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Botanical Medicine Monographs and Sundry

**SYRUP OF DENTITION.**

BY W. B. THOMPSON.

A compound, with the above as a title, is being ordered of the apothecaries of tills city, by prescription, ordering by title alone, generally finds the dispenser unfamiliar with this class of preparations. In the absence of other accessible means it is, of course, only by application to the prescriber or to some druggist who may happen to possess it, that the dispenser can procure the formula. It is proper that as soon as such recipes come into vogue or use they should become, through publication, common property, to the end that all may have equal opportunity.

The writer, on procuring the formula, and being under the impression that it was original in the French Codex, applied to Professor Maisch, who, after examination, very kindly gave the following information :

Dorvault's l'Officine (but not the French Codex) contains the recipe under the name of 'Sirop de Dentition de Delabarre' with a formula very similar to that you gave me, as follows:

R. Juice of fresh tamarinds.....	3 gm.
Infusion of saffron (strength 3 per cent.)..	2 “
Purified honey.....	10 “
Tincture of vanilla.....	25 “

Dorvault says, in a note appended, “The juice of tamarinds may be replaced by the pulp diffused in water” (proportions not given), the fresh juice, of course, not being obtainable.

There being, as will be observed, considerable obscurity in regard to proportion of ingredients in the components of the above, something will have to be assumed by individual judgment in working out an acceptable and nice compound. The preparation will be assigned, naturally, a place among the fanciful, but will attract the attention of

the younger members of the medical fraternity by its novelty. The elders, we imagine, will want it but seldom, unless it can be demonstrated that it has something of utility in it. As a placebo it may divert the infant by sweetening the coming tooth, but that it will assuage or mitigate the pain of that sometimes painful process, dentition (if that be the purpose and intention of the preparation), readers will pardon the writer for doubting.

PHILADELPHIA, November 15, 1884.

## LABORATORY NOTES.

*Abstracts from Theses.*

*Fluid Extract of Convallaria Majalis.*—The most satisfactory results, according to Wm. E. Cassell, are obtained by using for 16 troyounces of the drug a menstruum composed of 3 fluidounces of glycerin, 5 fluidounces of water, and 8 fluidounces of alcohol, and exhausting finally with diluted alcohol. Fourteen fluidounces of the percolate are reserved, and the remainder is mixed with 1 fluidounce of glycerin, evaporated to two fluid ounces and mixed with the reserved portion.

*Verbena hastata.*— Alexander A. Weber has found the blue vervain to be an excellent sudorific. The root, leaves and flowers are used, but the root, which has a bitter, astringent and nauseous taste, is the most active. The fluid extract is a convenient preparation and is made with diluted alcohol in the usual manner; the dose of it is one-half to one fluidrachm.

*Iris versicolor.*—The oleoresin prepared by Wm. L. Cliffe, yielded to acidulated water a brownish amorphous substance, which, after the separation of the acid, was soluble in ether, alcohol and water, the latter solution giving precipitates with potassio mercuric iodide and with potassium biniodide, while the alcoholic solution, acidulated with nitric acid and tested with phosphomolybdic acid gave a brilliant green color in a day or two. The drug after treatment with benzin, yielded to 80 per cent. alcohol several resins, tannin and sugar. Cold water now took up albumen, and gummy and coloring matter, after which treatment with boiling water yielded a slightly colored liquid which did not become blue with iodine. The distillate with water separated a solid compound which

became liquid at the temperature of the body. (See also "Amer. Jour. Phar.," 1876, p. 406, and 1881, p. 601.)

*Teucrium Scordium* has been used with advantage in hemorrhoids both locally and internally. Louis Murjahn has prepared a fluid extract, by exhausting the powdered herb with diluted alcohol in the usual manner; it is of a blackish green color and is given in doses of 1 or 2 fluidrachms. On evaporating this liquid, about 16 per cent. of a soft dark green extract is obtained, which has been used in the form of pills, one grain of it being combined with two grains of the powdered herb. For local use the ointment was prepared by mixing 1 part of the finely powdered herb with 9 parts of petrolatum.

## **MEDICINAL PLANTS USED BY THE CREE INDIANS, HUDSON'S BAY TERRITORY.**

BY E. M. HOLMES, F.L.S.,  
*Curator of the Museum of the Pharmaceutical Society,*

Mr. Walton Haydon, who has resided for some time in the Hudson's Bay Territory, recently presented to the Pharmaceutical Society a series of specimens of the drugs used by the native Indians, and with them has also contributed some information concerning their uses, which may be of interest in the future if placed on record. Only the native name of some of the drugs is known at present, but Mr. Haydon has promised to forward specimens of the plants from which they are obtained on his return to Hudson's Bay.

The remainder I have been able to identify.

