

PHARMACOPŒIAL VEGETABLE DRUGS.

FRANGULA

Buckthorn, *Rhamnus frangula*, grows in wet places throughout Europe, Siberian Asia, and the Northern African Coast. From a very early date it has been known as a cathartic as well as a coloring agent. A decoction of the bark has been in domestic use both as a dye for cotton, wool, and silk fabrics, and as a cathartic, in which (latter) direction it is very effective. No written professional record antedates its domestic use, and perhaps as a "rheumatic remedy" it has no domestic superior.

GALLA

Oak galls (*Quercus infectoria*) are mentioned by Theophrastus (633) and other ancient writers, and they were prescribed by Alexander Trallianus (11) as a remedy in diarrhea. They are derived from varieties of the oak, Smyrna being one of the export points. In that city we have seen them in large quantities, in process of sorting for exportation. As an astringent, galls have long been employed in decoctions in domestic practice in the countries where they are obtained as excrescences on the oak.

GAMBIR

Gambir (or gambier) (*Ourouparia gambir*) is a shrub native to the countries bordering the Straits of Malucca, being found also in Ceylon and India. The dried juice of an Indian tree (*Acacia catechu* and *Acacia suma*) is often confused with gambir, and its extract (catechu or cutch) is only too often substituted therefor. Gambir has been obtained from the Orient from the beginning of historical records, and in those countries, mixed with other substances, seems ever to have been used as an astringent in domestic medicine. Both gambir and catechu, as these products are often called indifferently, have ever been articles of export to China, Arabia, and Persia, but were not brought into Europe until the seventeenth century. They are similarly astringent, and although the U. S. P., 1900 edition, drops the word catechu, it is questionable as to whether in commerce a close distinction is drawn in the product.

GAULTHERIA (THE OIL)

The first record of the therapeutical use of this oil, as is often the case with valuable medicines, is to be found in empirical medicine. The proprietary remedy, very popular about the beginning of this century under the name "Panacea of Swaim," or "Swaim's Panacea," introduced it.

This remedy gave added impetus to our Compound Syrup of Sarsaparilla, having become so popular as to force itself to the attention of the profession. The Sarsaparilla Compound of the name "Sirup or Rob Anti-Syphilitica" was closely associated with Swaim's Panacea and Ellis, 1843, after giving the formula of "Sirup Rob Antisyphilitica"

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in his Formulary, p. 67, says: "The above preparation has been asserted, by the New York Medical Society, to be nearly identical with the noted Panacea of Swaim."

That oil of gaultheria was a constituent of Swaim's remedy and that it was brought into conspicuity therein, may also be seen from an analysis of Swaim's Panacea (by Chilton) recorded in the Am. J. Med. Sciences, 1829, p. 542. The following reprint from an anonymous writer in the American Journal of Pharmacy, 1831, establishes the subject more clearly in that it gives a very fair description of oil of gaultheria as well as making a statement to the effect that it is the same as sweet birch oil, and showing further that many different plants yield the same oil.

Oil of *Gaultheria procumbens*:—"This is the heaviest essential oil of which we have any knowledge, for I have found it to be 1.17. This furnishes us with an easy mode of testing its purity. The wonderful success of Swaim's Panacea has brought this oil into great vogue with all venders of Catholicons, Panaceas, and Syrups of Sarsaparilla.

It appears to be a vegetable principle secreted in plants very widely separated by their natural affinities. The *Betula lenta* or Sweet Birch secretes it in its bark; the *Polygala paucifolia* in its roots; the *Spiraea ulmaria** the *Spiraea lobata* and the *Gaultheria hispidula* in their roots and stalks.

But that oil of wintergreen was used somewhat in domestic medicine about that date, and also by Dr. Wooster Beach, the forerunner of Eclectic medicine, is evidenced, for Dr. Beach in his American Practice of Medicine, Vol. III (1833, p. 201), concerning *Gaultheria "Gaultheria" repens*, states that "The oil relieves the tooth ache."

