

## NUX VOMICA.

The dry, ripe seeds of *Strychnos Nux vomica*, Linné (Nat. Ord. Loganiaceae). According to the U. S. P. it should contain at least 2.5 per cent of nux vomica alkaloids. India, along the Coromandel Coast, Ceylon, and other parts of the East Indies. *Dose*, 1/20 to 2 grains.

**Common Names:** Poison Nut, Dog Button, Quaker Buttons.

**Principal Constituents.**—The powerfully poisonous alkaloids *strychnine* (C<sub>21</sub>H<sub>22</sub>O<sub>2</sub>N<sub>2</sub>) and *brucine* (C<sub>23</sub>H<sub>26</sub>N<sub>2</sub>O<sub>4</sub>) in union with igasuric acid. Loganin, a glucoside, is inert.

**Preparations.**—1. *Specific Medicine Nux Vomica.* *Dose*, 1/30 to 5 drops. (Usual form of administration: Rx Specific Medicine Nux Vomica, 5-15 drops; Water, enough for 4 fluidounces. Mix. Sig.: One teaspoonful every 1 to 3 hours.)

2. *Tinctura Nucis Vomicae*, Tincture of Nux Vomica. *Dose*, 1 to 15 minims.

**Specific Indications.**—Atonic states; tongue pallid and expressionless, uncoated, or with a yellowish pasty coat; yellowness of conjunctivae; yellow or sallow countenance, and yellowish or sallow line around the mouth; fullness and dull pain in the right hypochondrium; pain in the right shoulder, with colicky pain, pointing toward the umbilicus; menstrual colic; constipation; diarrhoea of atony; functional forms of paralysis.

**Action.**—In small doses strychnine (and nux vomica) has but little apparent effect other than that of a powerful bitter and general tonic. Larger doses greatly stimulate and still further heighten bodily tone. Full medicinal doses increase reflex action, quicken the rate of respiration, and enlarge the capacity of the lungs, augment the force, rate, and volume of the pulse, raise arterial pressure, give increased sharpness to sight, hearing, and smell, and cause general irritation and excitement. It acts directly upon the heart-muscle and its ganglia, stimulating them, but its lethal doses depress. The arterial rise is due to vaso-motor stimulation. It is one of the most powerful of respiratory stimulants, acting through the centric center of respiration, and not only increases the rate and power of breathing, but enlarges the lung capacity. Its action upon the nervous system is chiefly upon the ganglionic cells of the motor tract of the spinal cord, and in poisonous doses causes such profound irritation or excitement as to render them extremely responsive to the slightest stimuli, resulting in tetanic

convulsions. Most likely it also feebly stimulates the sensory tracts and slightly increases the power of nerve conduction. Upon the cerebrum it is almost without action, except possibly to stimulate to greater acuity the nerve centers of the special senses. Temperature is scarcely affected by ordinary doses of strychnine. While a portion of strychnine is oxidized in the body, the drug is excreted by the kidneys unchanged and as strychnic acid.

Strychnine, brucine, and nux vomica are all extremely energetic poisons, acting as such chiefly by excessive stimulation of the spinal cord and the medulla. Strychnine is the most powerful and quickest, brucine considerably less so, while nux vomica is slower than strychnine, but almost identical in action, and if the quantity be sufficient, equally certain to cause death.

The slightest observable effects from small doses of these drugs occasion slight twitching of the muscles of the arms and legs, especially during sleep. This is accompanied by restlessness, some anxiety, quickening of the pulse, and generally slight sweating. Sometimes the action of the bowels is increased, and there is a greater quantity of urine secreted, which is voided with more than ordinary frequency. The sexual passions may be excited. In larger doses, but not large enough to kill, a sense of weakness and heaviness is experienced, with depression of spirits, trembling of the limbs, and a slight rigidity or stiffness upon attempted movement. Inability to maintain the erect position is common, and a light tap upon the ham, given suddenly, will be followed at once by a slight spasm, and the patient will no longer be able to stand. These are toxic and near-lethal effects. Lethal doses bring on the most violent of spasms and death (see below).

The long-continued use of strychnine, in excessive amounts, tends to impair the digestive organs, and while small doses favor diuresis, large quantities impair that function by producing spasms of the bladder muscles.

**Toxicology.**—Lethal doses of nux vomica or strychnine produce at first marked uneasiness and restlessness, with more or less of a sense of impending suffocation. Tremors of the whole body are observed. Suddenly there is violent starting of the muscles, and the ensuing convulsions are of such great violence as to throw the patient off the

bed, or to a considerable distance. Nearly all the muscles are affected at the same time; the exception being, perhaps, of those of the jaws, which become locked last. The risus sardonicus is present and gives to the countenance a fiendish expression. Opisthotonos to an extreme degree takes place, the body resting upon the head and heels, with the hands clenched and the feet inverted. The convulsion is distinctly tetanic and is followed by a brief period of rest, during which the patient suffers acutely from pain, weariness, and rending of the limbs. He is conscious at all stages of the poisoning except just preceding death. During the intervals of repose from the convulsions there is acute sensibility and dreadful alarm. Upon the renewal of attack the patient may cry out from the violence of the spasmodic grip upon the respiratory organs. The slightest sound, draught of air, or beam of light will at once renew the convulsions. The spasms succeed each other rapidly, death usually taking place after three or four convulsions. Death may occur during the interval from exhaustion, or paralytic asphyxia, or during the vise-like grip upon the respiratory muscles and the heart from cramp asphyxia. The body stiffens after death and this rigidity has been known to persist for months.

The smallest doses known to have produced death are 30 grains of nux vomica (equal to about 1 seed, or 1/3 grain of strychnine); 3 grains of the extract of nux vomica; and 1/16 grain (child) and 1/2 grain of strychnine (adult). Death usually occurs in about two hours, or may be delayed for six hours. If six hours have elapsed without death the patient is likely to recover.

In poisoning by strychnine (or nux vomica) the patient must be kept absolutely quiet. No noises should be permitted, nor even a draught of air be allowed to strike the body, nor a strong beam of light the eye. Emetics are only admissible very early before convulsions have occurred. If the patient is seen immediately after taking the poison the stomach should be repeatedly washed out with a solution of permanganate of potassium, or of tannin, or strong table tea. If an emetic is to be used, apomorphine is to be preferred. Lard, sweet oil, milk, or charcoal may be given with a view of enveloping the poison and retarding its absorption. Chloroform is the best agent to control the convulsions, but should be administered between spasms while the patient is able to inhale. No inhalation can take place during the convulsions. Amyl nitrite is also useful. Large doses of bromide of potassium (60 grains) and chloral hydrate (30 grains) may be given per

rectum. King believed camphor antidotal to strychnine and cited its saving effects upon animals to prove his contention. Artificial respiration is useful, but if resorted to the body must be grasped firmly as it is then less likely to excite spasms than is light and superficial contact with the skin. If a very large dose of the poison has been swallowed death is almost inevitable as its action is usually in full force in fifteen minutes, and as a rule, long before medical aid can be procured. Circumstances, however, alter the rapidity of poisoning, as the manner of taking the drugs, the contents of the stomach, and the facility for absorption, hence every effort should be made to sustain life even in apparently hopeless cases. Nux vomica poisons more slowly than the strychnine salts.

**Therapy.**—As a rule nux vomica is more largely used in disorders of the gastro-hepatic tract than is strychnine; while strychnine is more generally preferred for nervous, sexual, and bladder disorders. For cardiac and respiratory dyspnea, shock, and other emergencies, strychnine, hypodermatically administered is by far the quicker and better procedure. In all the conditions named to be considered, either nux vomica or the alkaloidal salts may be used, with the almost complete preference for the nux vomica in the stomach and bowel disorders.

Nux vomica should not be given for long periods without intervals of rest, and strychnine should be reserved for an emergency remedy and never given, as it is, too frequently, for long periods as a nerve bracer. Remember, it is a powerful stimulant, but stimulates to exhaustion, causes prolonged erethism, and often invokes a low-running fever. The best dose of nux vomica for general purposes is the fractional, at most not to exceed one drop of the specific medicine.

Nux vomica is the most important remedy for atony and relaxation of the stomach and bowels and disorders dependent thereon. The condition is never one of irritation from offending food, or from active hyperemia, or ordinary congestion, and with rare exceptions of inflammation, even of subacute type. But there is very marked nervous irritability due to atony of the muscular coats, irresponsive glandular action, and depression of spinal and vagal innervation. The tongue is pale and expressionless, and may be pasty and have a yellow coating. There may or may not be nausea or vomiting, or both, there is a sallow or yellow border around the mouth, a general sallow complexion, and

evident hepatic malfunction. Quite often the conjunctivae are yellowish, there is pain extending to beneath the right shoulder blade, and a colicky type of intestinal pain with flatulence, pointing from the gall-bladder to the umbilicus. With some, or the totality of these indications, it proves a remedy of great power in a variety of digestive and intestinal wrongs, among which may be named simple atonic indigestion, pyrosis, flatulent colic, nervous gastric debility, chronic diarrhea, cholera infantum, muco-enteritis, and chronic non-inflammatory diarrhea. In the three last named disorders, the child is weak, apathetic, and listless, the stools pass unnoticed and painlessly, or perhaps may be preceded by a slight umbilical colic. For colic, nux vomica is second only to colocynth, and preferable when the above indications are present.