*Pow-e-men-artic* (Fire Root, or Bitter Pepper Root).—This is the rhizome of *Acorus Calamus*, L., or a nearly allied species, and is used in coughs. The rhizome is rather more slender than met with in this country, being only about one-third of an inch in diameter, but seems to be quite as aromatic and pungent. It is not a little singular that there is hardly a country where this plant grows that the rhizome is not used in medicine.

*Waydhash?*—This is the liber of the bark of *Abies balsamea*, Marshall, freed from the periderm and leaving exposed the numerous vesicles in which the Canada balsam is secreted. The bark is about one line thick,

has a short fracture, and is of a white color when broken; the inner surface is pale-brown and the exterior reddish-brown. The taste is astringent and bitter, with a flavor of Canada balsam.

*Wakinakim*, the bark of *Juniperus communis*, L.—This is used to make a poultice for wounds. According to Mr. Haydon it is prepared for use by taking a stick and cutting it into pieces about four inches long, boiling it until the outer bark comes off easily, scraping off the inner bark and beating it between two stones into a pulpy mass, which is applied to the wound. Mr. Haydou has seen it so used, and remarks, “It certainly seems to clear a foul wound well, and is the usual remedy employed by Indians for wounds of all kinds.” The beneficial action of the bark is doubtless due to its great astringency, and to the volatile oil present in it, which would naturally act as an antiseptic.

*Milawapamule*, *Cornus sericea*, Herit., (Red Willow Bark).—This bark occurs in two qualities, one being in the form of slender quills, 3 or 4 inches long, bearing a slight resemblance to the bark of *Hhamnus Frangula*, but free from scars. The transverse fracture is yellowish-white, the inner surface light orange brown, and the exterior of a deep chestnut brown color, but when fresh of a bright crimson; the taste is bitter and the flavor resembles that of tea. The second quality consists of fine scrapings of the young bark. The latter is the form in which the bark is used as an emetic in coughs and fevers. For coughs the bark is boiled in water and the decoction strained and given while still warm in the dose of a wineglassful every few minutes until vomiting supervenes. For colds and fevers a teaspoonful of the decoction is taken occasionally. The scraped wood is also smoked, mixed with tobacco. Boiled with rust of iron it is used as a black dye.

*Nepatihe*, or Green Alder.—This is the bark of *Alnus viridis*, DC. It consists of thin shreds which have evidently been scraped off the young branches. The inner surface is of a pale dull brown and the exterior greenish brown. It has a very astringent taste with a slight bitterness and a flavor recalling that of the leaves of *Arbutus Uva-ursi*. It is used is dropsy.

*Metooos* (*Populus*, Sp.?) Poplar Bark.—This bark is in the form of thin flat strips of liber about half an inch wide and half a line thick. It has a bitter, slightly mucilaginous taste with some astringency, and a fibrous texture. The color externally is dull brown and on the inner surface

yellowish. Another form of the bark consists of thinner pieces torn into fine shreds. It is used in coughs, half an ounce, in the form of decoction, being the dose.

The inner bark of the poplar is eaten in the spring by the Indians, and is considered to act as a mild purgative. Mr. Haydon says he has eaten pounds of it without any effect being produced. It is at that time of the year pleasant in flavor, being sweetish and very tender.

*Wetchus-y-usk-wa*, or Service Tree, (*Pyrus*, Sp.?)—This is in the form of thin shreds scraped off the young branches. It is of a yellowish-white color on the inner surface, and of a purplish-brown on the outer. It has a slightly bitter, very astringent taste, and a strong tea-like flavor. It is used by the Indians in pleurisy and inflammatory diseases.

*We-suk-a-pup* (*Kalmia angustifolia*, L.), Bitter Tea.—The twigs with leaves and flowers are used in bowel complaints and as a tonic. A small handful is boiled in two pints of water, and a teaspoonful taken occasionally. A nearly allied species *K. latifolia*, is said to have cured an obstinate case of diarrhoea. In this instance an ounce of the leaves was boiled in eight ounces of water down to four ounces, and thirty drops of the decoction were given four times a day. When given six times a day this quantity caused vertigo. A case of poisoning from the use of *Kalmia latifolia* is on record, in which glowing heat in the head, loss of sight, coldness of extremities, were followed by nausea and vomiting (*Edinburgh Med. Journ.*, 1856, p. 1014), and subsequently formication, weakness of the limbs and great prostration of the circulation, remaining for several hours. It is pointed out in the United States Dispensatory (p. 1678) that *K. angustifolia* most likely possesses similar properties. It is remarkable, therefore, that it should be used as a tonic by the Cree Indians. The coldness of the climate may, however, modify the development of the poisonous principle, and species closely allied to a poisonous one are not always poisonous, as in the case of *Aconitum heterophyllum*, or even *A. paniculatum*, the latter nearly resembling the poisonous *A. Napellus*. Among other drugs mentioned by Mr. Haydon as being in common use by the Cree Indians are—Cedar leaves (*Juniperus virginiana*?) and *Galium boreale* as diuretics; *Actaea spicata*, L., and *Iris versicolor*, L., as purgatives; *Mentha canadensis*, L., in the form of tea, as a stomachic; *Lobelia Kalmii*, L., as an emetic; *Solidago Virgaurea*, L., as a tonic; Fleabane (*Erigeron canadensis*, L.?), in diarrhoea; the herb of *Prunella vulgaris* L., is chewed for sore throat.