Antedating this paper, I have not succeeded in finding any reference whatever to oil of gaultheria being used in medicine, although the plants that contain it were generally recognized in pharmacy, the oil being distilled by primitive methods and known to druggists. Thus, as showing that even if used at all it could not have been important I need only to refer to a few of the many authorities who would not have overlooked it.

AMENITATES ACADEMICÆ III, P. 14, 1787.

"*Gaultheria*, Kalm. (385) (Gen. 487).—*Usus* foliorum in infuso, loca Theae. *Dixit* plantam Cl. Kalmius a. D. D. Gaulthier, Medico Canadensi, Botanico eximio." No reference to the oil.

BENJ. SMITH BARTON. COLLECTIONS (43), ETC. PHILAD., 1798, P. 19.

"The *Gaultheria procumbens*, which we call Mountain Tea, is spread very extensively over the more barren, mountainous part of the United States," etc. Does not mention the oil.

PHARMACOPEIA OF THE MASS. MEDICAL SOCIETY (503). BOSTON, 1808.

No mention of the oil or plant.

* Pagenstecher described oil of *Spiraea ulmaria* in the Repertorium f. d. Pharmacie, 1834, p. 337, and is credited by Procter with its discovery. But we have in this paper a reference that antedates him three years. Still, this anonymous writer is preceded thirteen years by Dr. Jacob Bigelow, as shown in our history.

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W. P. C. BARTON, MAT. MED. I, P. 171, 1817. (43a)

Although he describes the medicinal virtues of *Gaultheria* in detail, he does not mention the oil. However, as showing that oil of *Gaultheria* was distilled preceding 1818 I will cite,

BIGELOW, AMER. MED. BOTANY (69), II, P. 28. BOSTON, 1818.
Pyrola umbellata (p. 15) is herein called Wintergreen.

Gaultheria procumbens (Partridge Berry):—"The aromatic flavor of the Partridge berry, which can not easily be mistaken by those who have once tasted it, may be recognized in a variety of other plants whose botanical habits are very dissimilar.

"It exists very exactly in some of the other species of the same genus, particularly in *Gaultheria hispidula*; also in *Spiraea ulmaria* and the root of *Spiraea lobata*. It is particularly distinct in the bark of sweet birch, *Betula lenta*, one of our most useful and interesting trees.

"This taste and odor reside in a volatile oil, which is easily separated by distillation. The essential oil of *Gaultheria*, which is often kept in our druggists' shops, is of a pale or greenish-white color, and perfectly transparent. It is one of the heaviest of the volatile oils, and sinks rapidly in water, if a sufficient quantity be added to overcome the repulsion of the two heterogeneous fluids. Its taste is aromatic, sweet, and highly pungent.

"The oil appears to contain the chief medicinal virtue of the plant, since I know of no case in which the leaves, deprived of their aroma, have been employed for any purpose. They are nevertheless considerably astringent, etc.

"The leaves, the essence, and the oil of this plant are kept for use in the apothecaries' shops.

"The oil, though somewhat less pungent than those of peppermint and origanum, is employed for the same purposes," etc.

In this connection, as indicating that the oil was unimportant, perhaps simply an article of curiosity to pharmacists, it may be pointed out that the *American Dispensatory* of J. R. Coxe, 1825, mentions oil of *Gaultheria*, but does not say anything with regard to its value or use in medicine.

The edition of 1818 does not mention the plant or oil at all.

In studying the pharmacopœial record of this oil, in connection with its materia medica and dispensatory history the fact becomes apparent that: oil of *Gaultheria* was made in a primitive way by country people (as is still largely the case) about the beginning of this century.

It was introduced into the list of known essential oil-bearing plants of America in the first (1820) Pharmacopœia, but was not described. Following this, such works as the American Dispensatories and American Materia Medicas gave the oil a complimentary position, but it was of no importance until brought forward by the analysis of Swaim's Panacea. Not until long after 1820 did any European dispensatory or pharmacopœia give it position.