Nux vomica is one of the best agents for so-called chronic gastritis of various types and origins, but all of an atonic character. With other bitter peptics, especially hydrastis, it is especially valued in chronic atonic dyspepsia. Rx Specific Medicine Nux Vomica, 10 drops; Glycerin, 2 fluidrachms; Phosphate of Hydrastin (or Specific Medicine Hydrastis, 1 fluidrachm) 10 grains; Water enough to make 4 fluidounces. Mix. Sig.: One teaspoonful every four hours. The pale tongue, bad taste and pallor about the mouth will guide to its selection. In rare cases in which the tongue is of normal redness it may be alternated with hydrochloric acid in minute doses. When the liver involvement is prominent—with yellow, pasty tongue, hepatic tenderness and icteric coloration of the eye, Specific Medicines Leptandra or Chionanthus may be substituted for the hydrastis preparations. Not alone does nux vomica overcome the irritability upon taking food, but it overcomes dilation of the organ from relaxed musculature and the associated flatulent distention. Drop doses of the specific medicine in a full glass of cold water taken upon an empty stomach upon arising in the morning, and insistence upon an absolutely rigid adherence to a regular time for attempting defecation, will aid marvelously toward a cure of obstinate habitual constipation. Drop doses several times a day is also good medication in the dyspepsia of inebriates, with loss of digestive power and relaxation, and either stubborn constipation or oft-recurring diarrhea. Nux vomica will sometimes relieve spasmodic conditions of the bowels when due to lack of peristalsis, with obstinate constipation, and it also occasionally relieves colic and costiveness caused by lead. But few doses of nux vomica, given in hot water, will be required to cut short an attack of

infantile colic when due to torpid digestion; and the remedy is direct in relieving borborygmus in women with relaxed and weak abdominal walls and intestinal ptosis. It is sometimes of greater advantage when given in trituration with milk sugar, carbo-vegetabilis and asepsin, when fermentation of food with belching of gases is prominent.

In that form of so-called congestion of the hepato-splenic circuit due to weakness and sluggish portal circulation the drug is promptly effective. The congestion here is not active, but rather a stagnation due to atony and poor innervation. Nux vomica is the most commonly employed remedy to relieve that condition comprehended in the general and somewhat vague term "biliousness", a state best described by the totality of gastro-hepatic symptoms included in the specific indications at the head of this article. It should be borne in mind that in the stomach and bowel disorders requiring nux vomica or strychnine, there is always a feeble and sluggish circulation, capricious appetite, faulty digestion, irregular bowel action, and depressed spinal and sympathetic innervation. When these are present it is a most decidedly beneficial remedy. Glyconda or neutralizing cordial is a good vehicle for the administration of nux vomica to children when sugar is not contraindicated.

Nux vomica, and more particularly strychnine, are the leading remedies for amblyopia due to alcohol and tobacco; and both are valuable in eye strain, especially of the type of muscular asthenopia. Aggravations of eye and ear disorders, when due to general systemic atony, are nearly always mitigated by it. Foltz declared it the best remedy for purulent otitis media with general lack of tone, and advised it in chronic conjunctivitis and phlyctenular keratitis due to the same cause.

Both nux vomica and strychnine are very serviceable in the urinal incontinence of children, and of the aged, when due to a relaxed or paralyzed sphincter, with feeble circulation. Conversely both are remedies for paralytic retention of urine; and in catarrh of the bladder with marked muscular and nervous depression. Both stimulate the sexual organs and have, therefore, been given with varying success in impotence, spermatorrhea, and sexual frigidity of women. When coupled with abstention from sexual excesses good results are observed. When there is anemia, constipation, and general torpor, then these drugs, together with iron, sometimes rectify amenorrhoea. With

cramps, chilliness, and premature flow, and where there is great bodily weakness, they may be administered for the relief of dysmenorrhea and in menstrual colic, while for leucorrhœa with heavy yellow discharges and marked nervous debility they greatly assist other specific measures in restoring a normal condition.

*Nux vomica* is a valuable auxiliary in the treatment of chronic alcoholism, especially in those of a robust constitution, but with great nervous excitability and disposition to indulge in periodical sprees. We have given the following with excellent results: Rx Specific Medicine Belladonna, 20 drops; Specific Medicine *Nux Vomica*, 30 drops; Specific Medicine *Capsicum*, 10 drops; Water enough for four fluidounces. Mix. Sig.: One teaspoonful every four hours..

## OENANTHE.

The root of *Oenanthe crocata*, Linné (Nat. Ord. Umbelliferae). A poisonous swamp plant of western and southern Europe. *Dose*, 1/8 to 1/2 grain.

**Common Names:** Water Hemlock, Water Lovage, Hemlock Dropwort, Dead Tongue, Water Dropwort.

**Principal Constituent.**—An exceedingly toxic resin, soluble in alcohol but not in water.

**Preparation.**—*Specific Medicine Oenanthe.* *Dose*, 1/20 to 1/2 drop.

**Action and Therapy.**—Small doses of oenanthe (5 drops of the specific medicine) may cause violent headache, dizziness, delirium, and other unpleasant symptoms. The fresh plant produces gastro-enteritis and convulsions, often with fatal results. It has been advocated for use in epilepsy, but its exact symptomatology has never been satisfactorily determined. It must be used in fractional doses, never to exceed 1/2 minim. It probably acts best when there is anemia of the brain, and has been suggested in maladies resulting from malnutrition and anemia of the cerebrum and cord.

## OENOTHERA.

The whole plant of *Oenothera biennis*, Linné (Nat. Ord. Onagraceae). A common plant in waste places in the United States. *Dose*, 5 to 60 grains.

**Common Names;** Evening Primrose, Tree Primrose.

**Principal Constituents.**-Tannin and an abundance of mucilage; also potassium nitrate and aenotherin, a mixture of substances not well determined.

**Preparation.**—*FluidextractumOenothera*, Fluidextract of Oenothera. Dose, 5 to 60 drops.

**Specific Indications.**—Dirty, sallow, full and expressionless skin and tongue, the latter being unnaturally large; face dull and apathetic, and patient gloomy and despondent; dyspepsia with vomiting of food, gastric distress, and frequent desire to urinate.

**Action and Therapy.**—Oenothera is but little used, but has been suggested by Scudder as useful in gastro-hepato-splenic disorders, with the symptoms named above. Webster believes it may prevent ulceration of Peyer's patches. It is probably of some value in gastric distress following meals, with the gloomy and melancholic state of mind which frequently accompanies dyspeptic conditions. It has also been advised in pelvic fullness and torpor in women. Undoubtedly it does relieve the desire to frequently pass urine and has been used after gonorrhoea for this purpose.

## OLEUM CADINUM.

Oil of Cade, Cade Oil, Juniper Tar Oil, Oleum juniperi Empyreumaticum.

A product of the dry distillation of the wood of *Juniperus Oxycedrus*, Linné (Nat. Ord. Cupressaceae).

**Description.**—A brownish or dark-brown, clear, thick fluid, having a tarry odor, and a burning empyreumatic, bitterish taste. Almost insoluble in water, partly soluble in alcohol, and wholly in chloroform and ether. It mixes well with fats and petrolatum.

**Action and Therapy.**—Oil of Cade is often used as an ingredient of liniments and ointments for chronic skin diseases of the scaly and moist types, as eczema, psoriasis, and prurigo, and in parasitic disorders, as favus and various types of ringworm. For favus a soapy embrocation composed of four parts each of alcohol and soft soap and one part of oil of cade is said to be convenient and effectual. The persistent and penetrating odor of oil of cade is a drawback to its use, and the oil should not be employed in acute affections of the skin.

## OLEUM CAJUPUTI.

Oil of Cajuput, Oil of Cajeput.

A volatile oil distilled from the leaves and twigs of several varieties of *Melaleuca Leucadendron*, Linné (and others...MM) (Nat. Ord. Myrtaceae). The white or broadleaved tea tree of the Moluccas and adjacent islands.

**Description.**—A light, thin, bluish-green liquid (after rectification colorless or yellowish) having an agreeable and decidedly camphoraceous odor, and a bitterish aromatic taste. With an equal volume of alcohol it forms a clear solution. **Dose**, 1 to 10 drops.

**Principal Constituents.**—*Cajuputol* (*Cineol* or *Eucalyptol*) (C<sub>10</sub>H<sub>16</sub>O) (over 65 per cent), a constituent of many oils; *terpineol* and a small quantity of terpenes.

**Preparations.**—1. *MisturaCajuputiComposita*, Compound Cajuput Mixture (Hunn's Drops; sometimes called Hunn's Life Drops and Compound Tincture of Cajeput). Contains oils of cajuput, clove, peppermint, and anise, of each 1 fluidounce dissolved in 4 fluidounces of alcohol. A popular antispasmodic during the Cincinnati cholera epidemics of 1849-51. **Dose**, 10 to 60 drops well diluted, or in syrup, mucilage, brandy, or sweetened water. Large and repeated doses will cause gastro-intestinal inflammation.

2. *Linimentum Cajuputi Compositum*, Compound Cajuput Liniment (oils of cajuput, sassafras, and hemlock, 1 ounce each; soap, an adequate amount to form a liniment).

**Action and Therapy.**—The compound liniment of cajuput is a useful stimulant and discutient. It is principally used in mammitis. The compound tincture of cajuput is effective in the relief of pain, as neuralgia, pleurodynia, myalgia, chronic joint inflammations, and in nervous headache. The oil applied to the cavity of a carious tooth sometimes relieves toothache.

**Internal.** Oil of cajuput may be used for the same purposes as the other aromatic oils, chiefly as a stimulating carminative to relieve intestinal pain, spasmodic colic, and cramps, and to alleviate hiccough, nervous vomiting, and congestive dysmenorrhea. It is also a good stimulant in the cough of phthisis, and chronic forms of bronchitis and laryngitis.