*Karkar-pukwa* or Country Tea (*Ledum latifolium*, L.).—The fresh leaves are chewed and applied to wounds. The flowering tops are used as tea, and should be gathered when in full bloom. The dried flowers have an odor between that of tansy and chamomile. According to the United States Dispensatory the leaves are esteemed pectoral and tonic, and are said to have been used as a substitute for tea during the War of Independence. An account of the medicinal uses of this plant by the Indians of the North of Michigan will be found in the *Pharm. Journ.*, [3], viii, p. 850. By homoeopaths it is used as a remedy for tender feet, especially when associated with rheumatism, and the tincture is highly esteemed for relieving the pain of the stings of insects. (See also *Amer. Jour. Phar.*, 1878, p. 54.)

*Betula alba*.—The white rotten wood of this tree is boiled in a decoction of *Ledum latifolium* for an hour. The wood is afterwards dried, rubbed to powder and sifted. In this state it is used for chafed surfaces, the flesh being washed with cold water and the powder then sifted on it. Mr. Haydon speaks lightly of its value for this purpose, having had personal experience of its efficacy on chafed feet, etc. It is also used as a dusting powder for children.

*Prunus virginiana*, L.—The bark is used fresh, as a rule. It is used as a cure for diarrhoea. For this purpose a handful of the bark is scraped off a young bough and boiled in about a pint of water and a wineglassful used as a dose.

Castoreum is used to make a poultice for sprains.

Other plants used in medicine by the Cree Indians are *Apocynum hypericifolium*, Ait., and *Comandra livida*, Rich.

Leaves and barks used as an application to wounds are always chewed before being used. Emetics and purgatives are taken in the form of a decoction, a wineglassful is administered occasionally until the desired effect is produced.

Vermillion is also used in medicine, and the method of using it is as follows: It is mixed with gunpowder dampened and lighted, the patient sitting in a closed tent and inhaling the fumes.

Although the list of materia medica is a small one there is remarkable judgment shown in the choice of remedies. Thus, *Prunella vulgaris* makes an excellent substitute for *sal prunella* balls in sore throat, and the bark of the juniper and Canada balsam tree are doubtless as good an application to wounds as a people unversed in antiseptic applications and ignorant of the existence of bacteria could devise. The use of a *Lobelia* as an emetic and of *Iris versicolor* as a cholagogue and purgative approaches closely to the practice of more civilized nations. The simple device of bleeding from an artery by piercing it with a sharp flint and stopping it by pressure with a button of wood and a bandage shows a respectable knowledge of surgery.—*Pharm. Journ. and Trans.*, October 18, 1884, p. 302.

## **BRAZILIAN DRUGS AT THE VIENNA EXHIBITION.**

The *Zeitschrift des Allgemeinen österreichischen Apotheker-Vereines* now enables us to quote a series of notes upon the uses, etc., of these drugs. Very little is known about some of them in this country, and as South American drugs are frequently sent over to England, some of the information which has been furnished to the above may at a future time be found useful for reference. These notes are furnished to the above journal by Gustave Peckolt, apothecary at Rio Janeiro, son of the well-known botanist, Dr. Theodor Peckolt.

*Carquega Amargosa*.—The leaves of *Baccharis genistelloides*, Pers. [Compositae].—The powerfully bitter leaves serve as a substitute for wormwood. A tea prepared from these leaves is much used for indigestion and diarrhoea, 12 grams of the leaves being infused in 600 grams of water and taken in doses of a wineglassful. An aqueous extract is used in conjunction with salts of iron for debility and anaemia; a spirituous extract in doses of 2 grams for liver disease, and the bitter resin every two hours in intermittent fever between the attacks.

The fresh leaves analysed by Dr. Theodor Peckolt were found to contain in 1,000 parts 1.347 per cent. of a volatile oil and 17.948 of a dark green soft resin soluble in ether, 11.218 of a dark green hard acid resin insoluble in ether, 3.236 of a brown bitter resin, 8.413 of a tannin giving a green precipitate with iron salts; also wax, fat, etc.

The fresh leaves afforded 10 per cent. of watery extract and 9 per cent.

of a spirituous one.

The leaves are said to be exported in considerable quantity to France for preparing a secret remedy or some other purpose. The idea seems to suggest itself that this may be used as an ingredient of absinthe.