Summary: Oil of *Gaultheria* was distilled for druggists previous to 1820, but no public description of the apparatus or method was printed.

The Pharmacopœia of the United States, 1820, gave the first authoritative method of making it.

It was prominently introduced to the profession by the New York

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Medical Society, 1827, under whose auspices the oil was established as a characteristic constituent of Swaim's Panacea, the report being published in 1829.

We know of no pharmacopœial direction for making oil of gaultheria from any source whatever which precedes the first (1820) Pharmacopœia of the United States, and no reference to its being made from gaultheria or sweet birch preceding Bigelow, 1818.

Thus it is evident that while the plant gaultheria has the advantage concerning conspicuity of name, the same date of introduction and same reference (Bigelow) must be ascribed to both oil of gaultheria and birch.

Swaim's Panacea.—The important fact elucidated by the foregoing history of oil of Gaultheria, to-wit, that it first received recognition in this once popular remedy, leads to a few words concerning this compound. In the beginning of the present century a French proprietary remedy "Rob de Laffeteur" was very popular throughout France and her colonies. It was invented by a French apothecary Boiveau, who affixed to it the name of Laffeteur to make it popular. In 1811 certain New York physicians used this "Rob de Laffeteur" with success and Dr. McNevin, who obtained the formula from a French chemist, M. Allion, made its composition public.

Mr. Swaim, a bookbinder, was treated by Dr. A. L. Quackinboss and experienced great benefit from the remedy. Procuring the formula from Dr. Quackinboss, his physician, he modified it considerably and put the mixture on the market under the name Swaim's Panacea. This became very popular and at last attracted the attention of the medical profession, and by the analysis of Mr. Chilton (1829), under the auspices of the New York Medical Society, it was positively shown that Swaim had replaced the sassafras of Quackinboss' formula by wintergreen oil and had also introduced corrosive sublimate into the mixture.

Persons interested in this formula and subject will find detail reports as follows:

American Journal of Pharmacy, 1827, p. 123.

American Journal of the Medical Sciences, 1829, 4, p. 530.

American Journal of the Medical Sciences, 1829, 5, p. 542.

GELSEMIUM

Common Names.—Yellow jessamine, jessamine, Carolina jessamine, wild woodbine, white poison-vine, white jessamine.

Gelsemium sempervirens is a native of the Southern United States, being abundant in the swamps, woods, and thickets, from Virginia to Florida. It is a handsome climber, twenty to fifty feet in length, blooming in early spring, its flowers being overpoweringly fragrant. The name, given by Jussieu, was made from the Italian word *gelsomino*, meaning jasmine. But it is not a jessamine, and inasmuch as there is a true jessamine with *yellow* flowers, E. M. Holmes, of London, considers it unfortunate that the term *yellow jessamine* has been applied to it. This common name, however, is now firmly es-

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tablished. Its Italian name, *gelsomino*, possibly led Eclectic authors to use the name *gelseminum* instead of *gelsemium*, a term found in early Eclectic literature and but recently displaced. In this connection it may be said that Professor Scudder invariably used the word *gelseminum*.*

Medical History.—Barton and his co-laborers did not mention *gelsemium*, but Rafinesque (535), 1830, gave it a place, stating that "root and flowers† are narcotic, their effluvia may cause stupor, tincture of the root is used for rheumatism in frictions," a statement taken almost literally from Elliott's (227) *Botany of South Carolina and Georgia*, 1821. The medical record (King) (356) had its origin through the mistake of a servant of a Southern planter who was afflicted with fever. This servant by error gave his master a decoction of *gelsemium* root instead of the garden plant intended. Immediate loss of muscular power and great depression followed, all control of the limbs was lost, the eyelids drooped and could not be voluntarily opened. Death seemed imminent. But the effects finally wore away and the man recovered, free from fever, which did not recur. An observing physician took this experience as a text and prepared from *gelsemium* a remedy which he called the "Electrical febrifuge," which attained some popularity. Finally the name of the drug concerned was given to the profession. This statement is found in the first edition of King's *American Eclectic Dispensatory*, 1852, which work actually presented *gelsemium* to the world of medicine, although, as will be shown later, the plant had a recorded position much earlier. King's article on *gelsemium* was copied in substance by the *United States Dispensatory*, 1854, none of the preceding nine editions of that work having mentioned the drug. But the fact is that Porcher (520) commended *gelsemium* in his report to the American Medical Association, 1849, and, concerning its restricted local use in gonorrhœa and rheumatism, referred to Frost's *Elements of Materia Medica* (250) (South Carolina) as well as to several local journal articles.