The Compound Cajuput Mixture is a most valuable agent in cholera morbus, being used by Eclectic practitioners oftener than any other

medicine, except in severe cases when the conjoint use of morphine is necessary.

## OLEUM CHENOPODII.

Oil of Chenopodium, Oil of American Wormseed.

A volatile oil obtained from *Chenopodium ambrosioides anthelminticum*, Linné (Nat. Ord. Chenopodiaceae). Naturalized in the United States.

**Description.**—A colorless or pale-yellowish oil having a penetrating and persistent disagreeable taste and odor. Soluble in alcohol. **Dose**, 1 to 6 drops.

**Specific Indications.**—Ascarides, hookworm.

**Action and Therapy.**—One of the most efficient but disagreeable tasting of anthelmintics, being especially useful for the removal of ascarides or roundworms. Two (2) or three drops may be given on sugar, in emulsion, or in capsules two or three times a day before meals, for two to five days, and followed by a brisk cathartic. Intestinal irritation and inflammation is not a bar to its use notwithstanding that it is a stimulant to both the circulation and nervous system. It is said to succeed better than thymol in hookworm (uncinariasis) and, unlike that agent, can be given in association with castor oil, the latter also increasing its efficiency. Oil of chenopodium forms the basis of several popular “worm nostrums”. It is also diaphoretic, diuretic, and expectorant.

## OLEUM OLIVAE.

Olive Oil, Sweet Oil.

A fixed oil obtained from the ripe fruit of *Olea europaea*, Linné (Nat. Ord. Oleaceae). The olive tree of Asia and southern Europe; cultivated.

**Description.**—A pale yellow or light greenish-yellow oil, of slight odor and taste, followed by feebly acrid after-taste. Slightly dissolved by alcohol, but miscible with chloroform and ether. **Dose**, 2 fluidrachms to 2 fluidounces.

**Principal Constituents.**—*Olein* (72 per cent), palmitin (28 per cent), and *arachin*.

**Action.**—Emollient and demulcent, nutritive and mildly aperient.

Applied to the skin it is protective and softening, and when accompanied, by massage is readily absorbed and appropriated by the system. When swallowed it has little effect in the stomach other than that of a lubricant, but is, partly at least, emulsified and saponified upon reaching the intestines. Here it parts with its olein which becomes a part of the general fat of the body, while excessive quantities pass by way of the intestines and the unassimilated absorbed portion, by way of the renal tract. In contact with the conjunctiva olive oil is irritating.

**Therapy.—External.** Sterile olive oil is a good lubricant for sounds, bougies, and catheters. To facilitate the passage of a catheter inject through it into the urethra warm olive oil to distend the passage. Masseurs sometimes employ it in their manipulations of the body, but it is less useful than wool fat or cacao butter. It is the safest oil to drop into the auditory canal to kill live insects and facilitate their removal afterward by syringing with warm water. It deprives the insects of oxygen, thus causing their death. Olive oil is sometimes applied to burns and scalds, but is less valuable than lime liniment (Carron Oil). Applied warm it gives relief from the pain of insect stings and bites. It may be used for anointing bruises and excoriations, and is especially useful to prevent excoriations from acrid discharges. It causes too much smarting, however, to use upon the chafed surfaces of infants. Poured over the surface it mitigates the pain and unites to chemically form a soap in cases of external poisoning by caustic alkalies. It is sometimes comforting in sunburn and other acute forms of dermatitis. Dropped warm into the aural canal it frequently relieves earache, but has no advantage over warm water for this purpose. Injected into the rectum it removes ascarides, and sometimes soothes when so used in dysentery and colitis. It is the most commonly employed softening agent for cutaneous crusts, such as those of eczema, seborrhea, favus, and psoriasis. Inunctions of olive oil may be used in malnutrition and wasting diseases, but are far less valuable than cod liver oil for this purpose. It is, however, readily absorbed and thus serves as a food. In the desquamative stage of the eruptive diseases it relieves burning, itching, lowers temperature by quieting the patient, and prevents the dissemination of infective scales. It is particularly useful in scarlet fever. Olive oil is frequently used as the carrier of local anodynes and anaesthetics, as morphine, menthol, camphor, phenol, etc. A warm, olive-oil solution of camphor is a most effective agent in mastitis, both

to relieve the tensive pain and to lessen the secretion of milk. It enters largely into the formation of ointments, cerates, liniments, and plasters.

**Internal.** In doses of one to two ounces olive oil may purge, but it is often uncertain and ineffective as a laxative. When one is inclined to dyspepsia it tends to increase the digestive difficulty. It is commonly given to infants as a laxative in constipation, but while it sometimes relieves it more often disturbs by creating a mild dyspepsia. Pediatricians now generally hold it more harmful than useful in infantile constipation. It may, however, be used by adults exposed to opportunities for lead constipation and in lead poisoning, to prevent absorption of, and overcome the constipating effect of the metal. While of undoubted utility in some cases of cholelithiasis, by indirectly causing a greater increase in the watery constituent of the bile, it is probably of no other value in the gall-stone diathesis. Certainly it does not dissolve the concretions in the gall duct no matter how readily it may affect the solution of cholesterin outside the body. In the intestines it is converted into a soap, and saponaceous particles have been mistaken for expelled gall-stones. Notwithstanding, it is extensively used and advised by physicians to the extent that the laity now consider it the great essential in the treatment of gall-stone disease. The effect of its long-continued use is to derange both the stomach and the bowels. We have seen a persistent diarrhea follow the prolonged use of the oil.

Olive oil may be given immediately in poisoning by alkalies and other irritant substances. With the first it combines by saponification, and in the latter acts as a demulcent. It should not, however, be given in either phosphorus or cantharides poisoning, as the activity of these substances through oil solution is decidedly increased.

## **OLEUM RICINI.**

Castor Oil.

The fixed oil obtained from the seeds of *Ricinus communis*, Linné (Nat. Ord. Euphorbiaceae). An East Indian plant; cultivated.

**Description.**—A pale yellow or nearly colorless viscid oil, having a faint odor, and a bland, somewhat acrid, and nauseating taste. **Dose**, 2 to 8 fluidrachms.

**Principal Constituents.**—The glyceride of *ricinoleic acid* (*ricinolein*), fixed oils, and the non-purgative *ricinine*.

**Specific Indications.**—Pain and irritation in the intestines from irritating or undigested food; intestinal, subacute inflammation, with colic, and watery or mucoid passages.

**Action.**—Applied externally castor oil is non-irritating, protective, and somewhat emollient. When swallowed it does not irritate the stomach, and the nausea induced is probably due to the odor and the persistence of the unpleasant clinging contact of the oil in the mouth. Upon entering the small intestines it is split by the pancreatic juice into glycerin and ricinoleic acid, and the latter induces the purgative action. Rubbed into the abdomen castor oil will also cause purgation. After the first hardened feces are removed the stools become liquid and are passed without pain or tenesmus. Castor oil seeds are poisonous, twenty having killed a child.

**Therapy.**—*External.* Castor oil is protective and slightly stimulating to denuded surfaces, and may be dropped into the eye after burns have caused an ocular ulcer. Equal parts of castor oil and balsam of Peru have been used successfully upon old, sluggish ulcers, as of the shins, and in the treatment of hypergranulation following pus infection after abdominal operations; also in healing the ulcers from burns, wounds, and abscesses.

*Internal.* Castor oil is one of the mildest and most satisfactory cathartics, and with the exception of sulphate of magnesium is the most commonly employed purgative. It has no irritant effect upon the stomach and operates usually in four or five hours. It is probably the best laxative for children to cleanse the intestinal tract of tainted or undigested food, poorly masticated nuts, and mucoid accumulations. It is very effective in dysentery to prepare the way for more specific medicines, especially when there is evident constipation of the upper bowel. It may prove the best agent where hardened feces are the cause of a mucoid diarrhea. The best preliminary treatment of entero-colitis in children is a purge of castor oil, after which indicated remedies have a much better opportunity to act. Owing to its thorough yet mild and unirritating character it is the most suitable laxative for constipation of children and for pregnant women before and after labor, before and after abdominal and pelvic operations, and when inflamed

hemorrhoids are present. After its use in irritative diarrhoea no other agent will be needed, for the provocative cause having been removed the natural tendency of the oil is to cause constipation. Castor oil is not a good remedy for chronic constipation, for it cannot be used for prolonged periods without detriment to the patient, and probably an aggravation of the costive condition. But for an occasional purge in constipation preliminary to the use of cascara and other better laxatives for continued use nothing is better than a free dose of castor oil. In cases where there is a semipasty and tenacious light-colored stool with burning at voiding and persisting for weeks, and there is much semi-colicky uneasiness or soreness in the bowels and frequent desire to defecate, castor oil is the best purge that can be used. A single dose usually rectifies the trouble. Castor oil may be used even in inflammatory and febrile conditions.

Castor oil may be employed to assist in the expulsion of worms, giving it before and after vermifuges and taeniocides. It should not, however, be given if aspidium (male fern) has been used, for it increases the poisonous absorption of the latter.

The great drawback to castor oil is its nauseous taste, which may be more or less disguised by peppermint and other aromatics. Peppermint lozenges may be eaten immediately before and after swallowing it; it has been advised in coffee, sweet cider, ale, milk, and broth, but we do not favor the giving of nauseous medicines in common beverages and foods, lest a disgust for the latter be engendered. The following is the best method we know of for administering castor oil: Squeeze into a suitable warmed glass a small quantity of orange juice, and thoroughly rinse the inner surface of the glass with it. Place the dose of oil upon the juice and cover with more juice. Then having moistened the mouth completely with a portion of the orange juice quickly swallow the mixture within the glass. If this is well carried out the oil will not adhere to the mucosa nor will it be tasted. When a strong purgative is needed, equal parts of aromatic syrup of rhubarb (or neutralizing cordial or glyconda) and castor oil may be given in doses of one to two fluidounces.