*Jaborandi*.—Mr. Peckolt remarks that various leaves of other rutaceous plants, more especially of the genus *Xanthoxylum*, are exported under this name by ignorant collectors (see *Pharm. Journ.*, October 20, 1883, p. 476, and *Pharm. Centralhalle*, No. 37, 1875).

*Jurumbeba* (*Solanum insidiosum*, Mart).—The leaves and unripe fruit are much used at Rio in vesical catarrh and liver disease. The drug is taken in the form of wine or pills and a plaster made with the extract is also applied externally. The dose of the leaves is 2 grams in 500 grams of infusion, a wineglassful being taken four times a day; of the extract 0.051 gram in the form of a pill four times daily. (See also "Amer. Jour. Phar.," 1877, p. 506.)

*Mangueira*.—The flowers of the mango, *Mangifera indica*, L. (*Anacardiaceæ*), are used either in the form of tea or powder for catarrh of the bladder. The powder is also used in the form of fumigation against mosquitoes.

*Rosa de Caboclo*.—The freshly expressed juice of the Indian rose plant, *Langsdorffia hypogæa*, Mart. (*Balanophoraceæ*), is used as an aphrodisiac, and the flower buds are eaten by the Indians.

On analysis 1,000 grams of the fresh roots of the plant yielded 9.015 grams of a soft bitter resin, and 7.768 grams of a yellow resinous acid soluble in ether, 3.137 per cent. of a brown resin insoluble in ether, 4.018 per cent. of a crystallized vegetable acid, 32.100 grams of a wax giving off a vanilla odor when heated, as does also the extract of the root. The vegetable acid does not correspond in chemical reactions with any known acid and seems to deserve further investigation.

*Cipó de Chumbo* (*Cuscuta racemosa*, Mart.).— The expressed juice of the fresh plant is used in menorrhagia and catarrhal affections. The decoction is taken internally and used externally for *crusta lactea* and as a gargle for inflammation of the throat. The powdered herb is said to be useful as a vulnerary.



*Castanha de Cera* (*Pachira*, Sp.).—The leaves possess mucilaginous properties. The seeds contain 25.385 per cent. of a colorless fat, melting at 77°F. and are edible. The tree affords a strong bast.

*Crua* or *Melao do baboclo* (*Sicana odorifera*, Naud., Cucurbitaceae). —In the ripe state it (the fruit) has a very pleasant odor. The juice is used as a refrigerant and antifebrile remedy, and the seeds are regarded as a powerful emmenagogue.

*Fava contra* (*Canavalla gladiata*, DC. Leguminosæ.)—The seeds are used as a remedy against the bites of serpents. The seeds are pounded with rum, the liquid pressed out and drunk, and the expressed portion applied to the bitten part.

*Fructo de Abutua* (*Abuta rufescens*, Aubl.).—The root is a considerable article of export as Pareira brava; it would be interesting to know for what purpose it is used, as it is impossible that the thousands of kilos exported should be used for medicinal purposes.

*Fructo de Arradiabo* (*Cnidoscalus neglectus*, Pohl. Euphorbiaceæ.) —In Pernambuco the freshly bruised leaves are used as a poultice for carbuncle. The leaves and husk of the fruit are furnished with glandular hairs which sting most virulently, causing blisters where they touch the skin and giving rise to fever. The seeds contain 31.5 per cent. of a purgative oil.

*Fructus de Barbatimao* (*Stryphnodendron polyphyllum*, Mart. Leguminosæ).—The pods contain soft sweet pulp, with a styptic after-taste, and are used for hemoptyses. The fresh pods were found by Dr. T. Peckolt to contain 7.9 per cent., and the dried pods 17.584 per cent. of tannin, which gives a black precipitate with ferric salts.

*Fructos de almecega* (*Protium heptaphyllum* B *brasiliense*, Engl. Burseraceæ).

*Fructos de Buchuiha* (*Luffa operculata*, Cogn. Cucurbitaceæ).—The fruits are as drastic in their action as colocynth, and are used in dropsy, amenorrhoea, liver complaints, and tropical anaemia (opilacao). For dropsy, a fruit is boiled for some time, strained and beaten until cold, into a froth like white of egg, and a tablespoonful given every half-hour

until vomiting or purging take place. In the northern provinces of Brazil it is used indiscriminately by the common people in all diseases, and, consequently, is sometimes used with bad results. For general use a bottle is half filled with the sliced fibrous part of the fruit, the bottle filled with rum and allowed to stand a day in the sun. In any indisposition a small dram glassful is taken, which usually produces six to eight evacuations.

*Fructos de Copaiba (Copaifera nitida, Mart.)*.—The pods are used only by herbalist in the treatment of gonorrhoea, but with success. It is noteworthy that the pods contain 19.568 per cent. of a soft resin, having the odor of balsam of copaiba, and that the odor of copaiba is found only in the wood, bark, and pods of the tree, the black seeds containing 3.558 per cent. of a fat oil, having the odor of tonka bean, and the orange yellow arillus surrounding the seed being free from odor.

