perennials usually with permanent half-shrubby stems. Leaves exactly opposite.

The species of this genus are generally acrid, and raise blisters when applied in a fresh state to the skin; but they lose the property by drying or exposure to heat. The following have been more particularly noticed: —

1. *C. erecta* *All. ped. No. 1078. DC. prodr. i. 2. — C. recta* *Linn. sp. pl. 767. Jacq. austr. t. 291. — Hills and woods in the south of Europe.*

Stem herbaceous, erect, about 2 feet high, somewhat angular, striated, nearly smooth. Leaves opposite, pinnated with 2 pairs and an odd one, smooth above, hairy beneath; leaflets ovate, acuminate, stalked, entire. The leaves are occasionally simple, cordate and angular, and not unfrequently ternate. Umbels irregular, terminal, panicled, quite erect. Pedicels downy. Sepals linear-obovate, white, spreading, downy, much longer than the stamens. Ripe carpels seldom more than 2 to each pedicel, ovate, brown, smooth, with a feathery tail. — Much recommended by Störck in obstinate cachectic diseases; the powdered leaves have been also used as an escharotic.

2. *C. Flammula* *Linn. sp. pl. 766. DC. prodr. i. 2. — Hedges and thickets in the south of Europe and North of Africa.*

Stem climbing and forming large entangled masses of angular, slightly downy half-herbaceous branches. Leaves pinnated; segments smooth, entire or 3-lobed, orbicular, oval, oblong, or nearly linear, somewhat acute. Flowers small, white, in large loose panicles, extremely fragrant. Petals $\frac{1}{2}$ – $\frac{3}{4}$ inch long, linear, obtuse, downy, much longer than the stamens. Carpels extremely shaggy. — Leaves used as vesicatories.

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3. *C. Vitalba* Linn. *sp. pl.* 766. *Fl. Lond.* t. 37. *Eng. Bot.* t. 612. *Smith Eng. fl.* iii. 39. — *Ἀμπελος αγρία*, *Dioscorid.* *Ἀγριοαμπέλι*, *Modern Greek*. — Common in hedges and thickets all over the middle and south of Europe; also in the Crimea. (Traveller's joy.)

Stem woody, angular, climbing to a great extent, or pendulous, branched, entangled, supported on other shrubs by the permanent, hardened, twining footstalks. Leaves deciduous; their leaflets 5, stalked, heart-shaped, pointed, finely hairy, either quite entire, unequally cut, or coarsely serrated. Panicles axillary and terminal, forked, many-flowered, downy. Flowers white, with a sweet almond-like scent. Petals 4, most downy on the outside. Carpels with long feathery tails. — Both fruit and leaves acrid and vesicant; dangerous taken internally. The latter have been used as a rubefacient in the treatment of rheumatism.

4. *C. dioica* Linn. *sp.* 765. *DC. syst.* i. 14^o *prodr.* i. 4. *Macfady. fl. jam.* i. 2. — (*Sloane* t. 128. f. 1.) — Lower hills of Jamaica.

A large rambling shrub, with furrowed purplish branches. Leaves ternate; leaflets ovate, rather heart-shaped, acuminate, smooth, sometimes confluent. Flowers small, greenish, diœcious, paniced. Pedicels downy. Sepals oblong, downy, reflexed. Stamens the length of the sepals. Carpels downy, terminated by a long feathery tail. — Leaves hot and acrid; bruised and applied to the skin they act as a rubefacient or even blister. An infusion of the bruised leaves and flowers forms a good lotion for the removal of spots and freckles from the skin. A decoction of the root in sea water is said to act as a powerful purge in hydropic cases. *Macfadyen*.

5. *C. Mauritiana* Lam. *dict.* ii. 42. — Used by the negroes in the Isle of France to raise blisters on the cheek to allay the pain of toothach. *Commerson*.

ANEMONE.

Involucre of 3 leaves, a short distance below the flower; its leaflets cut. Sepals 5–15, petaloid. Petals 0. Achenia either ending in tail-like styles, or tailless.

6. *A. Pulsatilla* Linn. *sp. pl.* 759. *Fl. dan.* t. 153. *Eng. Bot.* t. 51. *DC. prodr.* i. 17. — Dry woodland ground and open hills all over Europe, and in *Siberia*: flowering early in the spring.

Leaves pinnated; segments many-narted, with linear lobes, hairy, sometimes quite shaggy. Flower slightly nodding, usually purple, but varying to many other colours of the cyanic series. Sepals 6, spreading. Fruit with long bearded tails. — The powder of the root causes itching of the eyes, colic, and vomiting, if in pulverising it the operator do not avoid the fine dust which is driven up. *Bulliard* relates the case of a man who, in consequence of applying the bruised root to his calf for rheumatism, was attacked with inflammation and gangrene of the whole leg. *Christison*. An extract has, however, been used in obstinate cases of tœnia.