## **OLEUM SANTALI**

Oil of Santal, Oil of Santal Wood, East Indian Oil of Santal, Oil of Sandalwood.

A volatile oil distilled from the wood of *Santalum album*, Linné (Nat. Ord. Santalaceae). A small tree of southern India and the Indian Archipelago.

**Description.**—A pale yellow, thickish, oily liquid having the taste and odor characteristic of sandalwood; soluble in alcohol. **Dose**, 1 to 15 drops.

**Principal Constituent.**—An alcohol santalol (C<sub>15</sub>H<sub>26</sub>O)

**Action and Therapy.**—Oil of santal closely duplicates the effects of oil of copaiba and oil of cubeb, and will sometimes cause gastro-intestinal disturbances. It is, however, less irritant and pleasanter to take than those oils. It may occasion a red papular eruption upon the skin and the conjunctivae. Oil of santal is eliminated chiefly by the urinary and bronchial tracts, acting upon them as a stimulant and disinfectant. It is chiefly used in gonorrhoea after the active stage has passed. Occasionally it is employed in chronic bronchitis and bronchial catarrh with fetid expectoration, in pyelitis, chronic cystitis, chronic mucous diarrhoea, and in urethral hemorrhage.

## OLEUM TEREBINTHINAE.

Oil of Turpentine, Spirit of Turpentine, Turpentine Oil.

A volatile oil distilled with water from the concrete oleoresin derived from *Pinus palustris*, Miller, and other species of *Pinus*. (Nat. Ord. Pinaceae.) United States and Europe.

**Description.**—A thin colorless liquid having a characteristic taste and odor, becoming more intense with age and by exposure. Soluble in alcohol and glacial acetic acid. It readily dissolves resins, wax, sulphur, iodine, and phosphorus.

**Principal Constituents.**—A mixture of several terpenes each having the formula C<sub>10</sub>H<sub>16</sub>. Among them are pinene, phellandrene, camphene, dipentene, and limonene; some sesquiterpenes. and the fragrant ester bornyl acetate (borneol). American oil of turpentine contains principally dextro-pinene (australene), while French oil of turpentine is chiefly laevo-pinene (terebentene). Oil of turpentine emulsifies with mucilage 2 parts and water 16 parts, by thorough trituration.

**Preparation.**—*Linimentum Terebinthinae*, Turpentine Liniment. Prepared by melting and mixing together 350 parts of oil of turpentine and 650 parts of rosin cerate.

**Action and Therapy.**—*External*. Oil of turpentine may be used for most of the purposes named under Rectified Oil of Turpentine. However, the

latter is the least likely to cause unpleasant effects.

**Internal.** This preparation should not be used internally; only when rectified is it fit for internal medication. (See *Oleum Terebinthinae Recificatum*.)

## **OLEUM TEREBINTHINAE RECTIFICATUM.**

Rectified Oil of Turpentine, Rectified Turpentine Oil.

**Description.**—A thin colorless liquid corresponding to the properties described under *Oleum Terebinthinae*, which see. **Dose**, 1 to 20 drops. ( Usual dose, 5 drops.)

**Preparation.**—*Emulum Olei Terebinthinae*, Emulsion of Oil of Turpentine. **Dose**, 1/2 to 2 fluidrachms.

**Specific Indications.**— **Internal.** Dry, deep red, glazed and cracked tongue, with sordes, muttering delirium, rapid feeble pulse, repressed secretions, tympanites and hemorrhage; relaxed and enfeebled mucosa with excessive catarrhal discharges.

**External.** Pain and meteorism.

**Action and Toxicology.**—Oil of turpentine is rapidly absorbed by the skin, which it irritates and reddens, and if long in contact, may produce vesication or ulceration. These untoward effects are more apt to occur if the oil be applied hot or with friction. Applied to the skin it imparts warmth and dilates the peripheral vessels. Upon the mucous tissues its warmth is more intense and may amount to smarting pain and produce congestion. Swallowed it imparts the same glowing warmth from mouth to stomach, excites secretion, checks flatulence, induces peristalsis, and if the amount be large, provokes diarrhea. Its ingestion causes the skin to feel hot, the circulation is slightly accelerated and arterial tension increased. Being quickly absorbed it appears in the urine almost immediately after being swallowed or inhaled, imparting to that excretion the characteristic odor of violets. The vapor is irritating to the breathing passages, and, as also when taken, induces a sense of intoxication and dizziness. The secretion of the kidneys is increased, and prolonged use or overdoses may cause irritation, and inflammation of those organs, and hematuria. Poisonous amounts cause bloody urine, severe strangury, priapism, intolerable

aching in the loins, acute nephritis, cyanosis, dilated pupils, gastroenteritis, and collapse. Some individuals are very susceptible to the effects of turpentine, and, in a few, vesicular or papular rashes of an eczematous type have occurred.

**Therapy.—External.** Turpentine is rubefacient and counter-irritant and to some degree antiseptic and hemostatic. Locally applied it is valuable to assist in relieving deep-seated and other inflammations, as in pleurisy, pneumonia, bronchitis, laryngitis, pharyngitis, peritonitis, arthritis, and other congestive and inflammatory disorders; and to alleviate pain in sciatica, myalgia, pleurodynia, and various neuralgias. For these purposes equal parts or one-fourth part of turpentine may be mixed with hot lard or olive or cotton-seed oil, and applied by hand, with or without friction, as desired. It must be borne in mind that friction intensifies the local effect of the oil. A more effectual method is to apply a flannel cloth wrung from hot water and upon which has been sprinkled a few drops of turpentine. Another but more complicated procedure of preparing a “turpentine stupe” is to wring a flannel out of very hot water by twisting it in a towel until it ceases to drip. Then dip the cloth in turpentine which has been heated in a tin container immersed in another vessel of very hot water and wring out all excess of the oil. (**Caution:** Turpentine must *not* be heated on a stove or over a flame; it is highly inflammable.) Turpentine stupes are to be applied as hot as can be borne, and as soon as any discomfort or pain is felt are to be immediately removed, lest blistering occur. Turpentine, applied full strength, or diluted with a bland oil, may be used to relieve chilblains and bunions and to stimulate repair in sluggish ulcers and bed sores. Combined with linseed oil it has been advised for small burns and scalds, but as this method is painful and absorption great it is not to be commended. Liniments containing turpentine may give relief to inflamed joints in acute articular rheumatism, swollen and inflamed glands, and are popular in domestic practice for the relief of temporary lameness and muscular soreness. It is of great service locally, together with its internal use, to prevent and control meteorism in typhoid fever and puerperal peritonitis. In all inflammations with tense skin great care must be taken not to cause blistering by it. The vapor of turpentine is said to be fatal to the itch mite; and the oil vaporized from hot water gives relief in croup and chronic bronchitis. It may be used as an adjunct to treatment in diphtheria for its antiseptic and stimulant properties, and particularly in the membranous form of laryngeal diphtheria, in which

it contributes in some measure to the loosening and expulsion of the membrane.

***Internal.*** For internal use only the rectified oil of turpentine should be used. Turpentine is employed as a diffusible stimulant, antiseptic, and antihemorrhagic. It is also an anthelmintic and taeniafuge. Very small doses are stomachic, and as a warming carminative it is useful to relieve intestinal flatulence. Turpentine has a twofold action, which is important. It stimulates to normal secretory activity when there is a lack of intestinal secretion due to a semi-paretic state of the alimentary canal; and it restrains excessive secretion when due to lack of tone. It is always a remedy for atony and debility; never for active and plethoric conditions. In typhoid or enteric fever it is the best remedy known to prevent tympany and ulceration. It is indicated when the tongue is dark red, glazed, or brown-coated, hard, dry, and cracked, and there are sordes upon it, as well as upon the teeth. In this stage ulceration is active, hemorrhage impending or present, temperature high, pulse small, wiry and rapid, the mind wanders, and the urine is scanty, concentrated, and very dark. In this state there is marked depression of innervation, putrefactive gases are formed, hemorrhage imminent, prostration is great, mentality disordered, and the patient is at a very low ebb. When this condition prevails no other medicine offers such hope of relief as turpentine. From five to ten minims may be given in emulsion every two or three hours. In tardy convalescence from enteric fever, when ulcers of Peyer's glands stubbornly refuse to heal and diarrhoea continues or frequently recurs, and hemorrhage still threatens, turpentine may be given to stimulate repair and will do as much as any medicine can to hasten recovery. When hemorrhage does occur during the progress of the fever, turpentine by its hemostatic action assists in controlling manageable cases. The external use of the drug (see above) should accompany its internal administration.

Turpentine is of value in other hemorrhages of the gastro-intestinal tract—notably that accompanying ulceration of any part of the small intestines, with flatulent distention. It frequently renders good service in the hemorrhage of gastric and duodenal ulcer; and it may succeed in some cases of hematuria and menorrhagia. As these cases are seldom or never hemorrhages of plethora, but are of the passive variety that occurs in the weak and anemic subject with a disposition to tissue dissolution and relaxed blood vessels, turpentine is clearly indicated

and its record justifies its claim to efficiency. Turpentine is also one of the few drugs that have been effectual in hemorrhagic transudation into the skin and mucosa, as in purpura and scurvy, and it has a limited usefulness in hemophilia.