*Fructo de Cujete (Crescentia Cujete, L.)*.—The pulp of the unripe fruit is beaten with sugar and taken in teaspoonful doses as a remedy for catarrh and bilious fever, and the expressed juice in doses of 8—15 grams in the treatment of convulsions. In the province of Pernambuco the full grown unripe fruit is heated over a fire until the shell begins to crack, and the pulp then removed, or squeezed out while hot, and given in doses of two spoonfuls for traumatic tetanus. The herbalists mix the heated mass with tapioca meal and make it into pills, or rather boluses, which they give for elephantiasis. Externally, it is applied to ruptures, and as a poultice for headache, bruises, scalds, and to ripen boils. The seeds are also used by the common people as a tæniifuge. The not pleasant pulp of the ripe fruit is eaten by negroes and Indians without unpleasant results. With the juice of the ripe fruit a cough linctus is prepared. The pulp, on examination was found to contain malic, tartaric and crescentinic acids, a tannin giving a green color with salts of iron, a bitter substance, brown resin, etc.; a kilogram of the fresh unripe fruit afforded 292.700 grams of juice, which yielded 1.690 gram of crescentinic acid crystallized in four-sided prisms from the alcoholic solution. The seeds contain an acrid, bitter, fat oil.

*Jaca (Thevetia neriifolia, 3 ass. Apocynaceæ.)*.—One kernel eaten, or pounded with milk and drunk, acts as a purgative in about a quarter of an hour; sometimes also producing vomiting. The usual dose as a purgative is half a seed, in rheumatism and dropsy. It is also a popular remedy for snake bites. Two seeds are beaten with a beer-glassful of

rum and strained, and a tumblerful taken every half-hour or hour and the residue applied to the wound. It is now, however, becoming supplanted by the subcutaneous injection of permanganate of potash. Notwithstanding that the activity of this antidote is doubted in Europe Mr. Peckolt says that in Brazil there is almost daily proof of its distinct efficacy.

*Fructo de Papagaio (Mahonia sp. ?)*—In the province of Minas, this fruit is called “Moribo,” and in San Paulo “Moluro.” It is a popular remedy for gonorrhoea. Parrots are very fond of the fruit.

*Fructo de Peroba (Aspidosperma Peroba, Tr. Allen. Apocynaceae)*.—The seeds are used as a purgative.

*Laranjas de Mato (Gardenia suaveolens, Veil. Cinchonaceae)*.—The bitter root-bark is used as a tonic in intermittent fever. The fruit is roasted in ashes and eaten by the Indians.

*Baunilha do Rio (Vanilla palmarum, Lindl. Orchidaceae)*.—The pods are collected in the province of Rio de Janeiro, in abundance on the banks of the river Parahyba, and would by proper treatment afford a good article of export. They contain 1.03 per cent. of vanillin.

*Casca de Angrio Vermelho (Piptædenia gida, Benth. Mimoseæ)*.— Much used as an alterative and blood purifier, being given in decoction made in the proportion of 60 grams to 500 grams of water, and strained. Externally it is used in the form of decoction or fluid extract as an application for oedema of the feet and chronic ulcers. The wood of the tree is valued as timber and the sawdust is used for preparing a fluid extract of syrupy consistence which is used as a vulnerary. It was used by Dr. Peckolt in a hospital at Rio de Janeiro for wounds, and in three days the pus had nearly disappeared, and in twenty days the wounds were perfectly healed. The sawdust was found to contain 5.128 per cent. of a soft resin soluble in ether, and 20.512 per cent. of tannin. A tincture of the leaves is also used for bruises and cuts.

*Casca de barbatimao (Stryphnodendron polyphyllum, Mart. Mimoseæ)*.—The bark is frequently exported to Europe as *Cortex adstringens*. According to Dr. Peixoto the decoction of the fresh bark, or the powder in the form of a poultice, is useful for unhealthy sores, and as an injection for leucorrhoea or passive haemorrhage. It is used in the form

of snuff for epistaxis, and the extract in the form of plaster for rupture. In cases of post-partum haemorrhage a decoction is made of 20 grams of the bark to 240 of water, the decoction strained, and 4 grams of acetic ether added; of this mixture a tablespoonful is given every hour. Dr. T. Peckolt found in the fresh bark 0.792, and in the fresh leaves 0.528 per cent. of a tannin which gives a green precipitate with salts of iron.