7. *A. pratensis* Linn. *sp. pl.* 760. *Fl. dan.* t. 611. *Woodw. med. bot.* t. 148. *DC. prodr.* i. 17. — *Pulsatilla nigricans* Störck *lib. de pulsat.* — Open fields and plains in dry places in many parts of Europe, Russia, and Turkey in Asia; flowering early in the spring.

Leaves pinnated; segments many-parted, with linear lobes. Flower pendulous. Sepals 6, erect, reflexed at the point. It differs from *A. pulsatilla* according to De Candolle in the flower being smaller and pendulous, not nearly erect, and of a deeper colour; in the sepals being narrower and more pointed, erect and converging at the base, reflexed at the point. In both species, stalked glands, or sterile stamens, are found between the fertile stamens and the sepals. — Störck recommends an extract or infusion in chronic ophthalmia, and in old syphilitic disorders.

8. *A. cernua* Thunb. *fl. jap.* 238. *DC. prodr.* i. 16. *Siebold fl. jap.* i. 14. t. 4. — Exposed parts of the Mountains of Japan. (Hak-too-woo of the Chinese.)

Leaves pinnated; the lower segments on long stalks, all pinnatifid, with cut linear-oblong acute segments; the younger silky on each side, the old ones villous only on the under side. Involucre multifid. Flower nodding. Sepals bright brownish red, downy on the outside, erect, oval, acute. — Root in great reputation among the Japanese and Chinese, as a bitter medicine.

According to Christison 9. *A. hortensis*, and 10. *A. coronaria*, are also among the most active of the poisonous species: 11. *A. nemorosa* less active; and 12. *A. hepatica*, and 13. *A. alpestris* bland.

HYDRASTIS.

Sepals 3, ovate. Petals 0. Stamens and ovaries numerous. Drupes, capitate, terminated by a style, 1-celled, 1-2-seeded. Seeds obovate, polished.

14. *H. canadensis* Linn. *sp. pl.* 784. *DC. prodr.* i. 23. *Hooker in Bot. mag.* t. 3019. *Bart. mat. med.* ii. t. 26. — *Warnera canadensis* Mill. *ic.* t. 285. — Shady woods in rich soil in the United States and Canada. (Yellow root.)

Rhizoma tortuous, knotty, creeping, of an intensely yellow colour, affording a dye of the same tint, bitter, somewhat pungent and tonic. Stem erect, herbaceous, rounded, about a foot high, simple, hairy upwards, bearing two leaves of which, the lower is petioled, the other sessile. Leaves palmate, with 3 or 5 deep inciso-serrated segments, hairy, dark green. Peduncle solitary, terminal, about 2 inches long, single-flowered. Flowers small. Calyx of 3 deciduous, broadly-ovate, pale greenish-white, concave, slightly-downy sepals. Stamens many longer than the pistils. Filaments flat, linear-lanceolate, having the cells of the anther on their edge at the apex. Pistils several; ovary oval, glabrous, attenuated upwards into a short style. Stigma obtuse, scarcely lobed. The fruit resembles a raspberry, is red, and consists of many little 2-seeded drupes collected into a globose head, and each crowned with the persistent style. — Rhizoma has a strong narcotic

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smell, is exceedingly bitter, and valuable as a strong tonic. The power of curing cancers, which has been ascribed to it, is imaginary. Its brilliant yellow colour has been made use of by dyers.

KNOWLTONIA.

Sepals 5. Petals 5-15, with the unguis naked. Stamens numerous. Ovaries numerous, placed on a globose receptacle. Fruits numerous, 1-seeded, succulent, not pointed by the style, which is deciduous.

15. *K. vesicatoria* Sims. *bot. mag.* t. 775. *DC. prodr.* i. 23. — *Adonis vesicatoria* Linn. *f. suppl.* 272. — Cape of Good Hope.

A plant with the aspect of an apiaceous (umbelliferous) perennial. Leaves biternate; the segments somewhat cordate, rigid, smoothish; the lateral obliquely truncate at the base. Umbel nearly simple, few-flowered. — Leaves used as vesicants at the Cape of Good Hope.

ADONIS.

Sepals 5, erect. Petals 5-15, with the unguis naked. Stamens numerous. Achenia numerous, 1-seeded, arranged upon a long receptacle, ovate, tipped with the permanent style.

The roots of the perennial species are said by Pallas to be emmenagogues. The following may be taken as a representation of the only 4 species that are yet known.