In renal disorders turpentine is generally contraindicated; certainly so in irritation and inflammation. It may, however, be used when a deficient secretion of urine depends wholly upon general debility; and in chronic disorders, when active inflammation has long passed, and in chronic nephritis, where active inflammation is seldom present, it may be necessary to employ a powerful stimulating diuretic. Turpentine may best serve the purpose. It must be remembered, however, that in all kidney disorders there is the ever-confronting danger of provoking suppression of the urine. Turpentine has been advised in pyelitis, pyo-nephritis, and hydro-nephritis, both for its stimulating and pus-limiting antiseptic effect. It is of more certain service in chronic cystitis and gleet, both with excessive mucous discharge.

As an anthelmintic and taenicide such large doses of turpentine are required as to render such use inadvisable; and its local employment for ascarides is too painful and less desirable in every way than weak salt solutions or infusion of quassia.

Old oxidized oil of turpentine and French oil of turpentine are reputed antidotes in phosphorus poisoning.

## **OLEUM THEOBROMATIS.**

Cacao Butter, Oil of Theobroma, Butter of Cacao.

A concrete fixed oil expressed from the roasted seeds of *TheobromaCacao*, Linné (Nat. Ord. Sterculiaceae), South America.

**Description.**—A yellowish-white, solid oil having a bland taste suggestive of chocolate, and a slight but agreeable odor. Slightly soluble in alcohol, readily in boiling dehydrated alcohol, and freely in ether or chloroform. It is composed chiefly of the glycerides, stearin and olein, with small quantities of laurin, palmitin, and arachin; and slight amounts of formic, acetic, and butyric acid compounds. The alkaloid *Theobromine* (C<sub>7</sub>H<sub>8</sub>O<sub>2</sub>N<sub>4</sub>) is sometimes present.

**Action and Therapy.**—*External.* Cacao butter is emollient, and

inasmuch as it does not readily turn rancid may be used for the protection of abraded or excoriated surfaces, and by inunction massage to improve the general nutrition of feeble infants and invalids. Owing to its melting at the temperature of the body it is an admirable base for suppositories for applying local medication in rectal, vaginal and uterine disorders.

## OLEUM TIGLII.

Croton Oil.

A fixed oil expressed from the seeds of *Croton Tiglium*, Linné (Nat. Ord. Euphorbiaceae). East Indies and Molucca, and Philippine Islands; cultivated in Europe and China.

**Description.**—A pale yellow or brown-yellow, somewhat viscid oily liquid, slightly fluorescent and having a feeble but characteristic odor. It should not be tasted, and must be handled with extreme care for it causes a papular eruption. Soluble freely in oils, ether, and chloroform, and slightly (more readily if old) in alcohol.  
**Dose**, 1 drop.

**Principal Constituents.**—Many (9 at least) glycerides of volatile acids, of which *crotonoleic acid* (C<sub>6</sub>H<sub>8</sub>O<sub>2</sub>) is the chief; fatty acids free and combined; a non-purgative but vesicant resin, *crotonol* (C<sub>18</sub>H<sub>28</sub>O<sub>4</sub>).

**Action and Toxicology.**— Croton oil is a violent irritant causing erythematous redness, intense burning pain, and an eruption of small vesicles which readily become pustular. Edematous inflammation may follow. Owing to umbilication of some of the vesicles the eruption may be mistaken for that of small-pox, but there is considerable variation in size, thus distinguishing them from that disease. Internally a single drop will quickly cause purgation. Even its external use has been followed by catharsis. An overdose produces marked gastro-intestinal inflammation accompanied by pain, griping, vomiting, and hydragogue catharsis, bloody stools, and death. Usually the vomiting prevents a fatal issue. In poisoning by it free emesis should be provoked, and opiates should be given for the pain and to restrain purgation, and demulcents to control the irritability of the mucosa. In case collapse threatens, external heat should be applied and heart stimulants be given subcutaneously.

**Therapy.**—*External.* Croton oil is now seldom used externally, and its

reckless use by the profession of years ago was one of the causes that led to the opposition which resulted in the formation of the Eclectic school in medicine.

**Internal.** Croton oil is remarkable as a rapidly acting and certain drastic cathartic, reserved chiefly as an emergency remedy when other cathartics fail. The smallness of the dose (one to two drops in bread) and its prompt and thorough effects make it the most useful purgative for the insane and the unconscious (place a drop far back upon the tongue), and as a revulsive in cerebral congestion and apoplexy, to lower intracranial blood pressure through dilation of the vessels of the bowels. It is the most efficient purgative in lead colic with obstipation, obstinate constipation when no inflammation is present, fecal impaction without intestinal obstruction, and in comatose states as a revulsive. It may be used in puerperal eclampsia and in uremia for its derivative effects. Croton oil usually acts upon the bowels in less than an hour and occasions much borborygmus. As a rule it does not greatly debilitate the patient. It is not a good cathartic in dropsical conditions because it cannot be repeatedly administered without harm. Neither should it be used, if possible to avoid it, in children and the feeble and pregnant, nor where hemorrhoids, intestinal or renal inflammation, or peritonitis are present.

## OPIUM.

Opium.

The milky exudate, air dried, obtained by incising unripe capsules of the growing plant *Papaverisomniferum*, Linné; and its variety, *album*, De Candolle (Nat. Ord. Papaveraceae). Asia Minor chiefly; also some other parts of Asia, Europe, and Africa. Cultivated.

**Description.**—Rounded, flattened, grayish-brown masses, showing a dark-brown, lighter-streaked interior, and having a somewhat nauseous bitter taste, and a peculiar narcotic odor. When fresh it is more or less plastic; when kept it becomes hard and brittle. Opium masses are of variable sizes and usually coated with adherent poppy leaves, and often with the fruits of a species of *Rumex* used in packing for transportation. The U. S. P. requires that normal, moist opium should contain not less than 9.5 per cent of anhydrous morphine. **Dose**, 1/4 to 2 grains. (*Average dose*, 1 grain.)

**Principal Constituents.**—Opium contains nineteen or twenty alkaloids, some of which are combined with meconic acid, forming meconates, some with sulphuric

acid, some free, as narcotine, a weak base. Those of medicinal interest are: (1) **Morphine** ( $C_{17}H_{19}NO_3 \cdot H_2O$ ), anodyne and narcotic; (2) **Codeine** ( $C_{18}H_{21}NO_3 \cdot H_2O$ ); (3) **Narcotine** (Anarcotine) ( $C_{22}H_{23}NO_7$ ); (4) **Narceine** ( $C_{23}H_{29}NO_9$ ); **Thebaine** ( $C_{19}H_{21}N_3O$ ) Papaverine ( $C_{20}H_{21}NO_4$ ); and Pseudo-morphine ( $C_{34}H_{36}N_2O_6$ ).

Other alkaloids are: rheoadine, cryptopine, codamine, laudanine, lanthopine, meconidine, protopine, hydrocotarnine, laudanosine, oxynarcotine, gnoscopine, tritopine, and xantholine. Besides these are the non-alkaloidal constituents: meconic acid, meconin, meconoisin, opionin; volatile oil and other common plant constituents and inorganic salts.

**Preparations.**—1. **Opium Pulvis**, Powdered Opium. A fine light-brown powder. Should contain 1/2 per cent more, but not more than 1 per cent more, of anhydrous morphine than opium. The U. S. P. permits the reduction of morphine content higher than indicated by the use of any inert diluent. **Dose**, 1/4 to 2 grains (average, 1 grain).

2. **Opium Deodoratum**, Deodorized Opium. Should be of same morphine strength as Opium Pulvis (see above). **Dose**, 1/4 to 2 grains (average, 1 grain).

3. **Opium Granulatum**, Granulated Opium. Same morphine content as Opium Pulvis (see above). Used in the preparation of tincture of opium and deodorized tincture of opium. **Dose**, 1/4 to 2 grains (average, 1 grain).

4. **Pulvis Ipecacuanhae et Opium**, Powder of Ipecac and Opium (Compound Powder of Ipecac, Dover's Powder). A grayish-white or pale-brown powder containing 10 per cent each of opium and ipecac. (Ten (10) grains represent 1 grain of opium or about 1/8 grain of morphine.) **Dose**, 1 to 20 grains.

5. **Pulvis Ipecacuanhae et Opium Compositus**, Compound Powder of Ipecacuanha and Opium (Diaphoretic Powder, Beach's Diaphoretic Powder). (Contains Opium (10), Camphor (40), Ipecac (20), Bitartrate of Potassium (160). (Each ounce of this powder contains 19 grains of Opium. Each ten (10) grains, therefore, represents nearly 1/2 grain of opium (accurately, 11 1/2 grains contain 1/2 grain of opium), 2 grains of camphor, 1 grain of ipecac.) **Dose**, 2 to 10 grains.

6. **Tinctura Opium**, Tincture of Opium (Laudanum). Contains 10 per cent of opium, almost the equivalent of 1 per cent of morphine. (Therefore 10 minims equal about 1 grain of opium, or approximately 1/8 grain of morphine.) **Dose**, 1 to 30 minims. (The large amounts should never be used as initial doses.)

7. **Tinctura Opium Deodorati**, Deodorized Tincture of Opium. Same strength as Tincture of Opium. **Dose**, 1 to 30 minims. (The large doses should never be used as an initial dose.)

8. **Tinctura Opium Camphorata**, Camphorated Tincture of Opium (Paregoric). About 4/100 per cent opium. Paregoric is about 20 times **weaker** than Laudanum (Tincture of Opium) as it contains about 1/4 grain of opium in each fluidrachm. This is practically equivalent to 1/40 grain of morphine. **Dose**: For infants, 5, 10, to 20 minims; for adults, 1 to 4 fluidrachms.