*Casca de Cedro Vermelho, Cedrela vellosiana*, Roem.—According to some writers on Brazilian drugs the bark possesses emetic properties, a statement that has also been copied in some French works. According to Dr. T. Peckolt's investigations in the hospital of Rio Janeiro the statement is not supported by facts. He gave the decoction in the dose of 40 grams of the bark to 240 grams of water without the least symptom of nausea being produced, and in one patient suffering from dysentery, in whose case an emetic was indicated, the decoction cured the patient. The fluid extract is given with success in diarrhoea, a tablespoonful being given every three hours of a mixture of 8 grams of the fluid extract in 120 of water. The fresh bark was found to yield only 0.03 per cent of tannin, which gives a black precipitate with iron salts. Ten kilograms of the dried bark yielded 1.976 grams of a volatile oil, having the odor of the wood.

*Casca de Raiz de Cipo Suma (Anchietea salutaris*, St. Hil. Violaceæ), —The root bark is officinal, and is much prized as a remedy for syphilis and herpetic eruptions. It is also used for whooping-cough in the form of syrup, 4 grams of tincture mixed with 30 of simple syrup. The decoction is prepared of the strength of 30 parts of the root to 500 of water; the powder is taken in doses of 2 to 6 grams three times a day.

*Casca de Guaranhem (Lucuma glycyphlœum*, Eichl. Sapotaceæ).— Dr. Peckolt found in monesia bark 22 per mille of monesia—tannic acid—which gives a black coloration with iron salts, 6.960 of gallic acid, 2.800 of monesin, an acrid amorphous body, 0.090 of lucumin, a body crystallizing in silky needles, 1.130 of a bitter substance and 15.000 of glycyrrhizin, tartaric and citric acids, wax, etc.

The dose of the decoction is made from 30 grams of the bark boiled in 500 grams of water. Of the extract (known as monesia), the dose is 0.6 to 1.5 gram, taken during the day. The tincture is prepared from 1 part of the bark and 5 of spirit of wine.

*Casca de Mulungu* (*Erythrina Mulungu*, Benth. Leguminosæ).— A largely used and much valued remedy. In small doses it acts as an anodyne and sedative; in larger doses it produces sleep without causing excitement; it is also used in cases of hypertrophy. It is added to baths to relieve rheumatism.

This drug has no doubt an important future, and it is well worthy of further examination from a physiological and a therapeutic point of view. The active principle has not yet been obtained in a definite form, although a yellow odorless resin and a strongly narcotic extract of a disagreeable bitter taste, tannin and nitrate of potash have been prepared from the bark.

*Casca Paratudo* (*Hortia arborea*, Engl. Rutaceæ).—The bark is an excellent tonic; it has an agreeable aromatic odor, a mild bitter flavor with a burning after-taste, due to the presence of volatile oil. It is a favorite tonic for weak digestion. The infusion is used in zymotic fevers, especially when severe (*atuctische*) skin eruptions are present.

The dose of the powdered bark is 0.5 to 1 gram. A concentrated infusion is used as an enema in prolapsus ani.

*Casca de Pao Pereira* (*Geissospermum Vellosii*, Fr. Allen).—The active principle, geissospermine, is best prepared by making an alcoholic extract, distilling off the alcohol and treating the residue with acidulated water and precipitating with ammonia. When prepared directly from a watery extract of the bark, the alkaloid is purified with difficulty.

*Casca de Sangue de Drago* (*Croton erythœma*, Mart. Euphorbiaceæ).—The bark is a favorite astringent. A decoction of the fresh bark evaporated to an extract of a weak syrupy consistence is known as mellado de sangue de drago. In chronic diarrhoea of adults the dose is a teaspoonful three times a day; for children a teaspoonful of a mixture of 2 grams of the extract with 60 grams of water every three hours. It is employed in the form of injection for gonorrhœa and leucorrhœa. It has also been used as a vulnerary with success.

*Casca de raiz Timbo* (*Lonchocarpus Peckoltii*, Waura, Leguminosæ).—A very powerful narcotic drug, which deserves to be introduced into Europe.

*Casca de Tinguaciba* (*Xanthoxylum Tinguassiba*, St. Hil. Rutaceæ).—The decoction is used as a powerful sudorific, and in the form of a gargle for affections of the throat, also as an addition to odontalgic tincture. Dr. Peckolt has found in the bark an alkaloid producing effects similar to those of pilocarpine.

*Quina do Remijio* (*Remijia ferruginea*, Ol. Cinchonaceæ).—The root-bark has long been used as a remedy for intermittent fever by the wandering natives. The active principle is an acid resin having a shining crystalline appearance and named by Dr. Peckolt vieirin after Dr. J. A. Vieira de Mattos, who discovered it in 1860. The vieirin can be prepared by exhausting the powdered bark with water rendered alkaline with ammonium or sodium hydrate and precipitating the liquid with acetic or hydrochloric acid. If extracted by means of milk of lime and alcohol it is obtained in a shining crystalline form resembling santonin. It is soluble in alcohol and alkalies and is given in a mixture with wine and bicarbonate of sodium.