16. *A. vernalis* Linn. *sp. pl.* 771. *Bot. mag.* t. 134. *DC. prodr.* i. 24. — *A. appennina* Linn. *sp. pl.* 772. *Jacq. austr.* i. 44. — Siberia, the Crimea, and many parts of Europe in alpine situations.

Radical, or lowest leaves, abortive, reduced to sheathing scales; the upper sessile, multifid, with the lobes entire. Petals 10-12, bright-shining yellow, oblong, somewhat toothed. Carpels velvety.

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Sepals 5. Petals 5, occasionally 10, with a nectariferous excavated scale at the base. Stamens and ovaries numerous. Achenia ovate, somewhat compressed, mucronate; arranged on globose or cylindrical receptacles.

The species are in almost all cases acrid, and when bruised, quickly produce blisters; but the latter are apt to spread and to run into ill-conditioned ulcers difficult to heal. Hence they are excluded from regular practice. All the acridity is destroyed by drying or by heat.

17. *R. bulbosus* Linn. *sp. pl.* 778. *Flora Lond.* i. t. 38. *Eng. Bot.* t. 515. *Bigel. med. bot.* iii. t. 47. *DC. prodr.* i. 41. — Common in pastures all over Europe and in the United States.

Cormus fleshy, roundish, depressed, sending out radicles from its under side. In autumn it gives off lateral bulbs near its top, which

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afford plants for the following year, while the old cormus decays. Stems several, erect, round, hairy, branching. Root leaves on long petioles, ternate, sometimes quinate; the segments variously cut, lobed and toothed, hairy; stem-leaves sessile, ternate, the upper ones more simple. Flowers several on a stem, solitary, of a bright glossy yellow. Peduncles furrowed, angular, hairy. Sepals oblong, hairy, bent back against the peduncle. Petals 5, inversely heart-shaped. Stamens numerous, yellow, with oblong erect anthers. Ovaries numerous with reflexed stigmas. Receptacles spherical. Carpels acute, naked, diverging, with recurved points. — Exceedingly acrid, raising blisters and producing extensive inflammation, sometimes followed by deep ill-conditioned sloughing ulcers in certain constitutions, but not affecting all persons alike, in which respect it resembles the poisonous species of *Rhus* and *Antiaris*. Gilibert states that it vesicates with less pain than cantharides, and without affecting the urinary passages. *Plant. Rar. Lith. No. 331.*

18. *R. Thora* Linn. sp. pl. 775. Jacq. fl. austr. v. t. 442. DC. prodr. i. 30. — *Θηλυφρον*, *Theophrastus*. *Ακονιτον παρδαλιανης*, *Dioscorides*. — Rocks and meadows on mountains near the limits of perpetual snow, in the alps of Europe.

Leaves quite smooth; those next the root which are stalked, and those on the stem which are sessile, reniform and crenated, those next the flowers cut. Stem 2-3-flowered; flowers smooth. Carpels ovate, but little compressed, pointed with the style, loosely collected into a roundish head. — Root extremely acrid and poisonous; the juice formerly used by Swiss hunters to envenom their weapons; wounds so produced are said to have become speedily fatal.

19. *R. sceleratus* Linn. sp. pl. 776. Fl. Dan. t. 371. Fl. Lond. t. 42. Eng. Bot. t. 681. DC. prodr. i. 34. Smith Eng. fl. iii. 48. — In wet ditches and by the side of water all over Europe; in Siberia, the Crimea, the Levant, Cochin China, India, North America.

Root fibrous. Herb juicy, various in luxuriance, from 6 inches to 2 feet high, of a pale shining green, very smooth, except occasionally the flower stalks and upper part of the stem, which are now and then hairy. Stem thick, round, hollow, repeatedly branched, leafy. Lower leaves stalked, rounded, bluntly lobed and cut; upper sessile, with deeper and narrower segments; uppermost of all, accompanying the flowers, lanceolate, undivided. Flowers small, pale yellow, numerous, on solitary stalks, either terminal, axillary, or opposite the leaves. Calyx hairy, reflexed. Petals orbicular. Gland somewhat tubular. Fruit cylindrical, obtuse, various in length, composed of numerous small carpels. Smith. — Leaves said to be used by beggars to produce ulcers. Krapf found that 2 drops of the juice, or a bit of a leaf or flower, produced acute pain in the stomach, and a burning in the throat; but when diluted, it became innocuous, so that half a drachm in 6 ounces of water might be taken without danger.

20. *R. acris* Linn. sp. pl. 779. Eng. Bot. t. 652. Woodv. t. 246. Smith Eng. fl. iii. 52. S. and C. ii. t. 82. — Common in meadows and pastures everywhere in Europe.