## CHIEF OPIUM ALKALOIDS AND THEIR SALTS.

**Morphina**, Morphine. Permanent colorless or white fine needles or crystalline powder, without odor and very sparingly soluble in most ordinary solvents. **Dose**, 1/12 to 1/4 grain (average, 1/8 grain).

**MorphineHydrochloridum**, Morphine Hydrochloride (Morphine Chloride). Permanent and odorless silky needles, or cubical masses or crystalline white powder, readily soluble in hot or cold water; soluble also in glycerin. Not soluble in chloroform or ether. **Dose**, 1/12 to 1/4 grain (average dose, 1/8 grain).

**Morphine Sulphas**, Morphine Sulphate. Permanent and odorless, white, silky and feathery needle crystals, freely soluble in hot or cold water; not soluble in chloroform or ether **Dose**, 1/12 to 1/4 grain (average dose, 1/8 grain).

**Codeina**.

**Specific Indications.**—**Opium and Morphine Salts.** Pulse soft and open, or when waves are short, and it gives a sensation of fullness and always lacking hardness, skin soft, tongue moist, face pale, eyes dull and expressionless and immobile or dilated; permanent glycosuria with prostration of powers; pain in incurable diseases.

**Morphine Salts.** (In addition to above.) Unbearable pain; pulmonary hemorrhage; gall-stone and renal colics; pain, with spasm; pain and shock from accidents or acute poisoning; angina pectoris; to prevent shock from surgical operations; in obstetrics to relax and quiet nervous apprehension (use with discrimination).

**Action.**—The dominant action of opium is due chiefly to its contained morphine and is spent upon the cerebro-spinal tract, quieting the functions of the cerebrum and exciting those of the spinal cord. In man the most profound effect is upon the cerebrum; in animals upon the cord. Upon the brain, if the dose be small, the first effect is a temporary excitation followed by depression resulting in sleep; if the dose be large the stage of excitation may be absent. When absorbed the drug is a depressant to the sensory filaments, benumbing them against pain, and finally the motor nerves come under its depressing power. While the exact cause of its pain-relieving properties is not definitely known, it is believed to be due to its depressive effect upon the cerebral perceptive centers and upon the conducting paths of the cord.

Through whatever channel opium or its alkaloid, morphine, is

introduced into the body-by stomach, subcutaneously, or intravenously, by rectum, or a wound or abrasion, its chief and dominant effect is upon the higher cerebral centers finally producing depression. Upon the unbroken skin it probably has no action; but when applied to mucous surfaces it is readily absorbed. Children and old persons are profoundly affected by the drug, and women, as a rule, are more susceptible than men. Nursing children may become narcotized by the milk of a mother who takes opium, and infants have been known to die within a day or two after birth when deprived of the effects of the drug as acquired in intra-uterine life.

In small doses opium does not appreciably affect the circulation. Full doses, however, stimulate the vagi, both centrally and peripherally, causing a slow action of the heart, the force of which is also increased by direct stimulation of the heart-muscle and the intracardiac ganglia. To the increased heart action is due the rise in blood pressure. Toxic doses paralyze both the pneumogastrics and the heart, the pulse then becoming excessively rapid and weak.

The effect of morphine upon the respiration is very important, and therein lies its danger as a lethal agent. In very small doses it is said to stimulate respiration, but large doses powerfully depress breathing, and in fatal opium poisoning death is usually due to asphyxia through centric respiratory paralysis.

Morphine causes profound myosis when given in full doses. This is due to stimulation of the oculo-motor centers. Usually just preceding death paralysis of these centers results in dilation of the pupils.

Opium diminishes all the secretions except that of the sweat. That normal diaphoresis remains unabated or is increased is probably due to dilation of the blood vessels of the skin. Opium causes retention, rather than suppression, of the urine, though the secretion of the urine is thought to be somewhat inhibited by the drug. Opium very pronouncedly checks the secretions of the intestines and arrests peristalsis, chiefly by stimulation of the splanchnic inhibitory nervous apparatus. The result is constipation. On the other hand toxic doses may paralyze the inhibition and thus stimulate peristalsis.

Opium moderately elevates temperature unless the dose be toxic. In that event the body-heat is reduced. Opium limits tissue-waste by

decreasing the output of urea and other nitrogenous detritus.

Probably most of the morphine ingested is oxidized in the body; that which is eliminated, partly as morphine, is voided by way of the stomach and kidneys. Morphine is rapidly eliminated into the stomach when a poisonous dose is taken, so that it is well to bear this fact in mind and prevent its reabsorption by frequently washing out that organ.

Very small doses of morphine, or its equivalent of opium, induce a primary stimulation or excitation which may or may not be followed by a sedative effect. Medium doses augment the size and slow the velocity of the pulse, increase cutaneous heat, render the mind active, and produce a general sedative effect upon the whole body. The higher brain centers are profoundly impressed, the intellectual faculties becoming sharper, ideas more brilliant, precise, and under control, the power of application more intense, and the conversational propensities stimulated. The imaginative and creative faculties are, if anything, exaggerated, while judgment, steadiness and coordinate thought and reasoning seem to be more in abeyance than usual. If the dose be small this stage is never passed. Under large or full doses, however, this state of excitation and well-being abates, leaving a calm, careless, indifferent, and pleasurable sensation, with a series of fleeting ideas, succeeded, after a longer or shorter interval, by a dream-filled sleep which may last for several hours. Upon awakening the patient may complain of dizziness and nausea, trembling, headache, and loss of appetite. Most of the secretions will have become more or less suspended and constipation induced, though the sweat glands will retain their activity. From this state the patient awakens when the drug has spent its force, and if the drug be not repeatedly resorted to no harm will have been done. If there is pain the patient will have lost all sensibility to it while under the influence of the drug, for morphine is the most perfect analgesic known. If the dose be large the sleep from morphine may be dreamless.

**Toxicology.**—When a toxic dose of morphine or opium has been taken there occur symptoms which may be grouped under three stages:

The first, or stage of excitation, may be absent; or if present, be of very short duration.

In the second stage, depression speedily comes on with a full and slow pulse, suspension of the cerebral functions, overpowering drowsiness followed by a deep sleep with slow and stertorous breathing, suffused, flushed or cyanotic countenance, strongly contracted pupils, warm dry skin, and muscular prostration. The patient may be aroused by shaking, flagellation, or loud shouting, but as soon as undisturbed sinks again into a deep slumber. If he is not kept awake and breathing stimulated, he passes almost imperceptibly into the final or lethal stage.

In the third or lethal stage coma is absolutely complete. The face, at first turgid or livid, becomes pale and the lips livid, the extremities are cold, the pupils minutely contracted (pin-point myosis), the dry skin gives way to the sweat of death, the breathing becomes progressively slower and slower, shallow and labored, until it finally ends in a soft or almost imperceptible respiration. Death then takes place from respiratory paralysis or asphyxia, though the heart stops almost immediately after breathing ceases.

The treatment of acute opium poisoning must be prompt and unremitting. Owing to the fact that the vomiting centers and the peripheral nerves of the stomach are depressed by toxic doses of opium, emetics do not act well. They should be tried, however, as well as other means of inducing vomiting, as tickling the throat, etc., but should not be relied upon. Washing out the stomach by lavage is to be preferred, and should be repeated at short intervals because morphine is readily eliminated from the blood-current into the stomach, and continuation of the poisoning may be maintained through its reabsorption. In the meantime a solution of potassium permanganate (3 to 5 grains in a half pint of water) should be given to destroy the morphine, and strong black coffee administered freely by mouth and by rectum. Tannic acid only imperfectly precipitates the morphine, and some of its salts not at all. The all-important necessity is to keep the patient breathing, as depression of respiration is the most dangerous feature of opium poisoning. For this purpose strychnine sulphate (1/30 to 1/10 grain) preferably, or atropine or cocaine is to be used. Ammonia or alcohol may be needed to support both the heart and respiration. While death probably does not take place because of the deep sleep or narcosis, it is absolutely necessary to keep the patient awake in order to have his co-operation and voluntary effort to keep up breathing, and thus fight the depression of the respiratory centers. The patient should be walked

between two attendants constantly, and flagellated with hot and cold wet towels, or switches, artificial respiration performed or the faradic current applied to the skin. In all of these efforts, however, human limitations must be considered, and there is no necessity for bruising or lacerating the flesh, or pushing annoyance to exhaustion of the patient. The latter only favors deeper narcosis, and if the patient goes to sleep his voluntary efforts to breathe by sheer will power are lost and death is the penalty. To prevent reabsorption of the drug from the urine, catheterization should be resorted to several times.

**Therapy.—External.** Notwithstanding the fact that opium and its alkaloids in watery solutions are probably not absorbed by the skin, and therefore do not impress the peripheral cutaneous nerves, lead and opium wash (Tinctura Opii and Liquor Plumbi Subacetatis each 2 fluidounces; water to make 16 fluidounce) is a common application intended to subdue pain and act as a local sedative in contusions, sprains, bruises, articular inflammations, and in erysipelas and other local inflammations. For this purpose it has never attained popularity among Eclectic practitioners. This practice has been well expressed by Wilcox as “simply a concession to popular sentiment”.

Upon mucous structures, however, the anodyne effects of opium are more perfect. In suppository or ointment opium is often included to relieve pain in hemorrhoids and anal fissures and to check reflex vomiting. Sometimes solutions of morphine are used in painful ophthalmias and as an injection for gonorrhoea. It has nothing to commend it for either purpose, and its use in this manner is not wholly unattended by danger.