*Raiz de azedinha grama* (*Oxalis violacea*, Veil.).—Root used as a diuretic; it is sweet and edible.

*Raiz de Calumba de Brasil*.—This is used as a tonic in weak digestion and for diarrhoea. *Simaruba salubris*, Engl.

*Raiz de Jaborandi do Rio* (*Artanthe Mollicoma*, Miq.)—Root used as a diuretic and in liver complaints. See Peckolt in *Pharm. Centralh.*, 1878, No. 37.—*Pharm. Journ. and Trans.*, October, 1884, p. 327.

## MARTYNIA AND ITS HUMBLE SERVANTS.

BY JOSEPH CRAWFORD, PH.G.  
From an Inaugural Essay.

This subject is chosen to show, not the presence of some powerful alkaloid or other valuable therapeutical, principle which I think is wanting, but rather some of the relations existing between plants and insects, and to awaken a deeper interest among students for observing the indigenous *Materia Medica* and the wonderful forms exhibited by plants.

The sciences of Botany and Entomology have been full of delightful interest to their respective students that the idea of connecting the two (in their earlier history) was almost disregarded, but now the one is known to be as dependent on the other for the perfection of its species, as the other is. on it for the perpetuation of its species. The *Martynia* has been selected, not as showing these relations to their utmost, but as a common example and full of untiring interest.

It is a native of the Southwestern States, but is cultivated in the eastern section annually for its flowers and fruit, the latter for pickles and condiments of like nature. The species *proboscidea* is the one under consideration, and about the only one that receives any horticultural attention. It belongs to the natural order *Bignoniaceæ*, and is commonly called Unicorn Plant, from the resemblance of the curved capsule and prolonged beak (with horny texture) to a horn, and the specific name is consequently easily-derived. The genus was named in honor of Professor Martyn, of Cambridge.

The plant is about two or two and one-half feet high, occasionally prostrate from weight of branches and fruit; leaves entire, large, round and heart-shaped, oblique at base, upper alternate, lower on very long petioles, and all nearly horizontally expanded. Inflorescence a large many-flowered raceme; calyx bell-shaped, with five unequal lobes, the upper lobe narrow,  $\frac{3}{8}$  to  $\frac{1}{2}$  inch long; the others are nearly equal. The lower portion of the calyx is split open to base, and subtended on either side near the top by a, large fleshy conical bract as long as the calyx, and of the same color, or a little darker. The corolla is gibbous, inflated, about an inch long, or longer, hangs obliquely on a pedicel twice its length; the lobes nearly equal, spreading, about half an inch broad. The lower lobe is somewhat longer and a trifle broader, and furnishes the most characteristic marking as a temptation or solicitation of insect aid that can be found in any order outside of the *Orchidaceæ*, represented in this section of the United States and will be described later. The tube of the corolla is spotted with yellow and purple both on the interior and exterior; the lobes have their share also in the same colors, but not so much of the purple dotting. There are four perfect stamens, didynamous, the fifth only partly developed, club-shaped and woolly; the filaments are long, and one or two are twisted. The anthers are regularly two-celled, and rectangular when opened, when they expose the pollen on the surface in four miniature bricks, by the cohesion with

the anthers. The filaments diverge in their recurvature, but always meet, to cast their pollen, in adjacent pairs. The pistil is also recurved, and exserted at all times beyond the stamens; stigma bifid, the upper portion rolled back; and the lower rolled inwards and somewhat longer than the upper.

On account of this arrangement, the anthers overcapped or covered by the stigma, it scarcely receives any pollen by the natural source, but most, if not all, through the agency of insects, in various ways.

One of the largest of its humble servants in this cause is the female of *Bombus virginicus*, which can be seen in early mornings flying from flower to flower seeking the nectariferous secretion. Its size will just admit its entrance into the tube of the corolla, and it must consequently brush its hirsute thorax against the opened anthers, and a quantity of the pollen adhering to it by contact is brushed off on the lower lobe of the stigma of the next flower visited; the stigma of the same flower is not fertilized by its own pollen by this bee, because of its sensitiveness; when the insect brushes against it on entering, it immediately closes in order to retain any pollen accumulated, and remains so for a lapse of time, or until the insect has left the flower.

This bee is one of its best benefactors, as on account of its size it cannot enter the tube of the corolla without touching either the stigma or stamens and deposit pollen obtained from the last visited flower and receive a new supply from the present one; and, aiding fertilization as described, its presence is an assurance of the complete fertilization.

Although this depends principally upon the bulk of the insect, yet a number of these winged friends are small and have each their peculiar mode of assistance.

“Nature abhors perpetual self-fertilization,” is true, but she always supplies the deficiency by having the aid of the wind, birds or insects in the distribution of the pollen; the wind for dioecious plants generally, and for small flowers with an interruption or transposition of parts. Those dependent on insects have some special attraction or solicitation for them, generally in a peculiar form of the flower or beautifully bright coloring of the whole or a part of it.