For a long time following 1852 (at which date King's *American Dispensatory* appeared) *gelsemium* remained an almost exclusive remedy of the Eclectic school, but in 1860 it attained a position in the United States Pharmacopœia, although not until 1880 did that work give place to any preparation of *gelsemium*. At present the drug is in much favor with many physicians of all schools, but is generally classed as one of the Eclectic remedies, being one of the most important in Eclectic therapy.

GENTIANA

Gentian (*Gentiana lutea*) is indigenous to the mountainous parts of Middle and Southern Europe, being found in the Pyrenees, the Islands of Sardinia and Corsica, the Alps, and elsewhere. It is not, however, found in the British Islands. It is mentioned by both Pliny

* In an English botanical work in the Lloyd Library, which I can not now locate, a long discussion appeared concerning the two words. If memory serves me correctly, the decision was in favor of *Gelseminum*.—J. U. L.

† The statement has been made and possibly established that honey from the flowers of this plant is narcotic.

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(514) and Dioscorides (194), its name being derived from Gentius, a king of Illyria, B. C. 180. Throughout the Middle Ages gentian was used as a domestic medicine and to antidote poisons, and in recent times it has been commended as an antidote or substitute for tobacco. Tragus (650) employed the root A. D. 1552 for the purpose of dilating wounds.

GERANIUM

Cranesbill, *Geranium maculatum*, is found native to the lowlands and open woods throughout the temperate Eastern United States. Being one of the astringent domestic remedies used in the form of infusion or decoction in diarrhea, dysentery, sore mouth, and similar diseases, it thus came to the attention of physicians, whose use of it finally led to its place in the pharmacopeia. In Eclectic medication geranium is much valued, the drug occupying a well-established position in all the publications of that school of physicians.

GLYCYRRHIZA

Licorice, the dried rhizome and root of *glycyrrhiza*, is mentioned by Oribasius (479a) and Marcellus (404) in the fourth century, and by Paulus Ægineta (494) in the seventh. It was known in the time of Dioscorides (194), and was commonly known in Europe during the Middle Ages. Its price in England, in the day of Henry III, was equal to that of grains of paradise. It was one of the articles paying duty to aid in the repairing of London Bridge in the day of Edward I, 1305. Saladinus (570), in the fifteenth century, mentioned it as an Italian medicine, and it was commonly known in the city of Frankfort in 1450. Mattioli (414), 1574, states that the juice, in the form of pastilles, was brought every year from Apulia. Indeed, the record of this substance is to the effect that it has been an article of domestic use, as a "sweet wood" for chewing, as a constituent of medicinal pastes, and in the form of a common water extract, since the earliest times. It is found in large quantities in the localities where it is cultivated, in Sicily, Italy, and Spain, while in moderately recent years we have seen immense amounts of licorice roots annually collected in the valleys of the Hermes and the Kayster, where probably it has grown wild from all times.