**Internal.** The therapeutic virtues of opium are due chiefly to morphine and but little to the associated alkaloids, excepting codeine. To the narcotine is due the occasional tetanic action of the drug. The uses given below, therefore, will apply to both morphine (chiefly) and opium (where a slower effect is desired), and to the latter when specifically stated.

The therapeutic uses may be conveniently grouped under the following necessities: (1) To relieve pain and distress; (2) to allay peripheral irritation and inflammation; (3) to restrain excessive or hyper-secretion; (4) to control spasm and convulsions; (5) to stop hemorrhage; (6) to produce sleep; (7) to cause diaphoresis; (8) to

maintain strength under systemic strain and to favor metabolic functioning.

While both opium and morphine may be used arbitrarily for the relief of severe pain, they should for most other purposes, and even for pain, when possible, be employed with due regard for their specific indications. To prescribe them intelligently it should be remembered that “the patient with the *hard*, small pulse, the dry tongue, dry contracted skin, the flushed face, bright eye, and contracted pupil, is always injured, temporarily at least, by the administration of opium. On the contrary, the patient will be benefited when the pulse is *soft* and open, or when small the waves are short, and it gives a sensation of fullness and always lacking hardness, the skin is soft, the tongue moist, the face pale, and the eyes dull, expressionless, immobile, and dilated.” Under these conditions pain and spasm are much more readily controlled and the so-called effects of idiosyncrasy are minimized. While nearly always pain yields to morphine and its use may be absolutely imperative, it yields much better and kindlier and to smaller doses when the indications as given are present, and with less general harm to the patient. For other uses than for the relief of pain, as far as possible one should be governed by the established specific indications. As the chief therapeutic value of opium resides in morphine, the alkaloid will be preferred except where opium or one of its combinations is designated.

Morphine (usually administered in the form of the sulphate) is the best and most certain remedy for *pain*. As such, however, it should be reserved for emergency uses and not be prescribed for slight and ill-defined conditions, for persistent, protracted, or oft-recurring neuralgias, for ordinary menstrual distress, or for long-continued pain from any cause or of any character, except in incurable diseases. In most painful states, except excruciating paroxysmal pain, other agents should be used if possible, and morphine only as last resort. In neuralgias, with the possible exception of sciatic neuralgia and tic douloureux, other drugs, such as aconite, gelsemium, rhus, arsenic, acetanilid or phenacetin are far preferable, not because they are equally as analgesic, but because they do not engender a pernicious habit—a condition sure to be established when morphine is given for more than a very brief time for a temporary purpose.

For *pain with spasm* morphine is the most certain and most effectual

remedy known. It is absolutely imperative for the relief of severe gall stone or renal colics. Not only does it relieve the excruciating suffering, but it relaxes the gall duct and the ureters, so that the concretions, if at all voidable, may be more readily passed. As a rule, such concretions as give rise to spasmodic pain are voidable, else they would not be small enough to engage in the passages, and the paroxysmal pain, shifting in position, is a fair indication that they are passing. During these ordeals the patient should be kept under the full influence of the drug, one-fourth to one-half grain of morphine sulphate being given hypodermatically, and repeated as needed, until the distress has abated. Patients suffering from severe pain stand opiates in doses that would prove disastrous under other conditions; still the doses should not be so closely plied that an overdose is duplicated near the termination of the passage of such concretions; the latter usually passing in from thirty-six to forty-eight hours.

Morphine may be used to relieve the pain and quiet nervous agitation and relax muscular contraction in fractures, lead colic, and the crises of locomotor ataxia. In angina pectoris it is probably the most useful remedy. While contraindicated in ordinary congestion and inflammation of the brain and meninges, it may prove the only agent that will give relief from the intense pain of acute simple meningitis (early stage before effusion) and in cerebro-spinal meningitis or "spotted fever". It is sometimes necessary in acute peritonitis, especially when traumatic, where the pain is intolerable and bowel movements aggravate, and in acute appendicitis, when nothing else will relieve. After an undoubted diagnosis has been made and a case is to be operated upon, morphine is permissible to quiet the pain, relax rigidity, prevent shock, and allay the agitation and apprehensiveness of the patient. It should not, however, be used too early or, if possible, in the first attack of acute catarrhal appendicitis to the extent that the symptoms may be so obscured as to mislead the patient and the physician as to the true condition of the disease. If other expedients can be employed morphine should be withheld, as far as possible, in appendiceal inflammations.

In very severe gastralgia morphine with bismuth gives prompt relief, but should not be repeatedly used in oft-recurring attacks. It is sometimes demanded in ulcer of the stomach, especially if hemorrhage occurs. In cancer of the stomach, or any other organ of the body, it is a most merciful drug, and there should be no compunction concerning its

use after an unquestioned diagnosis has been made by every means of precision possible, including radiography.

Morphine is to be employed as necessity dictates, to alleviate the pain from irritant poisons, and of severe burns and scalds, both external and internal.

Morphine is frequently employed preceding the use of anesthetics, especially chloroform, to increase their efficiency, allow lesser dosage, and to prevent shock. More recently the tendency has been to discourage this use of the drug on account of the shallow breathing induced by it, thus retarding the prompt induction of proper anesthesia. After operations small doses may be given to produce rest, quiet pain and agitation, and to prevent shock and irritative febrile reaction. Frequently codeine serves the purpose better than morphine and is less restraining to the secretions. It is the custom with many obstetricians to inject one-eighth grain of morphine during the severer periods of the ordeal of parturition. It gives rest, relaxes a rigid os, and stimulates normal contractions; besides it gives comfort and assurance to the woman, and many contend that it in no way harms either the mother or the child. Personally, however, we believe that it often narcotizes the child and results in a deeply cyanosed state and stupor from which it is difficult to resuscitate the child. Many of these cases are attributed to imperfect anatomic evolution of the circulatory tract (blue babies), when in fact they are morphinized babies.

Opium and morphine induce sleep in insomnia from almost any cause; but they should not be so employed except where sleeplessness is due to pain. Other forms of insomnia yield to safer hypnotics. It may, however, be needed in the insomnia of acute melancholia, and in that accompanying distressing incurable heart-disease, with pain and dyspnea, and in the sleeplessness of phthisis and cancer. If excitement is great in maniacal conditions with insomnia, morphine alone may aggravate, and chloral will act better. Sometimes a small dose of the former may be combined with a less than usual dose of the latter and become effective in producing sleep, the combination acting better than either drug given alone.

Both opium and morphine may be used to relieve peripheral irritation, such as gives rise to cough and asthmatic seizures, and in chronic bronchitis and phthisis. Sometimes codeine is preferable to either. For

cardiac asthma and bronchial asthma, without pulmonary edema, morphine is the promptest remedy that can be used. The state of the kidneys, however, should be determined, and if the renal functions are bad the drug must be cautiously employed, if at all. Morphine and deodorized tincture of opium are sometimes of value, in small doses, to relieve acute attacks of vomiting, but they should not be employed where nausea is of daily or frequent occurrence, as in that of pregnancy. In fact, opiates have little or no control over the latter condition. Morphine is a remedy for spasmodic and paroxysmal dyspnea, especially that experienced upon assuming the reclining position. It is of no value for continuous and persistent shortness of breath, and examination in such instances will usually reveal a chronic kidney disorder which makes the use of the drug inadmissible.

When constipation is due to a spasmodic contraction of the unstriated musculature of the intestines, morphine is distinctly useful. This is particularly evident in the results obtained from it in lead constipation. Sometimes a similar condition of cystic spasm is responsible for retention of urine; then morphine also relieves.

Morphine is a drug of preeminent importance in convulsions. It is by far the most generally useful remedy in puerperal eclampsia. Here it is not contraindicated by the usual restrictions for its employment. In traumatic tetanus the patient should be kept fully under the influence of morphine.

Morphine must be avoided if possible in uremic convulsions due to chronic nephritis, with uremic or cardiac dyspnea, or in uremic insomnia. When uremic eclampsia occurs in acute nephritis it may be cautiously used if other agents prove ineffective.

Opium is of value in delirium tremens, but has been recklessly used. As one looks back over the history of therapy it appears that many deaths from this complaint can be attributed to this drug alone. This is largely owing to the enormous doses that were used and the utter disregard of specific conditions. If the dipsomaniac cannot take food or cannot sleep he will die; if there is kidney disease, opium will probably kill; if there is a flushed countenance, blood-shot eyes, wild and furious delirium, pain in the head, red, dry and turgid tongue, and full bounding pulse, opium is likely to kill the patient. If, on the contrary, the skin is relaxed and moist, the circulation feeble, the face pale and

the tongue moist and dirty, opium is a safe drug. The dose should not exceed one-eighth grain of morphine, or one-fourth grain at the most, every four or six hours, until sleep is induced.

Opium and morphine are much less commonly used than formerly in acute inflammations. Sometimes they are demanded in acute pleurisy and in pericarditis, and no drug so effectually helps as a single small dose of morphine in the excruciating pain of acute articular rheumatism that does not readily yield to the salicylates, macrotys, or bryonia. Both the diaphoretic and Dover's powder are useful here, and the former is the less likely of the two to provoke nausea. Formerly opium and its alkaloid were much employed to allay inflammation and quiet peristalsis, as well as to annul pain, in acute peritonitis, but of late years it has fallen into disuse.