This plant depends on this last entirely; from its dependent position and



quiet coloring of the exterior surface of the corolla and calyx, and a great portion of the interior of the corolla, it would be passed unnoticed by the myriads of winged insects constantly passing near, were it not for the beautiful marking on the lower portion of the corolla. It begins at the insertion of the corolla on the receptacle, is prolonged through the tube in brilliant golden lines about the size of the filaments, and terminates on the lower lobe in bright golden splotches, in exact imitation of the stamens discharging their pollen. The quiet pearl hue of the background adds so greatly to the deception that even the instructed are too apt to consider them the essential organs without further investigation.

One of its numerous *small* friends is the *Melliaodes prunosa*, very frequent at all hours of the day and extremely busy; its size and general appearance is similar to that of the worker of *Apis mellifica*, and unobservant individuals are likely to confound them; but they can easily be distinguished by the little triangular white spot on the head, just above the mouth, and by their seeking separate flowers; the *Apis* scarcely visiting the *Martynia*, while the *Melissodes* crowd the corollas to the verge, so eager are they for the nectar secretion. They are as industrious and persevering as their relative, for frequently can they be seen crowding the whole length of the corolla, waiting patiently for their turn at the fountain of nectar, and one, undisturbed, will remain from 15 to 20 minutes at a single flower. It is only when congregated thus that they are of any service in aiding fertilization, as on account of their size they have easy access to all parts without distributing much pollen; but when a number of them are assembled the advent of a new arrival causes a flutter of excitement momentarily among the little congregation, pollen is detached, and, adhering to portions of their bodies, is transported to the stigmas of other flowers which are thus fertilized.

The *Melissodes* prefers the base of the flower for its exertions, but the genus *Halictus*, represented by a beautiful female, is content with the pollen, and works very industriously at it, letting no small amount fall on the backs of the "waiting congregation" of *Melissodes*, etc., and, these subsequently transporting it to the stigmas of other flowers, cross fertilization is again produced. This insect is much smaller than the preceding, much shyer and a great deal more active, but not as numerously represented.

In describing the plant nothing was said about the viscid glands covering its entire surface, giving it a somewhat glaucous hue, and one unaccustomed to the plant would in all probability, on hasty inspection, rank it as velvety to the touch, but on a more extended investigation the mistake would be clearly shown and the true nature reveal itself by its resinous secretion. Although so numerous, they can scarcely be described without the aid of the microscopical instrument, except that they are of various sizes, the largest about a line in length, rather rigid, composed of from four or six to ten or twelve transparent elongated cells, terminated in a flattened globe (mostly), but when a foreign substance touches the tip a threadlike glutinous mass is drawn out, exhausting the gland in part and causing it to assume another shape. They are more numerous and larger on the under side of leaves, main stem and parts of the inflorescence, while the upper side of the leaves is covered with a shorter kind, nearly free from resin (probably from attrition of elements), and the long curved pods are comparatively free from it.

The office of the glands is at present unknown, but undoubtedly they are of consequence in assimilation to the plant in this wise: from their glutinous nature, small insects meet their fate by passing too near, or, forced by the wind upon them, and struggling, they become still more entrapped, and death relieves them of their misery, and they become disintegrated by unseen forces. Whether or not they are absorbed in the liquid or gaseous form is yet to be ascertained; many writers have approached the subject, but accomplished nothing. Darwin and Mrs. Treat have proved the presence of gastric juice in *Drosera* and *Dionæa*; but then the adaptations are dissimilar, these being mobile and the *Martynia* immobile.

It is not altogether unlikely that the odor of the plant assists in the "slaughter of the innocents," by alluring them to it, as it is very offensive to many people having occasion to pass it. From the upper surface of a leaf taken from the middle of the stem were counted 16 hemipterous and 1 coleopterous, and on the lower surface 112 dipterous and 5 coleopterous insects, insects with a few living aphides, in different stages of development. This is the number from one ordinary leaf, and it is very easily seen that a few of these plants in a garden must necessarily rid it of countless numbers of these, apparently, creatures of detestation, and render man an unseen service of good. Some of these thus caught were too minute to specify, and others comparatively rare; such were a male and female *Halictus*. *Phyllobreta dilaticornis* was

very frequent; *Ascogaster basalis* quite numerous, and *Haltica fuscata* was very well represented. It was noticed that the *Halictus*, in its flight to the flowers, frequently came to its death on the glands beneath.

From these few facts we are safe at least in pronouncing *Martynia* an entomophilous plant, an insecticide, and in all probability insectivorous, worthy of considerable attention, more than I have had time to bestow, and from two partial afternoon associations with it.

The investigation of species was assisted by Prof. Ezra T. Cresson and Mr. Aaron, of the Academy at Shanuonville, Pa.