GOSSYPII CORTEX

Cotton Root Bark, *Gossypii radice cortex*, is used as a stimulant and emmenagogue, the decoction being considered, in the days of American slavery, capable of producing abortion. It was thus introduced empirically by the Negroes, and came from thence into the hands of the profession, being first employed by physicians of the Southern United States. Following this introduction, Wallace Brothers, of Statesville, S. C., at the request of the writer (*Eclectic Medical Journal*, February, 1876, p. 70), forwarded to him a barrel of fresh cotton root bark, preserved in alcohol. This was made into a fluid extract, and distributed to American practicing physicians, with a request that the

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results of its use be reported in contrast with the dried bark deemed by some to be inert. A summary of more than forty reports from practicing physicians, together with remarks concerning the preparation of gossypium employed, was read before the Twenty-fourth Annual Meeting of the American Pharmaceutical Association, 1876. The paper, in full, titled, "Fluid Extract of Gossypium Herbaceum," was published in the *Eclectic Medical Journal*, December, 1876, pp. 537-547. This treatise, together with the increasing demand from physicians throughout America for pharmaceutical preparations of gossypium root bark, led to its introduction to the Pharmacopœia of the United States. The credit for the discovery of its uses, as before stated, must be given to the Negroes of the South.

GRANATUM (POMEGRANATE)

Punica granatum has been in cultivation from the earliest historical times. It is now found in all warm countries of the world, and frequently as an ornamental plant in this country and abroad, where it requires protection during the winter season, as it will not endure the cold. It is recorded, e. g., that in 1838 the pomegranate trees in the neighborhood of London were killed by the frost. The form generally grown as ornament is the double variety, and consequently barren. The fruit of the pomegranate has been esteemed a delicacy from the most ancient time, and we often see it offered for sale at our fruit stands. In the West Indies, where the plant would thrive naturally, it is not extensively cultivated, and the writer of this botanical history (C. G. Lloyd), who has visited all these islands, does not remember to have seen it or its fruit there. Like all cultivated plants, it is liable to variation, and several of its forms have been considered distinct species and named by several authors; however, they are all now considered forms of one species.

The pomegranate shrub, according to De Candolle (122), is originally a native of Persia and adjacent countries, but has been cultivated and naturalized in the Mediterranean countries at such an early date that it has even been considered indigenous to these countries.

Pomegranate was included among the vegetables that were held sacred by the Assyrians (86) and the Egyptians (688); the latter nation made it a custom to place in the graves of the dead fruits of the field and garden, among them pomegranates, specimens of which are preserved to the present day (239). The pomegranate had undoubtedly an occult significance with the ancient nations. It was frequently used as a mystical emblem in adorning the capitals of Assyrian (86, 374) and Egyptian (688) columns, and the Bible (1st Book of Kings vii, 18, 20) tells us that in the building of Solomon's temple the capitals of the columns were decorated with a "network of pomegranates." Also (Exodus xxviii, 33, 34) the hem of the high priest's robe was adorned with imitations of pomegranates in blue, purple, and scarlet, alternating with bells of gold. The pomegranate was one of the three fruits brought to Moses by the men that he sent to spy out the land of promise (302). Many other passages scattered throughout the

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Bible refer to our plant (483), and testify to the esteem in which the tree and the fruit (then called rimmon) were held in ancient times. The fruit and seed of the pomegranate are often mentioned in the "Arabian Nights."

Pomegranates were represented on Carthaginian and Phœnician medals (422) and on the reverse of the coins of the Island of Rhodes (688). In Greek mythology the pomegranate is very conspicuous (307, 191, 241), and symbolizes fecundity and abundance. The fruit was dedicated to Juno, a deity always represented in sculptures as holding a pomegranate (191).

The Greek authors, e. g., Theophrastus (633), describe the pomegranate under the names of "roa" and "roa side;" also Dioscorides (194), who quite explicitly sets forth the medicinal properties of the different parts of the plant. Among Roman authors who describe the pomegranate and its uses are Cato Censorius (132), Pliny (514), Celsus (136), and others. Subsequent writers, for example the Arabians, in the ninth century, also refer to the pomegranate, but seem to have mainly reiterated the substance of the writings of their Greek and Roman predecessors (422). The "Arabian Nights" (88) speaks of the use of the seed cooked as follows: "Every day I cook five dishes for dinner, and the like for supper; and yesterday they sought of me a sixth dish, *yellow rice*, and a seventh, a mess of *cooked pomegranate seed*." (Adventures of Mercury Ali of Cairo, Vol. vii, p. 185.) Of the writers of the Middle Ages may be mentioned Tragus (650) and J. Bauhinus (47), the latter giving a most detailed compilation of that which was known before his time on the subject of the pomegranate, including the myths with which it is connected. It was not until the present century, however, that the literature of the pomegranate was enriched by the study of its chemical aspects.