Opium, preferably to morphine, is used in one form or another in excessive diarrheal and other exhaustive discharges. When a persistent summer diarrhea, with much undigested food, or an intractable mucous diarrhoea is first treated by thorough catharsis, then opium may be given, by mouth, to restrain further abnormal secretion. It has, however, proved a pernicious drug in the hands of those who unwisely use it under all conditions when safer specific means would have been far more effectual. It is a good drug, however, in persistent serous diarrhoea. An injection of morphine is the promptest drug for the relief of cholera morbus. Together with the compound tincture of cajuput this forms our best treatment. While minute doses have been advised in cholera infantum, the drug should under no circumstance or in any dose be administered to infants. In Asiatic or true cholera an injection of morphine (one-eighth grain) often checks the cramps, vomiting, and rice-water discharges. In choleraic diarrhoea, rendering one very prone to attacks of true cholera during epidemics of the latter, Locke advised: Rx Tincture of Opium, Spirit of Camphor, Spirit of Peppermint, Tincture of Kino, 1 fluidounce each Tincture of Capsicum, 1/2 fluidounce; Neutralizing Cordial, 3 1/2 fluidounces. Mix. Sig.: One teaspoonful every half hour in severe cases; three times a day in mild attacks.

Opium is a useful drug in polyuria, especially that of true diabetes, in which the drug restrains both the quantity of urine and the output of sugar. For this purpose its continuous use is permissible only in confirmed glycosuria, and it should not be employed in cases in which

sugar temporarily appears in the urine. Only in incurable conditions, in which every consideration for consequences has been invoked, should opium be used in sugar diabetes. Then it is perfectly permissible, provided it gives comfort and rest to the patient. By many it is considered the best drug in diabetes, the disease establishing a tolerance for the opium, and it is given in ascending doses as long as it does good and meets urgent conditions. Singularly it is far less effectual in simple polyuria or so-called diabetes insipidus. Probably its effect in giving rest to the nervous system accounts for its value in diabetes mellitus.

***Diaphoretic Powder.***—We unreservedly assert our preference for this opiate, when an anodyne of this class is to be used. It will not take the place of morphine when pain is intense and must be quickly relieved; but it may be employed (whenever opium is indicated by the open pulse and moist tongue) to relieve the milder degrees of pain. It acts without the deleterious effects derived from morphine and other opium preparations. Though this product has been modified from time to time, it contains to-day, as in the original formula by Dr. Beach, powdered camphor, opium, ipecac and potassium bitartrate—in such nicely balanced proportions that the system is gradually prepared for the action of its chief ingredient opium. Being a decided sedative, both of temperature and nervous excitation, it may be used even where there is a high degree of fever. It is unquestionably the best pain-reliever for continuous use in pleurisy and pneumonia. The ipecac allays irritation, and if the doses be not too large or too often administered it will not usually cause nausea or emesis. Diaphoretic powder, as the name indicates, promotes activity of the skin. Diaphoretic powder not only relieves pain, but quiets nervous irritability, allays cough, facilitates expectoration, and thus proves an ideal sedative. It is the best remedy of its class for children. Diaphoretic powder, with an equal bulk of bismuth subnitrate, is the best remedy we have found for profuse irritative diarrhea and for the watery diarrhea of intestinal la grippe. When the patient cannot rest and there are no contraindications, it may be employed to restrain excessive diarrhea in typhoid fever and to relieve nervous unrest and promote sleep. Taken early and in rather free doses it will check a cold. It strongly assists macrotys in the relief of myalgic and rheumatic pains, being the safest anodyne with which to relieve the pain in acute inflammatory rheumatism. There are few cases of inflammatory and painful conditions in which it will not give relief, and that without the danger

attendant upon the use of many of the anodynes. It is an ideal anodyne and relaxant in various forms of colic and in severely painful menstruation. It should not, however, be used every month, or for the milder attacks of pain, lest a habit be induced. In that form of menstrual pain or ovarian irritation attended with great nervous excitability simulating hysteria, the powder infused in hot water and given hot in quite liberal doses will bring about relief quicker than any agent we know of. Singularly, when administered very hot its tendency to provoke nausea is slight, but when given lukewarm or when warm drinks follow its administration, emesis is very apt to be induced. It is of especial value in after-pains. Its effectiveness as a preparator for the administration of quinine is one of its many virtues. The ordinary dosage is from two to ten grains in cold water, repeated as the necessity of the case demands. Diaphoretic powder, known in Eclectic pharmacy as the *Pulvis Ipecacuanhae et Opii Compositus* of the American Dispensatory, was introduced by Dr. Wooster Beach, and was undoubtedly a modification of the celebrated Dover's powder.

***Dover's Powder.***— “Dover's powder, according to the dose administered, is an excellent stimulant, sedative, anodyne, and narcotic. It has a better action than either of its chief ingredients administered separately. It is a very good agent to improve the quality of the skin, the necessary moisture being induced by the ipecac to insure the favorable action of opium, for the specific indication for the latter is a moist skin and tongue, and soft, open pulse. As a pain-relieving agent and to promote sleep, it may be used where opium alone would not be tolerated. Though profuse perspiration may be produced by it, it is also capable of checking that secretion as shown by the favorable action of five-grain doses of the powder given to control the colliquative sweats of phthisis. It should be given a half hour before the sweating begins. Dover's powder sometimes causes sickness at the stomach, and should never be followed immediately after its administration with warm drinks, but they may be used later, if desired. As a painreliever, or stimulant to the internal organs, or as a hypnotic, it is admissible when there is no nausea, inflammation of the brain, or high temperature. It is an efficient drug in rheumatism, the incipient stage of inflammations, and to control cough. Hot applications to the abdomen and five-grain doses of Dover's powder with one grain of camphor, every one half or one hour, give marked relief in dysmenorrhea. Without camphor, it is very efficient in amenorrhea from cold, being used together with external heat. It allays

nervous excitation in cases of abortion, and assists in controlling uterine and pulmonary hemorrhages; two or three grains of the powder, with a like quantity of quinine, forms an efficient treatment in neuralgia, with hot, dry skin. In dysentery, it assists the action of other remedies, as well as controlling peristaltic movements, while in irritative diarrhea, after a mild laxative, it controls any spasmodic bowel complications that may supervene. It may be used in enteritis, both to control the inflammation and the movements of the bowels. It is useful in the early stage of renal catarrhal inflammations and in granular degeneration of the kidneys, chiefly for the purpose of maintaining a good circulation and a moist condition of the skin. Dose, two to ten grains, preferably in capsules." (From a previous article by the author in the *American Dispensatory*.)

## OXYDENDRON.

The leaves of *Oxydendron arboreum*, De Candolle (Nat. Ord. Ericaceae.) A handsome tree of the eastern third of the United States. *Dose*, 1 to 60 grains.

**Common Names:** Sourwood, Sourwood Tree, Sorrel Tree.

**Principal Constituents.**—No satisfactory analysis has been made of sourwood leaves.

**Preparations.**—1. *Specific Medicine Oxydendron.* *Dose*, 1 to 60 minims.  
2. *Extractum Oxydendri.* Extract of Sourwood. *Dose*, 3 to 6 grains.

**Specific Indications.**—Anasarca, ascites, and other forms of dropsy; urinary difficulty of old men; painful, burning micturition, with scanty flow of urine.

**Action and Therapy.**—Sourwood is a cooling diuretic and a tonic to relaxed capillaries. It is said to give relief in bowel disorders caused by a hyperaemic condition of the viscera, or to colds. It relieves the unpleasant urinary troubles of old men, when due to prostatic and cystic disorders of an atonic type—with painful micturition, scanty urine, meatal burning, and blood in the urine, the latter passing drop by drop. Its reputation rests largely upon its asserted value in anasarca and other forms of dropsical effusion, conditions in which it has been somewhat overrated.

**monographs extracted from**  
**The Eclectic Materia Medica, Pharmacology and Therapeutics**  
**by Harvey Wickes Felter, M.D. (1922)**

NOTE: Throughout these monographs are references to “Specific Medicines”. In some respects Specific Medicines are the single reason that Eclecticism survived so long in the face of “Organized Medicine” and were still being manufactured for the surviving Eclectic M.D.s as late as the early 1960s. Using up to eight organic solvents and the Lloyd Extractor, Specific Medicines represented the strongest possible concentration of the bioactive aspects of botanicals that would stay in a colloidal solution.

Perfected over four decades by John Uri Lloyd, each Specific Medicine was prepared according to the nature of THAT specific plant. You cannot translate a Specific Medicine into “tincture” or “fluidextract”. The latter are GENERIC or standard strengths applied across the board to ALL botanicals. A Specific Medicine represented the greatest strength, without degradation, for a PARTICULAR plant, using anywhere from several to all of the solvents to achieve this. The Eclectic physician was trained to use botanicals in an oftentimes rural setting, and these medicines had to resist breakdown in the deepest winter and the hottest summer. Since they needed to contain even the most ephemeral constituents of a plant remedy, Lloyd approached each plant separately.

The amazing quality of these preparations assuredly maintained the Eclectic Movement long after others had faded. Lloyd’s recipes were Patent Medicines, were not “official”, and when relatives finally closed down the Lloyd Brother’s Pharmacy in Cincinnati, these formulae disappeared. One of the hottest topics for many years amongst professional herbalists in North America and Europe has been “So who has the Lloyd Formulas, already?” Since we cannot access them, the best approach is the use of well made tinctures, capsules or tea. I might suggest the preparations and doses recommended in my Herbal Materia Medica 5.0 as a starting place...in many respects I am perhaps a “Neo-Eclectic” at heart, and have tended to follow the later Eclectics in my approach to plants and dosages.

Michael Moore  
Bisbee, Arizona  
October, 2001