GRINDELIA

Grindelia, robusta, a California plant, is, as found in commerce, of questionable authenticity, owing to the near relationship of very similar species of *grindelia*. It early attracted the attention of the Jesuit Fathers in their mission stations along the coast, it being used by the natives before the conquest of the country by the Americans. Dr. C. A. Canfield, of Monterey, Cal., about 1863, called attention to *grindelia* as a remedy in the poison of *rhus toxicodendron*, its native use in that direction having become known to him. Mr. James G. Steele, of San Francisco, 1875, contributed a paper to the American Pharmaceutical Association commending its use in this direction. After that time the drug rapidly crept into favor with the profession of medicine.

GUAIAECUM

Guaiacum is a low evergreen tree, native to the West Indies and Southern Florida. Its earliest importation into Europe was from San Domingo, as recorded by Oviedo (487), A. D. 1526; but that it was known in Germany previous to that date is proved by treatises by

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Nicolaus Poll (517), 1517; Leonard Schmaus (578), 1516; and Ulrich von Hutten (332), 1518, by whom it is given a place. Oviedo (487), who landed in America in 1514, observed the tree, which was called by the natives *Guayacan*. This drug, and its resin as well, was used empirically in domestic (native) medicine before its introduction to the profession.

Resin of Guaiacum is a product obtained from slow combustion, wherein, by a crude method, a horizontal guaiacum log, raised from the ground, is slowly burned, the resin collecting in grooves that are cut in the logs. It is used more extensively than is the wood.

GUARANA

Guarana, a dried paste from the crushed seeds of *Paullinia cupana*, was introduced into France from South America by a French officer in 1817, as a product of an unknown plant, this paste being made and used by the tribe of Indians (Guaranis) from whom it took its name. In 1826 Martius (409) identified the plant, which is called *Paullinia sorbilis* in deference to Simon Paulli (493). In 1840, (Am. Journ. Pharm., pp. 206-208), Dr. Gavrelle presented a specimen of guarana to the Paris Society of Medicine, the same being analyzed by M. de Chastetus, who discovered "a crystallizable matter, which possessed the chemical properties of caffeine." In 1888 Professor H. H. Rusby (564) (Amer. Jour. of Pharm., p. 267) authoritatively described the manner in which the natives prepared Guarana from the seed, and in their crude way produced the smoked sausage-like rolls familiar in commerce. The date of its discovery by the Indian tribes whose preparation and use of the substance as "a stimulating substance" led to its European notice, is lost to record.

HÆMATOXYLON

Logwood (*Hæmatoxylon campechianum*, L.) is the wood of a tree used throughout the civilized world as a dye stuff, in which direction we find it is most largely consumed. The tree is native to Central America, being abundant in Campeachy, Honduras, and other sections of that country. Flückiger (239) accepts that the wood was introduced into England in the latter half of the sixteenth century, because in 1581 its use was abolished by act of Parliament, for the reason that it was considered a poor substitute for better dyes, and was viewed in the light of a sophisticant. Eighty years later, probably because a better study of the drug had rendered its use practicable, logwood was again permitted to enter England. According to De Laet (368), 1633, one of the names by which it was commonly known, *peachwood*, was derived from the town of Campeachy, whence the wood was exported in quantities to Europe. The accounts of travelers and sailors at the time of the great excitement produced by the discovery of the abundant sources of wealth in the new world, almost universally mentioned logwood. This is evident from the record found in such narratives as appear in sailors' descriptions of their voyages, in *Chambers Miscellany*, and elsewhere.